

WMO Workshop Instructor Guide  
for Regional Training Centers  
Regional workshops on:  
*Hydrometeorological Information for  
Disaster Risk Reduction: NMHS and  
Decision Maker Interactions*



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## Needs and Goals of this Initiative

### Needs

WMO Executive Council and Congress Decisions, calling for capacity development in Impacts Based Forecast and Warning Services, have suggested the need for the development of training modules to be included in the curricula of WMO RTCs as part of the implementation of the WMO Public Weather Services Competencies. (CG-18 Decisions 15, 26, 73) This has led to inclusion in the WMO Strategic Operating Plan 2020, 4.2.15, a specific call for training in this area to be developed.



### Goals of the Initiative

The WMO Services Commission and the Secretariat are working to implement training initiatives in each WMO region regarding Impacts-based Forecast and Warning Service as part of the implementation of WMO Public Weather Services Competencies. This Instructor Guide will support the offering of virtual workshops in each region on *Hydrometeorological Information for Disaster Risk Reduction: NMHS and Decision Maker Interactions*. This workshop will bring together NMHS staff and members of national and local Civil Protection Agencies in each region to strengthen coordination in disaster risk management by sharing appropriate hydrometeorological information with users for decision making for Disaster Risk Reduction (DRR). Using county-specific participatory activities and tools to ensure fluid communication among participants to enhance the broad applicability of the workshop format, the workshop aims to increase sharing of good practices in DRR among WMO Members and to encourage the development of effective DRR strategies for each Member.

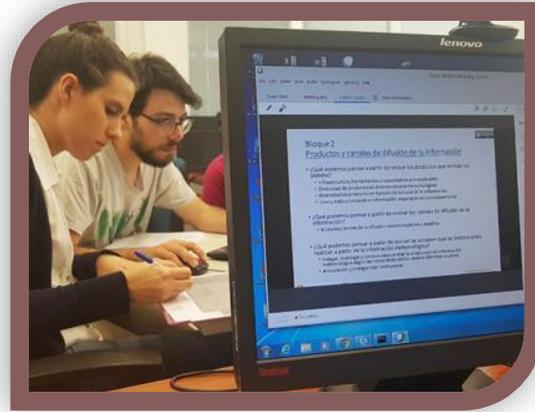
A secondary goal is to promote stronger in-country interaction on an ongoing basis by the participants of the workshop, as representatives of their institutions, as well as with their other national partners. It is important to work toward promotion and support of such workshops in each region and subregion, using techniques described in this Instructor Guide, to guide continuous improvement of national DRR systems.

## Contents

Needs and Goals of this Initiative .....	1
General Workshop Structure .....	3
WMO Competency requirements for Public Weather Service Advisers supporting disaster prevention and mitigation (DPM) and other user activities	5
Instructor Guide Contents.....	9
Delivery Guidelines .....	9
Pre-Workshop Phase.....	12
Module 1: Getting to Know Your DRR Partners .....	14
Module 2: DRR Communications and Actions .....	16
Module 3: Analyzing a DRR event .....	18
Module 4: Reflecting on Challenges and Opportunities	20
Bibliography .....	22
Resources and Templates .....	23
Pre-Workshop Phase Resources .....	23
Module 1 Resources.....	23
Module 2 Resources.....	23
Module 3 Resources.....	23

## General Workshop Structure

This workshop is designed to encourage stronger and more effective interactions between National Meteorological and Hydrological Services and decision makers in National and local civil protection agencies. For this reason, the workshop is composed of a series of activities designed to encourage collaboration and group analysis of existing practices and potential improvements to those practices.



The workshop takes place in five general steps. The time frame is flexible, but sufficient time must be allotted to the tasks, which require significant communication within the national teams formed in each participating country. The total length might be from a minimum of 5 weeks and up to 8 weeks.

**Pre-Workshop Phase:** The key outcome of this phase is the formation of working teams in each country representing the NMHS, the National Civil Protection, and at least one Local Civil Protection partner. Local introductions are made and agreements on working methods of the teams for the assignments during the workshop. It is suggested that the host institution, if they represent an NMHS, either take part as one of the task teams or have previously gone through this workshop themselves so that they can share examples and experiences.

