



Potential gaps in the preparedness system of the High North- the need for innovation



Professor, dr. ekon. Odd Jarl Borch
Nord university, Bodo, Norway

www.nord.no

My focus:

- Maritime activity and worst case scenarios
- Ten postulates about severe gaps in industry and government preparedness in the High North
- Areas of emergency preparedness improvements and innovations
- The role of MARPART in creating platforms for innovation

Changes in maritime activity in the High North

- **Fisheries** –farther out at sea and towards the ice ridge searching for migrating fish resources
- **Oil and gas** –into challenging waters with longer distance to the mainland with necessary infrastructure
- **Cruise** –further North and East/West –explorer cruise close to ice
- **Transport** –more internal- dangerous goods transport to/from oil and gas fields, inter-continental transit in NWP/NEP with both passengers, general cargo and petroleum products
- **Government** (research, military) – complex operations in sensitive areas
- **Offshore mineral mining** – new industry of sea bed exploitation in exposed, deep sea areas

- Cruise industry
 - Collision with ice, grounding, fire or terrorist acts resulting in mass casualties/mass evacuation
 - Oil and gas industry
 - Same as above plus explosions and massive oil pollution in ice infested water
 - Grounding or ice collision of large oil tanker
 - Fisheries
 - Factory trawler sinking in remote area in winter time
 - Government
 - Nuclear powered military vessel on fire
- Transportation

CENTRAL QUESTIONS TO BE ASKED (1). DO WE HAVE THE CAPACITIES NEEDED TO MEET LARGE SCALE ACCIDENTS?

- Postulate 1. Most countries have not analyzed the future activity and defined the response time and thus have not a clear picture of the capacity gaps
 - Example:
The maritime industry in Norway has taken the initiative of mapping maritime SAR-gaps in Norwegian High North regions through the SARINOR project (funded by the Ministry of Foreign Affairs and the County Government of Nordland) not the Ministry of Justice and Preparedness
- Postulate 2. Clear indications that we do not have enough capacities to fill the gaps we have revealed
 - Example: Denmark National Audit on Greenlandic SAR and oil spill recovery capacity. Oil spill resources meant for Greenland located in Denmark and not tested for icy waters
 - Example: the US Coast Guard cannot afford to replace outdated ice breakers

Capacity gaps and innovation areas

1. Develop analytical tools for how to do risk assessments and gap analyses without statistical data
2. Perform circumpolar gap analyses for each sea area where use of each others resources may be part of solutions
3. Resource data bases for knowledge of available resources in different sea areas

CENTRAL QUESTIONS TO BE ASKED (2). DO WE HAVE THE TECHNOLOGY NEEDED?

- Postulate 3. We lack technology for High North emergency operations (situation awareness, communication, cold climate rescue equipment, oil spill recovery tools)
 - **Example: Exercise SARex at Spitsbergen showed that the standard life boat and raft, nor the personal protection equipment fulfilled Polar code demands for rescue equipment in ice-infested waters**
 - **Example: Launching technology for life boats in severe listing and bad weather**
 - **Example: Broad band capacity start failing north of 73° N**
 - **Example: oil spill recovery technology for high waves and ice**

Technology gaps and innovation areas

1. Increased R&D funding from Arctic governments and EU
2. High Arctic research strategy developed under the auspices of Arctic Council EPPR committee
3. Speed up industry product development on equipment for SAR and OSR in icy waters
4. Create joint platforms for testing of equipment and vessels
 - **Example Norway: use the contracting of new ice-class polar research and coast guard vessels and AWSAR-helicopters as innovation and testing platforms**

Do we have the organizational capital needed?

- Postulate 4. we have a confusing mix of different organizational structures
 - **Example: In Norway the fire brigades, the Norwegian Civil Defense and the oil and gas industry use the Incident command system. The police as the coordinating unit in emergency situations have another hierarchical structure. The paramedics have a third organizational structure**
- Postulate 5. we have not solved the challenges of large scale incidents and host nation support
 - **Example: Exercise Barents Rescue between the Nordic countries and Russia have showed that the upscaling of capacities is a challenging task especially as to on-scene coordination with overload challenges as a result**
- Postulate 5. there are severe collective management-coordination and communication challenges between private companies, municipality, emergency agencies, directorates and ministries
 - **Example: coordination mechanisms for collective SAR coordination at staff level extremely challenging. At least five different systems for situational awareness, resource coordination and communication among SAR-involved institutions**

Organizational gaps and innovation areas

1. Systematic research on myths of emergency organizations including “incident command systems” and “high reliability organizations”
2. Comparative studies on different organizational structures in different contexts
3. Continuous experiments with different organizational concepts as well as standing operating procedures (ref. football)

CENTRAL QUESTIONS TO BE ASKED (4): Do we have the institutional capital we need?

