



World Meteorological Organization

Weather • Climate • Water

The Common Alerting Protocol and Impact-Based Forecast and Warning Services

Gerald Fleming, Chair, OPAG on Public Weather Service Delivery

Why Are We Here?

- WMO has adopted a move towards “Impact-Based Forecast and Warning Services.
- WMO has also strongly promoted the adoption of the Common Alerting Protocol for the dissemination of warnings, to ensure that warning messages clearly and quickly reach their intended audience / destinations
- There is work to be done in fully aligning the implementation of the IBFWS paradigm with the CAP protocol



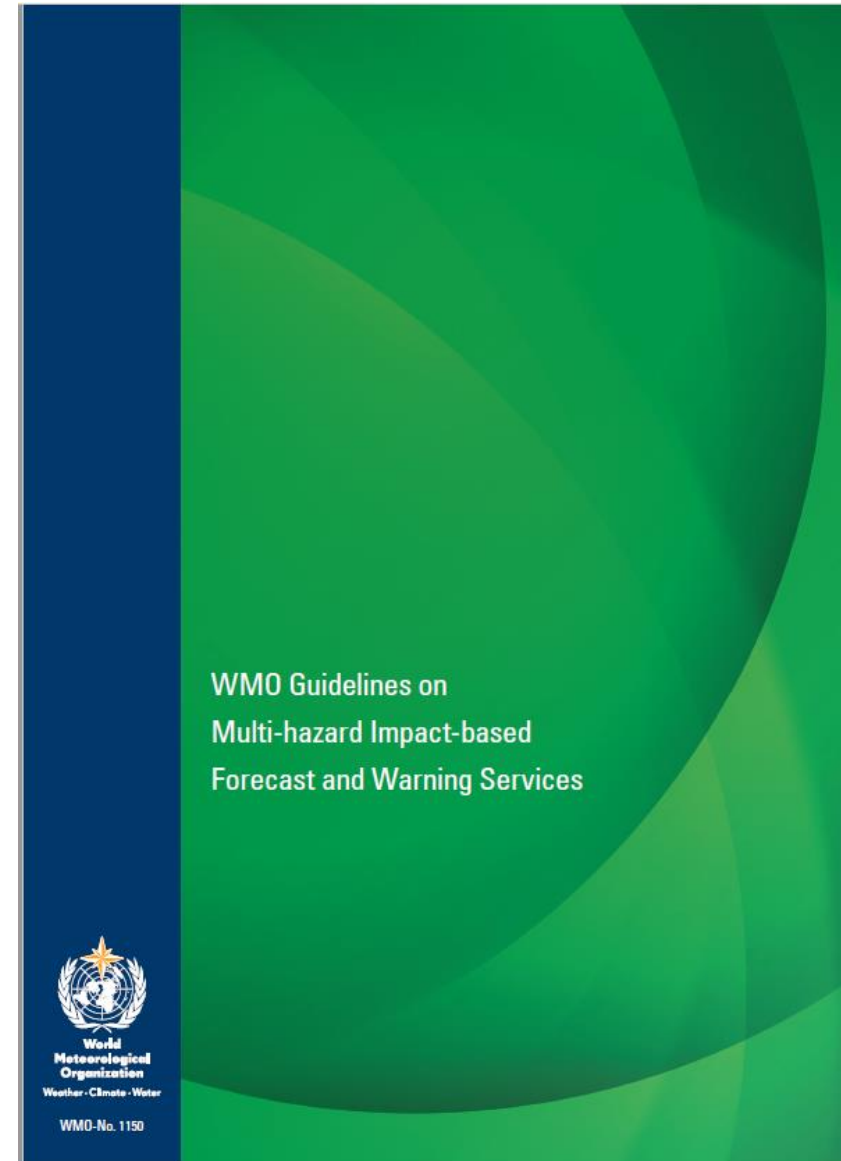
Why Are We Here?

- WMO has a Task Team on the recording and cataloguing of extreme events. Ideally, the definitions of event types in this cataloguing exercise need to be aligned with the event types as defined within CAP.
- WMO is moving ahead with the “Global Multi-Hazard Alerting System” which seeks to aggregate warnings from all of the NMHSs around the globe for display on one portal. This would require that all warnings be communicated to the portal / exchanged internationally using a consistent scheme.



WMO No. 1150

WMO Guidelines on Multi-Hazard Impact-Based Forecast and Warning Services



Why Impact-based Forecast and Warning Services?

- Arises naturally from a focus on users needs
- Weather information normally just one “input” into decision-making by users
- Increasing the relevance of weather information to users
- Increasing the awareness of forecasters and others within meteorology on users needs and concerns.



Why Impact-based Forecast and Warning Services?

- Forecasting **impact** is more important than forecasting pure meteorological elements; impact forecasts are more readily understood by:
 - Those at risk and;
 - Those responsible for mitigating those risks
- Meteorologists often are reluctant to forecast impact
 - Extensive knowledge of vulnerability and exposure are needed



