

R&D-REPORT

Maritime preparedness systems in the Arctic - institutional arrangements and potential for collaboration MARPART Project Report 3

Editors:

Ingvill Elgsaas

Kristine Offerdal

Nord University
R&D-Report no. 27
Bodø 2018



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Maritime preparedness systems in The Arctic - institutional arrangements and potential for collaboration

MARPART Project Report 3

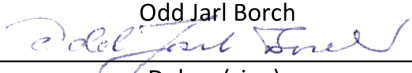

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Summary: This report provides a discussion on the preparedness systems in Norway, Russia, Iceland and Greenland (Denmark). It compares preparedness institutions across different countries of the High North, and reflects on similarities and differences between them.	Keywords: Maritime preparedness Search and Rescue Oil Spill Preparedness Counterterrorism Cooperation Framework Institutional framework Arctic High North	

MARPART

INTERNATIONAL R&D PARTNERSHIP ON MARITIME
SAFETY AND SECURITY IN THE HIGH NORTH

The report “Institutional framework, governance, resources and institutional strategies within different sea regions” is developed under the project:

“MARPART” (MARITIME PREPAREDNESS AND INTERNATIONAL PARTNERSHIP IN THE HIGH NORTH)
Work Package 2 “Institutional framework, governance, resources and institutional strategies within different sea regions”

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- High North Center at Nord University Business School (Norway)
- Norwegian Defense University College (Norway)
- Norwegian Police University College (Norway)
- UiT-The Arctic University of Norway (Norway)
- University Center in Svalbard (Norway)
- University of Greenland (Greenland)
- University of Iceland (Iceland)
- Northern (Arctic) Federal University named after M.V. Lomonosov (Russia)
- Murmansk State Technical University (Russia)



Norwegian Ministry
of Foreign Affairs



UNIVERSITY OF ICELAND



POLITIHØGSKOLEN

THE MARPART RESEARCH CONSORTIUM

The management, organization and governance of cross-border collaboration on emergency operations in the High North

The key purpose of the Marpart research consortium is to increase understanding of the emergency management challenges in large-scale emergencies in the Arctic sea areas. The Marpart research includes an assessment of the risks related to different types of maritime activity in the High North and the implications for the preparedness institutions in this region. We focus on cross-institutional and cross-country partnerships between preparedness institutions as well as private companies in the Arctic region. A special focus is on the operational crisis management of joint emergency operations including several parts of the preparedness system and resources from several countries.

The Marpart research activity emphasizes the responsibility of the governments and the institutional framework for safety, security and environmental protection in the High North. We look into the activity level, experiences from real incidents and exercises, and elaborate on the need for enhanced measures to respond to challenges with search and rescue (SAR), oil spill recovery, firefighting and salvage, and actions against terror or other forms of destructive action. To increase both effectiveness and efficiency within the preparedness system, we are in need of management tools for coordination and control that can optimize use of the joint resources of several institutions both within and between countries.

In the Marpart research, we are mapping the commercial activity in the High North and the vulnerability related to human safety, environment, and physical installations/vessels. The commercial activity in the High North includes intra- / interregional transportation, exploration and exploitation of petroleum and mineral resources, fisheries, and the expanding cruise industry. Limited infrastructure, low temperatures, ice and icing, polar lows, and a vulnerable nature challenge maritime operations in this region.

MARPART project goals:

- To increase understanding of future needs for joint operations within preparedness systems in the High North including search and rescue, oil spill recovery, firefighting and salvage, and actions against terror or other forms of destructive action;
- To provide analytical concepts for studying coordination challenges in cross-border, multi-sectoral operations;
- To contribute with organizational concepts for inter-organizational partnership and management of joint operations.

The cross-disciplinary, international research network consists of 16 universities and research institutes that focus on emergency management and crisis preparedness. The consortium is coordinated by Nord University in Bodø, Norway. Universities, police and naval academies and research institutes from Norway, Russia, Iceland, Greenland, Denmark and Sweden are now part of the Marpart network. In addition, universities from Canada, USA, and Finland are part of an extended academic network called UArctic thematic network on Arctic Safety and Security. The project partners have established Advisory Boards in each country including government preparedness authorities and industry representatives.

ACKNOWLEDGEMENTS

The “Institutional framework, governance, resources and institutional strategies within different sea regions” is the 3rd MARPART project report conducted within the Work Package 2 “Institutional framework, governance, resources and institutional strategies within different sea regions”. The MARPART project team would like to express their gratitude to **the Norwegian Ministry of Foreign Affairs** and **the Nordland County Administration** for funding this project. We are also thankful to Nord University and the partner universities for own financial contributions.

In addition, we appreciate support and expertise provided by different professional actors, operating in the field of emergency preparedness, search and rescue in Norway and other countries. We are particularly thankful for input and support from: The Norwegian Coastal Administration; Resources and Competence Center for Safety and Preparedness in the Northern Region; High North Center at Nord University Business School; Salten Regional Police Department; Maritime Forum of Northern Norway; Joint Rescue Coordination Center North Norway; the Preparedness Department of the Nordland County Governor; Nordland County Administration; Norwegian Directorate for Civil Protection; The Petroleum Safety Authority Norway; Norwegian Coast Guard; Icelandic Coast Guard; the Environment Agency of Iceland; and the Department of Civil Protection and Emergency Management at the National Commissioner of the Icelandic Police; Greenland Police; Maritime Rescue Coordination Center of Murmansk (Russia); Arkhangelsk Regional Rescue Service (Russia); Arkhangelsk Regional Agency for State Fire Service and Civil Protection (Russia).

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1 INTRODUCTION

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Increased activities in the High North foster heightened needs in terms of maritime preparedness and emphasize the importance of cooperation between states in the High North. While the initial hype of the so-called “Race for the Arctic” has cooled down, there is little doubt that the High North will play a crucial role for the countries in question and beyond in the mid- and long term. Without going into detail we can simply drop keywords such as: *oil and gas, transport routes* etc. to evoke familiar scenarios of considerable socio-economic importance. And as we know, any region of considerable socio-economic importance (or indeed the potential for such importance) is *ipso facto* also of considerable political importance; and any region of considerable political importance is *ipso facto* also of considerable military importance. This is a self-reinforcing process that drives development and leads to further increases in activities in the Arctic region. Since the High North has made it onto national and international agendas we are bound to address such issues as the heightened need for maritime preparedness and to explore the opportunities posed by cross-border cooperation as well as its challenges.

The MARPART project (Maritime Preparedness and International Partnership in the High North) seeks to shed light on the potential for bilateral and multilateral cooperation in the field of maritime preparedness in the High North. In order to do so, it is important to discuss the current state of affairs as well as developments and trends in this field in terms of a number of factors including the institutional arrangements of preparedness systems across states in the High North. In this report we have invited scholars and analysts from Norway, Russia, Iceland and Greenland (Denmark) to present the institutional arrangement of their respective country’s preparedness systems, to reflect on differences and similarities between these various preparedness systems, and to comment on the potential and challenges for bilateral and multilateral cooperation in maritime preparedness in the High North. The aim of this report is to lay the foundation for a constructive debate concerning the role of different national institutional arrangements for cooperation in maritime preparedness in the High North.

In order to focus the task at hand we have selected three preparedness fields to be considered in this report:

- Search and rescue
- Oil spill response
- Counterterrorism

Search and rescue (SAR) is a relatively well-established field of emergency preparedness, also at sea. This field was chosen because it bears promise of considerable material to draw on and because it may serve as an illustration of institutional difference/similarities and potential/challenges in a well-established and relatively often tested field of maritime preparedness.

Oil spill response (OSR) is another well-established field of emergency preparedness. It is a field that is highly relevant for marine environments that are rich in hydrocarbon resources, as is the case in the High North. This field was chosen for its increasing relevance in the region as economic activities increase. Alongside SAR, it also holds promise to illuminate differences/similarities across different fields of preparedness that have been developed for some time. While emergency preparedness

against oil spills etc. is commonly known as ‘oil spill response, OSR’ we would like to emphasise that the complexity in this field also involves prevention and preparedness as well as post-accident response.

Counterterrorism stands apart from the first two fields in that this field is, as yet, a hypothetical in the Arctic context and, as such, is relatively underdeveloped as compared to the other two fields. While this certainly makes the task more cumbersome for the authors, we believe it is important to include this topic here both in order to illuminate differences between well-established and less established fields of maritime preparedness in the High North and in order to support pre-emptive thinking in terms of preparedness against potential future threats.

Search and rescue, oil spill response and counterterrorism stand apart in other ways than the hypothetical nature of the latter. For one thing, as far as a safety-security continuum goes, counterterrorism lies much closer to the “harder” security end of the spectrum than the other two fields that are “softer”. Should we be forced to operate with disparate categories we would likely categorise SAR and OSR as matters of safety and counterterrorism as a matter of security. For the current purpose there is no need to draw any clear distinction between safety and security; we would much rather draw the readers’ attention to the fact that many emergency situations may entail elements of both. For example, a terrorist attack on an oil or gas installation could necessitate both SAR and OSR as well as a counterterror operation.

Before we conclude this brief introduction by presenting the tasks given to the authors and some concluding remarks regarding editorial choices we would first like to clarify the scope by providing working definitions of some central terms we have used uncritically so far.

“Maritime preparedness” encompasses various forms of emergency preparedness in a marine environment. We here use the term in a broad sense by including what could be categorized as pre and post phases (prevention of and responses to emergency situations) but that form part of what we consider a comprehensive preparedness system for emergencies in a marine environment.

The “High North” is a rather loose term often used when talking about an area of the Arctic, and sometimes as a synonym for the Arctic. For the current purpose the High North refers to the area of the Arctic that stretches from the Lincoln Sea west of Greenland to the Chukchi Sea east of Russia through the Greenland Sea, the Norwegian Sea, the Bering Sea, the Kara Sea, the Laptev Sea, and the East Siberian Sea. While some, if not all, of this report’s contents may be of relevance also to the rest of the Arctic this limitation rests on the selection of authors who have contributed to this report i.e. scholars and analysts from Greenland (Denmark), Iceland, Norway and Russia.

“Emergency preparedness system” refers to the sum of emergency preparedness institutions. “Institutions” is a widely used and often poorly defined term that we deliberately left undefined. This was done not to steer the contributions and to be accepting of potential variation in understandings of the basic components making up the emergency preparedness systems in the various countries. We see that all contributions conform with what could be described as a formal understanding of institutions centring on regulatory documents and organisations.

We wanted the authors to provide us with three things:

- 1) brief overviews of the institutional arrangement of their respective country's preparedness systems as pertinent to maritime SAR, oil spill preparedness and counterterrorism in the High North,
- 2) their comments on similarities and differences across these systems, and
- 3) their reflections on the potential for and challenges to bilateral and multilateral cooperation in maritime preparedness in the High North;

In order to facilitate meaningful insights on points 2 and 3 we decided to ask each team of authors to provide us with two submissions (tasks A and B). We first requested a brief overview of their national preparedness systems (task A). We then circulated all task A submissions to the authors so that they could draw on the descriptions of the other countries' preparedness systems when they worked on our second request. The second request was for the authors to comment on differences and similarities between the various preparedness systems and to reflect on the potential for and challenges to bilateral/multilateral cooperation as seen from their country's vantage point (task B).

We have compiled these submissions so that chapters 2 through 5 present the task A submissions, and all task B submissions are gathered in chapter 6 (sections 6.1 through 6.4). We have been wary of setting a detailed layout lest this would make it difficult for the authors to present their material in a comprehensive manner. Therefore, we have given the authors the opportunity to organize their contributions as they see fit within general headings set by us. This has, of course, resulted in different subheadings between different chapters (chapters 2-5) and even between chapter sections (in chapter 6). We find that these differences serve as an illustration of differences in the various preparedness systems and hope that this asymmetry in presentation can contribute to a better understanding of institutional (and conceptual) differences between the countries. We conclude this report by offering our own comments on similarities and differences across the preparedness systems and on the potential for and challenges to bilateral and multilateral cooperation in maritime preparedness in the High North (Chapter 7).

2 NORWAY

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2.1 Maritime Preparedness: Institutional Framework

Emergency preparedness in the maritime regions of the Norwegian Arctic involves a broad range of response, from search and rescue operations (SAR), medical support and transport, preparedness against acute pollution to measures against violent action and terrorist acts. The Norwegian emergency response system, especially related to the police and fire and rescue agencies, have experienced several reforms and have been reorganized during the last few years.

The Norwegian Government has emphasized four principles that should govern emergency response actors: *responsibility*, *equality*, *subsidiarity* and *cooperation* (Meld. St. nr. 10, 2016-17).

The responsibility principle means that the government, business or agency that is responsible for an area, also has the responsibility for planning and implementing necessary emergency response in case of a crisis.

The equality principle means that an organization should operate as similar as possible in an emergency situation as in its day to day business. The principle of equality is an elaboration of the responsibility principle, highlighting that the emergency responsibility within and between organizations shall not be changed in crisis management.

The subsidiarity principle requires that crises should be managed at the lowest organizational level possible. Whoever is nearest to the crisis usually has the best situational knowledge and thus is in the best position to handle it.

The cooperation or solidarity principle means that all state and public actors are responsible for ensuring the best possible cooperation with relevant stakeholders and organizations in the prevention, preparedness and crisis management.

Since Norway's national preparedness system mobilizes many different actors, including public and private, civilian and military, these principles are very important in order to mobilize an effective response.

The structure of the Norwegian preparedness system is defined in the National Society Security Instruction¹ for preparedness/readiness at national level, and the Norwegian National Security Authority (NSM) has established a system called the Civil Emergency Management System (SBS). The Government Security Committee (Regjeringens sikkerhetsutvalg (RSU)) is the highest political level for the discussion of societal safety and security, led by the prime minister. The highest

¹ Instruks for departementenes arbeid med samfunnssikkerhet (samfunnssikkerhetsinstruksen).
<https://lovdata.no/dokument/INS/forskrift/2017-09-01-1349>

coordinating body at the administrative level is the National Crisis Council (Kriserådet) with administrative leaders from the main ministries strengthening coordination between the ministries. At the national level, the Ministry of Justice and Public Security (JD) and its underlying directorate the Norwegian Directorate for Civil Protection (DSB) take the coordinating role for the emergency preparedness system. The Emergency Support Unit (Krisestøtteenheten (KSE)) is the secretariat for the National Crisis Council and supports the Ministry of Justice in its coordinative role, among others serving as a contact point for information to and from the Ministry in case of extraordinary incidents and crises. The Situation Centre responsible for gathering, analysing and disseminating information is located at the Emergency Support Unit.

The Ministry of Justice and Public Security has an overall responsibility for the emergency preparedness system where health and life is at stake, and a coordinative role when it comes to incidents where many ministries are involved. It is responsible for the preservation and development of basic guarantees of the rule of law and action within the police, SAR organizations and firefighting institutions. In addition, the ministry is responsible for coordination of the other ministries with regards to responsibility and resources within the preparedness system. The Rescue and Emergency Planning Department and Police Department are responsible for the main emergency response institutions within the Ministry (www.regjeringen.no).

The Norwegian Directorate for Civil Protection (DSB) plays an important role in risk assessment and preparedness, with a special focus on the Civil Defence resources, municipalities' fire brigade capacities, and county governors' and municipalities' tasks. DSB's overall task is maintaining an overview of various risks and vulnerability in the society, preparedness and emergency planning, fire safety, electrical safety, handling and transport of hazardous substances, as well as product and consumer safety. DSB is responsible for risk analyses related to regional and national preparedness and emergency planning. DSB reports to the Ministry of Justice and Public Security and is closely interlinked with the regional County Governor's Civil Protection department concerning civil protection tasks and following up the emergency response duties of the counties (DSB, 2013; dsb.no). The County Governor assesses the risks and vulnerabilities in the county, and coordinates the fulfillment of governmental requirements for emergency preparedness and planning of emergency response (NOU 2013:5), partly including incidents at sea. DSB plays an important role in creating a framework for the Host Nation Support administration, where Norwegian institutions may ask for help from other countries.

The Norwegian emergency preparedness system includes agreements with institutions from neighboring countries to assist by means of civil vessels and different commercial actors that are close to an emergency event. This requires good coordination and allocation of responsibilities, competence sharing as well as frequent exercises. Both domestic and international cooperation frameworks have become very important for the national preparedness system at tactical and operational management levels.

2.1.1 Search and Rescue

Search and rescue (SAR), including paramedic support and medical transport, is the most frequently tested part of the response system. The SAR response system consists of government agencies, private organizations, and voluntary organizations that have appropriate resources for rescue services. The operational framework is set by the Royal Decree on Search and Rescue Service of 19 June 2015.

The Norwegian SAR service is administrated by the Ministry of Justice and Public Security. The overall operational coordination of maritime operations is delegated to and executed by the Joint Rescue Coordination Centres (JRCC) Southern Norway and Northern-Norway (www.hovedredningsentralen.no). JRCC N-N coordinates rescue operations from the North Pole, along the Greenwich Meridian to the west and to the coast of Varanger and the Russian border to the east as illustrated in Figure 2.1. The total area is almost 2.500.000 km², of which the JRCC Northern Norway covers about 80% from 65° north, and the JRCC Southern Norway covers about 20%.

