



Erik Dyrkoren, Msc.
Project Manager

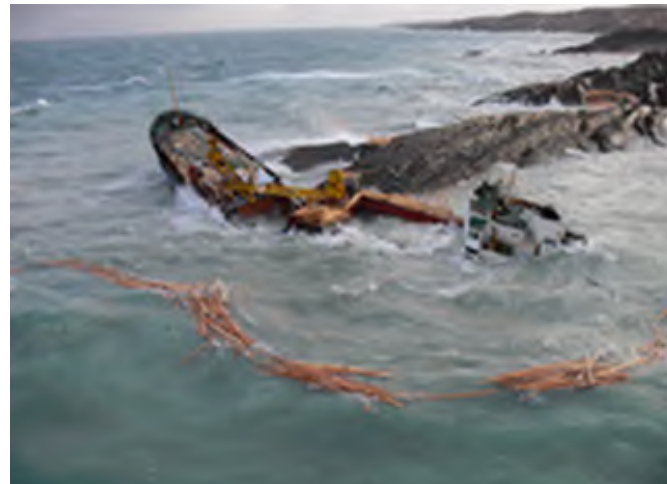
IFSMA, Sandefjord, 5.6.2014





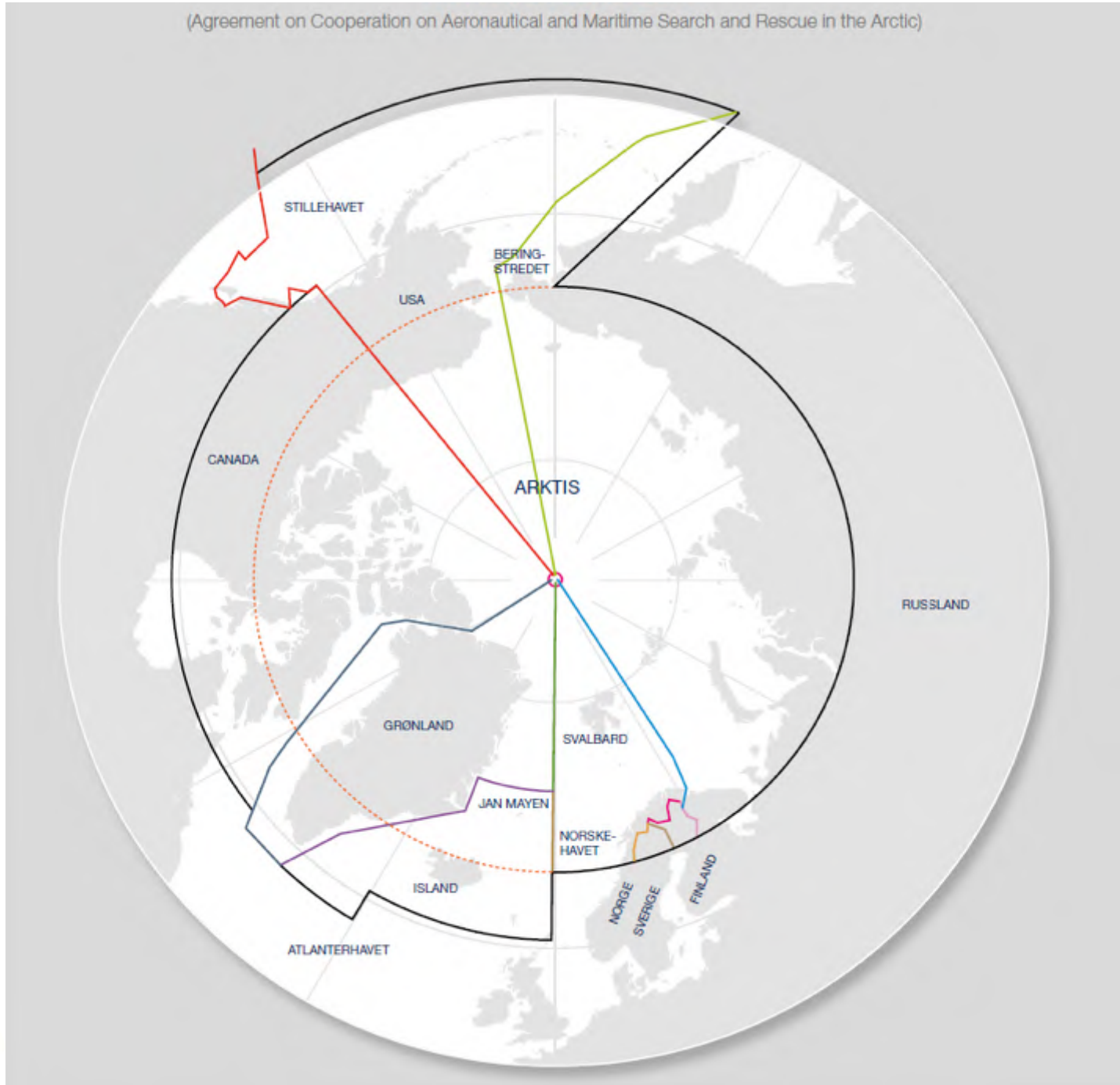
Vision:

Norway shall be world leading in planning, coordinating and executing search and rescue operations at sea in the High North.