During the Pre-Workshop Phase there are also two required pre-reading assignments from the WMO-No. 1150 WMO Guidelines on Multi-hazard Impact-based Forecast and Warning Services (IBFWS), chapters 1-4 only (20 pages), and from WMO-No. 1129 The WMO Strategy for service delivery and its implementation plan, chapters 1-5 only (20 pages). This reading will establish an important background for the rest of the workshop. A discussion forum can be used to generate pre-workshop discussion on its contents and reporting on the status of implementation of IBFWS in each participating country.

**Module 1: Getting to Know Your DRR Partners** – Online, Asynchronous: Presentations from each participant introduce the mission, competencies, and structure of their institution. Discussion Forums can focus on the variations between the institutions, positive elements and challenges presented. General comparisons can be made these to WMO guidance as provided in WMO-No. 1150.

**Module 2: DRR Communications and Actions** - Online, Asynchronous: Participants collect information on forecast products that are currently used, and new products recommended to be used in integrated risk management. They will produce a communication flow chart, including product type, media for communication, internal actions of the Civil Protection Agency, external actions of the Civil Protection Agency. Team and Forum Discussions are conducted on how product communication and utilization might be improved.

**Module 3: Analyzing a DRR Event** - Online, Asynchronous: Each team selects and analyzes a successfully communicated high-impact event. The case and analysis are shared on the course website for comparisons between teams and to stimulate discussions on lessons learned.

**Module 4: Reflecting on Challenges and Opportunities** – Online, Synchronous: Live discussion takes place via webinar software among participants to review the workshop contents and outcomes, as well as lessons learned for operations and for future workshops in the region. Prior to the webinar, each team develops and shares a Strength-Weaknesses-Opportunities-Threat (SWOT) analysis for their country regarding DRR implementation.

## **WMO Competency requirements for Public Weather Service Advisers supporting disaster prevention and mitigation (DPM) and other user activities**

See WMO-No. 1209, pp.29-34

1. Monitor continually the evolving meteorological and hydrological situation, updated forecasts and warnings and the impact of anticipated conditions;
2. Develop and adopt procedures and services to meet user needs and facilitate impact assessments;
3. Develop and manage relationships with users involved in DPM, and other stakeholders;
4. Communicate meteorological and hydrological information and impact assessments to internal and external users, and engage in outreach activities;
5. Ensure the quality of meteorological and hydrological information and services.

This workshop directly helps to develop competency in numbers 2, 3, 4, and 5 above. The Performance Criteria for each competency are provided below. Please see WMO-No. 1209 for additional details.

### **Competency 1: Monitor continually the evolving meteorological and Hydrological situation, updated forecasts and warnings and the Impact of anticipated conditions**

#### **Competency description**

Observations and forecasts of meteorological/hydrological parameters and significant meteorological/hydrological phenomena are continuously analyzed and monitored, together with amendments and updates of forecasts and warnings. Assessments of the likely impact of anticipated conditions are developed and updated as required.

#### **Performance criteria**

1. Monitor meteorological/hydrological parameters and evolving significant meteorological/hydrological phenomena, and validate current forecast and warnings on the basis of these parameters;
2. Monitor information relating to the impact of meteorological and hydrological events.

### **Competency 2: Develop and adopt procedures and services to meet user needs and facilitate impact assessments**

#### **Competency description**

Procedures and services that facilitate impact assessment based on meteorological and hydrological information are developed and improved in line with the needs of users, making full use of impact modelling and other techniques where these are available.

**Performance criteria**

1. Identify the meteorological and hydrological information requirements of the disaster management and civil protection community, and other users as required;
2. Tailor weather warning services for emergency management decision-makers and other users;
3. Ensure that warning dissemination schedules and related services meet the decision-making needs of emergency managers and other users;
4. Contribute to the development of very short-range forecasting and nowcasting services tailored to the emergency management community;
5. Contribute to the development of probabilistic forecast products tailored to the needs of disaster managers and other users;
6. Contribute to the development of impact-based forecast and warning products;
7. Apply new technology and scientific research in contributing to the development of Multi-hazard Early Warning Systems (MHEWS).