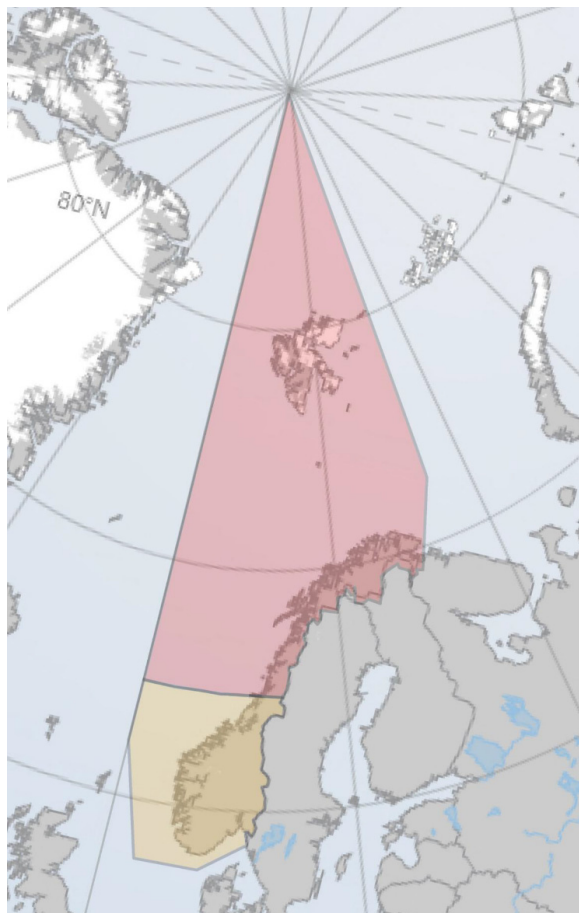


Figure 2.1. Norway's scope of search and rescue responsibility in the north and south. (www.hovedredningsentralen.no).

The interaction between public and private rescue resources and strengthening the resource capacity has become more important as commercial activities stretch further into areas with limited infrastructure. This includes areas such as the Svalbard region, the Arctic island Jan Mayen and the northern parts of the Barents Sea. In the local communities, civil voluntary organizations play an important role in emergency preparedness work. Close to the coast, the preparedness system and SAR helicopters of the oil and gas companies represent a large added capacity. Section 2.2 outlines the institutional framework for the search and rescue responsibility in Norway.

2.1.2 Oil Spill Response

Oil spill response includes efforts to prevent oil spills and other dangerous emissions on land and water to spread, to stop them as quickly as possible, to limit the damage to people, environment and values, and to perform cleanup operations. Oil spill response (OSR) in Norway involve three main levels: national government, regional municipality level and private operators. Private businesses ensure necessary preparedness and actions against acute pollution from their own operations. In particular, the oil and gas companies have significant resources through the Norwegian Clean Seas Association for Operating Companies (NOFO). Municipalities deal with emergencies of oil pollution that are not covered by the private preparedness system. The Norwegian Coastal Administration has a duty on behalf of the government to ensure preparedness and response in larger cases of oil spill pollution that are not covered by private or municipal preparedness. These actors can cooperate and benefit from each other's resources in any oil spill response situation.

The Norwegian Coastal Administration (NCA) is responsible to ensure the best possible coordination of operational oil spill preparedness in the national system under the Ministry of Transportation and Communication. This role is described in the Pollution Control Act. Further details are included in the National Contingency Plan - emergency preparedness for acute pollution.² The contingency plan focuses on situations where large oil spills emerge along the Norwegian mainland coast or in the Svalbard archipelago.

The cold climate makes the High North areas especially vulnerable to oil spills, and response is more complicated. Although the probability is low, the increasing shipping and petroleum activities may create a further risk of oil spills or leak of other dangerous substances to sea. Among the worst-case scenarios are spill of heavy fuel oil (HFO) and large amounts of crude oil in vulnerable areas, and on ice.

Norway's offshore petroleum activity covers a wide geographical area along the Norwegian coast. Petroleum activity in the southwestern and eastern part of the Barents Sea extends the area that requires pollution preparedness. The Norwegian Directorate for Civil Protection (DSB) has presented a report "National risk analysis 2013" in which the worst-case scenario from offshore petroleum activity for oil spill shows as much as 3000 km of coastline that might be polluted. This scenario is further analyzed by NCA.

As commercial activity moves further north, the analysis of organizational responsibilities and emergency resource capabilities are important. In section 2.3 we describe the institutional framework for oil spill response in Norway.

2.1.3 Counterterrorism

The risk of violent action and terrorism have been regarded as low in Norway and especially in the High North. After tragedies such as the attacks at Utøya, Norway 22 July 2011, the In Amenas hostage crisis in Algeria 16-19 January 2013 and European terrorist attacks, the terror threats have gained increased focus. The risk of terrorist attacks in the High North is regarded as low but cannot be totally discarded. Commercial activity in the area, which is mostly petroleum activity with a certain strategic value, may result in disruptive and destructive actions with the risk of life and health. The analysis

² <http://www.kystverket.no/globalassets/beredskap/publikasjoner-beredskap/eng-contingency-plan-last-view.pdf>

“Threats and vulnerabilities 2013” by the Norwegian Intelligence Service (NIS), the Norwegian National Security Authority (NSM) and the Norwegian Police Security Service (PST) claims that threats are more sharpened, fragmented and unclear than before (NIS, NSM and PST, 2013). The same agencies have also issued “A guidance – security and preparedness against terror” describing measures for organizations in public and private sectors (NIS, NSM and PST, 2014).

The International Ship and Port Facility Security Code (ISPS) establishes measures and procedures to address security threats at vessels and coastal installations, especially the ports. The Code imposes security related responsibilities on governments, shipping companies and port authorities, and provides guidelines for security plans for ports and ships. The Norwegian Oil and Gas Association recommends using the guidance at offshore installations. (The Norwegian Oil and Gas Association, 2004).

The terrorist attacks of 22 July 2011 in Oslo revealed weaknesses in institutional coordination including the ability to implement plans, coordination of capabilities, the access to information and communication technologies, as well as management’s ability to clarify responsibilities (NOU 2012: 14). With the scarcity of resources and longer distances, these weaknesses may also represent a challenge in the High North. In the aftermath of the terrorist attacks, much work has been initiated to overcome the coordination shortfalls. Section 2.4 describes the institutional framework for counterterrorism in Norway.

2.2 Search and Rescue

2.2.1 Domestic Cooperation Framework

During the last decade, the Norwegian SAR preparedness system has been further developed regarding organization, technology and resource capacities. One such improvement is the deployment of two SAR helicopters and a modern SAR-equipped vessel at Longyearbyen and the oil companies’ increased SAR capacity in the Barents Sea. The Government has purchased new AW101 all weather search and rescue helicopters that will serve the Joint Rescue Coordination Centers. In a White Paper (Meld.St.nr.7, 2011-2012) the Norwegian government has presented its strategy for further development of the High North. Among the priorities is improved emergency response in northern sea areas.

The Rescue Coordination Centers

Maritime rescue operations are coordinated from one of the two Joint Rescue Coordination Centres (JRCC) which are located in Bodø and in Sola near Stavanger. There are also rescue sub-centres (RSC), one for each police district, including the RSC in Svalbard (www.hovedredningssentralen.no).³ This service covers sea, land and aeronautical rescue for vast areas of Norway and coordinates interaction and resources. The JRCCs are authorized to use all suitable and available resources of government agencies and private resources (The Storting White Paper No. 86, 1961 - 1962). The JRCCs can make use of resources belonging to i.e. public health services, the fire brigades, the Civil Defence Contingency Teams, the Police, the National Coastal Administration, the Air Traffic Service and the Armed Forces in their operations. This service is also supported by a great number of voluntary and private organizations. In addition, the fast-going rescue cutters of the Norwegian Society for Sea Rescue (Redningssselskapet (RS)) are in preparedness 24-7 along the coast (www.hovedredningssentralen.no).

³ These rescue sub centers are placed under the police districts and under the Governor on Svalbard.

Important government institutions involved in the day-to-day effort to save lives include the university-, regional- and local hospitals, regional paramedic- and ambulance services, the National Air Ambulance Service, local fire departments, the police, and when needed, support from the Armed Forces. A central element of the Norwegian SAR service, and a valuable asset, is the large number of voluntary organizations taking part in case of SAR incidents, mainly on land.

The National SAR Management Board headed by the chief of police in Southwestern (Stavanger) and Nordland (Bodo) police districts lead larger operations of the JRCCs. The management board is summoned during especially demanding situations. The Air Traffic Service units handle reporting and communication functions for aircrafts in distress. The coastal radio stations monitor maritime distress frequencies and provide communications for emergencies at sea.

In case of major accidents, the JRCC mobilizes additional personnel. The JRCCs have highly flexible staff structures that may be augmented swiftly according to predefined plans. The chief of police, additional SAR management teams, relevant consultants and information officers are informed and will participate during larger incidents (redningsnett.no). The JRCCs operate according to contingency plans, among other the IAMSAR procedures. They are equipped with modern computer systems and other advanced equipment, as well as a well-developed, high-capacity communications system. In the 1980s they were linked up to international satellite-based emergency communication and alerting systems (COSPAS/SARSAT and Inmarsat). In return, they have accepted additional coordination duties in connection with emergencies in distant ocean areas (Ministry of Justice and Police, 2002).

The Ministry of Justice and Public Security own the rescue helicopters and pays the Norwegian Air Force to operate and maintain the helicopters. There are six Sea King helicopters on 15 minutes' alert at six bases (Banak, Bodø, Ørland, Florø, Sola and Rygge). The helicopters are coordinated under the command of the JRCCs. In case the JRCCs need additional resources from the Armed Forces, they request assistance via the Norwegian Joint Headquarters.

Police

According to the Law of the Police, the Norwegian Police has a duty to initiate and organize rescue efforts where human life or health is threatened provided that no other agency has been delegated this responsibility (Politidirektoratet, 2011). The police also has the responsibility to coordinate emergency incidents across sectors. The Police emergency response system (PBS) is giving the directions for fulfilling this responsibility. The PBS is the foundation for a unified and effective handling of ordinary and extraordinary events and crises.

The Norwegian police force was divided into 12 regional police districts in 2016. Each police district is responsible for the operational management of the overall emergency response resources within their area of jurisdiction. Additional national resources can be requested if necessary. The police reform launched by the Storting in June 2015 aims to make the police service better at ensuring security where people actually live or travel. The new organization will ensure professional development of personnel, better management, more effective use of resources, and free up time and resources so that police officers can be more accessible and present in local communities. Police districts are managed at three levels: the police chief constable and staff, operational chief of the police district emergency operational center and the local incident commander. The chief of police leads the local rescue centers in each police district. There are four police districts that handle terror incidents on Norwegian oil and gas offshore units: Southwestern, Northwestern, Nordland and Troms. The police chief constables of these districts are responsible for making an updated plan for

offshore emergency preparedness (Politidirektoratet, 2011). The Police is also responsible for establishing reception points for evacuees from installations and vessels offshore. The police district holds a substantial task force, and they can use the police special task force Delta and the Bomb threat group. In anti-terror actions against offshore installations at the continental shelf the Norwegian military special force (FSK) has a special role.

The Governor of Svalbard

SAR operations on land in Svalbard are normally coordinated by RSC Svalbard under the supervision of JRCC North-Norway. Coordination of rescue at sea and aeronautical rescue in the area is coordinated by the JRCC NN. To conduct a number of tasks on a daily basis, the Governor of Svalbard uses, among other capacities, two Super Puma helicopters and a SAR vessel (Polarsysse). In a case of distress, the governor will hand over the helicopters to JRCC to assist in the rescue operation until the situation is solved. The 88 meter long 1B ice class “Polarsysse”, as well as Coast Guard vessels operating in the Svalbard area are available in crisis situations. While well-equipped in terms of material resources, the small town of Longyearbyen has a limited number of personnel available for large-scale mobilization. That includes the local hospital. The Governor of Svalbard cooperates closely with the Longyearbyen Hospital, Coast Guard, Red Cross, fire service, and the main university hospital resources in Tromsø.

Coast Guard

The Coast Guard patrols Norwegian waters and enforces Norwegian sovereignty. They are equipped for SAR operations, protecting the environment and carrying out inspections of fishing vessels. The Coast Guard plays an important role in civil emergency preparedness, including search and rescue, ongoing coordination of operations, transporting of police and defense special forces, medical support, emergency towing and pollution response. The Coast Guard operates 15 vessels of various types, sizes and capabilities close to shore and in open seas, and also has at their disposal maritime helicopters⁴. They may also request support from civil aircrafts as well as maritime surveillance aircrafts from the armed forces (Orion). One of the vessels (KV Svalbard) has icebreaking capability (<http://forsvaret.no/kystvakten>).

Norwegian Armed Forces

The Armed Forces are responsible for a large part of the emergency resources in the High North. They have the responsibility for operating the rescue helicopters, long-distance surveillance aircrafts at Andøya (P-3 Orion), medium-heavy transport aircrafts at Gardermoen and lighter helicopters at Bardufoss and Rygge, as well as the Coast Guard's resources (<http://mil.no>). The operational responsibility is delegated to the Norwegian Joint Headquarters (FOH) at Reitan outside Bodø. FOH coordinates military resources and operations, gathers intelligence and information to political system and society, and also coordinates other emergency institutions. The Police can request assistance from the Armed Forces in case of major events, natural disasters or terror (Politidirektoratet, 2011). The coordination of such provision of additional personnel and/or material resources is regulated by the Instruction for the Norwegian Armed Forces support to the police launched Sept. 1, 2017 (Bistandsinstruksen). This instruction opens for fast track decisions for the deployment of military resources for civilian emergencies.

Oil and gas field operators

According to the Norwegian Petroleum Act (No.72, 1996), oil companies are responsible for providing their own emergency preparedness capacities related to the oil and gas fields they operate. According to the Act, they should maintain effective emergency preparedness based on clear response

⁴ At present, the new NH 90 helicopters for the coast guard are severely delayed and not ready for deployment.

objectives. This includes preparedness against accidents that may result in deaths or injuries. Helicopters, standby emergency response and rescue vessels (ERRV) and other service vessels such as platform supply vessels (PSV) with preparedness functions are utilized for SAR incidents. In addition to the offshore platform capacities, large-scale oil spill response operations may be launched with the company's own resources and resources owned by the joint oil and gas operator pollution response organization called Norwegian Clean Seas Association for Operating Companies (NOFO). These capabilities add to the national and local resources.

Fire and Rescue Services

The local fire and rescue services are organized under the municipalities (<http://www.dsb.no/no/toppmeny/English/Fire-prevention1/>). The municipalities are obliged to cooperate with other municipalities and emergency response organizations for best utilization of regional resources. The primary duty of a local fire and rescue service is fire prevention and response on land and at sea. The rescue services include diving and climbing personnel to rescue stranded people. For firefighting service at sea, seven fire brigades along the coast are responsible for providing maritime incident response groups (MIRG or RITS in Norwegian) for transport by air or sea to the vessel in distress.

Other important resources

Medical authorities and Air Ambulance Services consist of healthcare professionals and emergency medical help at several levels, including emergency call service, municipal emergency doctor and ambulance services. Every AWSAR helicopter will have a doctor or nurse on-board. 600 ambulances and 50 sea ambulances located throughout the country provide speedy transport to hospitals for injured persons requiring prompt emergency medical treatment (<https://helsedirektoratet.no/>). The National Air Ambulance service provides air ambulance service for health authorities across the country, while hospitals have the responsibility for the medical service. Aircrafts from 11 helicopter bases and 6 fixed-wing bases fly severely injured persons to hospitals for prompt treatment. In Northern Norway, emergency healthcare authorities are located in Sandnessjøen, Brønnøysund, Mosjøen, Mo, Bodø, Gravdal, Stokmarknes, Narvik, Harstad, Tromsø, Hammerfest and Kirkenes. The air ambulance service utilizes airplane and helicopter capacities and doctors and nurses for emergency help on board as well. In the north, the emergency services have air bases in Brønnøysund, Evenes, Bodø, Tromsø, Alta, Kirkenes and Svalbard. Two of the SAR-helicopters bases are included in the air ambulance service.

The municipalities are responsible for the primary preparedness related to medical and health services, fire and pollution. Municipalities are also important hosts for institutions and companies that have particular responsibilities in emergency preparedness.

Voluntary organizations are particularly useful in search operations and in first-aid situations, where they can provide a great number of well-trained people who are familiar with local conditions. At sea, the most important organization is the Norwegian Society for Sea Rescue ((RS) Redningssselskapet), a humanitarian rescue boat association working for increased safety at sea. RS includes 1200 rescuers and 50 rescue boats along the coast. The Association receives significant support from the government and from the national lottery. The rescue boats are often first at the scene and play a vital role for the safety along the coastline. They have an ambition to be no more than 1 hour away from any accident close to the coast (www.redningssselskapet.no).