Arctic SAR-agreement

(Agreement on Cooperation on Aeronautical and Maritime Search and Rescue in the Arctic)



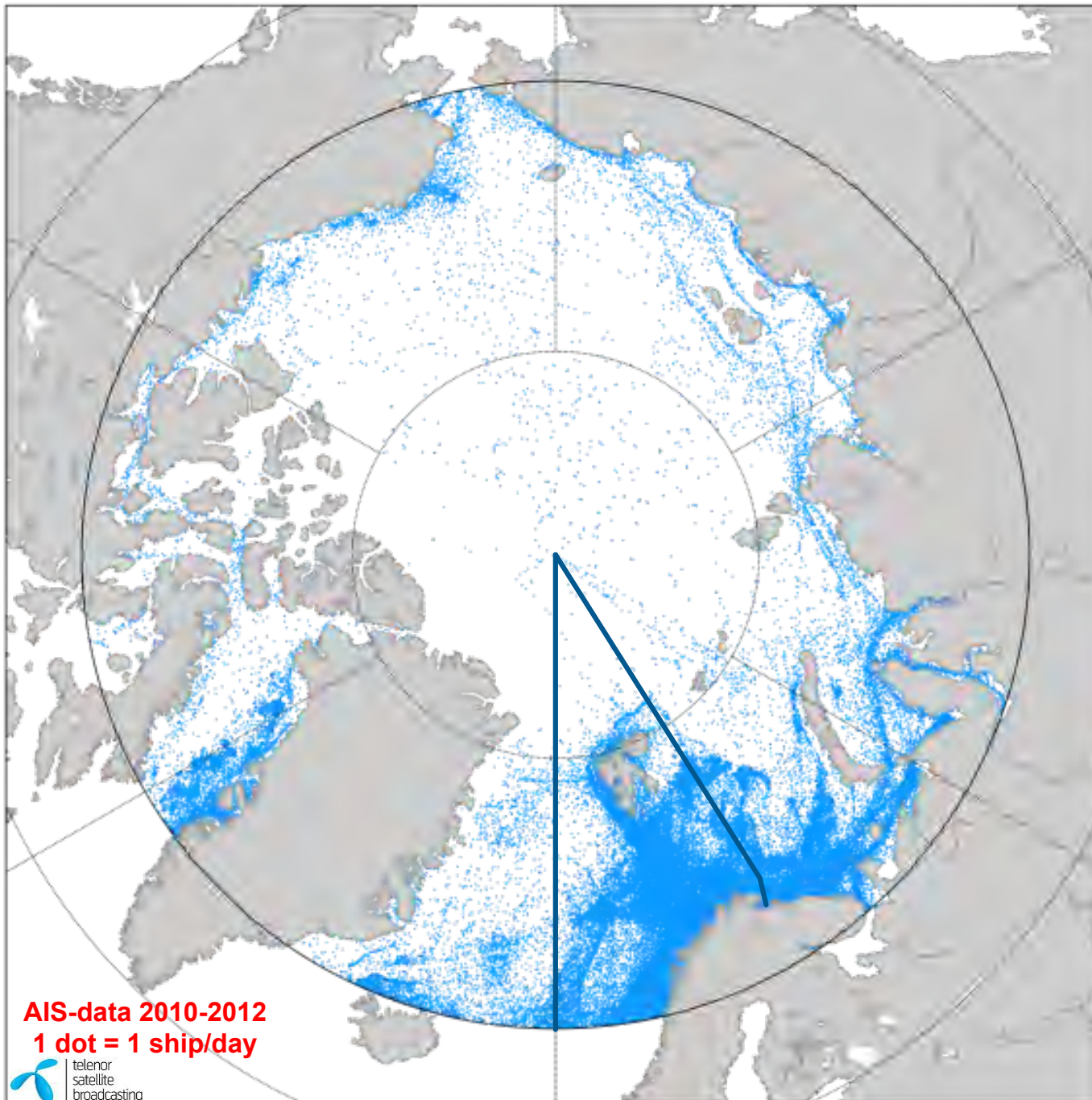
±80 % of Arctic shipping is in Norwegian waters

Large accidents will happen!

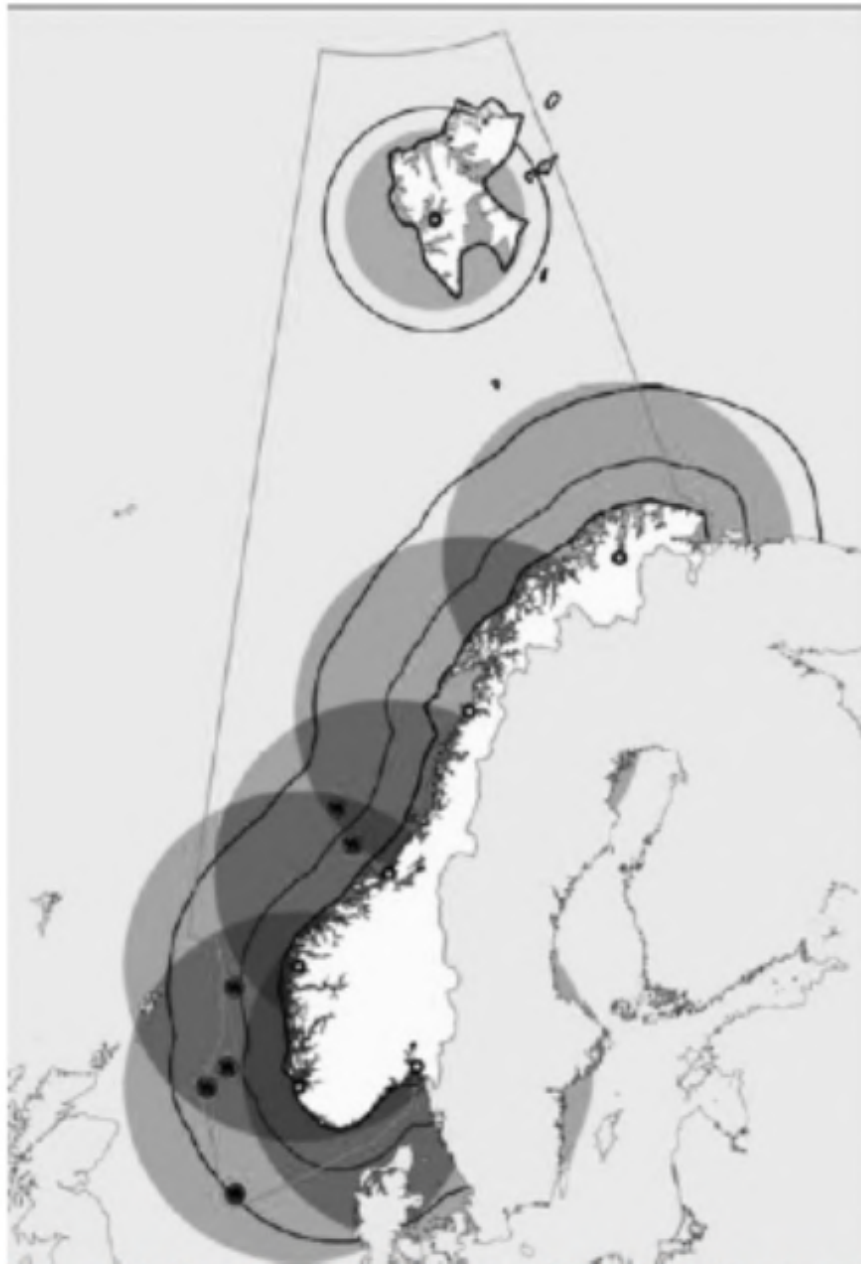
Are we prepared?

