

Port Resiliency and Emergency Management

What tangible steps can be taken to better prepare for and respond to climate change risk?

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Port Resiliency Strategic Planning

Like no other Risk Scenario Climate Change requires:

- 1) Standardized models, frameworks and shared lessons learned
- 2) An expanded network of stakeholders
- 3) Year over year commitment by stakeholders
- 4) Funding streams to support Port Authorities to take leadership roles
- 5) Formalized contributions of academia and Federal research organizations i.e. Defence Research and Development Canada



Canadian Emergency Management Framework

- Emergency Management Framework for Canada
- Sendai Approach Disaster Risk Reduction
- Recognition that Ports are Critical Infrastructure and their loss following a storm affects logistical supply or the country, i.e. Katrina and Sandy



Before and after Hurricane Katrina at the Port of Gulfport, Mississippi in 2005 (NOAA)

Community Based Risk Assessment

Recognizing Sea Level Risk, Higher Frequency and Duration Storms, increased wind speed

- Accurate, agreed upon modelling by expanded stakeholder group
- Accurate assessment of Economic Impact of Risk Scenarios, i.e. power loss, supply chain disruption, hazardous materials incident



The storm surge washed out train tracks and caused these railcars to slide into Halifax Harbour, Hurricane Juan 2003 (Environment and Climate Change Canada)

Community Interdependencies

- Road
- Rail
- Electrical utility
- Water and Wastewater
- Residential community Interface
- Responders
- Emergency Managers



Port Arthur Oil Spill 2010

Emergency Management Phases: Mitigation

- Holistic stakeholder engagement and financial support built into Climate Change Risk Framework
- Expanded Community Stakeholder Groups
- Modelling & Expanded Strategic Planning
- Expanded Community Planning / Land Use Management

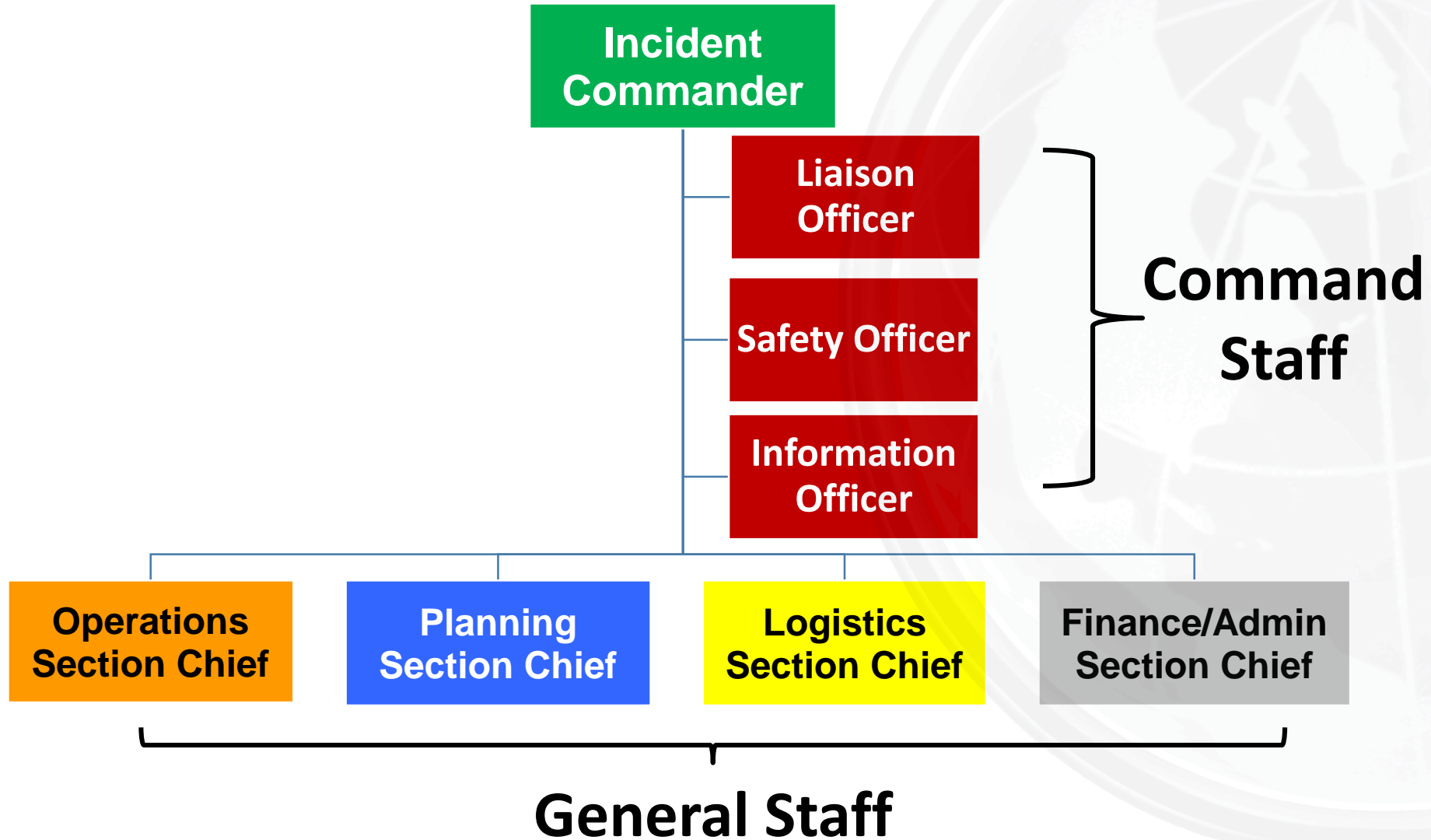


Emergency Management Phases: Response

- Application of technology
- Situational Awareness
- Joint Emergency Operations Centres
- Interoperability:
Command and Control System
(ICS Canada)
- Scenario-based training