2.2.2 International Cooperation Framework

Norway is committed to a number of international agreements that establish the existing legal frameworks for SAR. These agreements chart the rights and duties of the parties related to SAR as well as concrete steps in SAR operations (Takei, 2013). There are four agreements of particular relevance to SAR. The 1982 United Nations Convention on the Law of the Sea (UNCLOS) requires coastal states to promote “the establishment, operation and maintenance of an adequate and effective search and rescue service regarding safety on and over the sea” (UNCLOS, article 98, 2). The 1979 International Convention on Maritime Search and Rescue (the SAR Convention) has established the international system covering search and rescue operations (SAR Convention, 1979). The Convention requires that the parties ensure that arrangements are made for the provision of adequate SAR services in their coastal waters including establishment of rescue coordination centres and sub-centres (*ibid*, Chapter 2). It encourages the parties to enter into SAR agreements with neighboring states, provide necessary assistance and facilitate coordination during search and rescue operations (*ibid*, Chapter 3). It further outlines operating procedures to be followed in the event of emergencies or alerts, and during SAR operations (*ibid*, Chapter 4). To facilitate search and rescue operations, the parties are required to establish ship reporting systems for ships to report their position to a coast radio station (*ibid*, Chapter 5). Following the 1979 SAR Convention, the International Maritime Organization's Maritime Safety Committee divided the world's oceans into 13 SAR areas. Each of the 13 SAR areas is further divided into smaller search and rescue areas.

The 1944 Convention on International Civil Aviation (the Chicago Convention) has established the International Civil Aviation Organization, a specialized agency of the United Nations charged with coordinating and regulating international air travel. The Convention establishes the rights of signatory states over their territorial airspace, aircraft registration and safety and lays down the basic principles relating to international transport of dangerous goods by air (Chicago Convention, 1944). The International Aeronautical and Maritime Search and Rescue (IAMSAR) manual is jointly developed by the International Maritime Organization (IMO) and the International Civil Aviation Organization. It provides guidelines for a common aviation and maritime approach to organizing and providing search and rescue services. The manual is published in three volumes that cover establishment and improvement of national and regional SAR systems and international cooperation (Volume I), establish guidelines for those who plan and coordinate SAR operations and exercises (Volume II) and establish guidelines for conducting operations on-scene (Volume III) (International Maritime Organization, 2015).

Within the framework of these international agreements, an agreement specifically regulating SAR in the Arctic was signed by the eight Arctic states in 2011, the Agreement on Cooperation in Aeronautical and Maritime Search and Rescue in the Arctic (Arctic SAR Agreement).⁵ The objective of the agreement is to “strengthen aeronautical and maritime search and rescue cooperation and coordination in the Arctic” (Arctic SAR Agreement, Article 2). Each member state has a particular SAR area of responsibility (see figure 2.2). Each country must nominate national institutions to fulfill their commitments. These national institutions are not only bound to take efficient measures, but also to notify other relevant national institutions when appropriate.

⁵ This was the first legally binding instrument negotiated under the auspices of the Arctic Council.

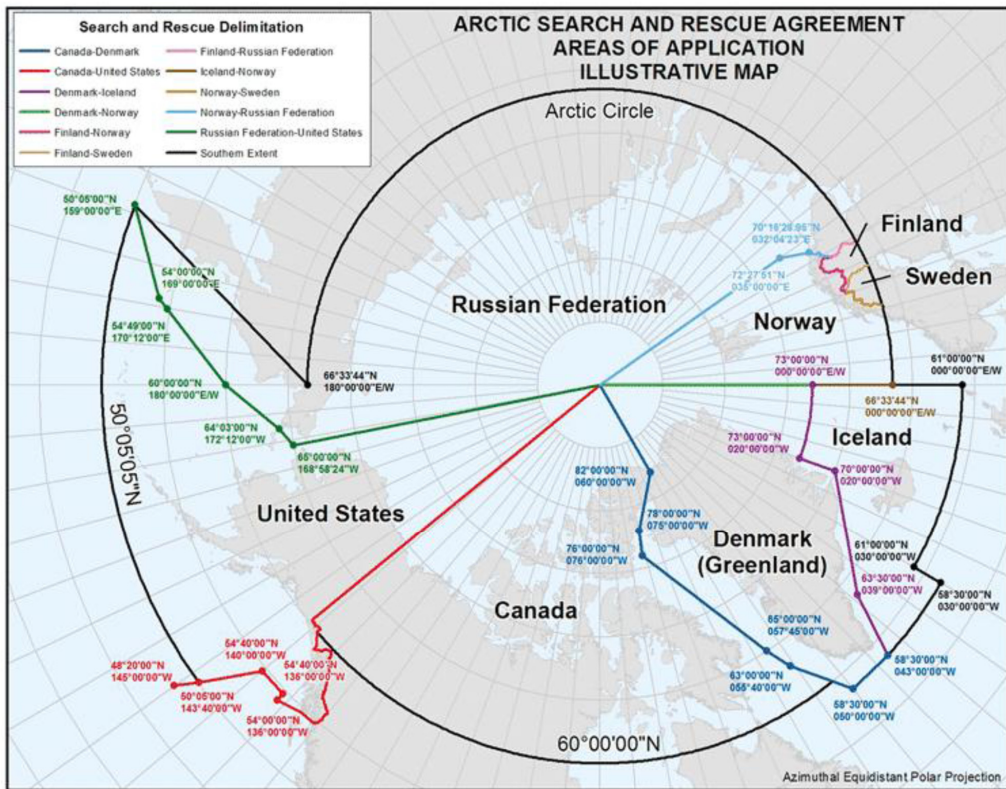


Figure 2.2. Search and rescue responsibility in the Arctic.

Source: Report to the Storting nr. 7 (2011-2012), *The High North*, 10. Maritime safety, oil spill preparedness and response, and search and rescue capacity.

There is also a framework agreement between the Nordic countries, the Nordred agreement, which complements other Nordic multilateral and/or bilateral agreements within the field of cross border cooperation. The aim is to facilitate mutual assistance in case of accidents and to expedite the appointment of relief personnel and equipment. The Nordred agreement ensures a legal framework for cooperation, and facilitates sub-agreements at all levels of governance.⁶

Norway and Russia have collaborated on SAR at sea since 1956. The most recent bilateral SAR agreement was concluded in 1995. This is the Agreement between the Russian Government and the Norwegian Government on cooperation in search and rescue of people in distress in the Barents Sea of 1995 (SAR Agreement of 1995). The Agreement defines the rights and responsibilities of the parties; outlines the competent national authorities responsible for the implementation and their tasks; clarifies how requests for help are forwarded, procedures for information exchange; sets the conditions for the joint operations to be conducted and provision of assistance; encourages joint meetings and annual training exercises (SAR Agreement of 1995).

⁶ http://ec.europa.eu/echo/files/civil_protection/civil/prote/pdfdocs/Enhanced_CROSS_BORDER_by_SE.pdf
Through the Haga statement of 2009, the Nordic countries decided to develop the Nordred cooperation from a focus on fire and rescue services into a wider civil protection perspective.

Norway is also participating in Host Nation Support agreements, an effective system for receiving international assistance during disasters that overwhelm national capacities. That means that every Norwegian sector should be able to use it as a resource in their planning for emergencies and the reception of emergency assistance (DSB, 2014).

International agreements provide platforms for joint exercises among the parties both bilaterally and multilaterally. In accordance with the bilateral SAR Agreement of 1995⁷, Norway takes part in the Exercise Barents, a maritime exercise conducted on an annual basis between Norway and Russia. In following up on the Arctic SAR Agreement, Norway and the other parties have conducted table-top exercises in 2011 and 2014 (Arctic Zephyr), and full-scale live exercises (SAREX) in 2012 and 2013. The exercises have proved crucial in developing cooperation in Arctic SAR. The on shore Exercise Barents Rescue runs every second year with participation from the Nordic countries and Russia.

Compatible emergency radio communication systems across borders is vital for effective handling of incidents. All the Nordic countries use the TETRA system. There is an ongoing Nordic collaborative effort to combine the TETRA networks. In 2016, Sweden and Norway established discussion groups on the topic, with an aim to include the other Nordic countries in due course. One of the topics under scrutiny is the concept of the next generation emergency radio communication system.

2.3 Oil Spill Response

2.3.1 Domestic Cooperation Framework

The Norwegian Coastal Administration (NCA)

The Norwegian Coastal Administration is the central national body when it comes to oil spill response. The Norwegian Coastal Administration (www.kystverket.no) is a government agency under the Ministry of Transport and Communication and has its head office in Ålesund. NCA's Department for Emergency Response located in Horten coordinates oil spill preparedness and response. The Norwegian Coastal Administration has a wide set of responsibilities including the overall responsibility for national preparedness for acute pollution, emergency towing and navigation safety.

The Department for Emergency Response is responsible for identifying risks and to ensure that the governmental preparedness against acute pollution is dimensioned in the best possible way. Under the Head Office, an Emergency Response Centre has been established within the Centre for Marine Environment and Safety (SMMS) in Horten. The Emergency Response Centre also has personnel located at NCA's regional offices. The Centre includes departments for operative preparedness, technical preparedness and preparedness monitoring and will be the main body within governmental oil spill response operations.

The Norwegian Coastal Administration is divided into five regions, which report to the Head Office. In the High North, the regional office of Nordland is in Kabelvåg, the regional office of Troms and Finnmark is in Honningsvåg. The office in Honningsvåg is also responsible for the pilot services on Svalbard. The Norwegian Coastal Administration maintains close contact with other agencies,

⁷ The annual exercise Barents is held in accordance with the SAR Agreement of 1995 and the Agreement on Oil Spill Response in the Barents Sea concluded between Norway and Russia in 1994 (the OSR Agreement of 1994). The OSR Agreement of 1994 is discussed in section 2.3.2.

including the Joint Rescue Coordination Centers, Norwegian Maritime Authority, Petroleum Safety Authority, Norwegian Environmental Authority and the Coast Guard.

The Norwegian Coastal Administration operates the *BarentsWatch*, an online information and monitoring system with open and closed information relevant to operations in the High North. The open section of the BarentsWatch is available to the public, while the closed section, which is not yet fully operational, shall be used by the police, rescue services, coast guard and customs authorities. The closed part includes an overview of the resources of all civilian emergency agencies (<https://www.barentswatch.no/>).

NCA has 16 oil spill response depots along the coast and on Svalbard. In Nordland, Troms and Finnmark the depots are located in Sandnessjøen, Bodø, Lødingen, Tromsø, Hammerfest and Vadsø. In addition, equipment is located onboard eleven coast guard vessels. The Norwegian Coastal Administration also has six oil response vessels for coastal areas, and one aircraft for aerial surveillance. In addition, the NCA has contracts with 35 smaller vessels for mobilization if needed. The current national preparedness should be capable of handling a spill of 20,000 tons.

The Norwegian Environmental Agency

The Norwegian Environment Agency is the governmental agency responsible for regulations and requirements to the private and municipal preparedness in case of oil spill response and acute pollution. They are also doing inspections/audits to ensure that the established preparedness is according to the regulations. (<http://www.miljodirektoratet.no/>)

The County Governor and the Governor of Svalbard

The County Governor's Civil Protection department has a regional coordinative role and the regional responsibility for risk and vulnerability assessments. The County Governor overviews the risks and vulnerabilities in the county, and overviews and coordinates governmental requirements and expectations for emergency preparedness. An important responsibility of the County Governor is to ensure the implementation of integrated risk and vulnerability assessment (ROS). The Governor of Svalbard has the additional responsibility for pollution preparedness on Svalbard and has an important role in the initial phase of oil spill response operations at Svalbard until NCA will be able to take over the operation. (www.sysselmannen.no/)

Municipalities and the inter-municipality emergency response committees (IUA)

According to the Pollution Control Act, it is the duty of the municipalities to maintain preparedness and respond to minor spills within the municipality. This applies to incidents that are not covered by private preparedness and when the polluter is unknown or unable to respond. Cooperation is ensured through 34 so called IUAs, which are inter-municipality emergency response committees covering the entire country. The fire and rescue brigades or the harbor administrations are responsible for the regional IUA organization and its resources and coordinate IUA actions.

Oil and gas field operators

Oil and gas companies with operator responsibility need to have their own logistics and preparedness centers that coordinate their efforts, and interact with the public preparedness system. In line with the overall principle of subsidiarity as outlined above, the operator has the first immediate responsibility to respond to accidents.

Oil companies operating offshore are obliged to establish an oil spill response strategy under the Petroleum Act. According to the Pollution Control Act and the HSE regulations for petroleum related

activities this industry must establish an oil spill preparedness to handle oil spills from their own activity. These tasks are delegated to NOFO.

Norwegian Clean Seas Association for Operating Companies (NOFO)

Norwegian Clean Seas Association for Operating Companies (NOFO) is an organization for oil companies' preparedness. It maintains oil spill preparedness on the Norwegian continental shelf on behalf of approximately 30 operating companies. Its responsibilities include oil spill preparedness offshore, near the coast, and on the beaches. Through joint agreements, NOFO uses the national oil spill response resources hired by the oil companies. The NOFO emergency preparedness center is on constant alert to mobilize resources, such as containment booms and oil skimmers, and to guide response efforts on behalf of the responsible operator. NOFO has two bases where equipment is stored in Northern Norway; Sandnessjøen and Hammerfest (<http://www.nof.no/>). NOFO has the operational responsibility on behalf of the inflicted operator, and cooperates closely with the Norwegian Coastal Administration (NCA) and the Inter-Municipality committee for acute pollution in the respective regions (IUA).

2.3.2 International Cooperation Framework

Norway is a member of several United Nations organizations and treaties including the International Maritime Organization. The United Nations Convention of the Law of the Sea of 1982 (UNCLOS) establishes general terms about contingency planning and notification procedures. The International Convention for the Prevention of Pollution from Ships of 1973 (MARPOL) is the main international convention covering the prevention of pollution of the marine environment by ships. Annex I to the MARPOL Convention is on the 'Regulations for the Prevention of Pollution by Oil'.

The Civil Liability for Oil Pollution Damage (CLC), the International Convention on the Establishment of an International Fund for Compensation for Oil Pollution Damage (FUND), and the International Convention on Civil Liability for Bunker Oil Pollution Damage (BUNKER), provide common international platforms for compensations of oil spills.

Norway is also party to the International Convention on Oil Pollution Preparedness, Response and Cooperation, which was adopted by IMO in 1990 (OPRC Convention 1990). The Convention focuses on contingency planning (art. 3), reporting procedures and corresponding actions (art. 4, 5), the establishment of national systems (article 6), international cooperation (art. 7) and on technical aspects (art. 9). The convention further encourages its parties to "co-operate and provide advisory services, technical support and equipment for the purpose of responding to an oil pollution incident [...] upon the request of any Party affected or likely to be affected" (art. 7). In particular, it states that parties "shall endeavor to conclude bilateral or multilateral agreements for oil pollution preparedness and response" (article 10).

Norway is a party to the Copenhagen Agreement of 1971 (concluded among Denmark, Iceland, Finland, Sweden and Norway) and the Bonn Agreement of 1983 (concluded among all countries bordering to the North Sea). Both agreements cover mutual notification, assistance and aerial surveillance of oil and other chemicals at sea (Norwegian Coastal Administration, 2015). The Copenhagen Agreement covers mutual notification, assistance, aerial surveillance and cooperation in research and development (<http://www.arctic-council.org/eppr/completed-work/oil-and-gas-products/arctic-guide/>). In order to limit acute oil and chemical pollution in the North Sea, the countries agree on mutual notification, oil spill response assistance and environmental surveillance

(http://www.kystverket.no/en/EN_Preparedness-against-acute-pollution/Protection-against-acute-pollution/International-cooperation/).

The third multilateral agreement is the Agreement on Cooperation on Marine Oil Pollution Preparedness and Response in the Arctic. It was signed by the eight Arctic states in 2013 as the Arctic Council's second legally binding document. The Agreement is designed to "strengthen cooperation, coordination and mutual assistance among the Parties on oil pollution preparedness and response in the Arctic in order to protect the marine environment from pollution by oil" (Arctic Council, 2013: Article 1). The Emergency Prevention, Preparedness and Response (EPPR) working group under the Arctic Council is responsible for keeping the Operational Guidelines attached to this Agreement updated. The Arctic Council was established in 1996 by the Arctic states to coordinate their efforts on environmental protection in the Northern areas. EPPRs mandate is among other things to facilitate international cooperation on issues related to the prevention, preparedness and response to all kinds of environmental emergencies in the Arctic, including oil spills. Within EPPR, there is established a Marine Environmental Response Expert Group (MER EG) discussing issues related to pollution response.

At the bilateral level, Norway has established cooperation with Russia and the United Kingdom. Norwegian-Russian cooperation on mutual assistance in combating oil pollution in the Barents Sea is based on the Joint Norwegian-Russian Oil Spill Response Agreement of 1994 (Oil Spill Response Agreement, 1994). Norway and the UK have developed the NORBRIT Plan for joint counter pollution operations in a zone extending 50 miles on either side of the median line separating the UK and Norwegian continental shelf (Norwegian Coastal Administration, 2015). The goal of this agreement is mutual notification, drills and response to acute oil spills in the Barents Sea.