**Competency 3: Develop and manage relationships with users involved in disaster prevention and mitigation, and other stakeholders****Competency description**

Relationships with users in the emergency management and related communities are developed and maintained to support the ready identification of user needs and requirements and changes to these over time. Relationships with users are formalized through appropriate agreements where necessary.

**Performance criteria**

1. Establish and maintain working relationships at strategic, operational and technical levels with the emergency management community;
2. Develop and implement partnership agreements at operational and technical levels with relevant agencies;
3. Build and maintain relationships with the media to facilitate communication of warnings and information prior to, during and after high-impact meteorological and hydrological events;
4. Build and maintain relationships between the NMHS and relevant agencies to improve emergency planning, preparedness for and response to high-impact meteorological and hydrological events, including specific urban needs where appropriate;

5. Contribute to the development of response advice and call-to-action statements on the basis of the potential impact of hazards, in close coordination with relevant agencies as appropriate;
6. Participate in the assessment of the socioeconomic impact of meteorological and hydrological events, in collaboration with relevant experts.

### **Competency 4: Communicate meteorological and hydrological information and impact assessments to internal and external users, and engage in outreach activities**

#### **Competency description**

User requirements are fully understood and are addressed by communicating concise and relevant meteorological information and impact assessments in a manner that can be clearly understood by users. Preparedness of user communities is addressed through training and other outreach initiatives.

#### **Performance criteria**

1. Contribute to dissemination of warnings through utilization of current and emerging communication technologies;
2. Communicate meteorological and hydrological information to users, in particular disaster management decision-makers and the media, including the scope and limitations of forecasts and warnings, the concept of forecast uncertainty, and information on potential impacts;
3. Contribute to the development of a communication strategy to ensure credibility of, and effective response to, warnings of high-impact meteorological and hydrological events;
4. Promote community awareness and preparedness for high-impact meteorological and hydrological events through public education and outreach.

### **Competency 5: Ensure the quality of meteorological and hydrological information and services**

#### **Competency description**

The quality of meteorological and hydrological forecasts, warnings, impact assessments, and related products is maintained through the application of quality management systems processes where appropriate.

#### **Performance criteria**

1. Apply the organization's quality management system and procedures;

2. Monitor and assess the effectiveness of warnings of high-impact meteorological and hydrological events through user-based feedback;
3. Work with disaster management agencies and others to strengthen the role of NMHSs as the single authoritative voice for warnings of high-impact meteorological and hydrological events;
4. Contribute to the development of documentation and archiving systems for meteorological and hydrological hazard and impact data, including quality assurance and data management;
5. Collaborate with disaster management agencies and others in the development of post-event assessments of high-impact meteorological and hydrological events;
6. Contribute to outreach and training initiatives particularly those relevant to DPM activities.

## Instructor Guide Contents

For conducting the workshop, general guidelines for facilitation, generating discussion and encouraging engagement and assignment completion are provided in the Delivery Guidelines section.

For each module of the workshop, the Instructor Guide contents to support workshop implementation and adaptation include the following items:

1. Expected results: Intended learning outcomes and products (outputs) for the step
2. Resources
3. Detailed description: of workshop activities and procedures and variations
4. Tools, templates, and examples: to guide the workshop activities. These are found on the course website in the Tools, Templates, and Examples section.
5. Guidelines for overcoming challenges
6. How outputs can or have been used by the national teams

A participant assessment rubric is provided the Delivery Guidelines section, as well as a workshop evaluation template for receiving feedback from participants. <Pending Task: Develop a course evaluation template in Moodle>

## Delivery Guidelines

This section included advice for conducting the workshop and general guidelines for offering the workshop in a virtual learning environment.

## Recommended Participant Profile

When advertising for and selecting participants, consider the following recommendations as participant characteristics to ensure success in the workshop.

