

Guidelines for Creating a Memorandum of Understanding and a Standard Operating Procedure between a National Meteorological or Hydrometeorological Service and a Partner Agency



**World
Meteorological
Organization**

Weather · Climate · Water

WMO-No. 1099

PWS-26

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1. INTRODUCTION

The Commission for Basic Systems Open Programme Area Group on Public Weather Services (PWS) Expert Team on PWS in Support of Disaster Prevention and Mitigation (CBS/OPAG-PWS ET/DPM) held a special session in which the team members, representing a number of National Meteorological and Hydrological Services (NMHSs) of WMO Members and representatives of respective disaster management authorities from those countries, presented in-depth reports on working arrangements between these agencies.

In all cases, it was very clear that a formal arrangement to guide the joint activities of these organizations was essential in support of the provision of quality meteorological information and services, and, in particular, warnings to enable citizens to make effective decisions regarding their health, safety and economic activity.

Similarly, considering the crucial role of media in the delivery of warning and other essential meteorological information, it is important that NMHSs and respective national media organizations put in place formal agreements that will guide their collaborative work in serving the public. The CBS/OPAG-PWS Expert Team on Communication, Outreach and Public Education Aspects of PWS (ET/COPE) therefore decided to collaborate with the ET/DPM to prepare a set of guidelines, for use by NMHSs, for the establishment of such formal agreements between a National Meteorological or Hydrometeorological Service (NMS) and a partner agency. The result of this collaboration is presented in this document, whose purpose is to provide guidance to NMHSs on how to establish a formal agreement, called a “Memorandum of Understanding” (MOU), with a partner agency such as a Disaster Management Agency or media organization.

An MOU formalizes the relationship between an NMS and a key service delivery partner, it defines mutual roles and responsibilities, and fosters a strong partnership from which both parties derive benefits. Developing an effective MOU requires a good mutual understanding of each party’s mission and objectives. In many cases, it includes a definition of any exchange of services and resources. This document provides guidance on how to develop a successful MOU and what its key components should be.

These guidelines include a generic template that describes the important parts of an MOU. The template should be used as a guide, rather than as a prescriptive recipe. The particular circumstances of an NMS and its partner agency will determine which components of the template should be included and what provisions should be addressed. As a further guide, two instructive examples of MOUs are included, between an NMS and a Disaster Management Agency and between an NMS and a media organization.

In some instances, an NMS may wish to develop an agreement that focuses more upon operational or procedural matters than an MOU traditionally addresses. For example, Standard Operating Procedures (SOPs) might be agreed upon which describe in detail how the two agencies will routinely work together during a real-time event. This document describes some of the principles to be considered when preparing such an agreement and includes a real example from an NMS.

2. GENERAL PRINCIPLES FOR DEVELOPING AN MOU

Before discussing the structure and content of an MOU, it is important to bear in mind several over-arching principles:

- There needs to be a mutual desire by both parties to enter into an MOU, with a shared and equal commitment to working together;
- The provisions in the MOU should not conflict with any existing arrangements between the parties, nor with any arrangements either party might have with other organizations;
- The structure and content of the MOU should be clear, unambiguous and easy to review and update. The simpler and more straightforward the language, the less likelihood there is for misunderstanding or confusion;
- An MOU is a 'living' document and should include provisions for keeping it under review and up-to-date;
- Since an MOU is a formal agreement, it should be developed with the assistance of relevant legal, financial or other relevant experts. This is to ensure that the provisions are sensible and do not have unintended implications or produce unreasonable expectations; and,
- In some instances, the MOU may be between more than two parties, e.g., a three-way agreement between an NMS, a Disaster Management Agency, and a media organization. This will add some complexity to the process of developing the MOU since it will be a three-way negotiation. Nevertheless, the general principles outlined in this document still apply.

3. RECOMMENDED TEMPLATE FOR AN MOU FORMULATION

The following template is provided as a guide to assist the development of an MOU between an NMS and a partner agency. It provides a framework for how the MOU might be structured, and includes the key elements that it might contain. Depending on the specific situation, some of the elements may not be necessary, additional ones might be required, and the ordering of each component might differ. Nevertheless, by using this template, together with the sample MOUs (see appendix), an appropriate and effective MOU that fits the need of an NMS and its partner agencies should be readily achievable.

TEMPLATE FOR AN MOU BETWEEN AN NMS AND A PARTNER AGENCY

1. Identification of parties

Formal identification of the parties to the agreement and a broad description of their relationship.

2. Background

Statements defining the context and general objectives and benefits of the MOU. A brief summary of the circumstances leading to the creation of the MOU might be included here. The status of the MOU in relation to other existing agreements should also be mentioned.

3. Definition of terms

List of agreed definitions and interpretation of relevant terminology.

4. Legislative context

Statement on the extent to which the MOU is legally binding, as well as reference to any relevant legislation to which the parties are subject. This ensures that the responsibilities outlined in the MOU are compatible with the mandate and duties of each agency.

5. Aim of the MOU

Statement on the expected outcomes of the MOU, including intended societal benefits.

6. Scope of the MOU

Statement on the boundaries of the MOU – what is included and what is excluded in the MOU. Consideration should be given to any boundaries that are defined by existing MOUs and the scope carefully described to ensure there is no overlap or contradiction. Some of the areas to be addressed here might include under what circumstances the MOU does and does not apply, whether it applies across the whole of each organization or just a part, whether the provisions only apply at certain times of year, or in particular locations or for particular activities.

7. Joint undertakings and responsibilities

Statements describing the responsibilities and actions of each Party, including the following elements:

- (a) A description of the cooperative activities of each Party under the MOU;
- (b) A description of any resources exchange arrangement;
- (c) Statements on timing, including relevant timelines, milestones and agreed frequency of cooperative activities; and,
- (d) Protocols for communicating between the Parties.