In addition, Norway participates in a number of international fora organized by the European Union through EMSA (European Maritime Safety Agency) and EU ERCC (Emergency Response Coordination Centre) in cooperation on marine pollution. The ERCC is the centre of the EU's civil protection mechanism, which aims to coordinate Europe's disaster relief strategies (European Union, 2010). Norway also participates in meetings in the International Maritime Organization Pollution Prevention Response sub-committee and MEPC (Marine Environmental Protection Committee) (Norwegian Coastal Administration, 2015).

Norway, as a member of the agreements mentioned above, also takes part in a number of international exercises on oil spill response. These include Exercise Barents conducted yearly under the Norwegian-Russian Oil Spill Response Agreement, and exercises under the Copenhagen Agreement and Bonn Agreement, and exercises conducted under the Arctic Council's Agreement on Cooperation on Marine Oil Pollution Preparedness and Response in the Arctic (Sydnes and Sydnes 2013). In addition, exercise Barents Rescue conducted by Norway, Finland, Sweden and Russia under the Barents Euro-Arctic Council, sometimes involves oil spill response scenarios.

Oil Spill Response Limited (OSRL)

The largest international industry-owned oil spill response cooperative is the Oil Spill Response Limited. It provides preparedness and response, such as subsea well intervention services (www.oilspillresponse.com). This also includes services in some Arctic countries.

2.4 Counterterrorism

2.4.1 Domestic Cooperation Framework

Police

The police districts are responsible for first line anti-terrorism response. In its force, there is personnel specially trained for violent action response (IP 3 units). In the event of major terrorist attacks the police districts are supported by the Emergency Response Unit (Delta), the bomb squad, the crisis and negotiation unit and the technical and tactical investigation units from the Oslo Police District, which provides assistance and tactical advice (Official Norwegian report 2017:11). The Norwegian Military Special Forces (FSK) and Delta (Beredskapstroppen) join the Police regional response teams under the management of the district chief of police.

The PST is Norway's civil domestic intelligence and security service and is responsible for the nation's internal security. It serves the government and the police with necessary information about risk levels and threats, and information useful in anti-terror action. The Government established in 2014 a new counter-terrorism center within the Norwegian Police Security Service (PST), which sorts under the Ministry of Justice and Public Security. PST is cooperating closely with the Norwegian Military Intelligence Service (NIS) and share information with regards to threats and critical information in counter-terrorism cases. PST has representatives in each police district (White paper (Meld. St.) 21 (2012–2013)).

The Norwegian Intelligence Service (NIS) does not assess the threat of terrorism in Norway, but it collects, processes and analyzes information on foreign states, organizations and individuals that may represent a real or potential threat to Norwegian national interests (NIS, NSM and PST, 2013).

In the white paper “on terror preparedness” it is emphasized that the Ministry of Defense should focus on assisting civil society, and especially the police with emergency resources (Meld. St. nr. 21, 2012–2013). The so-called *Emergency Instruction* which was revised in 2017 suggests solutions to enhance collaboration between the police and the armed forces, in order to expedite decision-making in emergency situations. The Norwegian Army Special forces (FSK) have a special role when it comes to terrorist attacks against offshore oil and gas installations. In all maritime operations, the air force plane and helicopters, and the navy resources are available for special force support.

The Coast Guard

The Coast Guard is a maritime military force with a special responsibility for border guard at sea, and maritime preparedness in a broad range of areas, including anti-terrorism. It is a part of the Royal Norwegian Navy and plays an important role in surveillance, own action within several areas of jurisdiction and providing a platform for special task forces. The Coast Guard can assist with transport for police and military forces, provide medical support, and provide armed force if needed in anti-terrorist actions at sea. With helicopter platform and own helicopters they are a flexible resource in anti-terrorist actions.

2.4.2 International Cooperation Framework

Norway has strengthened its international cooperation in counter-terrorism as a response to transnational terrorist networks and emerging examples of links between terrorism, other organized crime and local or regional conflicts. The Norwegian government is working to reduce the threat from

international terrorism against Norway and Norwegian interests. The UN, NATO, EU and other international organizations are important partners in this work, in addition to bilateral cooperation with individual countries or multilateral cooperation among groups of countries. Combating terrorism require a concerted effort nationally, regionally and internationally.

The main general multilateral agreement is the Nordic police cooperation agreement of 2012 (Nordisk politisamarbeidsavtale, 2012). The Nordic countries are sharing preparedness plans with each other in order to find the best possible way to help and assist each other in larger incidents like natural disasters, widespread crime, terrorism, as well as during big international sport and political events (Police news archive, 2012).

Another relevant international cooperation is Frontex, the EU's border control agency, which is created to support EU/Schengen member states with the development of operational cooperation at the outer borders. Frontex prepares threats analyses, coordinates joint operations through Frontex Joint Support Teams, and initiates so-called RABIT235 operations on short notice to meet urgent or extraordinary pressure on outer borders. Personnel and equipment are available among member states and managed and coordinated by Frontex (Politidirektoratet, 2011).

Another agreement between Schengen countries refers to the temporary increase of control at internal borders in the Schengen area in case of a serious threat to public order or national security (Immigration Law, 2016).

In order to counteract cross-border crime and illegal immigration into Schengen area, which is increasing challenge in Europe, a so-called "compensatory measures" cooperation is established. The cooperation aims at simpler rules and more flexible procedures for police and legal cooperation across internal borders. An effective tool for common border control is the Schengen information system (SIS) which is a central electronic information and inquiry system. It contains important information on people, vehicles, crimes, and is able to warn about wanted persons simultaneously in all Schengen countries. The "Swedish Initiative" is an instrument for effective exchange of criminal intelligence information in the investigation of crimes (Politidirektoratet, 2011).

The Prüm-agreement is an instrument to exchange information between Europe's police authorities. As a result of this agreement, it is possible to search for fingerprints, DNA profiles and vehicles in other EU country's registers. This agreement also involves police cooperation at joint operations and assistance in case of catastrophes and serious accidents.

Europol is a European police unit with a purpose to assist member states in fighting serious international crime. Norway cooperates with Europol. Europol prepares operational analyses for investigations, strategic reports and threats assessments, provides advisory expertise and technical support in major investigating operations where police units from several countries are involved.

Interpol facilitates international cooperation outside Europe and assists all institutions with a mission to prevent and combat international crime. Norway is a member of Interpol. Interpol is also a global communication network to share important information about criminals and crimes (ibid.)

Globalization and technological developments have made the challenges linked to politically motivated violence more complex. The internet has made terrorist propaganda more accessible. Digital networks have made it possible for terrorist groups to organize their activities in new ways. In addition, the globalization of the communications networks has made Norway visible

internasjonalt på en helt ny måte. Arbeid på å forebygge og bekjempe voldelig ekstremisme må derfor gjøres på en måte som er styrt av loven, og gjennom en bred koalisjon av politiet, offentlige myndigheter og andre sivile aktører (DSB, 2013). Dermed er den norske politiet og andre deler av regjeringen svært aktive i bilateral og multinasjonal samarbeid med en rekke land på både strategisk og operativt nivå.

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3 RUSSIA

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3.1 Maritime Preparedness: Institutional Framework

3.1.1 Search and Rescue

Overview and brief analysis of the legislation

Search and Rescue (SAR) operations searching for persons and vessels in distress on the seas within the Russian Federation's borders are based on the following normative acts:

- International Convention for the Safety of Life at Sea/SOLAS, 1974;
- International Convention on Maritime Search and Rescue, 1979;
The International Convention on Salvage, 1989;
- bilateral and multilateral agreements on SAR and oil spills on sea;
- the Merchant Shipping Code of the Russian Federation, 1999;
- Aeronautical and Maritime Search and Rescue Manual,
- Appropriate federal laws and decrees.

In the Russian Federation, all issues related to emergency prevention and response are organized within the Unified State System of Emergency Prevention and Response / USSoEPR (Federal law 68, 1994).

Maritime activities are carried out with a set of specific measures to ensure maritime safety and security. This includes search and rescue at sea and protection and preservation of the marine environment.

Maritime security requires strict compliance with the relevant rules of international law and Russian domestic legislation. It is important to maintain, improve and develop the means of navigation, and hydrographic and hydro-meteorological support. In order to enhance maritime security, it is also important that the state controls implementation of classification requirements for maintenance of life. Finally, it is important that vessels and their crews receive adequate certified equipment, support and training as well as necessary data/information. To provide sufficient search and rescue at sea the existing system based on interaction of federal executive bodies, needs additional state funding.

Protection and preservation of the marine environment is achieved by monitoring and providing measures to prevent and eliminate the effects of pollution, including measures to prevent oil spills. Russia aims to create and procure domestic equipment for pollution prevention and mitigation of pollution of the marine environment through a specialized rescue fleet. Also, the nuclear fleet is being developed in order to ensure safe operation and technological improvements. With increasing production of hydrocarbons and other resources from the shelf, conservation of biological marine resources needs to be taken into consideration.

The system of state bodies and their responsibilities

The Russian Federation maritime SAR operations system, as a subsystem of USSoEPR, is based on cooperation between different ministries, agencies and services (Resolution 834, 1995):

1. Ministry of Transport
2. Ministry of the Russian Federation for Affairs for Civil Defense, Emergencies and Elimination of Consequences of Natural Disasters (EMERCOM)
3. Ministry of Defense
4. Ministry of Natural Resources and Ecology
5. Federal Agency of Fishery
6. Ministry of Energy
7. Border Guard of the Federal Security Service
8. The Russian Academy of Sciences

The maritime SAR system is divided into sea and land sectors that function under the auspices of two different ministries — Ministry of Transport and EMERCOM. Both subsystems work independently according to their mandates on a daily basis.

Maritime SAR within the Ministry of Transport

Responsibility for maritime SAR operations rests with the Federal Marine and River Transport Agency (RosMorRechFlot), which reports to the Ministry of Transport. Maritime SAR operations are ensured by RosMorRechFlot via its entities in charge — MorSpasSluzhba (State Maritime Rescue Service) with the branches in the regions, and the Maritime Rescue Coordination Center, with divisions in the different regions.

The duties of MorSpasSluzhba include the operative management of federal scale emergency response on marine and river transport. The maritime SAR resources and equipment are owned by nine MorSpasSluzhba branches, and emergency rescue and underwater engineering divisions in the Russian regions.

The duties of the Rescue Coordination Center include coordination of actions/assets of marine and river transport. In marine basins, the responsibility for deployment and coordination of SAR assets lies with the rescue coordination center based in Moscow, and rescue coordination centers and sub-centers in the regions. Currently there are 7 Maritime Rescue Coordination Centers (MRCCs) in Murmansk, St. Petersburg, Kaliningrad, Novorossiysk, Astrakhan, Vladivostok, Dikson and 8 Maritime Rescue Sub-Centers (MRSCs) in Arkhangelsk, Yuzhno-Sakhalinsk, Petropavlovsk-Kamchatsky, Taman, Tiksi, Pevek, Sevastopol, Kerch (skc.morflot.ru). In compliance with the International Convention on Maritime Search and Rescue at Sea, 1979, and the International Aeronautical and Maritime Search and Rescue (IAMSAR) Manual, MRCCs and MRSCs have equipment designed to operate in harsh Arctic conditions.

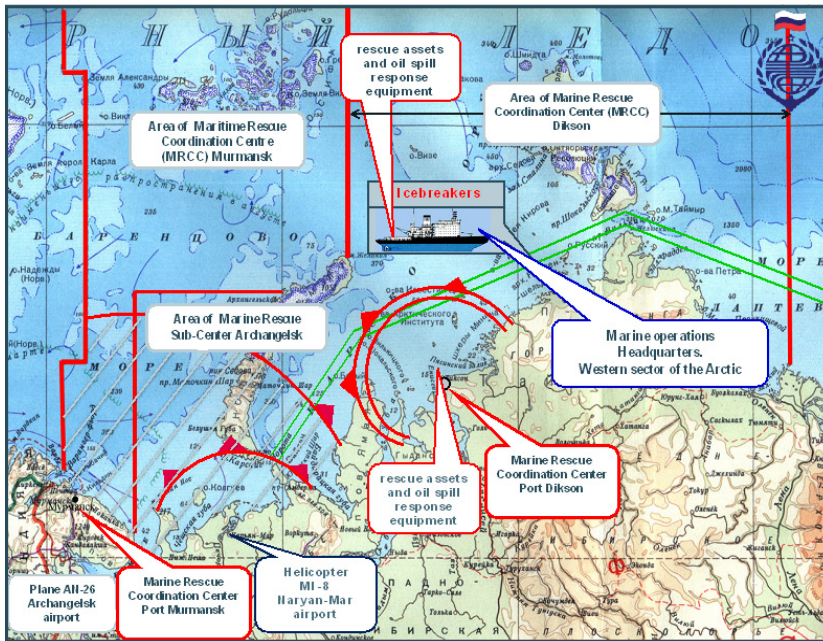


Figure 3.1. Russian marine rescue coordination centers and sub-centers for the western Arctic

The following agencies provide ships for maritime SAR operations: MorSpasSluzhba’s emergency rescue divisions, federal-level marine port administrations, the Federal State Unitary Enterprise RosMorPort (Russian Maritime Port) and assistant federal and regional authorities’ SAR units.

In accordance with the Standards and Recommended Practices of the ICAO Annex 12, the Federal Agency of Air Traffic is a managing body of the unified system of the aeronautical search and rescue in Russia at the federal level. There are 7 zones of aeronautical SAR: Central, Northwestern, Southern, Privolzhskaya, Ural, Siberian and the Far Eastern. 127 aircrafts and helicopters in total must be on duty at airports within these zones. The main task of these divisions is to provide assistance to aircrafts, their crews and passengers in distress but the SAR resources of the aerospace search and rescue in Russia can also be involved in SAR operations providing assistance for example to ships. (Order 737, 2016).

Maritime SAR within EMERCOM

EMERCOM has to provide SAR preparedness on land and within the 12 nautical miles of territorial waters. This service is organized into five levels according to the Unified State System of Emergency Prevention and Response (Federal law 68, 1994):

- *federal level* (covering the entire Russian Federation),
- *inter-regional level* (covering several Russian regions),
- *regional level* (covering one region),
- *municipal* (covering a municipality),
- *site/facility level* (covering the premises of an industrial or social organization/facility) (Resolution 794, 2003).

EMERCOM management authorities include:

- *federal level* – EMERCOM;
- *inter-regional level* – EMERCOM’s inter-regional offices;
- *regional level* – EMERCOM’s regional offices;
- *municipality level* – dedicated divisions in charge of civil defense and population/area emergency protection, established by local self-government bodies;
- *site/facility level* – divisions of organizations in charge of civil defense and population/area emergency protection.

The SAR missions are coordinated by EMERCOM’s crisis management centers of the federal, interregional or regional level according to the severity of the crisis. Operations control duty desks operated by regions’ executive authorities and emergency organizations have responsibility for coordinating SAR operations at the regional level. Appropriate operations control duty desks of the dedicated divisions and organizations coordinate missions on the municipality and site/facility level.

The emergency response and fire safety commissions play a central role in the SAR system. They function primarily as coordinating bodies for the Unified State System of Emergency Prevention and Response at different levels. Their primary function is to mobilize, organize and bring together all available resources and organizations necessary for successful emergency response operations:

- *federal level*: government panel for emergency and fire prevention and response;
- *inter-regional level*: president’s plenipotentiary’s inter-regional office;
- *regional level*: emergency response and fire safety commission under region’s executive authority;
- *municipal level*: emergency response and fire safety commission under a local self-government authority;
- *site/facility level*: emergency response and fire safety commission of an industrial or social organization/facility.

Governmental bodies’ responsibility for deployment of response operations depends on the severity of the crisis. Naturally occurring and man-made emergencies (except forest fires) are classified into:

- a) site emergencies: emergency within site boundaries, 10 victims maximum, material damage under RUB 100 000;
- b) municipality scale emergencies: emergency within municipal boundaries; 50 victims maximum or material damage under RUB 5 million;
- c) inter-municipal scale emergencies: emergency spreading into the territory of two or more municipalities, 50 victims maximum or material damage under RUB 5 million;
- d) regional scale emergency: emergency within one region’s boundaries, 50-500 victims or RUB 5 to 500 million material damage;
- e) inter-regional scale emergencies: emergency spreading into the territory of two or more regions, 50-500 victims or RUB 5 to 500 million material damage;
- f) federal scale emergency: more than 500 victims or material damage exceeding RUB 500 million.

Maritime SAR preparedness within the Ministry of Defense

The Navy holds SAR capabilities and is able to be involved in SAR missions. For example, the resources of the Northern Fleet located in Murmansk are involved in SAR operations and participate at the Exercise Barents annually. According to the Development Concept of the SAR system for the navy until 2025, one of the main tasks of the SAR system of the Navy is search and rescue of submarines, vessels, aircrafts and assistance to persons in distress at sea.