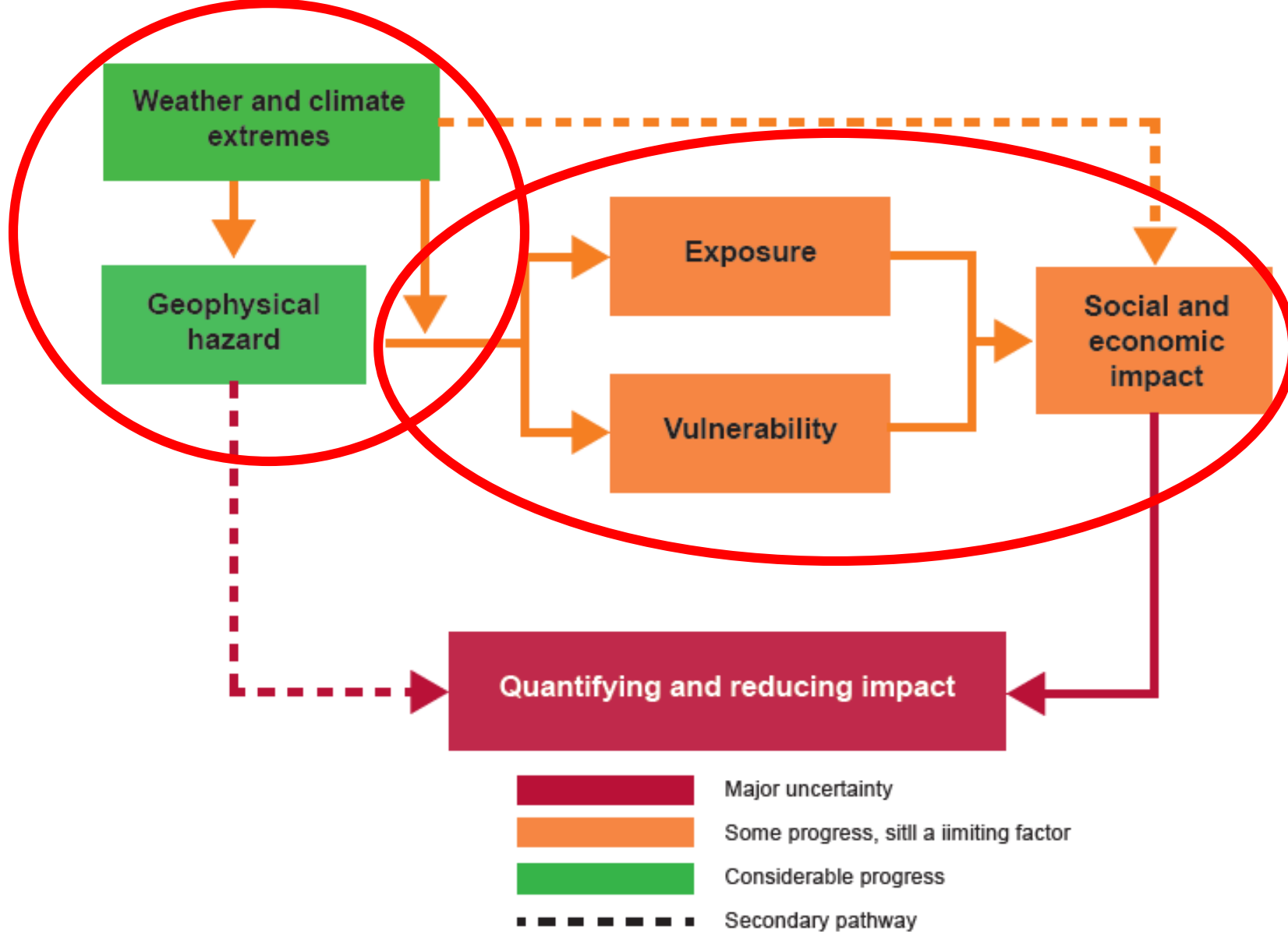


Figure 1. Relationship among the key elements of an impact forecast system



Hazards and their Impacts

Source	Primary Hazard	Secondary Hazard	Tertiary Hazard
Westerly frontal systems, Cut-off-lows, Tropical lows	Heavy rain	<ul style="list-style-type: none"> Flash floods Road flooding Inundation Sinkholes 	<ul style="list-style-type: none"> Damaged of infrastructure (roads, bridges) Informal/formal/flood vulnerable settlements impacts (Deaths, Displacements) Flooding/inundation of sewage systems (sewage systems not made to handle water/floods) due to paving Water borne diseases Environmental degradation
Westerly frontal systems, Ridging high pressure (SE'lies)	Strong wind	<ul style="list-style-type: none"> Structural damage Informal housing damaged Traffic disruption Trees blown over Pylons collapse Harbor? 	<ul style="list-style-type: none"> Injury/death/loss of life Trucks blown over Air pollution- dust storms Agriculture damages Power failures
Westerly frontal systems, Cut-off-lows	Snow	<ul style="list-style-type: none"> Roads/passes closed Structural damage 	<ul style="list-style-type: none"> Loss of life (human or stock) Financial loss (Insurance claims)



Partnerships and Collaboration

- Forecasters / NMHSs need to work in partnership with users, especially other government agencies and stakeholders (emergency response, mapping agencies, transport, public, etc).
- Data sharing among different agencies and departments is vital (demographic, GIS and mapping, economic etc).
- Some of this data sharing has historically been anecdotal, but increasingly it will be rigorous
- Understanding of Impacts will come largely from social science work, from experience, from memory of previous events and from historical records.



CHALLENGE



METHODOLOGY



SOLUTION



PRACTICE



What might be our Outcomes?

- Agree minimum standard approach for international exchange of warnings
- Explore what this means for WMO-led CAP implementation (eg regional workshops, GMAS)
- Agree process for alignment of terminology
- Perhaps agree to explore formalising the link between CAP, IBF and the WMO Register of Alerting Authorities. So to 'join' for the WMO Register, a Member should acknowledge that its NMHS meets IBF principles, maybe including core CAP
- Consider other means to increase the engagement with the WMO Register of Alerting Authorities