8. Terms of operation of the MOU

Statements describing how the MOU will be administered, including the following elements:

- (a) Term/duration of the MOU;
- (b) Cancellation provisions;
- (c) MOU review process;
- (d) Dispute resolution, including (or excluding) legal actions, negotiations, consultations, or executive actions;
- (e) Waivers and rights involved in the MOU to make compensation claims related to the execution of the MOU against one another;
- (f) Intellectual Property provisions;
- (g) Privacy provisions; and,

(h) Methods for transferring funds (if applicable).

9. Official endorsement by each Party

Signature block or similar that provides formal endorsement of the MOU, signed by appropriately delegated representatives of each Party.

10. Focal Points

Information on the names and contact details of nominated people to handle technical, managerial and/or administrative aspects of the MOU.

11. Additional annexes as required

Supplementary material that provides more detail on relevant matters, including such things as agreed work plans, milestones, timelines, budgetary matters (if required), etc. The MOU should contain a provision that stipulates that the annexes form an integral part of the MOU. If there is a need to change the annexes, this shall be done in accordance with the amendment principles contained in the main body of the MOU.

EXAMPLE 1

MEMORANDUM OF UNDERSTANDING BETWEEN THE METONIAN METEOROLOGICAL SERVICE AND THE METONIAN BROADCASTING CORPORATION¹

This Memorandum of Understanding (MOU) is entered into by the *Metonian Meteorological Service* (MMS) and the *Metonian Broadcasting Corporation* (MBC), hereinafter referred to as “the Parties”.

1. Background

This Memorandum of Understanding (MOU) is entered into by the Parties in recognition of the potential opportunities for the improved safety of the community through closer cooperation between the Parties. The MMS is responsible for the provision of official severe weather warnings, and the MBC is responsible for the broadcast of these warnings to the general community. This MOU provides a framework for effective collaboration between the Parties to ensure that warnings are received and understood by the public in the most effective way to minimize loss of life and property.

2. Definition of terms

2.1 In this MOU, unless the contrary intention appears, the following definitions will apply:

Business Day - any day that is not a Saturday, Sunday or a public holiday.

Commencement Date - the date upon which this MOU is signed by both Parties.

Dispute Notice - a notice given in accordance with clauses 7.4 to 7.9.

MOU - this memorandum of understanding as amended from time to time.

Term - the term of this MOU set out in clause 7.1.

2.2 In this MOU, unless the context indicates to the contrary:

- Words importing persons include a partnership and a body whether corporate or otherwise.

3. Legislative context

3.1 This document is not intended to create legal relations or constitute a legally binding contractual agreement between the Parties. Nothing in this MOU is intended to impose any legal relationship, rights, duties, sanctions or liability on any Party or be the subject of litigation.

3.2 The Parties acknowledge that MBC’s undertakings under this MOU will be subject to the MBC Governing Rules. MBC Governing Rules refers to all laws and MBC Board directions regulating or otherwise affecting the conduct of the MBC, including the National Broadcasting Act and the MBC’s editorial policies.

¹ Fictional organizations

4. Aim of the MOU

The aim of the MOU is to ensure that the MMS and the MBC will work closely together to improve the safety of the community through a better flow of weather-related information, and to try to reduce the burden on both organizations of sharing information.

5. Scope of the MOU

5.1 This MOU applies to the provision and broadcast of severe weather warning information to the general public.

5.2 This MOU forms the understanding between the Parties on the subject matter. Any previous MOUs are superseded by this MOU.

5.3 The Parties acknowledge that warning messages are entirely separate from editorial, news and other content on the MBC networks. This MOU has no effect whatsoever, express or implied, directly or indirectly, on MBC's journalistic independence.

5.4 No other agreements or working arrangements entered into with third persons by the Parties will be affected by this MOU.

5.5 The Parties acknowledge there will be other broadcasters that may broadcast emergency information.

6. Joint Undertakings

6.1 The Parties agree to undertake the following activities:

- (a) Arrange regular senior operational meetings to discuss organization and industry developments, future directions, community expectations, research and feedback;
- (b) Arrange annual senior briefings to discuss community warnings and seasonal forecasts to enable both organizations to plan for the receipt and distribution of warnings in the most efficient and effective way;
- (c) Arrange single points of contact at each organization through who contact information can be distributed;
- (d) Share information that might lead to a better understanding of the way weather-related information is distributed and received by the public; and,
- (e) Identify opportunities to maximize the efficiency of information exchange between the Parties.

Mechanism

First points of contact (non-emergency)

6.2 Each Party will appoint one senior manager as the first point of contact for all general non-emergency-related matters. Either Party may replace its representative by giving notice of a change to the other Party.

MBC contacts for emergency and warning matters

6.3 The MBC will arrange for the local Newsroom Manager to be the first point of contact for the MMS for all emergency and warning matters.

7. Terms of operation of this MOU

Term

7.1 This MOU will begin on the commencement date and will continue until such time as it is terminated by the Parties in accordance with clauses 7.9 and 7.10.

Review

7.2 This MOU will be reviewed annually by the Parties.

7.3 No variation or amendment of this MOU is effective unless it is agreed in writing between the Parties.

Dispute resolution

7.4 For the day-to-day operation of this MOU, in the first instance, the Parties will address any operational difficulties, disputes, issues or disagreements together in a transparent manner through open discussion.

7.5 If a dispute cannot otherwise be resolved through open discussion, a Party claiming that a dispute has arisen under this MOU, between the Parties or the way they are interacting, must give a Dispute Notice to the other Party, specifying the nature of the dispute.