The Incident Command Organization



Emergency Management Phases: Recovery

- Prioritization of Restoration of Services at Port Facilities and Supply Chain
- Equipment caches based on Risk Scenario Modelling
- Measures and Metrics re. resumption of services
- Supply Agreements / Recovery & Emergency Response Assistance Plans (ERAP)
- Lessons to be Learned Repository

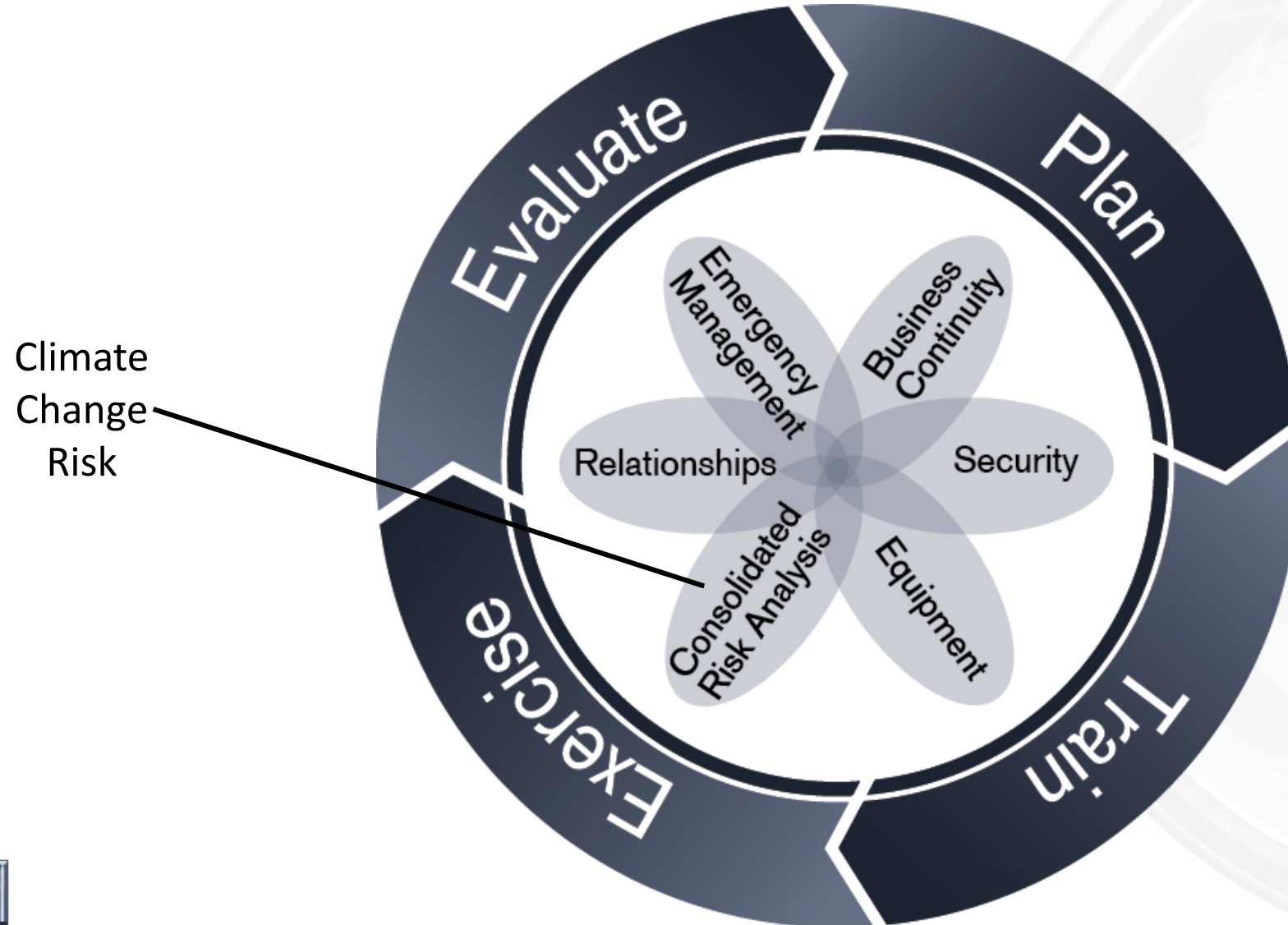


Business Continuity & Emergency Management Program Validation

- Blend Security Management requirement with Emergency Management (Quarterly Cadence)
- Combine Security and Emergency Management validation exercises
- Expanded Stakeholder Group
- Utilize medium for refining risk-based scenarios analysis
- Chief Resiliency Officers?



Resiliency Management Process



Climate
Change
Risk

Thank You

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