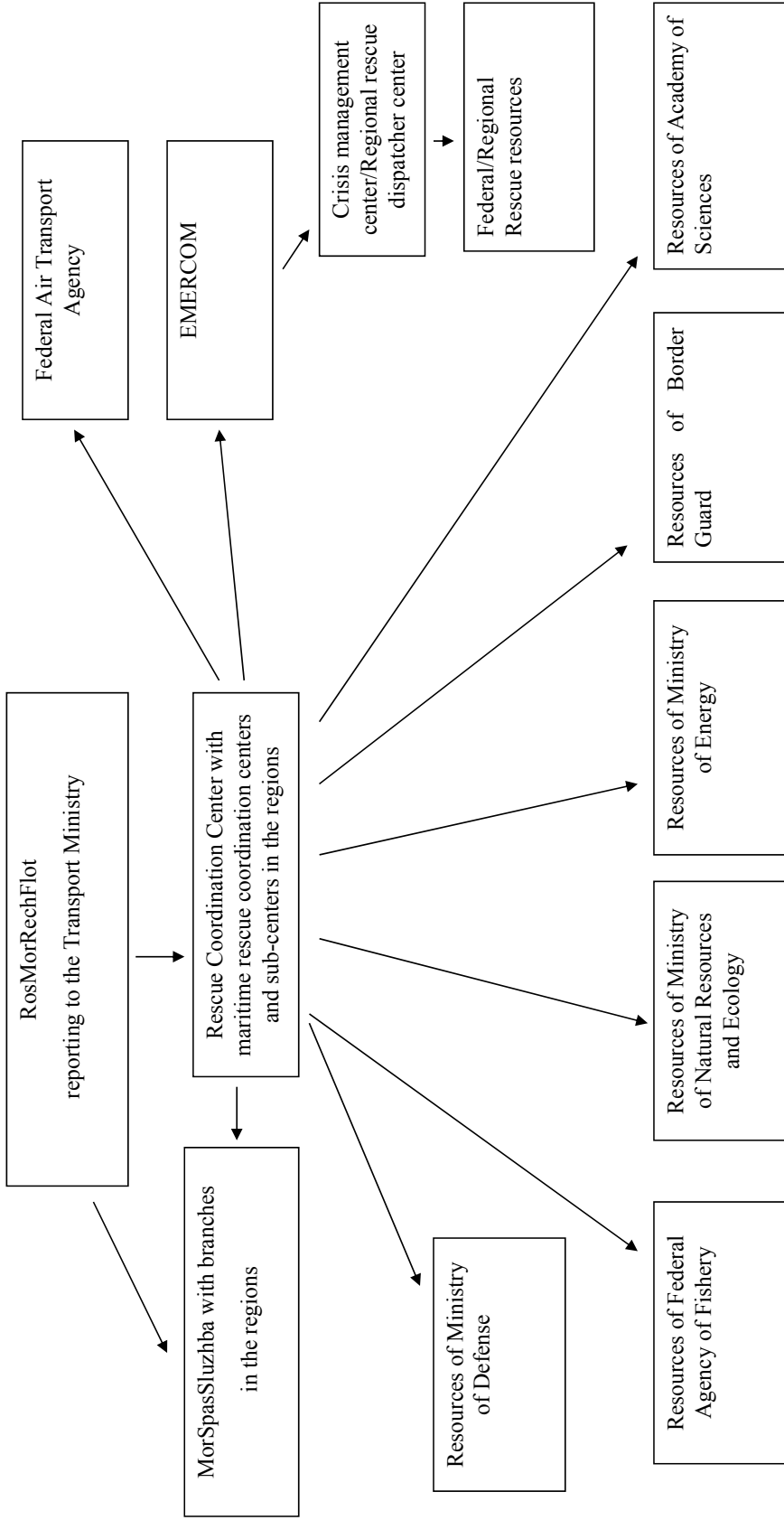
Maritime SAR preparedness within the Federal Agency of Fishery

Maritime SAR operations are ensured by the Federal Fishery Agency's Rescue Detachments located in Murmansk and Vladivostok.

Maritime SAR preparedness within other Ministries, Agencies, and Services

Other ministries do not have dedicated resources for SAR operations, but they provide assistance at sea within their competence. These include the Ministry of Internal Affairs; the Ministry of Public Health; the Ministry of Communications; and the Federal Hydrometeorology and Environment Monitoring Service.

Figure 3.1. SAR preparedness and response system at sea



Russia's Arctic Strategy regarding maritime SAR

According to the Russian Strategy of the Arctic Zone Development, the organizational structure for management of shipping safety and security must be improved by creating an integrated safety and security shipping system in the Russian Arctic.

To achieve these goals, 10 maritime rescue centers will be located in Dudinka, Murmansk, Arkhangelsk, Naryan-Mar, Vorkuta, Nadym, Tiksi, Pevek, Provideniya and Anadyr. A total of 980 persons will be working at the centers, according to EMERCOM. 3 of them (Dudinka, Arkhangelsk, Naryan-Mar) have already opened (Morvesti, 2015). Even though the emergency rescue center in Naryan-Mar was opened in 2013, there is still a lot to be done to ensure safety in the area, according to Nenets Autonomous Okrug's administration. It would take several hours for the rescue teams to reach offshore incidents from Naryan-Mar, which may be fatal (Interfax, 2015). Also, the resources can be appropriate to assist in the open sea.

Strengthening Russia's presence in the Arctic is one of the biggest priorities of the Ministry of Defence today. The construction and upgrade of six bases on the country's Arctic archipelagos are approaching an end. These bases are Rogachevo in Novaya Zemlya, the Aleksandra Island in Franz Josef Land, the Sredny Island in Severnaya Zemlya, Kotelny in the New Siberian Island, the Wrangel Island and in Cape Schmidt. The infrastructure components will be ready by 2017. Russia needs the bases in order to protect its expanding industrial activities in the region, as well as the safety and security at the Northern Sea Route (BarentsObserver, 2016).

One of the main challenges related to maritime activity in the Arctic is the need for new icebreakers. The Russian nuclear-powered icebreaker fleet consists of 6 vessels, 4 icebreakers are operational.

Russia plans to build another three nuclear icebreakers by 2020. The diesel-electric icebreaker "*Ilya Muromets*" of the Ministry of Defence was put on water at the Admiralty Shipyard in St. Petersburg in 2016. The vessel is the first of a planned series of four icebreakers, and is the first naval icebreaker to be built in Russia in 45 years (News of Ministry of Defense, 2016). Additionally, the Federal Program "Russian Transport System Development in 2010–2020", envisions 40 rescue vessels to be built by 2020. Besides, the Marine Activities Strategy until 2030 stipulates the construction of 70 rescue vessels for the Ministry of Defense, EMERCOM, and the Transport Ministry (Maritime Activities Strategy until 2030).

3.1.2 Oil Spill Response

All questions related to emergency actions in Russia, including oil spill response (OSR) activity, are the remit of federal authorities. OSR in Russia is a tiered system conducted at multiple levels by the federal executive authorities, the administrations of the Russian Federation's subunits (including local administrations) and oil companies (Resolution 240,2002). Russian legislation classifies an oil spill as a "state of emergency" (Resolution 613,2000). To understand the OSR system one has to relate it to the Unified State System of Emergency Prevention and Response (Ivanova, 20110).

Like the SAR system, the OSR system is divided into sea and land sectors that function under the auspices of two different ministries – EMERCOM (land sector) and Ministry of Transport (marine sector). Both subsystems work independently according to their mandates on a daily basis.

The Ministry of Transport is responsible for OSR at sea (Resolution 794, 2003). This is an authority composed of several federal agencies. Subordinate to the Ministry of Transport are the Federal Agency of Marine and River Transport (RosMorRechFlot) and the State Marine Rescue Service (MorSpasSluzhba). The Federal Agency of Marine and River Transport carries out the general management of the OSR system at sea, while the State Marine Rescue Service controls the daily operational activity of the system, its rescue divisions in the regions respond to oil spills at sea (Order 53,2009).

Oil spill operations at sea are coordinated by the State Maritime Rescue Coordination Centre (information sharing and warning) reporting to RosMorRechFlot on the federal level, by the Maritime Rescue Coordination Centers and sub-centers on the regional level. On the local level OSR operations are coordinated by dispatcher centers of maritime transport organizations, ports, RosMorPort's branches, shipping companies and other organizations engaging in petroleum exploration, production, processing and transportation.

Another main actor is the Ministry of Natural Resources and Ecology, which is responsible for policy-making, control and supervision related to the study, use, reproduction and protection of natural resources and the environment. Control and supervision are performed by two federal services: the Federal Supervisory Natural Resources Management Service (Rosprirodnadzor) and the Federal Service for Ecological, Technological and Nuclear Surveillance (Rostehnadzor). Rosprirodnadzor is subordinate to the Ministry of Natural Resources and Ecology, while Rostehnadzor reports directly to the government. Together with EMERCOM, the Ministry of Natural Resources and Ecology classifies oil spills and thereby decides how much the polluting party will be fined (Order 156, 2003).

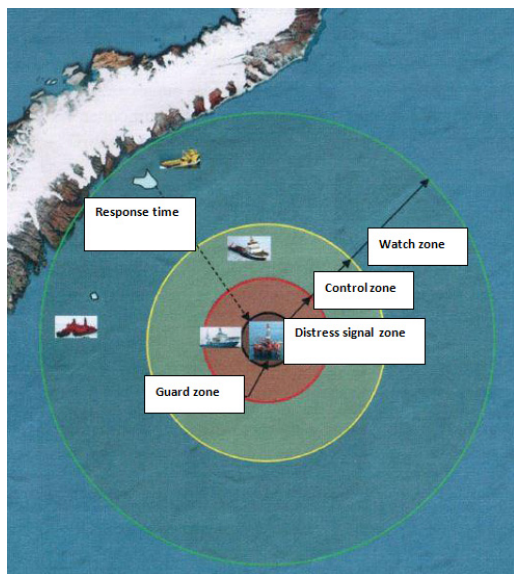
All activities related to oil spill response are carried out according to oil spill contingency plans. All enterprises whose activities involve operations with oil are obliged to have contingency plans. Contingency plans are developed according to the legislation requirements and take into account the maximum possible volumes of oil spilled (Government of Russia 2002). Since oil spills are classified depending on the volume of oil spilled, contingency plans are worked out for combating spills of different levels (federal, regional, local) and are enacted depending on the category of oil spill. Inter-alia, the oil spill contingency plans provide an algorithm of actions to be taken during an emergency response operation and thus are meant to facilitate preparedness. EMERCOM has set the general requirements and endorsement procedure for the plans (Order 621, 2004).

The contingency plans are established at the federal, regional and local levels (Government of Russia 2002). Contingency plans at regional (federation subject) and facility levels are developed by operators, and then confirmed by regional and responsible federal authorities in the region, and approved by EMERCOM. At the federal level, oil-spill contingency plans at sea are elaborated by MorSpasSluzhba. These are to be approved by federal authorities, including EMERCOM and the Ministry of Natural Resources and Ecology.

Organizations engaging in petroleum exploration, production, processing and transportation are also obliged to ensure oil spill response either via their dedicated divisions or through external certified contractors (Government of Russia, 2002). According to Russian legislation, all oil companies must have oil spill contingency plans specifying oil spill response measures. They must have oil spill response resources available in exploration, production, processing and transportation zones. The

Russian government aims to contain an offshore oil spill within 4 hours of it being discovered, and an on-shore oil spill within 6 hours.

In the event of an oil spill, organizations immediately have to report to relevant authorities and arrange for response operations. For these purposes, organizations are obligated to have standby funds and material resources necessary to localize and liquidate oil spills (Resolution 1189, 2004).

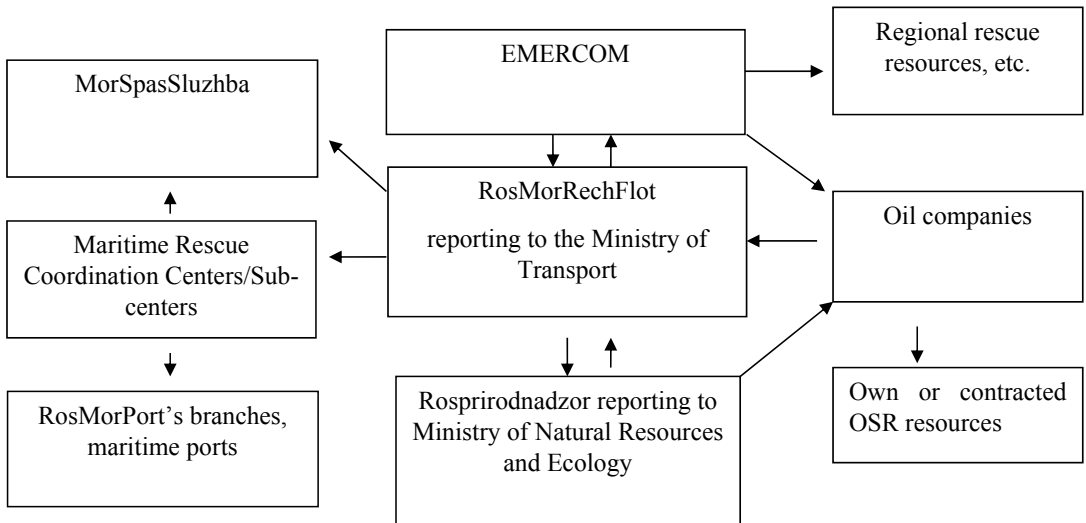


3.1.2. Resources safety zones: According to Russian and international legislation a 500 meter safety zone can be established around oil rigs which vessels not engaging in oil processing and production or oil spill response may not enter. Source: RosAtomFlot.



Figure 3.1.2. Alignment of response resources, “Prirazlomnaya”.
 Source: Alexander Mandel, GaspromNeftShelf (ice-breakers in orange, boom boats in grey, tanker in black).

Figure 3.1.2. OSR preparedness and response system at sea



3.1.3 Counterterrorism

Russia's national counterterrorism system operates within the legal framework of the Constitution of the Russian Federation, generally recognized principles and norms of international law as well as Russian domestic legislation.

According to the Russian legislation, Russia's counterterrorism system entails the following activities:

- a) detection and subsequent removal of reasons and conditions conducive to committing acts of terrorism,
- b) detection, prevention, suppression, disclosure and investigation of terrorist acts
- c) reduction and (or) liquidation of terrorist actions.

According to the Criminal Code, counterterrorism in the Russian Federation shall be based on ensuring and protecting fundamental human rights and freedoms; lawfulness, inevitability of punishment for any kind of terrorist activity; priority of preventive actions against terrorism; etc.

Jurisdiction of the federal bodies in the sphere of counterterrorism

The president of the Russian Federation determines principles of state policy within counterterrorism and the scope of authority of the federal executive bodies whose activities are directed by the president.

The Government of the Russian Federation determines the scope of competence of the federal executive bodies within counteraction against terrorism. The functions of the federal government also include developing and implementing measures to prevent terrorism, to reduce and (or) eliminate consequences of terrorist acts as well as coordinating federal, regional and local authorities' efforts aiming to counteract terrorism (with required forces, facilities and resources) (Decree 116, 2006).

The Federal Antiterrorism Committee is a body tasked with coordination and organization of counterterrorism activities of governmental bodies at the federal level, at the regional level and of local governments. The Chairman of the Committee is the director of the Federal Security Service (FSB). Regional Antiterrorism committees are chaired by the governor. The head of the regional FSB division is the deputy chairman.

The functions of the Antiterrorism Committee include the development of policy and recommendations on counteraction against terrorism, collection and analysis of data/information, coordination of activities of federal executive bodies on counteraction against terrorism, contribution to the improvement of national legislation for counteraction against terrorism, etc.

The Federal Security Service (FSB) (www.government.ru/en/department/113/) is a federal executive body with the authority to implement government policy in the spheres of national security, counterterrorism, protection and defense of the state border, protection of internal waters, the territorial sea, the exclusive economic zone, the continental shelf and their natural resources. FSB coordinates the counterintelligence efforts of the federal executive bodies that are included in the Counterterrorism system. The President oversees the activity of FSB.

The Federal Operational Headquarters, subordinated to the director of the FSB, and Operational Headquarters in the regions, led by the heads of regional FSB divisions, implement activities to plan and control counterterrorism operations where the use of counterterrorist forces and resources are required. FSB has special services (division like “Vympel”, “Alpha”, etc.) to carry out counteraction against terrorism.

The Federal Border Service is a part of the FSB. Alongside state authorities, this service carries out counteraction against terrorism by preventing, detecting and thwarting terrorists trying to cross the state border. The Federal Border Service also counters illegal movement of weapons, explosives, poisonous and radioactive substances that can be used in acts of terrorism. The border guards secure national maritime traffic in Russia’s territorial waters and exclusive economic zone and participate in counterterrorism operations at sea and on land.

The Ministry of Defense (www.eng.mil.ru) provides protection using weapons of mass destruction, missiles and small arms, ammunition and explosives, protection of military facilities. The Ministry of Defense also takes part in securing of the national maritime zones and airspace of the Russian Federation and in counterterrorist operations.

The Foreign Intelligence Service and subordinate bodies of the Foreign Intelligence Service carry out counteraction against terrorism outside the territory of the Russian Federation. They also collect data/information on the activities of foreign and international terrorist organizations.