What do the experts say?

- 330 squadron



Norway's rescue ambition (2011)

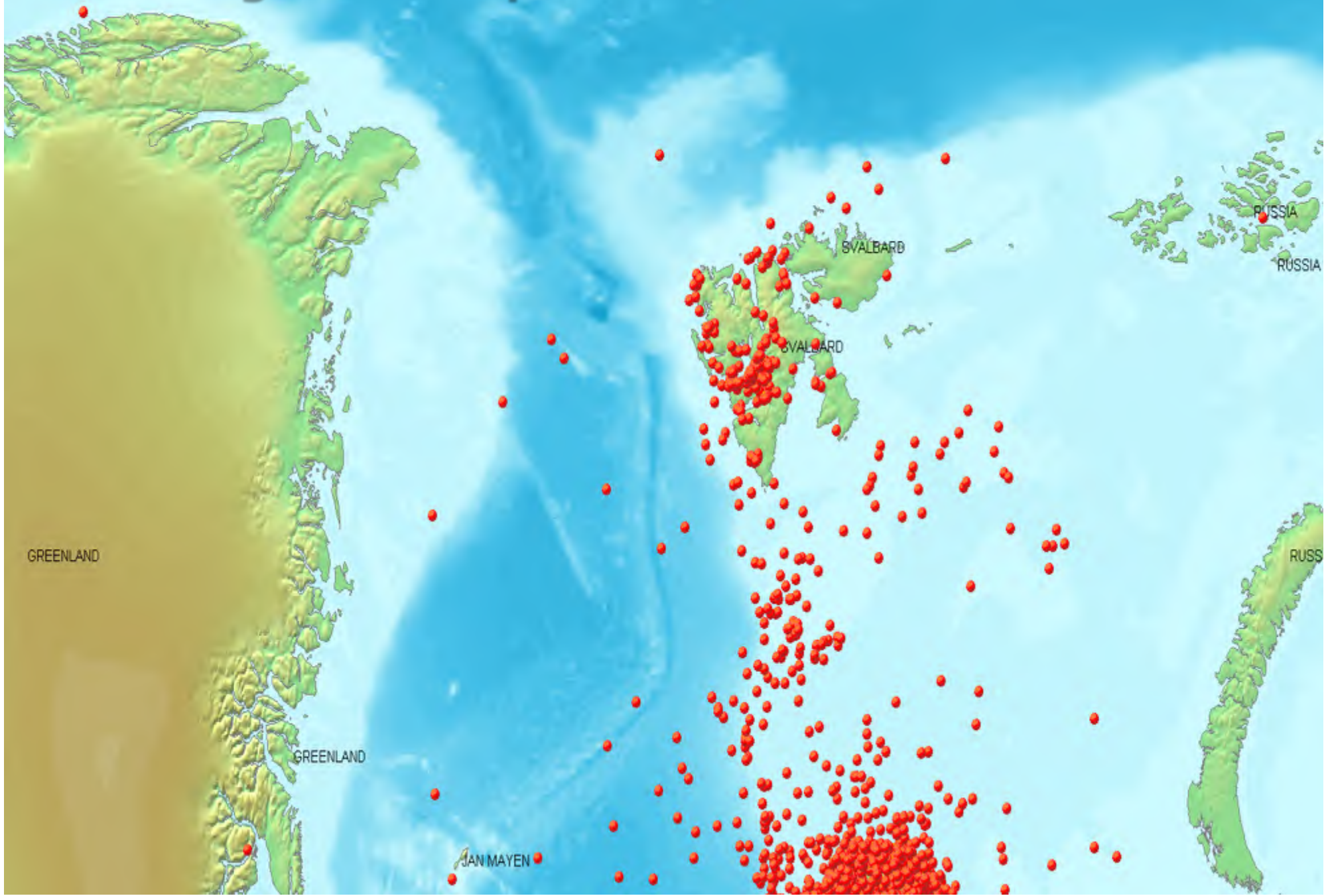


Shall have the ability to rescue and bring safety to shore:

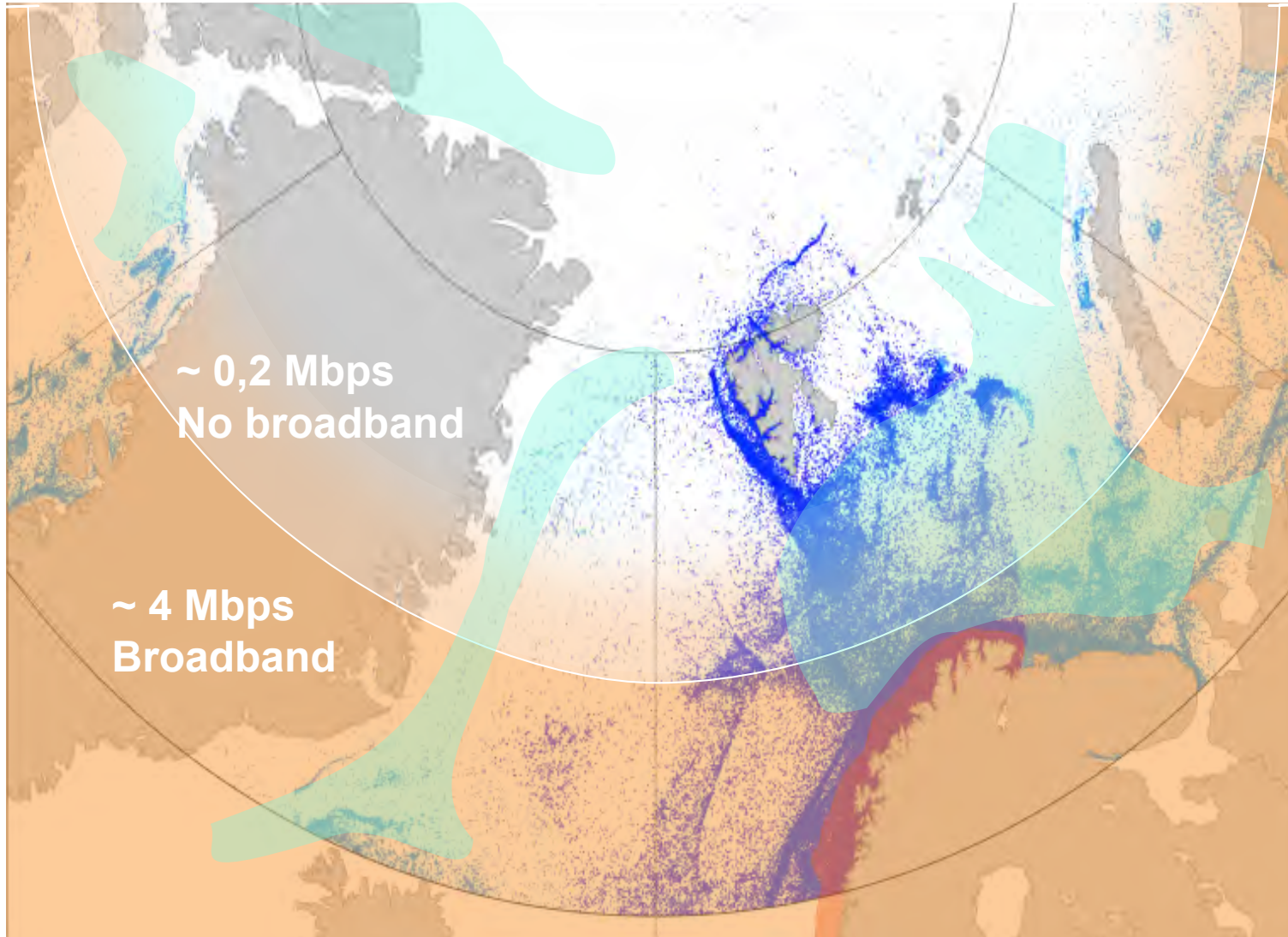
- 20 persons in distress on every point 150 Nm off the baseline within two hours
- and additionally, 2 persons in distress at the periphery of Norway's SAR-area






Figure 13. Reach specified for new AWSAR helicopters (Ministry of Justice, 2011)

Norwegian SAR operations 2008-2012



Arctic communication limitations



-  Ship traffic
AIS data 2011
dot = ship/day
-  Expected
oil and gas
deposits
*US Geol.
Survey*
-  Broadband via
Maritime Radio
0 – 10 Mbps
-  GEO satellites
*Telenor, Intelsat,
Inmarsat, etc.*
Up to 4 Mbps
-  LEO satellites
Iridium
(telephone)
< 0,2 Mbps

Kilde: U.S. Geological Survey
Kilde: AIS-Sat 1 / Norsk Romsenter



Gov't. report on development in the North (2011)



"It is the responsibility of each company and their associations to systematically reduce risk of accidents and to a much larger extent handle crisis situations them selves compared to other areas"

"The government will facilitate openness on challenges, knowledge development and sharing of experiences"



National cooperation on Search and Rescue in the high north:

- What level of SAR-preparedness shall we aim for?
- How can we coordinate and utilize our combined capacity
- SAR relies on contributions from all nearby resources
- SARiNOR is similar – all shall contribute per ability and need