7.6 A Dispute Notice may be withdrawn at any time by the Party that gave the Dispute Notice.

7.7 Within ten Business Days from the date of issue of the Dispute Notice, the representatives of each Party will use their best endeavours to resolve the dispute between themselves at an operational level.

7.8 If the representatives of each Party are unable to resolve the dispute within 20 Business Days from the date of issue of the Dispute Notice, the representatives of each Party will refer the dispute for resolution to their respective Managing Directors (or equivalent position holder).

7.9 Even if a dispute is taking place, the Parties to the dispute should make best efforts to continue to comply with this MOU.

Termination

7.10 This MOU may be terminated by one Party by giving two months' notice to the other Party.

7.11 If a Party does not agree to the termination, then the Parties agree that this will constitute a Dispute to be resolved in accordance with clauses 7.3 to 7.8.

Privacy

7.12 The Parties will cooperate to ensure they do not cause the other to breach any privacy obligations that another Party has at law.

Notices

7.13 A notice may (in addition to any other method permitted by law) be sent by pre-paid post, pre-paid courier or by electronic mail.

7.14 If any notice is delivered or deemed to be delivered after 1700 hours in the place of receipt; or on a day which is a Saturday, Sunday or public holiday in the place of receipt, it is taken as having been delivered at 0900 hours on the next business day.

Costs

7.15 Unless otherwise agreed by the Parties, each Party will pay its own legal costs and other expenses for and incidental to the preparation, negotiation and completion of this MOU.

Signed by the Parties this day of _____ 2012.

Signed for and on behalf of the **Metonian Meteorological Service**

Signature

[title of authorized signatory]

Name (print)

in the presence of:

Witness signature

Witness Name (print)

Signed for and on behalf of **Metonian Broadcasting Corporation**

Signature

[title of authorized signatory]

Name (print)

in the presence of:

Witness signature

Witness Name (print)

EXAMPLE 2

MEMORANDUM OF UNDERSTANDING BETWEEN THE METONIAN METEOROLOGICAL SERVICE AND THE METONIAN DISASTER MANAGEMENT AGENCY FOR SEVERE WEATHER AND FLOOD WARNING AND EMERGENCY MANAGEMENT

This (MOU) is entered into by the *Metonian Meteorological Service (MMS)* and the *Metonian Disaster Management Agency (MDMA)*.

The short title for this MOU will be herein referred to as the "Agreement".

1. Purpose of Agreement

This Agreement covers the roles of the MMS and the MDMA in the operation of the severe weather and flood warning and emergency management systems for Metonia, which includes:

- Severe weather and flood advice, forecasting and warning systems;
- Rainfall, water level and flood data information collection and sharing; and,
- Effective MMS and MDMA coordination of consistent and timely information to flood-prone residents in Metonia.

2. Objectives of Agreement

2.1 Through this Agreement, the MMS and the MDMA wish to confirm and strengthen a partnership arrangement to pursue continuous improvement and collaboration opportunities whereby both parties are working together to provide community awareness and safety in response to:

- Forecast severe weather, riverine and flash flooding;
- Broader flood awareness projects and information activities; and,
- Sharing a range of information and technologies including, but not limited to, rainfall and water level telemetry systems.

2.2 Such continuous improvement in the coordination and cooperation of the severe weather and flood warning and emergency management activities is to be achieved through working collaboratively to:

- Develop and adopt communication strategies for transmitting local severe weather and flood advice, forecasting and warning information;
- Clarify the roles and responsibilities of the MMS and the MDMA in the management and operation of flood data information systems; and,
- Adopt best practice severe weather and flood emergency management guidelines.

3. Statement of Roles and Responsibilities

3.1 The MMS undertakes this Agreement, pursuant to its authority under the Meteorology Act, in order to carry out its functions relating to weather and flood warnings.

3.2 The MMS is the lead agency responsible for the provision of weather and flood forecasts and warnings. Consistent with Metonian Government legislation, the role of the MMS in respect of flash flooding (defined as rainfall to flood response time of less than six hours) is to provide advice and assistance in the development of locally based warning and response systems.

3.3 The MDMA is responsible for the provision of functions relating to the management of flooding in Metonia by application of the statutory powers pursuant to its authority under the Disaster Management Act.

3.4 The MDMA, through its Flood Risk Management Strategy, is the lead agency responsible for minimizing the impact of flooding on people and property in Metonia.

3.5 Both the MMS and the MDMA agree to work in collaboration to deliver the following key outcomes and strategies over the life of this Agreement:

- Development of an early Flood Warning System for residents and businesses in flood-prone areas;
- Development and delivery of next generation flood monitoring systems;
- Installation and management of existing and additional telemetry gauges;
- Continual promotion of the 'Flood Wise' educational campaign for Metonian residents and industry; and,
- Undertaking site community work on the development and implementation of local flood plans.

4. Participation to the Agreement

Both the MMS and the MDMA become participants to this Agreement by completion of the declaration set out below, which becomes effective from the date of the last signature.

5. Joint Undertakings

The MMS and the MDMA agree to undertake the activities and fulfil the responsibilities as described in this Agreement in good faith, to the extent possible given prevailing operating environments. Performance under this Agreement is subject to the availability of funds and human resources to the MMS and the MDMA and to existing administrative and personnel policies, which may affect the terms of the Agreement.

6. Limitation

Nothing in this Agreement shall derogate from the MMS's responsibilities under the Meteorology Act or the MDMA's responsibilities under the Disaster Management Act.

7. Review and Amendment of the Agreement

7.1 It is agreed that this Agreement will be reviewed within three years following the date of commencement.

7.2 Supplementary guidance material and documents may be formulated to facilitate achievement of the objectives of the Agreement. Any major revision in the objectives or scope of the Agreement outlined herein, which either party may consider desirable or necessary in the future, will be the subject of supplementary agreements.