- Capacity and interest in collaboration and teamwork
- Knowledge of the institutional functions of their organizations
- General knowledge and experience in working with partner organizations on DRR matters
- Motivation to improve disaster risk reduction processes
- Demonstrated ability to design new work processes and procedures
- Ability to analyze events and contributors to successful or unsuccessful outcomes
- Commitment to respect the deadlines of the course milestones

## Collaboration Guidelines for Workshop Teams

It is recommended that each national team should be composed of at least 1 member of NMHS and 1 member of the local Civil Defense. Ideally, the teams would be up to 4 persons to maximize discussion and diversity of input on the analyses and development of recommendations for improvements. To aid in the workshop activities, teams should be encouraged to

- Schedule regular meetings as a team, on a schedule suitable to meet workshop schedule constraints
- Maintain fluid dialogue between members, encouraging all participants to contribute and to listen to the contributions of others
- Assign roles to team members that will facilitate their work, such as a Chair that helps ensure the agenda is completed in timely manner, and a Rapporteur who will document outcomes and share with the team for confirmation
- Gain institutional support to provide the time necessary to complete the work and to review work outcomes for consideration of revisions to organizational practices
- Gain institutional support to provide access to the necessary resources in terms of information and input from key personnel

### Guidelines for Workshop Facilitators

#### Orienting participants to the workshop and virtual learning environment

- Provide an orientation announcement or webinar explaining the purpose of the course and expectations for participants. Especially emphasize the importance of forming an effective national team made up of people with responsibilities for DRR.
- Provide an explanation of the assignments for each module of the course.
- Describe the intended learning and organizational outcomes of the workshop.

#### Using Moodle as a virtual learning environment

- Familiarize yourself with the basic functions of the course virtual learning environment, in this case, Moodle.
- You may want to review some of the units in the CALMet Moodle course available at <https://etrp.wmo.int/course/view.php?id=88>.
- For more specific and quick help, visit Moodle.org and search for answers to your questions
- Be sure to keep the virtual learning environment as uncluttered and easy to use as possible to avoid frustration by learners.

#### Online facilitation

- Overcome the potential feelings of remoteness by participants by building in time for interactions using the discussion forums and a possible mix of live events via webinars (particularly for Module 4).
- In using the forums, try to stimulate discussion with questions. Provide answers to be supportive, but also ask other participants to offer answers to questions as well.
- Do not respond immediately to every post but allow time for others to respond as well. However, be sure that each question or problem raised in a discussion forum is responded to within approximately 24 hours.

- To maintain momentum, make an announcement each week noting progress and encouraging the work of participant. You can use the weekly announcement also to make reminders about the assignments that are due.
- Encourage participants to ask questions to the entire group via the discussion forums, rather than to you individually as a facilitator. Respond to all so everyone benefits from the feedback.
- In general, stimulate engagement by making the course participants feel a central part of a learning community, and not isolated.

#### Providing feedback on performance

- Provide constructive feedback on assignments that tells both what the participants have done well and what they can improve. Encourage participants to improve their assignments when it will achieve a better outcome.
- Encourage participants to share their assignments with the fellow participants and encourage an atmosphere of supportive interaction.
- When team or individual performance poor, intervene to discover why and if something can be done to help overcome blockages to poor performance.

Also see the resource, “Some Guidelines for Facilitators,” available on the course website.

### **Participation/Successful completion Assessment Rubric**

Successful completion of the workshop should be based on the following factors:

- Compliance with planning and work plan (see Assignments Tracking checklist on the course website)
- Scope of the contents in the work products developed meets expectations (see Rubric)
  - Activities implemented as expected
  - Variety of resources utilized
- Participation in webinars and discussion forums
- Compliance with the established work deadlines
- Number of participants from the national teams who finish the workshop

#### **Assessment Rubric**

See the Instructor Guide section of the course website at

<https://etrp.wmo.int/course/view.php?id=200#section-2>

#### **Assignments Tracking Template**

See Instructor Guide section of the course website.