SARiNOR phase 1

- **Start** **Q4 2013**

- **Duration** **3 years**

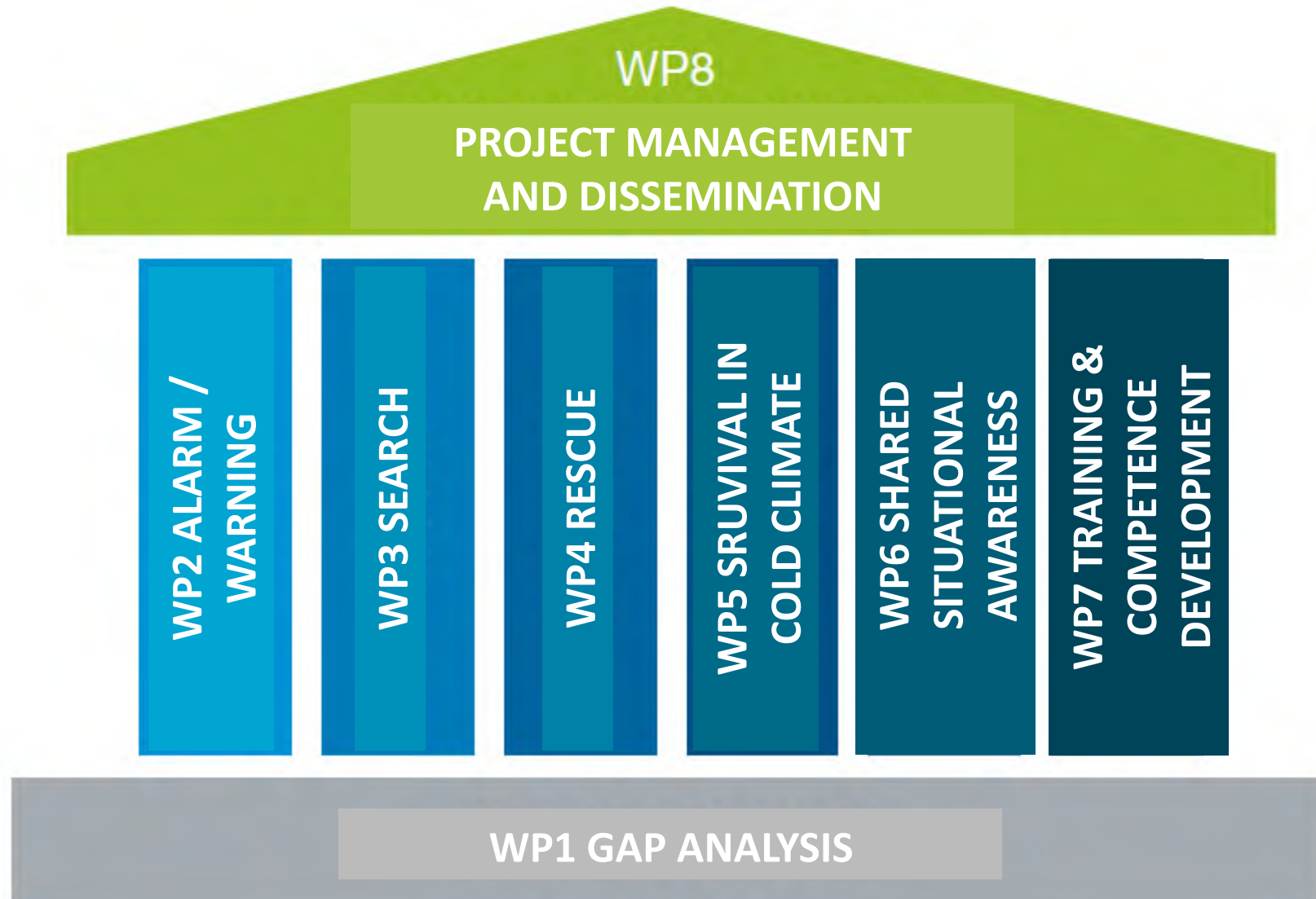
- **Budget** **NOK 20 mill.**

- **Financing** **50 % public**
 50 % private

- **Participants**
 - Ship-owners
 - Oil and Gas companies
 - Insurance companies
 - Research institutes
 - Consultancies
 - Think tanks
 - Governmental bodies



Project structure





“I warmly welcome the initiative taken by the maritime industry in North Norway to strengthen cooperation between the various actors involved in search and rescue operations and to improve the methods used.”

“The Government has allocated 8 million kroner to a project on search and rescue in the High North (SARiNOR) over a three year period.”