7.3 This Agreement can be updated with amended terms and conditions as agreed in writing by each of the parties.

8. Termination of Agreement

8.1 This Agreement shall continue in effect unless terminated by one or both parties giving 90 days' notice in writing, notice to begin with the date of mailing.

8.2 Unless otherwise decided by mutual agreement, on termination of the Agreement, each party will retain possession of the equipment and resources purchased or supplied by it.

Signed by the Parties this day of _____ 2012.

Signed for and on behalf of the **Metonian Meteorological Service**

Signature

[title of authorized signatory]

Name (print)

in the presence of:

Witness signature

Witness Name (print)

Signed for and on behalf of **Metonian Disaster Management Agency**

Signature

[title of authorized signatory]

Name (print)

in the presence of:

Witness signature

Witness Name (print)

4. GENERAL PRINCIPLES FOR DEVELOPING A STANDARD OPERATING PROCEDURE

An SOP is a prescribed set of steps to be followed routinely when certain defined conditions arise (e.g., when severe weather develops). It contains a written procedure of individual, often sequential, tasks that need to be undertaken. By documenting these steps, in the form of a checklist or other appropriate framework, operational staff has a ready reference of what is expected and can avoid the risk of missing key actions.

If SOPs are written down and documented simply, anyone can follow the instructions to make sure the procedure is completed in the same way and to the same standard as the previous time the procedure was carried out.

SOPs are important because they capture what are the most efficient and effective ways to perform an operation. They help an agency produce predictable, reproducible results and maintain the quality and consistency of its service.

SOPs are particularly useful between organizations. An NMS can use SOPs to ensure consistent delivery of services and products to partner agencies and provide a baseline against which service standards can be reviewed.

EXAMPLE 1 -

REPUBLIC OF CROATIA NATIONAL PROTECTION AND RESCUE DIRECTORATE - STANDARD OPERATING PROCEDURE FOR THE USE OF WEATHER FORECASTS OF THE NATIONAL METEOROLOGICAL AND HYDROLOGICAL SERVICE

Pursuant to Article 61, Paragraph 3, and with regard to Article 37 of the "Protection and Rescue Act" (Official Gazette 174/04), the Director of the National Protection and Rescue Directorate hereby issues, with the consent of the Director of the National Meteorological and Hydrological Service, Class: 920-04/06-01/34, Reg. no.: 554-920-04/06/01 of May 8, 2006, the following:

STANDARD OPERATING PROCEDURE FOR THE USE OF WEATHER FORECASTS OF THE NATIONAL METEOROLOGICAL AND HYDROLOGICAL SERVICE

I. Introduction

This Standard Operating Procedure (herein referred to as "SOP") regulates the obligations of the National Meteorological and Hydrological Service (herein referred to as the "DHMZ"), the obligations of the National Protection and Rescue Directorate (herein referred to as the "DUZS"), and the SOP for the use of weather forecasts and the delivery and reception of data.

The weather forecasts include a description of significant weather conditions over a particular time period, primarily cloud cover, wind speed and direction, as well as the minimum and maximum air temperature.

These activities shall be carried out by the:

1. The DHMZ – Department for Applied Meteorology; and,
2. National Protection and Rescue Directorate – Sector for 112 System.

1. OBLIGATIONS OF THE DMHZ

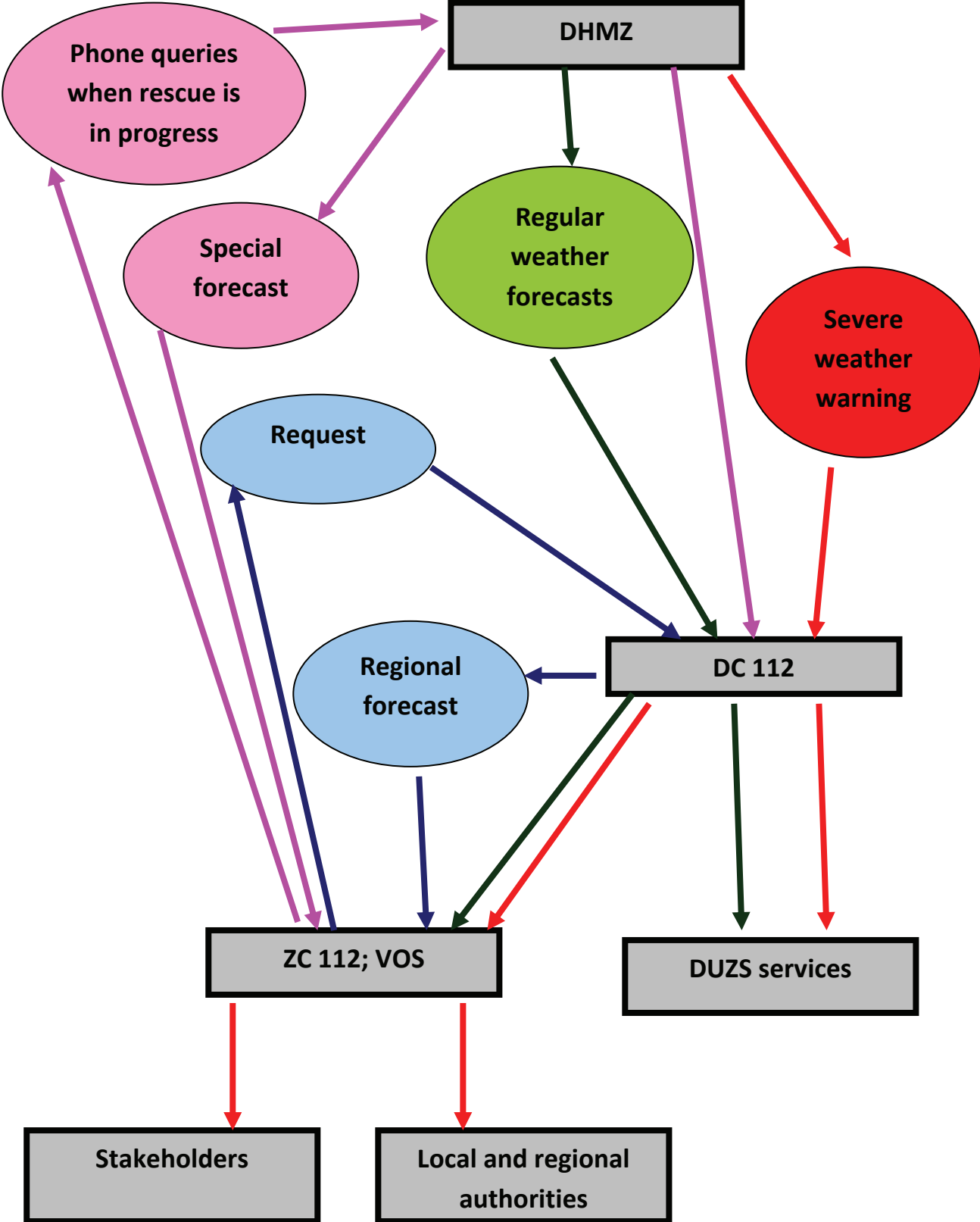
- (a) The Weather Analysis and Forecast Division of DHMZ shall deliver warnings, regular and special weather forecasts to DUZS, i.e., Sector for 112 System – the National 112 Centre (herein referred to as "DC112"), as well as the National Fire Fighting Operation Centre (herein referred to as "VOS"), in accordance with the schedule and frequency set out in the Appendix to this SOP;
- (b) For the duration of the fire fighting season the Weather Analysis and Forecast Division of the DHMZ shall prepare regular weather forecasts for the coastal region to support the fire fighting activities of VOS;