Jurisdiction of Regional Executive Authorities in the Sphere of Counteraction against Terrorism

The heads of regions organize the implementation of state policy on counterterrorism in Russia’s regions and coordinate the activities of state authorities on prevention of terrorism, as well as to minimize and eliminate the consequences of its manifestations. The regional governments take steps to organize development and implementation of measures, as well as regional governmental programs in counterterrorism in order to minimize and eliminate its consequences. Their duties also include monitoring socio-political, socio-economic and other processes in order to address preconditions for conflicts, reasons of terrorist acts and formation of social basis of terrorism. In case of a terrorist attack, they organize the provision of medical and other assistance for victims, etc.

Armed Forces

In counteraction against terrorism the Armed Forces of the Russian Federation may be engaged to suppress acts of terrorism in the internal waters and the territorial sea, and to ensure safety of national maritime traffic. The Armed Forces also work to prevent international terrorism outside the Russian Federation.

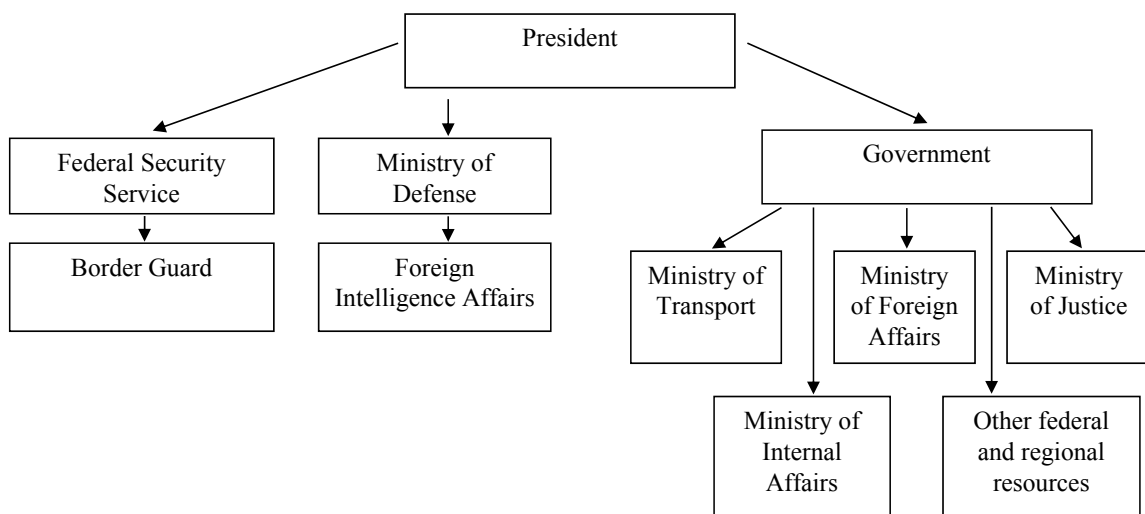
Using the Armed Forces to fight terrorism requires a decision from the President of the Russian Federation. A decision to use the Armed Forces of the Russian Federation against terrorists and (or) their centers which are located abroad must also be made by the President.

A decision to use formations/troops of the Armed Forces outside the Russian Federation for accomplishing tasks aimed at suppressing international terrorist activities must be made by the President based on the appropriate decision of the Federation Council of the Federal Assembly. The President determines the total strength of formations of the Armed Forces, areas of their operations, tasks set for them, and the time period for their staying outside the Russian Federation.

The Armed Forces of the Russian Federation shall use weapons and military equipment in its actions to remove a threat/alert of an act of terrorism in internal waters, in the territorial sea, on the continental shelf and to ensure the safety national maritime traffic (also under water) or for the purpose of suppressing terrorist acts.

When vessels do not respond to commands to stop their violation of the rules for use of water (under water) areas of the Russian Federation or refuse to obey demands to stop, military ships or aircrafts may use the weapons at their disposal to force the ships to stop and to remove any threat of a terrorism act. If a ship does not obey demands to stop, all measures to force the ship to a halt have been exhausted, and there is a threat to human lives or to the environment, the military ships or aircrafts shall prevent further movements of the ship by destroying it.

Figure 3.1.3. Counterterrorism system of Russia



3.2 Search and Rescue

3.2.1 Domestic Cooperation Framework

Functions of Russian federal ministries and agencies in ensuring maritime safety and SAR operations (Decree 834, 1995):

The Ministry of Transport via Maritime Rescue Coordination Centers and Sub-centers controls and organizes maritime SAR operations, deployment of emergency resources, and cooperation with other emergency services. In addition, they participate in international cooperation with foreign emergency services and give foreign air traffic and maritime vessels permission to enter the airspace and water areas of the Russian Federation.

EMERCOM participates in maritime SAR operations, in cooperation with other emergency services, organizes its resources to be involved in SAR.

The Ministry of Defense participates in maritime SAR operations in cooperation with other emergency services and gives permission to enter the airspace and water areas of the Russian Federation within its jurisdiction. If needed, the Ministry of Defense involves its resources for maritime SAR.

The Ministry of Natural Resources and Ecology of the Russian Federation participates in maritime SAR operations in cooperation with other emergency services to handle environmental emergencies. The Federal Service for hydrometeorology and environmental monitoring of the Ministry of Natural Resources and Ecology provides weather forecasts.

The Energy Ministry and the Fishery Agency participate in maritime SAR operations in cooperation with other emergency services.

The Federal Security Service via the Border Guard participates in maritime SAR operations in cooperation with other emergency services and gives permission to enter water areas of the Russian Federation within its jurisdiction.

The Russian Academy of Sciences participates in maritime SAR operations in cooperation with other emergency services.

Examples of cooperation patterns

The case of Kapitan Kuznetsov

November 15, 2001, around 2 a.m., the connection was lost with the dry cargo carrier Kapitan Kuznetsov in the White Sea. A SAR operation was initiated by the maritime rescue sub-center in Arkhangelsk.

The assets involved in the search for the missing vessel included border guard vessels, two icebreakers, a marine tugboat, a vessel of the Search and Rescue Service for Special-Purposes Underwater Operations in Northern Areas, the Northern Air Force Fleet's IL-38 maritime patrol aircraft, the 2nd United Aviation Division's Mi-8 helicopter, and I.A. Polivany Rescue Service's rescue swimmers.

November 16, the Northern Air Force Fleet's IL-38 detected the Kapitan Kuznetsov near Kanin Nos cape and communicated the message to the 2nd United Aviation Division's Mi-8. A rescue swimmer

slid down the helicopter rope aboard the vessel, with 15 meters high waves and northwesterly wind blowing at 23 m/sec. The reason why the vessel had lost connection with the mainland was that the strong storm had smashed its rudder house. Even though the engines worked fine, steering the vessel was complicated.

There were 12 crewmembers on-board. Two of them were injured, including the chief mechanic. Given the stormy weather, the rescue swimmer did not raise the injured to the helicopter, so as not to endanger their lives. The crew started the engine and, with the assistance of the Dixon icebreaker, managed to reach Arkhangelsk.

November 17, the chief mechanic and his colleague felt much worse. As the weather had improved, the evacuation could now start. The Mi-8 helicopter received the paramedic stretcher with the chief mechanic who was diagnosed by the duty doctor to have a closed cranial injury. The other injured crewmember required medical care and was raised onboard the helicopter using a rescue harness. All the injured were rendered inflight medical aid and received by ambulance cars at the airport for further hospitalization at Semashko Clinic Hospital (Spatatel-MTCHS, 2011).

The case of rescue boat Barents 1100

Attempting to navigate bad weather with big waves, the five-crew boat Barents 1100 ran out of fuel and signaled distress Sunday, 5th of June 2015.

The regional rescue coordination sub-center in Arkhangelsk immediately called on two boats in the area to assist and a Mi-8 helicopter with a rescue squadron was alerted.

It was, however, the huge nuclear powered submarine Voronezh, performing combat training in the White Sea that was closest to the little boat, according to spokesman of the Russian Navy's Northern Fleet, Sergei Serga. Already 40 minutes after the distress signal was sent from the 11 meter small boat, the submarine arrived.

Serga says the submarine was soon alongside the little boat and took onboard the crew of five and started to tow Barents 1100.

This is the second time in two years one of the Northern fleet's nuclear powered submarines have saved sailors in distress in northern waters. In November 2012, the Victor-III class "Daniil Moskovsky" saved two men from the small fishing boat Ribatchi outside the coast of the Kola Peninsula (BarentsObserver, 2014).

3.2.2 International Cooperation Framework

The Russian Federation observes the international obligations pertaining to protection of the marine environment by participating in and promoting international cooperation.

International treaties signed by the Russian Federation:

- The International Convention on Search and Rescue at Sea 1979 was ratified by the Decree of the Presidium of the Supreme Soviet of the USSR № 8556–XI of March 03, 1988 «On the ratification of the International Convention on Maritime Search and Rescue at sea 1979»;
- The Agreement on Search and Rescue Cooperation in the Barents Sea of October 4, 1995;
- The Agreement on Environmental Protection of September 3, 1992;
- The Agreement on Cooperation in the Fishing Industry of April 11, 1975;
- HELCOM recommendations: 11/13; 19/17; 20/5; 22/2; 24/7; 24/9 and 28 E/12, BSAP;
- The Navigation Agreement of March 18, 1974;
- The Agreement on Cooperation on Aeronautical and Maritime Search and Rescue in the Arctic of May 12, 2011;

Intergovernmental legal cooperation

The boundaries of maritime search and rescue regions are defined based on bilateral intergovernmental agreements with neighboring countries.

Currently, the following bilateral intergovernmental agreements of the Russian Federation on cooperation in search and rescue are signed:

Barents Sea region: the 1995 agreement between the Russian Government and the Norwegian Government on cooperation in search and rescue of people suffering distress in the Barents Sea;

Baltic Sea region: with Sweden of 1989, Finland of 1994, Poland of 1996, Lithuania of 2006;

Far Eastern pool: with the United States of 1988, Japan of 1956, the DPRK of 1968.

International cooperation in maritime SAR is developed and ensured by the Ministry of Transport via GosMorSpas Sluzhba of the Federal Agency of Marine and River Transport / RosMorRechFlot.

Case study of dry cargo vessel Victor Koryakin

The Russian dry cargo vessel Viktor Koryakin with a crew of 12 and cargo of timber was pushed ashore by gale force winds while anchored by the coast of the Rybachi Peninsula in the Barents Sea on December 18, 2007.

The JRCC North-Norway received a call that a Russian cargo vessel was in trouble outside the Rybachi Peninsula. They sent the Sea King rescued helicopter from Banak airport that rescued all the twelve sailors from the vessel. During the dramatic operation, the vessel broke in two (BarentsObserver, 2010).

3.3 Oil Spill Response

3.3.1 Domestic Cooperation Framework

Oil spills are classified by the Russian legislation in terms of their potential severity. There are five categories of oil spills on land:

- *local* - up to 100 tons;
- *municipal* - from 100 to 500 tons within the borders of the municipality or up to 100 tons outside the facility border;
- *territorial* - from 500 to 1000 tons within the administrative borders of the subunit or 100-500 tons outside the border of a municipality;
- *regional* - from 1000 to 5000 tons or 500–1000 tons outside the administrative borders of the subunit;
- *federal* - more than 5000 tons or the spill crossing state borders irrespective of the size of the spill.

Based on the volume of oil or oil products spilled at sea, emergencies can be classified as:

- *managed on local level* – oil or oil product volumes under 500 tons
- *managed on regional level* – 500-5000 tons of oil or oil products
- *managed on federal level* – over 5000 tons of oil or oil products (Government of Russia 2000).

Local oil spills are detected and eliminated by the organizations engaging in petroleum exploration, production, processing and transportation. All oil companies must have oil spill contingency plans specifying oil spill response measures and OSR resources available in exploration, production, processing and transportation zones to localize and liquidate oil spills. In the event of an oil spill at sea, organizations immediately have to report to RosMorRechFlot and arrange for response operations.

If oil spill volume exceeds the highest rated volume determined in the oil spill contingency plan, and the organization is not able to localize and liquidate it, additional resources have to be involved. If oil spill at an offshore facility is classified to be responded at the regional level of emergency, the regional OSR plan comes into action. The Emergency Commissions, established by the regional governments, play a central role in the OSR system at the regional level. They function as a permanent body that convenes in the event of an oil spill or other emergency. Emergency divisions of MorSpasSluzhba (RosMorRechFlot) are standing response resources on the regional level in case of oil spills.

A similar procedure is applied if an oil spill extends up to the federal level. Maritime operations are ensured by RosMorRechFlot (Resolution 240, 2004) as the standing managing authority at the federal level.

The authorities that can be involved in an oil spill response include the Ministry of Energy, EMERCOM, the Federal Fishery Agency, etc.; regional executive bodies; and local self-government bodies (Resolution 240, 2004).

If the resources are insufficient to provide response in a proper manner, the federal resources will be involved according to Russian legislation.

Domestic oil spill liquidation system: case study of the port of Arkhangelsk

In the Arkhangelsk Region, the bodies entrusted with oil response duties are as follows (Ryumina, 2014):

- Arkhangelsk Port Administration as a standing managing authority;
- Arkhangelsk Port Administration's Fire Safety and Emergency Response Commission as a coordinating authority;
- Arkhangelsk Port Administration's Port Surveillance Inspectorate as a coordinating authority (everyday management) in charge of the existing and forecast oil spill data collection, analysis and communication to stakeholders and authorities
- Arkhangelsk Port Administration's Operational OSR Headquarters, which functions as the Fire Safety and Emergency Response Commission's operating authority.

If an oil spill occurs in the port of Arkhangelsk, the scenario for deployment and coordination of the OSR assets is as follows:

Where the oil or oil product volume spilled does not exceed 0.3 ton, localization will be undertaken by the culprit (facility owner) and follow the procedures stipulated in his OSR plan or relevant ship's papers.

Where the culprit is unknown, or the culprit's assets are insufficient to localize the oil spill, the localization will be undertaken by Arkhangelsk Search, Rescue, Salvage and Technical Engineering Expeditionary Unit's dedicated marine division (Murmansk Basin Emergency and Rescue Department).

Where the oil or oil product volume spilled exceeds 0.3 ton, the Arkhangelsk Search, Rescue, Salvage and Technical Engineering Expeditionary Unit's marine division is to assess the area affected and to perform essential operations necessary to localize the oil slick and collect the oil. The harbor master, upon receipt of oil spill notice, will convene Arkhangelsk Port Administration's Operational OSR Headquarters, in full or reduced membership. The duties of the Headquarters include response operations monitoring; assessing the purity of the water area after the oil has been collected; issuing the instruction to stop OSR operations; redistributing and channeling additional resources in case those available do not suffice. Where the oil spill response appears impossible to be performed using the resources available, the chief of the Headquarters will seek assistance from the upper-level coordinating authority, i.e. the Federal Agency for Marine and River Transport's Emergency Response and Fire Safety Commission.

Based on oil spill site assessment results, a decision will be made to call on the regional OSR assets, or convening the regional headquarters and launching the regional OSP action plan, or convening the federal operations management headquarters as appropriate.

Where the decision is taken to convene the upper-level coordinating authority, the OSR management, as well as all the OSR assets of Arkhangelsk Port Administration's Operational OSR Headquarters, will be taken over by the RosMorRechFlot's Emergency Response and Fire Safety Commission. To ensure public safety, Arkhangelsk Port Administration will inform, via the Arkhangelsk Regional Office of EMERCOM, the personnel and the residents in the area likely to become affected of the accident. In case of injured individuals on the vessel in emergency, Arkhangelsk Port Administration

will call the ambulance to receive them where they will be disembarked. Arkhangelsk Port Administration can also limit or stop all navigation within the port's water area if required.

3.3.2 International Cooperation Framework

The 1969 International Convention Relating to Intervention on the High Seas in Cases of Oil Pollution Casualties, the 1982 UN Convention on the Law of the Sea, the International Convention on Oil Pollution Preparedness, Response and Cooperation 1990 (OPRC 90) are the international instrument that provide the main framework designed to facilitate international co-operation and mutual assistance in preparing for and responding to major oil pollution incidents (Arctic Council, 2013).

The Protocol on Preparedness, Response and Cooperation to Pollution Incidents by Hazardous and Noxious Substances, 2000 (OPRC-HNS Protocol) extends this regulatory framework to address pollution incidents involving hazardous and noxious substances, i.e. chemicals.

States which are party to the OPRC Convention and OPRC-HNS Protocol are required to establish a national system for responding to oil and HNS pollution incidents.

In addition to the requirement for implementing national response systems, the two instruments also promote cooperation amongst the signatories through the establishment of bilateral and multilateral agreements to augment national-level response capacity, when needed. Most importantly, OPRC 90 and OPRC-HNS Protocol 2000 provide the mechanism for the signatories to request assistance from any other state signatories, when faced with a major pollution incident (Rise, 2013).

Between Norway and Russia, the “Agreement between the Government of the Kingdom of Norway and the Government of the Russian Federation on cooperation to combat oil-spills in the Barents Sea” is signed. Regardless of where such contamination occurs, Russia and Norway shall assist each other in order to combat oil pollution that may affect the areas covered by this agreement. In case of a response situation in the Barents Sea, the national authorities in Norway and Russia will strive to make any resources they may have available for use in a joint operation.