## Pre-Workshop Phase

Formation of task teams in each country representing the NMHS, the National Civil Protection, and at least one Local Civil Protection partner. Activities include local introductions and agreements on working methods of the teams for the workshop.

## Expected results

1. Learners will become more aware their DRR partners.
2. Learners will be oriented to the course goals, activities and expectations, and be able to use the course website.

## Resources:

Course programme, invitation to the participant, web pages of the organizations involved, [WMO-No. 1150 WMO Guidelines on Multi-hazard Impact-based Forecast and Warning Services](#) (Chapters 1-4).

Useful training modules on Impacts-based forecasting:

- [Communicating Risk: The Impact-based Forecast and Warning Services Approach](https://www.meted.ucar.edu/wrn_sims/) ([https://www.meted.ucar.edu/wrn\\_sims/](https://www.meted.ucar.edu/wrn_sims/))
- [Using Multi-hazard, Impacts-based Forecast and Warning Services](https://www.meted.ucar.edu/training_module.php?id=1402) ([https://www.meted.ucar.edu/training\\_module.php?id=1402](https://www.meted.ucar.edu/training_module.php?id=1402))

## Detailed description:

1. The role of the host RTC or training provider is to manage the course and the virtual campus, helping the participants to become comfortable with expectations, resources and the website interface.
2. Each participating country forms a task team. Each task team will ideally be composed of at least 1 member of NMHS, 1 member of the local Civil Defense, and 1 member of the national Civil Defense. If this is not possible, the assignments can still be carried out, but they will not have the same validity and local and national relationships will not develop as intended.
3. The role of the participating NMHSs is to lead the national task team and to be responsible for extending the invitation to the Civil Defense organizations (or Disaster risk Reduction Management if existent) for them to assign personnel to participate in the course.
4. The optimal set up is to have at least 5 countries and task teams from the region involved. This ensures variety and significant learning from outside institutions.

### Tools, templates, and examples

1. Course announcement from the training institution or PR of the RTC that will call the NMHSs of the region to participate in the course. This announcement provides a detailed syllabus of the event and the responsibilities of the NMHS in forming a team.
2. Each country convenes the different participants by sending a formal letter from the PR (with signature and logo) containing the objectives of the course, the role that each institution must undertake, the profile of the participants and the weekly time required to devote to completing the course. See Annex A for an example letter that can be used as a model.
3. A recommended team size is 3-4 persons, and they should be representative of the national DRR system. Because the national system may include many actors, the course could be a stimulus for a national event based on this regional event, including many of the same activities.

### Guidelines for overcoming challenges

If the formation of a complete task team becomes difficult, it is recommended that the NMHS participates in the course anyway. The activities may be adapted to the possibilities presented. As mentioned, expected outcomes may not be fully achieved, but the workshop could still be useful.

### How outputs of this phase can be used

This workshop encourages strengthening institutional relationships among the organizations involved in disaster risk management or to develop improved bonds if they do not currently interact effectively. This phase begins the process if it is not already sufficiently begun.

## Module 1: Getting to Know Your DRR Partners

(Online, Asynchronous) Presentations from each participant introducing the (a) mission, (b) competencies, (c) services provided, and (d) structure of their institution. Discussions follow on the variations represented, positive implications and challenges presented, as well as comparing these to WMO guidance.

### Expected results:

1. Learners will become more aware their DRR partners and how the local and national DRR system is integrated to prepare for, respond to and recover from disasters.
2. Personal and professional presentations from each participant in the discussion forum will increase knowledge about colleagues in partnering institutions.
3. Presentations with institutional information on the mission, competencies, and functional structure of the participating organizations will inform about regional variations.