- (c) The Marine Meteorological Centre in Split shall prepare and deliver to DC112 weather reports for the first and the next 12 hours from the time that the report has been issued for the Adriatic region, with particular emphasis on the marine forecast. If necessary, special warnings shall be issued and phone consultations will be available. Forecasts shall be delivered daily no later than 0700, 1300 and 1900 hours;
- (d) The DHMZ shall prepare a list of severe weather which will require special warnings to be issued;
- (e) In the case of serious accidents, fires or other disasters, employees of the DHMZ are required to prepare special forecasts and provide additional explanations upon request of the County 112 Centres (herein referred to as "ŽC112"), VOS, or DC112; and,
- (f) The DHMZ is required to send an urgent notification to DC112 of any staffing or organizational changes within the DHMZ which have a bearing on the implementation of this SOP, as well as of any changes to this SOP, so that the SOP may be updated as necessary.

2. OBLIGATIONS OF THE NATIONAL PROTECTION AND RESCUE DIRECTORATE

- (a) DC112 shall distribute the weather forecasts to 112 Centres and other DUZS services, in accordance with the schedule and frequency set out in the Appendix to this SOP;
- (b) The Civil Protection Sector shall, in accordance with the list of severe weather, determine who shall be in charge of providing protection as well as who shall receive protection. They will receive special warnings at a local level; and,
- (c) DUZS shall use the weather forecasts for the operation of the protection and rescue system only, and shall not distribute the forecasts to other users without permission from DHMZ.

II. Standard Operating Procedure



PROCEDURES

1. The DHMZ shall prepare and deliver to DC112 regular weather forecasts, in accordance with the schedule and frequency set out in the Appendix to this SOP.
2. DC112 shall further distribute the weather forecasts received from the DHMZ to all ŽC112, to VOS and DUZS services in charge, in accordance with the schedule and frequency of weather forecast delivery.
3. In case of exceptional circumstances, and in order to prepare more fully for a protection and rescue operation, a ŽC112 may telephone DC112 with an additional request for regular forecasts for that particular region.
4. In case of a serious accident or disaster, and in order to undertake suitable protection and rescue measures, the ŽC112 shall contact the Weather Analysis and Forecast Division in Zagreb directly to receive a special weather forecast. The VOS shall do the same in case of a fire.
5. A DHMZ employee (a meteorologist in the period from 0600 to 1900 or a technician from 0000 to 2400) shall deliver the special weather forecast to the requesting party – the ŽC112 or VOS, as well as DC112.
6. In case of forthcoming severe weather which may cause extensive material damage or endanger human lives, the DHMZ shall deliver a severe weather warning.
7. The DC112 shall urgently distribute the warning to all ŽC112 and to DUZS services in charge.
8. The ŽC112 shall immediately warn stakeholders in their region (according to the list with the Civil Protection Sector) who may suffer damage from the forthcoming severe weather.

III. Delivery and Reception of Data

The DHMZ shall send weather forecasts to DC 112 principally by e-mail, to the following address: **dc112@duzs.hr** or by fax to: **01/37 84 840**.

Class: 011-01/06-01/08
Reg. No.: 543-01-09-01-06-2
Zagreb, June 23, 2006

Director

Signed by: Đuro Poldrugač

APPENDIX

SCHEDULE AND FREQUENCY OF WEATHER FORECAST DELIVERY

1. A “severe weather warning” shall be delivered as necessary at any time of day. The warning is delivered to DC112, which shall further distribute the warning in accordance with Items 7 and 8 of this SOP.

2. A “special weather forecast” for a smaller area affected by severe weather, a fire, disaster, or similar shall be delivered as necessary at any time of day. The special weather forecast shall be delivered to the centre which requested it, as well as to DC 112.