In May 2013, the countries of the Arctic Council signed a legally binding Agreement on Cooperation on Marine Oil Pollution Preparedness and Response in the Arctic that is built upon the existing agreements between two or more of the Arctic states. The agreement is between Canada, Denmark, Finland, Iceland, Norway, Russia, Sweden, and the United States. The objective of this agreement is to have nations cooperating in preparedness for oil spills in the Arctic so they can protect the marine environment. This agreement focuses on Arctic oil spills and addresses a range of practical issues: requirement of a national 24-hour system for response, facilitation of cross-border transfer of resources, notification of the signatories, monitoring spills, conducting exercises and training, and joint reviews of responses to Arctic spills. The agreement also includes a set of operational guidelines in an appendix.

In case of an oil spill of a volume that requires additional support, MorSpasSluzhba makes a proposal on involvement of other organizations' resources, including emergency resources of foreign states according to the international agreements. It coordinates maritime oil spill elimination activities across national and international emergency organizations.

MorSpasSluzhba participates in international cooperation and provides collaboration with emergency services and organizations of foreign countries regarding oil spill preparedness, and regarding maritime joint SAR and OSR exercises.

International oil spill liquidation system: case study of the jack-up rig of the Dolginskoye field

The old jack-up rig “*Saturn*” was damaged by a storm on November 7th, 2014. A lifeboat was lost and the helipad was damaged. The entire crew was evacuated from the rig to a following support vessel. The platform was under tow from the Dolginskoye field in the Pechora Sea towards Murmansk when it was struck by the storm. Russia’s State Marine Rescue Service (MorSpasSluzhba) confirms that the crew was taken off the rig, but had returned now as “*Saturn*” is currently moored near Cape Kanin, taking shelter from the storm.

Gazprom Neft operates the 26-years old Romanian-owned rig “*Saturn*” for drilling in the Dolginskoye field in the Pechora Sea.

The “*Saturn*” case, which was handled by three professional tugboats from Norway, is in a better example than the “*Kolskaya*” case, which had been towed by icebreakers that were poorly suited for towing. Two of the tugboats, “*Stril Challenger*” and “*Stril Commander*” left “*Saturn*” and continued their voyage towards Murmansk.

The two vessels that stayed with “*Saturn*” near Cape Kanin was a tugboat, “*Stilbord*”, and a rescue vessel, “*Karev*” (BarentsObserver, 2014).

3.4 Counterterrorism

3.4.1 Domestic Cooperation Framework

The decision to carry out a counterterrorism operation is taken by the head of the federal or regional authority engaged in security (Federal Law 35, 2006). The counterterrorism operation is managed by its head nominated by the RF president.

In response to a terrorist act the resources of the Federal Security Service (FSB), federal authorities engaged in defense, internal affairs, justice, foreign affairs, civil defense, emergency, water and fire protection, and also regional resources shall be involved. All specialists of these authorities involved in the counterterrorism operation, report to the head of the counterterrorism operation.

Case study: Joint exercise at the Varandey oil terminal

In 2014, Security service agents from Murmansk, Arkhangelsk and Nenets conducted a major joint exercise at one of the country’s main Arctic oil installations. The exercise, reportedly the first of its kind in the Arctic, included more than 500 participants. EMERCOM, regular police forces and representatives of the Northern Fleet attended.

The training was conducted at the Varandey oil terminal, the strategic oil installation owned by Lukoil on the Pechora Sea coast. The training scenario included the elimination of terrorists who had taken hostages and occupied administrative buildings and the terminal facility (BarentsObserver, 2014).

3.4.2 International Cooperation Framework

The Russian Federation shall cooperate in compliance with international treaties in counteraction against terrorism with foreign states (law-enforcement bodies and special services), as well as with international organizations.

The Russian Federation, being guided by the interests of ensuring the safety of individuals, society and the state, shall prosecute on its territory all individuals who are accused (suspected) of any kind involvement in terrorist activity.

The cooperation is based on the following international acts:

- Convention on the Suppression of Terrorism (January 26, 1977);
- International Convention for the Suppression of Terrorist Bombings (December 15, 1997);
- International Convention for the Suppression of the Financing of Terrorism (December 9, 1999);
- Convention about Struggle with Terrorism, Extremism and Separatism (June 15, 2001);
- International Convention for the Suppression of Acts of Nuclear Terrorism (April 13, 2005);
- Convention on the Prevention of Terrorism CETS № 196 (May 16, 2005) and etc.

According to these documents, the Russian Federation together with the other states shall take steps to exchange data/information, and to respond to requests for rescue operations. Other functions include the measure exchange to prevent, detect and suppress terrorism (extremism, separatism) and inform state-members and partners about results of international standards' implementation. The Russian federation takes measures to prevent, detect and respond to terrorist acts which are directed against other states, to suppress financing, supplying of arms and ammunition to any kind of terrorist groups, to stop activities to prepare individuals to commit terrorist acts, etc.

Cooperation on a bilateral level is constructed on the basis of relevant treaties. The list of bilateral agreements includes:

- international treaties with France and Great Britain on principles of mutual relations;
- the Treaty of Friendship, Partnership and Cooperation Agreement with the Federal Republic of Germany,
- the Treaty of Friendship and Cooperation with Italy.

Cooperation in counterterrorism actions is conducted within the legal and political framework of the Commonwealth of Independent States. In particular, the law "On Counteraction against Terrorism" was adopted on December 1, 2000 by member states of the CIS. This law comes in addition to the decision of the Council of CIS to cooperate on matters of counterterrorism approved by member states of the CIS and also the Regulations on Anti-Terrorist Center and many other documents whereby competent authorities of the member states of the CIS interact with each other.

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4 ICELAND

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This chapter covers the organizational aspects of Iceland's maritime preparedness system. It is divided into several sections. First, it identifies the institutions involved in maritime search and rescue and the domestic and the international cooperation frameworks in place. Second, it examines the capability for oil recovery and pollution prevention. Finally, it outlines the preparedness mechanisms designed to respond to terrorism and other illegal activities in the sea around Iceland.

Since Iceland does not have a military, the preparedness system is exclusively run by civilian institutions. The Ministry of the Interior is responsible for the Iceland's maritime Search and Rescue Region (SRR). Other ministries – the Ministry for Foreign Affairs, the Ministry of Industry and Innovation and the Ministry for the Environment and Natural Resources – are in charge of specific tasks dealing with maritime preparedness and international partnerships in the Arctic. Non-profit organizations and public companies are also part of the preparedness system.

4.1 Search and Rescue

The Icelandic Coast Guard (ICG – *Landhelgisgæslan*), under the auspices of the Ministry of Justice, is the central organization responsible for maritime safety. The Icelandic SRR, as defined by the International Maritime Organization (IMO), is over 1.9 million km² or more than double the Exclusive Economic Zone (EEZ) of Iceland and 18 times the size of the country itself. The distance from land to the far South West of the SRR is approximately 600 nautical miles. Extreme weather conditions, wave height, drift ice, and frost, make search and rescue operations difficult to manage in such a large area.

4.1.1 Domestic Cooperation Framework

The domestic cooperation framework for maritime search and rescue is outlined in the Regulation on the Control of the Search and Rescue in the Search and Rescue Region of Iceland for a Maritime and Aeronautical Rescue.⁸ It entrusts the Icelandic Coast Guard with the authority for search and rescue in the Icelandic SRR. The Police is in command in the event of accidents inside harbor areas and if an aviation accident occurs on land. The non-governmental Icelandic Association for Search and Rescue (ICE-SAR) participates in search and rescue in cooperation with the ICG. Whenever needed, the authority in command of search and rescue (ICG or the Police) is obliged to activate the Coordination and Command Center, a centralized authority designed to deal with crisis situations.

The Icelandic Coast Guard

The Icelandic Coast Guard is in charge of management of maritime search and rescue and law enforcement and patrol of the sea around Iceland. This includes operational fisheries monitoring; protection against unlawful activities, such as illegal migration and drug trafficking; and marine pollution surveillance. In the event of a crisis, the ICG is to ensure a rapid response, including rescuing individuals from danger at sea, providing urgent medical transport, and assisting boats and ships

⁸ See English translation of the Regulation: http://www.lhg.is/media/leit_og_bjorgun/RESCUE_EN.pdf

within Iceland's jurisdiction. The ICG also takes part in rescue operations on land, for example by managing airborne ambulance services. Additionally, the ICG is responsible for conducting hydrographic surveys, nautical charting, and for the enforcement of explosive ordinances.

In accordance with the 1974 International Convention on Maritime Search and Rescue on the Ocean and the instructions of the IMO and the International Civil Aviation Organization, the ICG operates a Rescue Center for Maritime and Aeronautical Search and Rescue, named Joint Rescue Coordination Center (JRCC Iceland). The JRCC is run parallel to the ICG Operations Center and is the 24/7 contact for all maritime-related information. The JRCC is also the official recipient of distress signals from the Cospas/Sarsat System (SAR Point of Contact) for the Maritime and Aeronautical Rescue Region of Iceland. Requests from other countries for access to the Icelandic SRR are directed to JRCC Iceland.

The ICG operates three rescue helicopters, three offshore patrol vessels, one hydrographic surveying vessel and one surveillance aircraft. The helicopters, *TF-LIF* (1987), *TF-SYN* (1992), and *TF-GNA* (2001) are Aerospatiale Super Pumas, AS-332L1. All are designed for a crew of five (two pilots, one navigation officer/rescue person, one winch operator, and one doctor) and 18–20 passengers or 2–3 stretchers. The maximum flight range of each helicopter is around 300 nautical miles, and the endurance is approximately five hours. One of the three helicopters is capable of inflight refueling; all the ICG ships are equipped with that capability. According to the ICG, the reaction time of the helicopters is maximum 60 minutes, but in practice around 25–30 minutes. The ICG attempts to have two helicopters and two crews on continual standby. Due to regular maintenance, funded employment abroad, and a lack of manpower, it has not proven possible to stick to this rule and the standby time is not close to 100%. Yet, taking into account factors, such as crew fatigue and regulated crew rest, the ICG seeks to keep the standby time percentage as high as possible.

TF-SIF (2009), the Dash 8 Surveillance Airplane, is designed for surveillance, search and rescue, and medical transport. It is able to operate from short airfields and requires less than 1300 meters runway for take-off and landing. The maximum flight range of *TF-SIF* is 2200 nautical miles and the endurance around 10 hours. The plane can carry up to 22 people or 2–3 stretchers in addition to a crew of four or six in special operations such as SAR with special lookouts and special mission coordinators (two pilots, two operators and two observers). The Maritime Surveillance Aircraft's (MSA) communications system provides satellite voice and data capability. It also covers marine, land, and air High Frequency (HF), with radio communication over a 200 nautical mile distance) and Very High frequency (VHF), extending to 30 nautical miles. It is also equipped with a 360° maritime radar and a side looking radar, which can detect both small and large targets and pollution at sea. Due to financial restraints, the *TF-SIF* frequently participates in funded deployments abroad. In the past five years, the plane has been away from Iceland for up to six months a year. If this practice continues, it could adversely affect resource capability in crisis situations, since there is no other SAR and pollution surveillance airplane available 24/7 anywhere between Norway and Canada.

The ICG patrol vessels, *Ægir* (1968,) *Týr* (1975), and *Þór* (2011) are all equipped for search and rescue in the Arctic. The acquisition of the multi-purpose vessel *Þór* in 2011 was highly important for the ICG, since the other vessels are coming of age (they made their mark in the Iceland-UK Cod Wars in the 1970s). *Þór*, which accommodates 48 people, is designed for SAR, patrolling, pollution prevention, oil recovery and helicopter refueling. The towing capacity is up to 120 tons, which means that the vessel could tow a 100,000 dead weight tanker in favorable circumstances. The ICG also owns several lifeboats and the vessel *Baldur*, which is used for hydrographic surveying.

Approximately 250 people are employed by the ICG. Following the 2008 banking collapse in Iceland, the ICG – like other Icelandic governmental institutions – experienced severe budget cuts. Consequently, the manpower has shrunk, which has weakened response capability, particularly in the case of Icelandic participation in large SAR projects. Additionally, the ICG is dependent on income from funded missions abroad.

National Commissioner of the Icelandic Police and the Civil Protection

The National Commissioner of the Icelandic Police (NCIP – *Ríkislögreglustjóri*) is the central police authority of Iceland. Local police commissioners are responsible for SAR operations on land, including harbors. The NCIP handles communication with other authorities on behalf of the police and coordinates operations when centralization is needed.

NCIP operates the Department of Civil Protection and Emergency Management (*Almannavarnir*), which is in charge of arranging for collaboration in the event of disasters within the Icelandic international area of responsibility in cooperation with the appropriate organization such as the ICG. The aim of the Civil Protection Department is to prepare, organize and implement measures aimed at preventing and limiting physical injury or damage and to provide emergency relief and assistance. The Civil Protection Department performs risk analysis training, mitigation, and coordination.⁹ While the ICG is responsible for SAR at sea, the Civil Protection Department coordinates services on land in the event of a large accident.

Icelandic Transport Authority

The Icelandic Transport Authority (ICETRA – *Samgöngustofa*) has administrative jurisdiction over transport affairs and is the main point of contact for the IMO and the European Maritime Safety Authority (EMSA). This includes overseeing maritime affairs and responsibility for state control of foreign merchant vessels in Icelandic ports.

Icelandic Transportation Safety Board

The Icelandic Transportation Safety Board (ITSB – *Rannsóknarnefnd samgönguslysa*) is an independent investigative agency in charge of investigations of accidents on land, at sea or in the air. In cases of suspected criminal activity, the ITSB's investigation is independent of the criminal investigation and is carried out with the sole purpose of preventing accidents and increasing safety.

ICE-SAR

The Icelandic Association for Search and Rescue (ICE-SAR – *Landsbjörg*) is the national association of the 100 volunteer rescue units in Iceland. In addition to accident prevention, the rescue units are specialized in search and rescue on land and at sea. Around 3–4 thousand volunteers are members of the rescue units in Iceland and are on standby for emergencies all year around. Since 1985, ICE-SAR has operated the Maritime Safety and Survival Training Center, performing mandatory survival training for all seamen in Iceland. ICE-SAR owns around 100 inflatables and 14 large lifeboats, with trained crews for SAR operations at sea. The reaction time of the lifeboats is a maximum of 60 minutes. A special international SAR team is also part of ICE-SAR.

⁹ See and English version of the Civil Protection Act at: http://www.almannavarnir.is/upload/files/Enska_L%C3%B6g%20almv%2082%202008%20W%20tr%20020908%20_2_.pdf

112 The National Emergency Number

A public company, the 112 Emergency Line (*Neyðarlínan*) – jointly owned by the government, the City of Reykjavík, and the National Power Company – runs the emergency phone number of Iceland, 112. It is the point of contact in cases of accidents, fire, crime, search, rescue, and natural disasters. The Tetra communication system, which was built in Iceland in 2007–2009 and is especially designed for emergency services, is operated by 112. In case of an emergency, particularly on land, 112 convenes the relevant response parties.

The Red Cross

In case of an emergency, the Icelandic Red Cross provides temporary emergency services. This includes providing shelters, information, and psychological support.

The Coordination and Command Center

The Coordination and Command Center (*Samhæfingarstöðin*) is activated in times of crisis with the participation of all relevant actors. The Center is under direction of a committee appointed by the Ministry of Justice with participation of the following institutions and organizations: The National Commissioner of the Icelandic Police; the Icelandic Coast Guard; the Director-General of Public Health; the Metropolitan District Fire Brigade; 112; the Icelandic Red Cross; ISAVIA (the operator of Icelandic airports and navigational services); the Icelandic Association of Local Authorities; and ICE-SAR. The committee decides on the collaboration between the response bodies. The Center is located in the same building as the ICG, the JRCC, 112, and the Civil Protection department of the NCIP.¹⁰

The Civil Protection and Security Council

While the Coordination and Command Center is in charge of operational activities in crisis situations, the Civil Protection and Security Council (*Almannavarnarráð*) is responsible for government policy on civil protection and security. The Council is chaired by the Prime Minister, with participation of other ministers and permanent secretaries involved with civil protection, as well as directors of relevant institutions. In addition, the Prime Minister may invite up to two ministers to sit on the Council at any time in connection with their respective ministerial competence and/or specialization. Each local government is also obliged to appoint a special civil protection committee, which deals with risk analysis and response plans at the regional level in cooperation with the NCIP.

4.1.2 International Cooperation Framework

The government has made the Arctic a priority in Icelandic foreign policy. Consistent with Iceland's Arctic Policy (2011), it considers the Arctic Council as the most important forum for international cooperation on the Arctic. Iceland is also party to the United Nations Convention on the Law of the Sea (UNCLOS), which is seen as the central legal regime for Arctic governance and the basis for settlement of potential regional disputes over jurisdiction and rights. In ocean affairs, the government supports the United Nations Fish Stocks Agreement as well as IMO conventions on maritime navigation and pollution prevention.