### Materials and documents:

Participants should consult current national and international reference documents on norms, legislation on Civil Protection or Risk Management. International reference documents include:

- WMO DRR Roadmap: A Summary
- [Multi-Hazard Early Warning Systems: A Checklist \(\*original or tropical edition\*\)](#)
- WMO-No. 1129, The WMO Strategy for service delivery and its implementation plan, chapters 1-5 only (20 pages)
- [Guidelines for Creating a Memorandum of Understanding and a Standard Operating Procedure between a National Meteorological or Hydrometeorological Service and a Partner Agency WMO-No. 1099 PWS-26](#)

### Detailed description

1. A discussion forum will be made available for comments and questions related to each of the recommended readings.
2. A written presentation must be submitted to the forum to share the professional background of each participant and main function in the organization.
3. Presentation from each of the national organizations that make up the team, including
  - a. Organizational mission
  - b. Responsibilities
  - c. Functional structure of the organization of each team member.

4. Each team develops a map of how the organizations work together in the national system. This map should include the other organizations not represented in the team.
5. Guidance on the schedule for completing assignments and the form they should take should be provided. Examples from a previous course can help. The host should offer assistance and guidance if they need help via the Course or Module Forum.

### **Tools, templates, and examples**

1. Official documents containing the mission, functions and the Institutional structure.
2. Depiction of the national structure.

### **Guidelines for overcoming challenges**

The workshop host should have regular contact with the participants of the course, facilitate the development of the effective presentations if questions arise, and encourage the exchange of experiences. In case the activities are not carried out, the host must contact the corresponding NMHS by private message. Participants might be requested to share their assignments with others as guidance and to encourage high quality.

### **How outputs can be used**

Understanding the regulatory framework and organizational structure of each institution, as well as the national framework, allows for mutual acknowledgment among the institutions involved in risk management. Institutional articulation and interaction are encouraged.

## Module 2: DRR Communications and Actions

(Online, Asynchronous) Collect information on forecast products that are currently used and new products recommended to be used in integrated risk management and a communication flow chart, including product type, media used for communication, internal actions of the Civil Protection Agency, external actions of the Civil Protection Agency. Discussions forums are used to discuss how product communication and utilization might be improved. Useful recommendations are documented by the teams for follow up.

### Learning outcomes and products

- Working teams will discuss and complete a Table of NMHS Products and Civil Protection Actions (see the course website for a template), gaining a clearer understanding of the working methods of the institution of each team member, including how products are developed, disseminated and used.
- Teams will develop a diagram of Communication Channels used by the national DRR system for communicating to responsible agencies and the public.
- Working teams will identify any weak points in the design, delivery, or utilization of products for DRR and document these for follow up after the workshop.
- Workshop participants will consider how national contexts influence DRR processes.

### Resources

WMO DRR Roadmap and MHEWS Checklist will already have been assigned for reading in Module 1.

[Guidelines for Implementation of Common Alerting Protocol \(CAP\)-Enabled Emergency Alerting WMO-No. 1109, PWS-27](#)

[CAP Courses online](#)

### Detailed description

- a. Working teams will meet, in person or remotely, to complete a table documenting in detail the DRR processes involved in creation, delivery and utilization of at least four NMHS products intended for use by Civil Protection Agencies.
- b. The Table of NMHS Products and Civil Protection Actions can be completed either from left-to-right (product to actions) or from right-to-left (actions to products utilized in taking those action). Using a mixture of these sequences may help different issues to emerge.
- c. The final product will be developed collaboratively and delivered as a PowerPoint for sharing with the other course participants.
- d. Teams will at the same time develop a diagram of Communication Channels used by the national DRR system for communicating to responsible agencies and the public.

- Different diagrams might be required for different agencies, and existing overlaps examined.
- e. A list of findings from the exercise with recommendations for follow up is developed and shared with the course organizers and participants.

### **Tools, templates, and examples (see Annex A)**

1. Product-to-Actions Table
2. Outreach and Communication Channels

### **Guidelines for overcoming challenges**

The RTC has regular contact with the participants of the course, stimulates the development of the products and encourages the exchange of experiences and products with other participants. In case the activities are not carried out, the RTC must contact the corresponding NMHS by private message and determine the reason.

### **How outputs can be used**

The final products facilitate open discussion about the channels for dissemination and communication of meteorological information to Civil Defense institutions, as well as the design of products issued.