- Prime Minister Erna Solberg -

21.01.2014





11. Canada
2012



2017



Norwegian fishing vessel "Camaro", October 2012

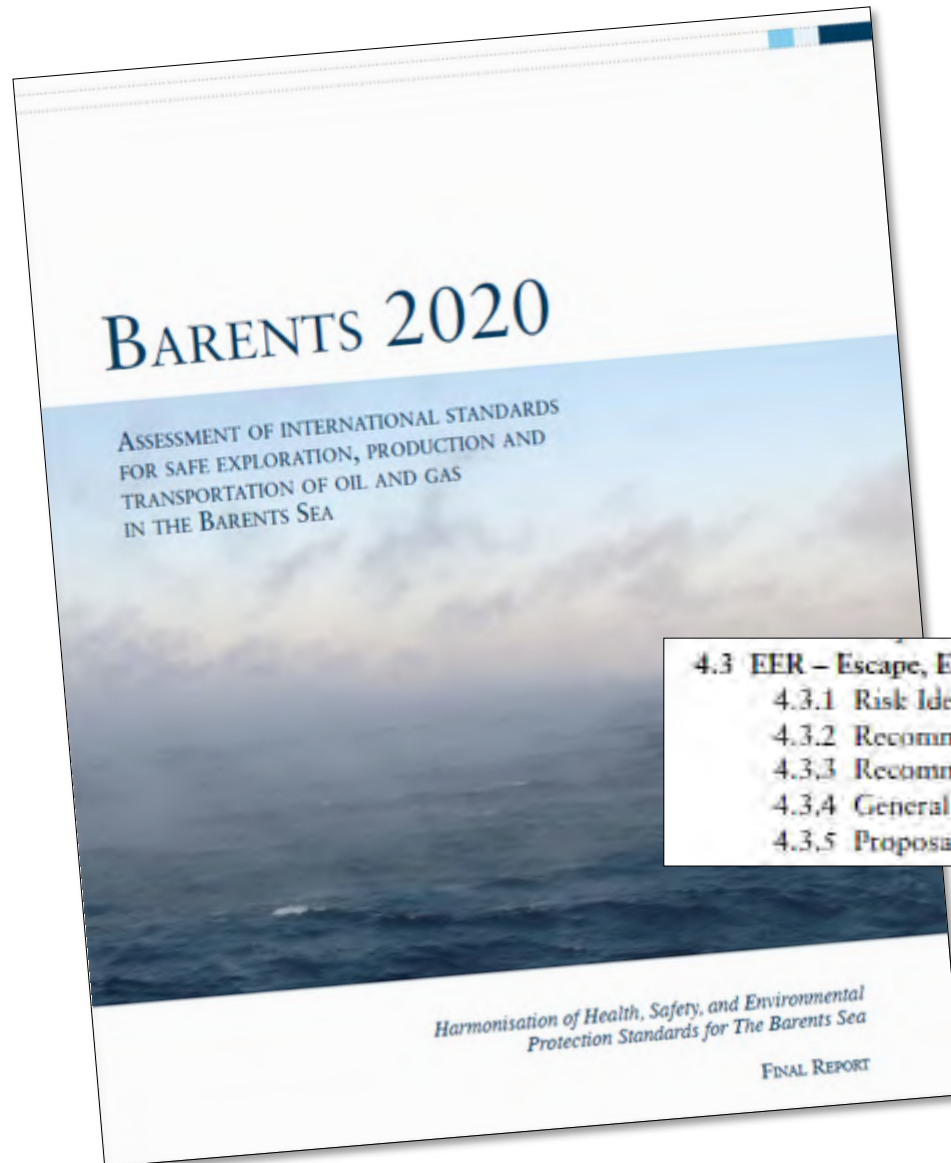




Tourism

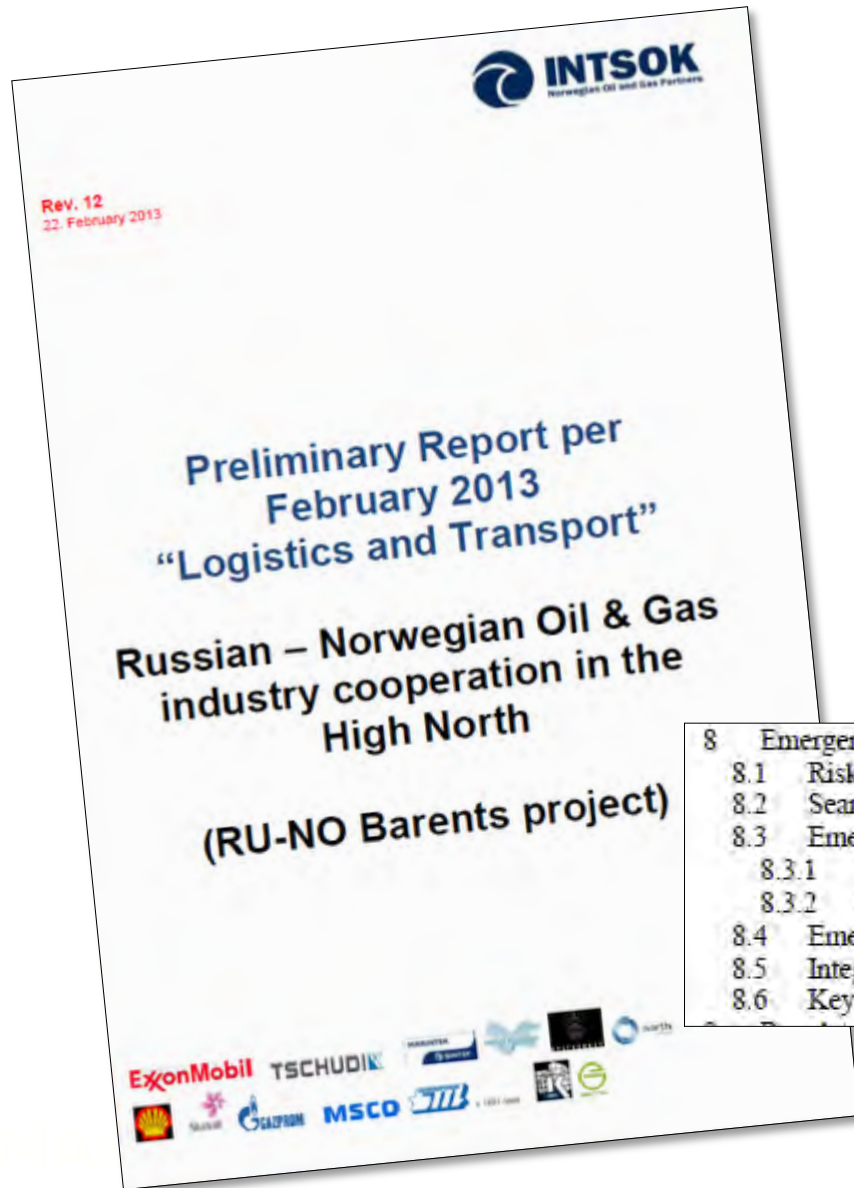


Utilizing recent analyses



4.3 EER – Escape, Evacuation and Rescue of People
4.3.1 Risk Identification for the Barents Sea
4.3.2 Recommended Key HSE Standards
4.3.3 Recommended Changes to Key Standards for Application in Barents Sea
4.3.4 General Comments, Findings and Priorities
4.3.5 Proposals for Further Work

Utilizing existing project outcomes



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The Arctic Development Roadmap R&D priority Matrix



Issues	Categories of Technologies											
	Advanced Onshore/Underwater Technology			Submerged Technology			Marine Technology/Underwater Systems				Surface Technology/Systems	
	Autonomous Underwater Vehicles	Deep Seafloor Mining	Offshore Production	Submersibles	Remotely Operated Vehicles	Autonomous Surface Vessels	Autonomous Undersea Vehicles	Autonomous Undersea Systems	Autonomous Surface Systems	Autonomous Undersea Systems	Autonomous Surface Systems	Autonomous Undersea Systems
Arctic Search and Rescue	High	High	High	High	High	High	High	High	High	High	High	High
Arctic Navigation	High	High	High	High	High	High	High	High	High	High	High	High
Arctic Resource Extraction	High	High	High	High	High	High	High	High	High	High	High	High
Arctic Infrastructure	High	High	High	High	High	High	High	High	High	High	High	High
Arctic Environmental Monitoring	High	High	High	High	High	High	High	High	High	High	High	High
Arctic Transportation	High	High	High	High	High	High	High	High	High	High	High	High
Arctic Energy Production	High	High	High	High	High	High	High	High	High	High	High	High
Arctic Resource Management	High	High	High	High	High	High	High	High	High	High	High	High
Arctic Community Development	High	High	High	High	High	High	High	High	High	High	High	High
Arctic Infrastructure Development	High	High	High	High	High	High	High	High	High	High	High	High
Arctic Environmental Protection	High	High	High	High	High	High	High	High	High	High	High	High
Arctic Transportation Infrastructure	High	High	High	High	High	High	High	High	High	High	High	High
Arctic Energy Infrastructure	High	High	High	High	High	High	High	High	High	High	High	High
Arctic Resource Infrastructure	High	High	High	High	High	High	High	High	High	High	High	High
Arctic Community Infrastructure	High	High	High	High	High	High	High	High	High	High	High	High
Arctic Infrastructure for Arctic Development	High	High	High	High	High	High	High	High	High	High	High	High