3. A “regular weather forecast for Croatia – for the day” shall be delivered daily to DC112, no later than 0700 hours. DC 112 shall further distribute the forecast to all ŽC 112, VOS, as well as to DUZS Services in charge.

4. A “regional weather forecast – for the day” shall be delivered daily to DC112, no later than 0900 hours. The following details must be included:

- Weather forecast for Zagreb and the surrounding area;
- Weather forecast for Central Croatia;
- Weather forecast for Eastern Croatia; and,
- Weather forecast for mountainous Croatia.

DC112 shall further distribute these forecasts to the ŽC112, VOS and to DUZS Services in charge, only upon request and in case of exceptional circumstances.

5. A “weather forecast for Croatia – until the end of the day and for the next day”, shall be delivered daily to DC112, no later than 1100 hours. DC112 shall further distribute the forecasts to all ŽC112, VOS, as well as to DUZS Services in charge.

6. A “regional weather forecast – until the end of the day” shall be delivered daily to DC112, no later than 1200 hours, only in case changes need to be made to the forecast in Item 4. DC112 shall further distribute these forecasts to ŽC112, VOS and DUZS Services in charge only in case of exceptional circumstances (e.g., during severe weather or fire).

7. A “weather forecast for Croatia – for the next day and the following three days” shall be delivered daily to DC112, no later than 1300 hours. DC112 shall further distribute the forecasts to all ŽC112, VOS, as well as to DUZS Services in charge.

8. A “regional weather forecast – for the next day” shall be delivered daily to DC112, no later than 1500 hours. The following must be included:

- Weather forecast for Zagreb and the surrounding area;
- Weather forecast for Central Croatia;
- Weather forecast for Eastern Croatia;
- Weather forecast for mountainous Croatia;

- Weather forecast for the Northern Adriatic; and,
- Weather forecast for Dalmatia.

The DC112 shall further distribute these forecasts to the ŽC112, VOS and to DUZS Services in charge, only upon request and in case of exceptional circumstances.

9. A “weather outlook for Croatia and the Adriatic – for the following four days” shall be delivered daily to DC112, no later than 1500 hours. The DC112 shall further distribute these forecasts to the ŽC112, VOS and to DUZS Services in charge, only upon request and in case of exceptional circumstances.

10. A “weather forecast for the Adriatic - with a special marine forecast” shall be delivered daily to DC 12, no later than 0700, 1300 and 1900 hours. The DC112 shall distribute said forecast to coastal ŽC112’s (Pazin, Rijeka, Gospić, Zadar, Šibenik, Split and Dubrovnik), VOS, as well as DUZS Services in charge.

11. In case changes need to be made to the forecast in Item 7, a “weather forecast for Croatia for the next day and a condensed weather outlook for Croatia for the following three days”, shall be delivered to the DC112 as necessary, no later than 1800 hours. The DC112 shall further distribute the forecast to all ŽC112, VOS, as well as to DUZS Services in charge.

12. A “long-term weather forecast for the following month, by region” shall be delivered to the DC112 mid-month and at the end of the month. The DC112 shall further distribute these forecasts to the ŽC112, VOS and to DUZS Services in charge, only upon request and in case of exceptional circumstances.

13. A “meteorological reports for VOS purposes” shall be delivered to the DC112 during the summer, from 1 June to 31 October, with the following frequency:

- “Actual forest fire danger index” for 24 locations on the Adriatic and the coastal region, daily, no later than 1530 hours;
- “Prognostic forest fire danger index” for 19 locations on the Adriatic and the coastal region, daily, no later than 1530 hours;
- “Special half-week forecast for the Adriatic” on Mondays and Thursdays, no later than 1400 hours, for the following four days. (This forecast shall cover each day and include the maximum daily air temperature, wind speed and direction, amount of precipitation and likelihood of thunderstorms.) It shall be prepared for:
 - (a) The Northern Adriatic;
 - (b) Dalmatia;
- “Weekly weather forecast for the Adriatic” on Mondays and Thursdays, no later than 1400 hours, for:
 - (a) The Northern Adriatic;
 - (b) Dalmatia;
- “Monthly Severity Ratings and Seasonal Severity Rating” during November.

The DC112 shall further distribute the meteorological reports to VOS, ŽC112, and the DUZS Services in charge.

Weather forecasts which are delivered to all DUZS units shall be labelled “**All**”, while those delivered only to DC shall be labelled “**DC112 only**”.

EXAMPLE 2

SOPS FOR PUBLIC WEATHER SERVICE AT THE SHANGHAI METEOROLOGICAL SERVICE

1. Introduction

In 2009, an efficient integrated Public Weather Services (PWS) operations system known as the “PWS Platform” was established at the Shanghai Meteorological Service (SMS). The Platform is anchored by a Chief Service Officer (CSO) and uses a set of new Standard Operational Procedures (SOPs) to strengthen the partnership between the SMS and other governmental agencies and special users.

To transform PWS delivery into routine work, thus providing highly targeted and tailored services to a variety of institutional, governmental and special users, the CSO convenes daily service planning meetings which require the participation of observation, information technology, forecasting, and climate departments.

2. SOP for Fast Tracking Dissemination of Warnings

A standardized interaction mechanism was established between the Forecasting and Service platforms. Under emergency conditions, such as periods of high-impact weather, service timeliness was improved via a “Fast Track” Mechanism (see Figure 1. below).