The final products make more visible that the products and actions of an NMHS produce responses by the Civil Defense institutions, which helps participants consider how to improve the products, communication and decision-making system.

### Module 3: Analyzing a DRR event

(Online, Asynchronous) Select and analyze a successfully communicated and acted-upon high-impact event to analyze and share. Analyses are shared in the discussion forum with all participants for comparisons and lessons learned.

#### Learning outcomes and products

In this module, the participants are expected to illustrate and test the previous Product-to-Actions analysis by developing a case study relevant to all the institutions involved. Reviewing what happened from all perspectives is key to reflect on current procedures and lessons to be learned about each of the steps that make up the integrated risk management system

#### Resources

It is expected that the participants gather all the records of the event to be analysed. The Meteorological Services should collect the different products that were issued, as well as the data products that these forecasts and warnings were based on, while the Civil Protection institutions should collect all information that refers to internal and external actions carried out, together with any information on impacts they have that verify the severity of this event.

#### Detailed description

- a. Each team prepares a presentation of the case study, containing a brief description of the meteorological event, a table or diagram associating the different components of risk management together with the products issued by the Meteorological Services, along with the internal and external actions of the Civil Protection institutions. Lastly, the presentation should include a brief report of the impacts associated with this event.
- b. The organizers provide a schedule and guidance for developing the joint presentation by each task team. Guidance for preparing a case study for analysis is provided on the course website.
- c. Since this activity involves application and integration, it is expected that the organizations work with the specific documents that each possesses for the chosen event.

#### Tools, templates, and examples

- a. A DRR Case Study Development template.
- b. A DRR Case Study Integrated DRR Table example.
- c. This activity is focused on the analysis of the different components that compose Integrated Risk Management, so the WMO DRR Roadmap and/or MHEWS Checklist would again be referenced as a useful reading assignment.

### **Guidelines for overcoming challenges**

The host should maintain regular contact with the participants of the course, support the development of the case study and encourage the exchange of experiences and products. In case the activities are not carried out, the host should contact the corresponding NMHS by private message to determine the reason.

### **How outputs can be used**

Based on the analysis of a specific case study in which each institution participated, it is expected that there will be lessons learnt regarding product issuance by meteorological services and internal and external actions taken by Civil Protection Institutions. The analysis of each of the steps in Integral Risk Management is revealed by this activity. This process can be repeated to debrief future severe events as well.

## Module 4: Reflecting on Challenges and Opportunities

(Online, Synchronous) Live discussion session among participants to review the workshop contents and their outcomes, as well as lessons learned for operations and for future workshops in the region. Participant teams conduct a Strength-Weaknesses-Opportunities-Threats (SWOT) analysis of their DRR system and share with the course participants.

### Learning outcomes and products

- a. Conduct a live webinar or video conference for discussion and synthesis among the participants of the workshop.
- b. Collaborative development of a SWOT analysis (strength, opportunity, weaknesses and threats) regarding the degree of adoption of Integrated Risk Management in the institutional policy and the level of articulation among organizations.
- c. Outputs of Module 4 should lead to better understanding of the regulatory framework, improved inter-institutional articulation, products better adapted to the user, joint definition of goals, and other recommendations for improvements.

### Resources

1. Collection of products produced by each team during the course. This includes: (a) Organizational structure diagrams, (b) National DRR system diagrams, (c) Product-to-Actions Table, (d) Outreach and Communication Channels diagram, and (e) Event Case Study analysis. To promote discussion and productive analysis, all the documents produced during the course be reviewed prior to the event by both participants and the host institution.
2. Introductory PowerPoint presentation, “SWOT- WMO Workshop Hydrometeorological information for DRR” and template for SWOT presentations.

### Detailed description

1. Prior to the video conference, each national team should collaboratively develop a short SWOT analysis on their status of implementation of a national Integrated DRR system. Guidelines are provided. Participants should be prepared to discuss their SWOT analysis. It should be sent to the organizers in advance to allow them to compile a collective SWOT looking for common elements and unique national aspects, as well as stimulating discussion on the collective results.
2. The video conference for Course Closure requires the joint coordination among all participants of the course. A webinar or videoconferencing system is required.
3. Based on the results from the course, each task team should create questions to stimulate exchange and debate. It is important that many participants from the national teams attend the video conference and that each task team define topics of interest in advance for debate with the rest of the teams.