Escape, Evacuation and Rescue

EER Technologies



Image courtesy of:
Institute for Ocean Technology

Includes technologies, processes and models that promote effective escape, evacuation and rescue procedures from an installation located in an Arctic environment.

High: Immediate issues that must be addressed, sufficient to form the basis of a separate R&D project
 Medium: Significant issue to address, should be in other programs unless specific that not a response of that issue
 Low: Should be good to explore, but questions can proceed without answer

Extended range/time on task



Liferafts 1935-2013



1935



1965



2013

90 pax = ? min



20 or 30 ?



2 pax = 5 min
10 pax = 20 min





Alternative evacuation methods



Barents 2020



Immersion suit for Arctic waters

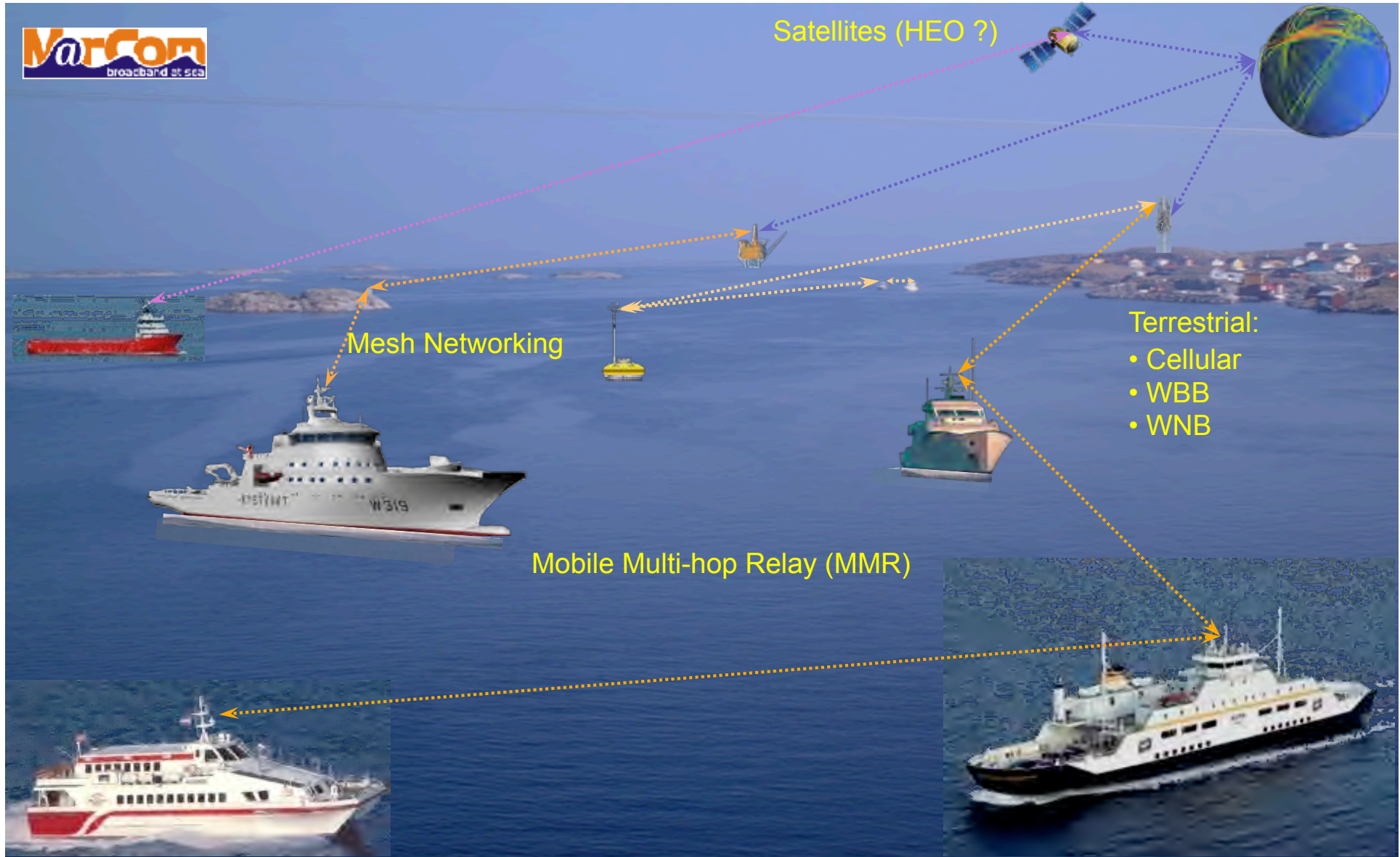
2012-2013

Financed by Eni Norge

2013 safety culture....



The MARINTEK WiCAN[®] Concept (Wireless Coastal Area Network)



▶ Continuous coverage with polar HEO satellites

Broadband via satellites in
high elliptic polar orbits (HEO)

Two satellites sufficient for
continuous coverage

Possibilities for roaming
between satellites in
equatorial orbits (GEO) and
high elliptic orbit satellites
(HEO)

Cost: \$ 350 – 530 mill.