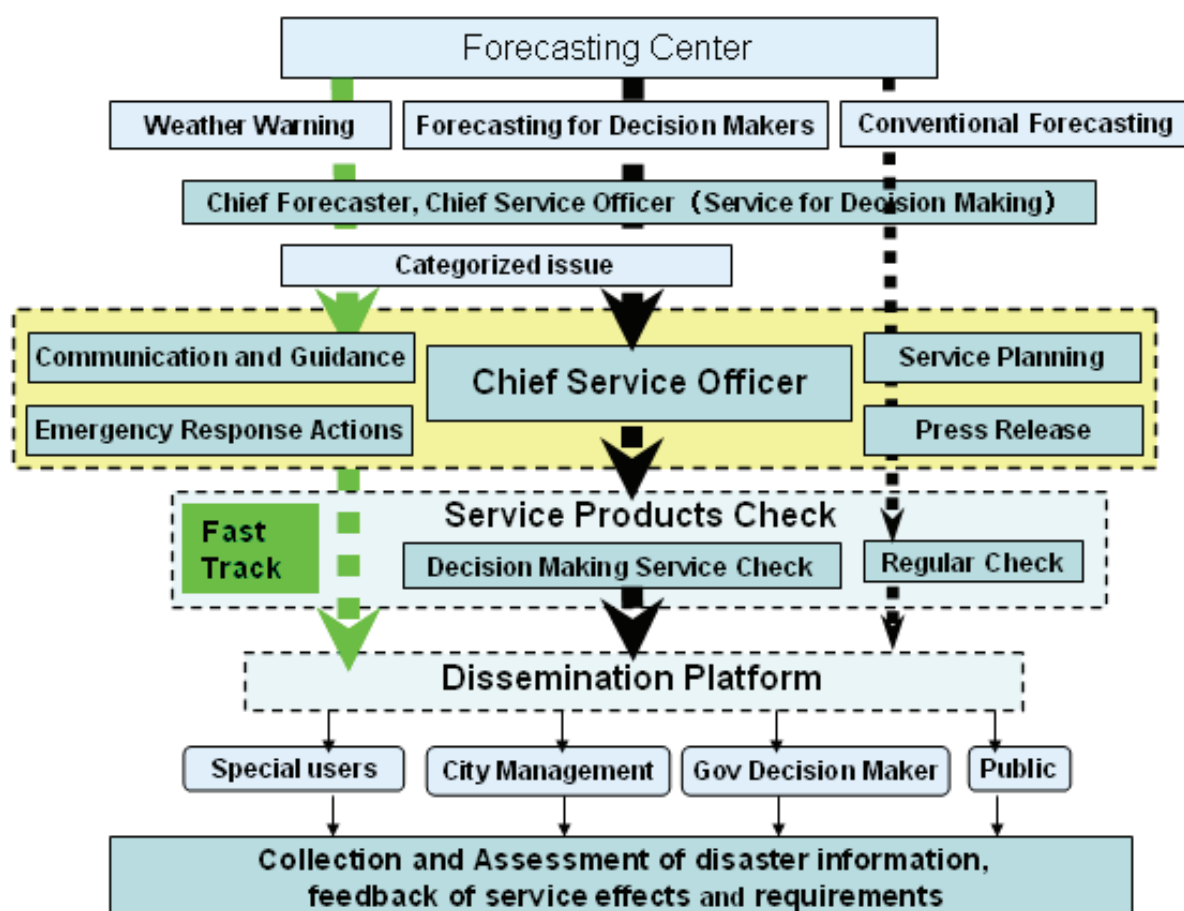


Figure 1. Showing the “Fast Track” mechanism used during emergencies

3. SOP for Improving Users' Awareness of Weather Impacts

An SOP has been developed (see Figure 2. below) for a weather information mechanism to increase users' awareness of weather impacts. This mechanism, which is part of the daily forecasting procedures, is applied through:

1. Explaining the difficulty in forecasting high-impact weather. This helps eliminate unreasonable expectations of the public and other users;
2. Continuously providing the public and other users with real-time observations and updated forecasts in order to keep them informed throughout the event;
3. Generating forecast verification and information on the adverse impacts caused by the weather;
4. Providing the public and other users with climatological information showing the historical occurrence of severe weather; and,
5. Briefing the public and other users on severe weather events in adjacent areas, even though they may not have direct impact on the population in the forecast area.