4. The videoconference should last about 1-1.5 hours and all participants should be given the same opportunity to speak. A moderator should direct the discussion and keep time.
5. Tools, templates, and examples (see Annex A)
6. SWOT Analysis template with guidance on how to develop it.

### **Guidelines to overcome challenges**

The host institution should encourage the development of assignments and promote the exchange of experiences during the webinar or videoconference call. A general summary of common and unique SWOT elements will increase the impacts of the exercise for those that did not develop it fully. The host should be prepared with questions to ask to stimulate discussion if they are not raised by participants.

### **How outputs can be used**

Through this final exercise, institutional links may be developed further and participants may acquire detailed knowledge of how to incorporate the Integrated Disaster Risk Management framework into public policy in their countries. The international exchange among colleagues is enriching for all the countries. The outputs could lead to modified national policies regarding DRR.

## **Bibliography**

[WMO-No. 1129 The WMO Strategy for service delivery and its implementation plan](#)

[WMO-No. 1150 WMO Guidelines on Multi-hazard Impact-based Forecast and Warning Services](#)  
(Chapters 1-4).

[WMO DRR Roadmap](https://library.wmo.int/doc_num.php?explnum_id=3537) (https://library.wmo.int/doc\_num.php?explnum\_id=3537)

WMO DRR Roadmap: A Summary

[Multi-Hazard Early Warning Systems: A Checklist](#)

[Guidelines for Creating a Memorandum of Understanding and a Standard Operating Procedure](#)  
[between a National Meteorological or Hydrometeorological Service and a Partner Agency](#)

[WMO-No. 1099 PWS-26](#)

## Resources and Templates

The resources and templates shown here will be made available on the Course Template Moodle site for download, adaptation and reuse.

### Pre-Workshop Phase Resources

#### Participant List

Develop a participant list to help all participants know who is involved in the course, and to facilitate communications, especially for the host. (See the Instructor Guide section of the course for an example.)

#### Invitation Letters

It is strongly suggested that an invitation be sent from the PR of the host country RTC to the NMHSs in the region who are being invited to participate. This elevates the visibility of the workshop, engages those at the highest levels, and demonstrates the importance of the workshop to all partners. In turn, it is strongly suggested to provide guidance to the invited NMHS to invite participants from partner emergency agencies to join their workshop team.

See the example letters in the Instructor Guide section of the Course website.

### Module 1 Resources

#### Institutional Structure Diagram

See the Templates and Examples section in Module 1 of the course.

### Module 2 Resources

#### Product-to-Actions Table

See the Templates and Examples section of Module 2 of the course.

#### Outreach and Communications Channels diagram

See the Templates and Examples section in Module 2 of the course.

### Module 3 Resources

#### DRR Case Study Preparation

##### Guidelines for Case Study selection

The following guidelines are also included in the assignment description in Module 3.

- Select a recent high-impact event that in your country

- Choose an event in which the team members participating in the workshop were involved
- Collect resources from the NMHS regarding the meteorological situation, including a general summary of the meteorological situation, products issued, forecasts during the period of the event
- Both NMHSs and Civil Protection should create outline of communications between them and other DRR partners
- Collect resources on the actions taken by emergency and risk management agencies
- Both should collect resources on the impacts of the event

### **Case Study Template**

In preparing a summary of the event, use the guidelines provided in the Templates and Examples section of the Course.

### **DRR Case Study Integrated Risk Management Table Example**

For an example use of the Integrated Risk Management table, see the Templates and Examples section of the Course.

## **Module 4 Resources**

### **SWOT analysis guidelines and template for submission (Powerpoint format).**

Other formats can be used for sharing. See the course template, Module 4, Introduction and Template in the Templates and Examples section.

### **Example completed SWOT analysis**

See the course template, Module 4, Templates and Examples