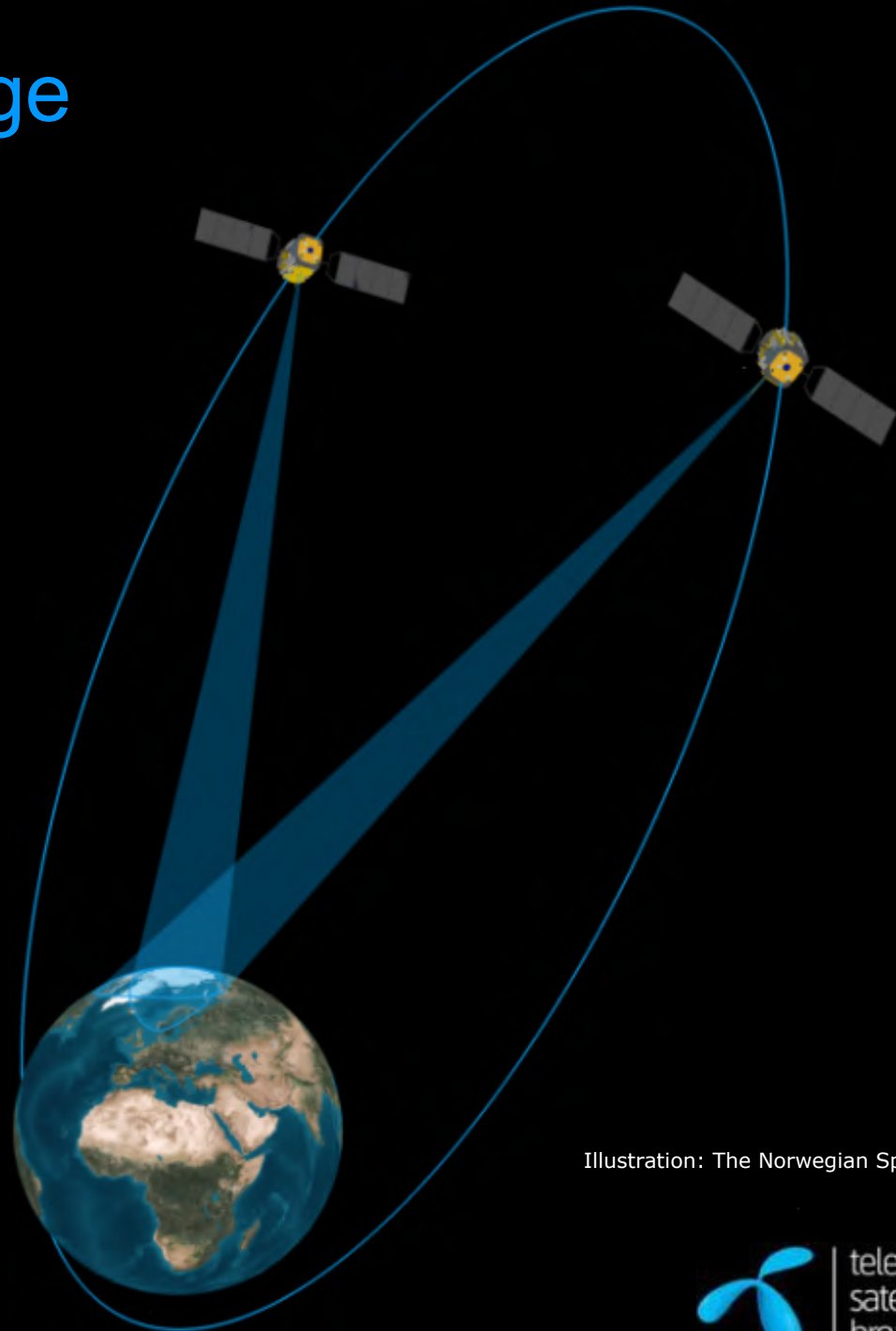


Illustration: The Norwegian Spacecentre



NORWEGIAN HULL CLUB



facebook Search for people, places and things

6 hours ago · 2

Da er det jaggju full evaluering fra vår Floatel Superior med øyeblikkelig v
 2.stk av bena er blitt slått hull i pga kjetting-ankerene har dasket i bena i d
 HOME SWEET HOME!!! :-]

http://www.youtube.com/watch?v=233Wp5e_Qfc

 www.youtube.com
www.youtube.com

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9 people like this.

 OUIII er du der nå?
6 hours ago · Like

 Kan ikke være så gale, etter som du har tid til å sette på face
venn jeg skal være skrive det på statusen min.)
6 hours ago · Like · 40 f

 Nå du ta ansvar å reparere det! 😊
6 hours ago via mobile · Like

 He he samuel 😊 Kay; kom det på rommen
6 hours ago via mobile · Like

 www.vg.no/nyheter/innervis/leistiket.php?tid=1004292

 **Boligplattform fikk slagside - hundrevis evakuert energi**
www.vg.no

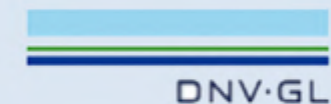
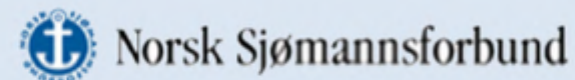
(VG Nett) En boligplattform ved fjordkysten begynte å k
 Stokli driver nå med evaluering av murtiløpet.

Organizational structure



Key contributors – so far...

Samarbeidsparter





The logo features a stylized compass rose with blue and red quadrants and a semi-circular arc of tick marks above it. The text 'SAR' is in red, 'NOR' is in blue, and the subtitle is in grey.

SAR
SEARCH AND RESCUE
IN THE HIGH NORTH NOR



Vision:

Norway: world leading in planning, coordinating and executing search and rescue operations at sea in the High North.