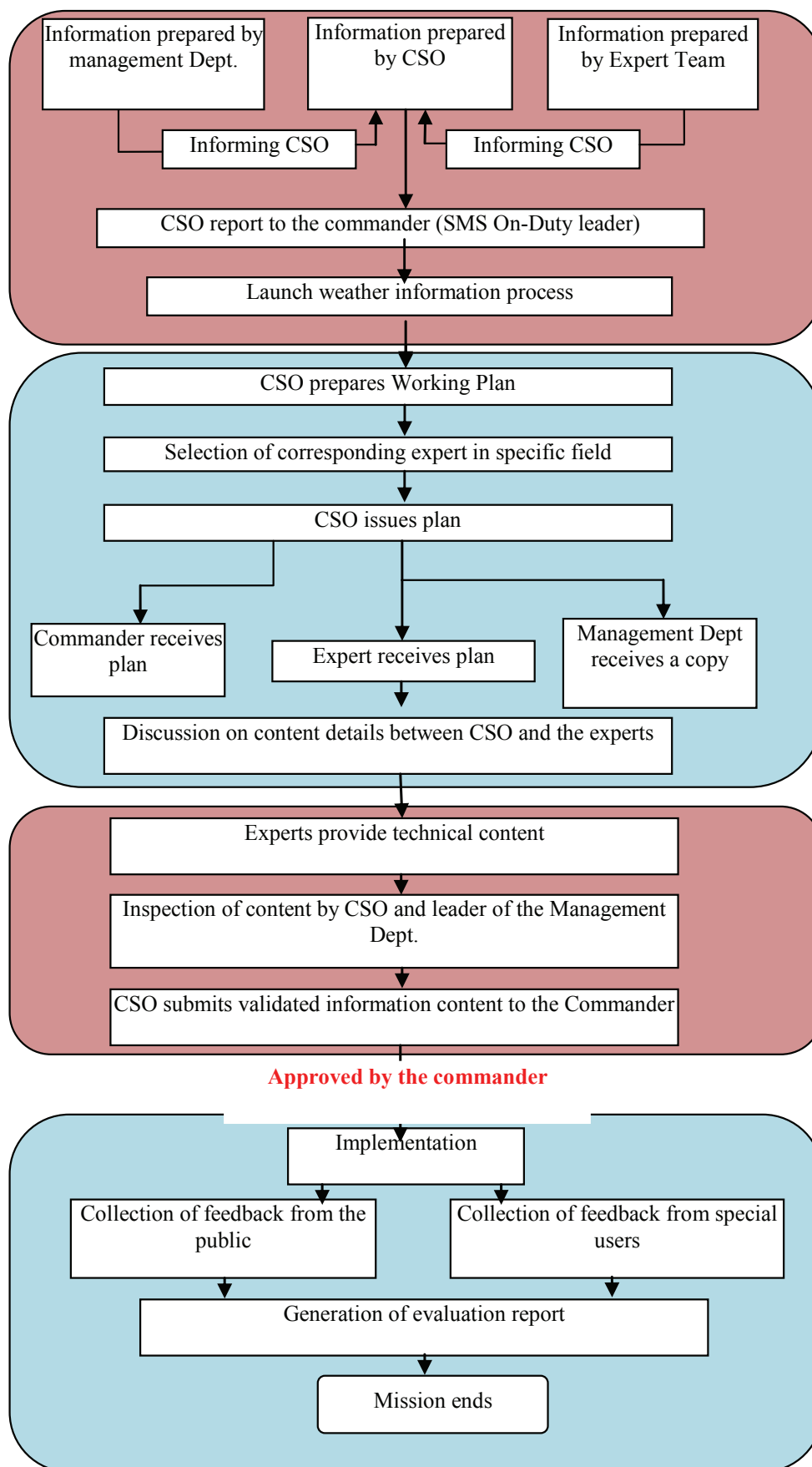


Figure 2. Schematic diagram showing the Standard Operating Procedure (SOP) for improving users' awareness of weather impacts

4. Purpose of SOPs at the SMS

SOPs, as applied by the SMS, are the standardization of linkages and approaches used to define the actions of the SMS and other actors on a category-by-category, level-by-level, and event-by-event basis. Linkages include both management and technical support. Management-level support includes policy development, planning, duty identification, human resources, etc.

The SMS cooperates with users to develop weather impact indicators tailored for each user based on their sensitivity to weather and their capacity to respond to severe weather. In this way, the users establish their own impact analysis systems.

An early briefing on high-impact weather to highly weather-sensitive users gives them enough lead-time and helps them minimize losses and avoid unnecessary and sometimes costly and wasteful actions.

5. Warning services

- (a) Warnings issued by the SMS

There are 15 categories of warnings issued by SMS.

- (b) Warnings issued jointly

There are also warnings issued jointly with other agencies. See Table 1 below.

Table 1. Warnings issued jointly by SMS and other agencies

HAZARDS:	AGENCIES:
Agriculture	SMS and Agriculture Commission
Air Pollution	SMS and Environmental Protection Bureau
Bacterial Food Poisoning	SMS and Shanghai Municipal Food and Drug Supervision Administration

- (c) Warnings issued with preset responses from agencies

When a warning is issued by SMS, the Water Affairs Authority will issue a corresponding level of warning for flood control, and the response team will take the necessary actions.

- (d) Other agencies authorized to disseminate warnings

There are other agencies which have the authority to disseminate warnings (see Table 2 below).

Table 2. Shows agencies, other than SMS, which are authorized to disseminate warnings

NO.:	AGENCIES:	WARNING(S) ISSUED:
1	Headquarters for Flood Control	Flood and typhoon control warnings
2	Shanghai Earthquake Bureau	Earthquake prediction and warnings
3	Shanghai Water Affairs Bureau	Ocean disaster warnings such as storm surge, sea wave, and tsunami
4	Shanghai Planning and Land & Resource Management Bureau	Geological hazards warnings
5	Shanghai Public Health Bureau	Public health emergency warnings
6	Shanghai Food and Drug Administration	Drug safety emergency warnings
7	Shanghai Agriculture Committee	Severe animal epidemic emergency warnings, and Severe plant disease and pest emergency warnings
8	Shanghai Environment Protection Bureau	Severe environmental pollution emergency warnings
9	Shanghai Network Security Office	Internet and information security emergency warnings
10	Shanghai Work Safety Administration	Guidance on work safety accident prevention based on warnings issued
11	Shanghai Tourism Administration	Guidance on travel safety based on warnings issued
12	Shanghai Economic and Information Commission	State grid emergency warnings

6. Operational Procedures on Monitoring and Assessment

Assessments of benefits and risks are part of everyday PWS operations in SMS in order to improve service delivery and to increase the level of user satisfaction.

Operational procedures on monitoring and assessment of the consistency of weather information disseminated by different Media have been established.

7. The ‘Smart’ Interface Application (App)

A mobile technology ‘Smart’ interface app has been developed to interact with users, and provide support to the delivery of weather services.

8. Annual Planning Mechanism

An Annual Planning Mechanism in support of the SOPs has been established, which comprises four phases:

- Drafting of the Annual Planning at the beginning of the year;
- Monthly reporting on the implementation;

- Solving bottleneck problems in a timely manner; and,
- Improving the planning.

For more information, please contact:

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