- Postulate 6. Cultural barriers including lack of common language and standardized tools and procedures still a challenge
Example: Communication challenges in the Exercise Barents and the Exercise Barents Rescue both at personal and organizational level

Example: Norway: conflict of authority between police and military forces on maritime anti-terror
- Postulate 7. Political turbulence with sanctions has increased the institutional barriers with potential catastrophic limitations in preparedness knowledge transfer, situational awareness and joint emergency response
- **Example: the lack of contact between East-Russian and US Alaskan preparedness institutions**

Institutional gaps and innovation areas

1. Highlight through research how formal institutions play a role in hampering emergency operations
 2. Create binding bilateral agreements where annual joint training and exercises programs are included
 3. Facilitate interactive communication systems including joint data bases between the coordinative levels for experience exchange and emergency planning
- Create bilateral emergency special task forces for joint operations in specific regions within each emergency area (SAR, OSR, anti-terror, CBRNE)

CENTRAL QUESTIONS TO BE ASKED (5):

Do we have the managerial capital needed?

- Postulate 8. we are not prepared for mass evacuation operations in remote, cold climate areas
 - **Example: the Polar code for ship owners and vessels a step in the right direction, but only a minimum version**
- Postulate 9. We have a very fragmented and inefficient educational system
 - **Example: In Norway, each institution/sector have their own professional education -six different institutions giving emergency management courses without cooperation and coordination between them.**
- Postulate 10. Lack of common training and exercise platforms
 - **Example Norway: Several government white papers and the Norwegian National Audit have stated that competence in joint operations and cooperation across institutions is too limited with lack of training and exercise arenas - two national committees has been working**

Competence gaps and innovation areas

- Develop knowledge on mass evacuation and caretaking of evacuees in an icy water context
- Annual full-scale exercises in a realistic context with commercial actors in the High North
- Create circumpolar professional management networks for experience sharing
- Create international academic networks on emergency management education and training
- Create joint courses and simulation training for professionals by universities in the Arctic

EFFORTS FROM THE MARPART PROJECT TO BRIDGE GAPS

PAN-EUROPEAN PROFESSIONAL NETWORK ON SAFETY AND SECURITY IN THE ARCTIC

- **EU Horizon 2020 program Secure Societies:**
 - improve knowledge exchange and innovations
 - Create thematic Tripple Helix-based networks between Academia-Government-Industry
- **Objective:**
 - Create European knowledge sharing and innovation network on systems and technology development
 - Focus on Arctic SAR issues
- **Management**
 - JRCC-North Norway project lead with Nord University as network coordinator
- **Status:** Established consortium in June 2016, application to EU August 2016

CIRCUM-POLAR ACADEMIC NETWORK ON ARCTIC SAFETY, SECURITY AND PREPAREDNESS

University of the Arctic

- establishment of **Arctic thematic network: Arctic Safety and security network**
- Permanent network for 20 universities and research institutes in the Arctic-8 countries
- Platform for cooperation on education, research and dissemination of knowledge
- Nord University lead partner

Efforts to fill the institutional gaps –contribute through the Arctic institutions

- **Arctic Council**
 - working group:
EPPR - emergency prevention preparedness and response
- **Arctic Economic Forum**
- **Arctic Coast Guard Forum**

Contribute to a new institution under the Arctic Council umbrella: The Arctic SAR forum

- A center for analysis and knowledge sharing among professional SAR institutions in the High North:
- **Focus on:**
 - Experience sharing
 - Gaps and barriers
 - Analysis and R&D
 - Common models for SAR operations
 - Joint training and exercise concepts
 - Test of technology and innovation

Conclusions

- The maritime activity patterns of the High North are changing with potential increase in risk for large scale incidents
- There are severe capacity and competence gaps in maritime preparedness in most countries
- A need for significant innovation efforts to fill gaps and reduce barriers in all Arctic countries
- Joint arrangements and joint institutions a bridging solution to increase capabilities
- The universities may play a vital role in supporting the companies and professionals both with competence, public focus and innovative stimuli and support

Thank you for your attention!