Following the departure of permanently stationed U.S. troops from Iceland in 2006, Iceland has negotiated bilateral, non-binding, “soft security” cooperation arrangements with three Arctic states, Norway, Denmark, and Canada, together with Britain (which has an Observer status in the Arctic

¹⁰ For further information see section V of the Civil Protection Act no. 82/2009: http://www.almannavarnir.is/upload/files/Enska_Lög%20almv%2082%202008%20W%20tr%20020908%20_2_.pdf

Council). Iceland is also fully committed to the two legally binding agreements on Search and Rescue (2011) and Oil Spill prevention (2013), which were negotiated under the auspices of the Arctic Council between the eight Arctic states. Additionally, Iceland is a member of the 1989 NORDRED-agreement, which seeks to strengthen cross-border cooperation between the Nordic countries on emergency response. The 1951 U.S.-Icelandic Defence Agreement remains in force, with U.S military aircraft engaged in surveillance operations near Iceland on a rotational basis.

Iceland participates actively in international cooperation on maritime safety in the Arctic, for example, within the Arctic Council and the IMO. All relevant institutions are in contact with their sister organizations in the neighboring countries. The ICG is active on SAR matters within the Arctic Council and is part of the Arctic Security Forces Roundtable, the Nordic Coast Guard Cooperation and the North Atlantic Coast Guard Forum. These platforms are considered important for information and intelligence exchange on law enforcement, marine security, pollution prevention, search and rescue, and fisheries surveillance.

On the operational level, the ICG and other institutions, depending on circumstances, participate in a number of international SAR exercises, such as the Arctic Council's SAREX, NATO's Northern Viking and DYNAMIC MERCY. The ICG cooperates extensively with the Danish Navy on maritime safety and surveillance around Iceland, Greenland and the Faroe Islands. This collaboration, which has increased in the last few years, is formalized in a 1996 bilateral agreement (Standing Operational Procedures for Co-operation between the Icelandic Coast Guard and Danish Forces).

The ICG has also concluded a bilateral agreement with the Royal Norwegian Navy to facilitate information exchange. Iceland is usually not in direct contact with Russia on maritime security, but Norway serves as an intermediary between the two countries when needed. The cooperation with the United States is formalized in a Memorandum of Understanding (2008) between the Icelandic Coast Guard and the U.S. Coast Guard. Similarly, the willingness to facilitate information exchange and cooperation on maritime security is outlined in a MoU between the Icelandic Minister for Foreign Affairs and the Canadian Minister of National Defence. The ICG has maintained relations with relevant actors in the United States and Canada, including the Rescue Coordination Centers in Boston and Halifax.

4.2 Oil Spill Response

A Committee for the Development of a National Security Policy for Iceland has defined environmental threats, sea pollution or accidents due to increased maritime traffic in the Arctic, as a key risk for Iceland because of its dependence on fisheries. The main sailing routes around Iceland are close to major fish spawning areas and important fishing grounds. In this context, oil tankers do not pose the greatest environmental risk since they mainly carry oil and diesel. On the other hand, crude oil, which is on board in most cargo vessels, is far more harmful and damaging to natural habitats than diesel or other oil products. According to regulations on sailing routes south and southwest of Iceland (approved by the IMO in 2007), ships are only allowed to use certain routes in the area, depending on their size, cargo and capacity. The main aim is to guarantee the most secure sailing routes and to limit the likelihood and harm of pollution accidents.¹¹

¹¹ “Áfangaskýrsla starfshóps um leiðastjórnun skipa, neyðarhafnir og varnir gegn mengun frá siglingum” (Progress Report on Sailing Routes, Emergency Ports and Marine Pollution Prevention). 2007. Siglingastofnun. Retrieved from <http://ww2.sigling.is/lisalib/getfile.aspx?itemid=3365>

4.2.1 Domestic Cooperation Framework

The Ministry for the Environment and Natural Resources is in charge of pollution prevention, fire prevention and fire brigades. The Iceland Construction Authority (*Mannvirkjastofnun*) supervises fire safety and fire preventions, but the fire brigades are operated by local authorities. The Environment Agency of Iceland (*Umhverfisstofnun*) is in charge of pollution prevention on land and at sea and coordinates actions against marine pollution.

The Regulation on Reaction to Marine or Coastal Pollution and Act No. 33/2004 on Marine and Coastal Antipollution Measures outline the course of events in the event of a pollution incident at sea. The main Icelandic harbors are equipped for – and obliged to respond to – oil spill or other forms of sea pollution inside their areas. Ships are obliged to notify port authorities about possible sea pollution and polluting accidents (if more than a certain amount of polluting materials are discharged to the ocean). As for reaction to acute marine or coastal pollution outside harbour areas, the responsibilities of each relevant party are outlined in a joint response plan by the Environment Agency, the ICG and the ICETRA.¹² The Coast Guard serves as the operational actor and has the authority to intervene at sea in the case of acute pollution threats.

The ICG's vessel *Þór* is equipped with a 300 m oil boom and an oil skimmer. Before the acquisition of *Þór*, Iceland did not own any equipment to deal with environmental accidents on the open sea. Still, in the event of a pollution accident within Iceland's EEZ, it could take up to 46 hours for *Þór* to reach the scene.

No large pollution accidents have taken place in the sea around Iceland. In cases of grounding or fire at sea, acute oil spill has mostly been prevented. The cooperation between the Environment Agency and the Icelandic Coast Guard is functioning according to plan. The regulatory framework has recently been improved to take into account lessons learned from incidents at sea. The jurisdictional responsibilities of each organization have been clarified, with the ICG being in charge of operations when a potential threat occurs and the Environmental Agency, when a polluting incident has been identified.

4.2.2 International Cooperation Framework

The Ministry for the Environment and Natural Resources and the Environment Agency participate in international cooperation in the field of pollution prevention within the IMO, EMSA and the Arctic Council as well as between the Nordic countries. In the event of a large accident, the Environment Agency can request assistance from the other Nordic countries in accordance with the Copenhagen Agreement. The Agreement – which was originally signed in 1971 and revised in 1993 – applies to coastal and territorial waters as well as to other waters within fishing zones, continental shelves and economic zone boundaries.¹³ The Environment Agency can also seek support from EMSA, which has a network of stand-by oil spill response vessels available to assist in oil recovery and pollution prevention operations. Additionally, EMSA provides organizational and co-ordination support. Yet, in view of the distant geographical location of Iceland, it could take foreign vessels a few days to

¹² Available in Icelandic at: https://www.ust.is/library/Skrar/Atvinnulif/Haf-og-vatn/Bradamengunarhopp/ADGERDAAAETLUN_MENGUN-UTAN-HAFNA-OG-NOTKUN-SKIPAFDREPA.pdf

¹³ See further information at: <http://www.copenhagenagreement.org/>

reach the scene, depending on the location. Iceland would therefore have to rely on the ICG's *Þór* and other pollution prevention equipment available in the country.

4.3 Counterterrorism

According to a 2009 assessment report for Iceland – which was commissioned by the Foreign Ministry – terrorist and criminal organizations might target oil, gas, and passenger transportation in the Arctic.¹⁴ So far, no such plans or activities have been detected in or around Iceland. In general, the threat of a terrorist attack in Iceland is considered low, an assessment that was confirmed by a Parliamentary Committee for the Development of a National Security Policy for Iceland.¹⁵ This assessment, as well as the preparedness capacity, is under constant review, taking into consideration international, regional, and national developments.

4.3.1 Domestic Cooperation Framework

The National Commissioner of the Icelandic Police (NCIP) is the central authority dealing with a potential terrorist threat on land and at sea, with its National Security Unit being entrusted with risk assessment and analysis. The police is also in command during tactical anti-terrorist maritime operations. While the cooperation with the Icelandic Coast Guard would be essential in such cases, the NCIP can additionally activate its Special Police Unit, which mainly operates on land, but is also trained for operations at sea.

As the maritime law enforcement authority, the ICG is also concerned with illegal fishing and fisheries (such as throwing small fish overboard and reporting incorrectly of catch) in the Icelandic EEZ as well as with environmental crimes, smuggling and sabotage. While the campaign for animal welfare is, in general, peaceful, Iceland could be a target of sabotage or violent protests. Drug smuggling via sea has been discovered within the EEZ, but such incidents have been few in number.

4.3.2 International Cooperation Framework

As part of its responsibility for Icelandic military security policy, the Ministry for Foreign Affairs is in charge of the international aspects of terrorism-related policymaking. The Ministry of Justice, on the other hand, handles domestic police, search and rescue, border control, public safety, and measures against money laundering and terrorism. IRR's institutions, including the NCIP and the ICG, participate in international cooperation in the field, such as within NATO, Schengen, the Police Working Group on Terrorism, EUROPOL, and INTERPOL.

¹⁴ "Risk Assessment for Iceland: Global, Societal, and Military Factors." Prepared by a commission under the chairmanship of Prof. Valur Ingimundarson, March 2009. Available in Icelandic at: http://www.utanrikisraduneyti.is/media/Skyrslur/Skyrsla_um_ahattumat_fyrir_Island_a.pdf. English Summary available at: http://www.mfa.is/media/Skyrslur/A_Risk_Assessment_for_Iceland_-_English_Summary.pdf.

¹⁵ "Proposal of a Parliamentary Committee for the development of National Security Policy for Iceland." February 2014. Unofficial English translation available at: http://eeas.europa.eu/delegations/iceland/documents/press_corner/20140324_en.pdf.

5 GREENLAND (DENMARK)¹⁶

Birger Poppel, University of Greenland

Search and Rescue (SAR) preparedness in Greenland pertains to the Danish Kingdom (including Denmark, Greenland and the Faroe Islands). The Danish Kingdom has, through a number of international conventions concerning navigation and aviation, the obligation to organize a SAR service in the Greenland Search and Rescue Region.

5.1 Maritime Preparedness: Institutional Framework

The waters around Greenland for which Denmark is obliged to organize search and rescue is called Search and Rescue Region (SRR). Figure 5.1 below depicts the ‘Danish (Greenlandic) Search and Rescue Region’ that covers more than 3 million sq. km. The Greenland (Denmark) SSR is neighbouring the Canadian, the Icelandic and the Norwegian SRR.

Since January 1, 2014 the Danish Ministry of Defence has been SAR-responsible for maritime as well as air Search and Rescue in Greenland. The Danish Ministry of Justice is responsible for land and local maritime Search and Rescue in Greenland. Following this division of responsibility at the ministerial level, the management of SAR services in Greenland is divided between the Joint Rescue Coordination Centre (JRCC) and the Police in Greenland¹⁷. The management of SAR services in Greenland is described more detailed below in 5.2.1.

An Emergency Service Commission (ESC), including both Greenlandic and Danish authorities, was established in 2010 to provide a basis for a coordinated use of Greenlandic and Danish resources in case of ‘emergencies and greater catastrophes’¹⁸. The ESC is more fully described below.

Maritime preparedness includes, as will be further described below different authorities and covers also oil spill response (OSR). This section will address the different aspects and also briefly mention other areas of emergencies.

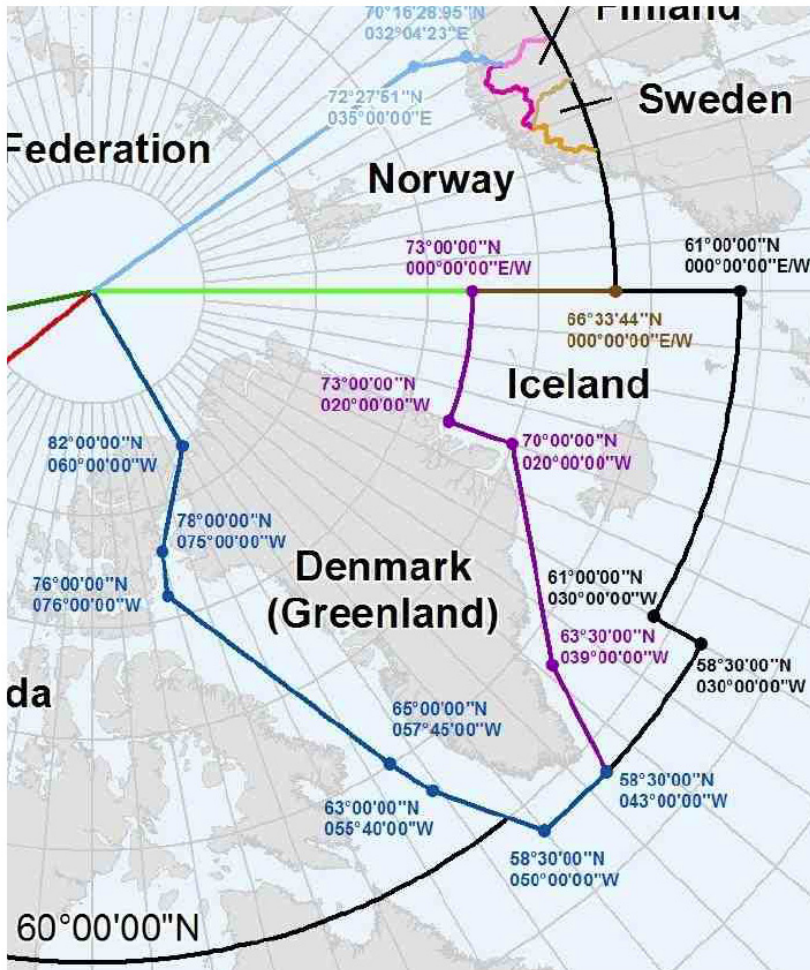
This section is primarily based on a number of publications, reports and web sites such as Skibsfartens og Luftfartens Redningsråd (Rescue Council for Navigation and Aviation), Joint Arctic Command and a newly released ‘Arktis-analyse’ (an ‘Arctic Analysis’) on the future tasks of the Danish Ministry of Defence (Forsvarsministeriets fremtidige opgaveløsning 2016).

¹⁶ Acknowledgements: to Bjørn Tegner Bay, Chief Constable of Greenland Police, for valuable advice and helpful input to the manuscript.

¹⁷ Forsvarsministeriets fremtidige opgaveløsning (2016) and Skibsfartens og Luftfartens Redningsråd (2016).

¹⁸ By the Act of Inatsisartut (the Greenland Parliament) no. 14 of May 26, 2010 regarding the National Rescue Service in Greenland, and regarding fire and explosive preventive actions.
(<http://beredskabsinfo.gl/en/Beredskab/Beredskabskommissionen>)

Figure 5.1 Map Greenland (Denmark) Search and Rescue Region



Source: Skibsfartens og Luftfartens Redningsråd (2016)

5.2 Search and Rescue (SAR)

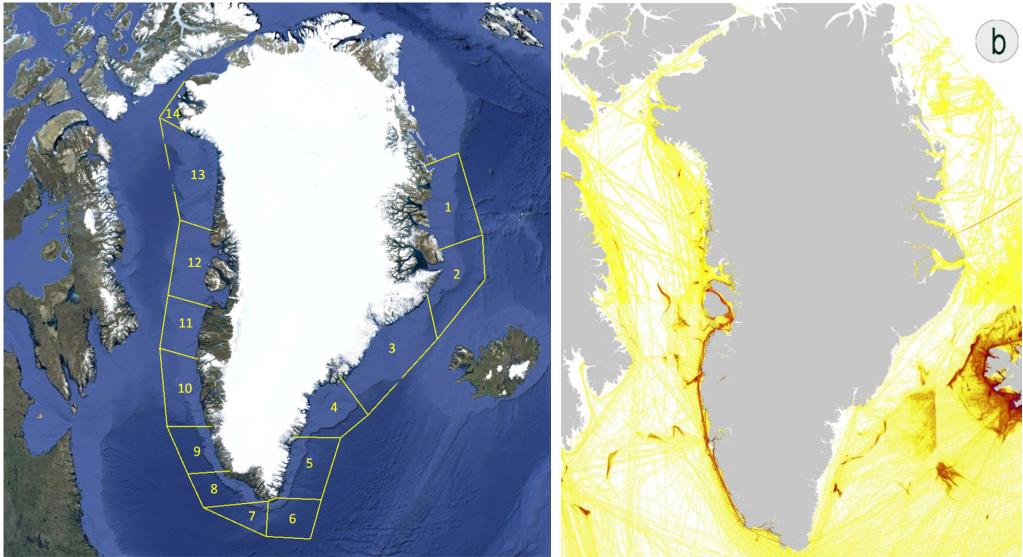
The number of vessels in the Arctic has increased over a period of time due to a growing interest in commercial activities in the Circumpolar North. This is also the case in Greenland waters. The number of ships (equipped with Automatic Identification System, AIS) around Greenland in 2014 is shown in Table 1. As the table indicates, there is a large variety among the vessels operating in Greenlandic waters in both size and function. Activities that these vessels have participated in, in recent years include:

- Fisheries (with vessels of sizes ranging from dinghies to trawlers with production plants)
- Tourism (an increased number of cruise ships as well as local tourist operators with smaller boats)
- Oil installations (in sea ice exposed areas)
- Seismic surveys
- Transportation of minerals
- Other transportation activities: passengers as well as goods

Table 1 Ships equipped with AIS (Automatic Identification System) around Greenland in 2013 and 2014. Number of ingoing ship passages into the 14 defined areas

2013 Areas	1	2	3	4	5	6	7	8	9	10	11	12	13	14
Cargo ship	3	2	61	18	33	117	73	120	157	167	175	126	42	5
Bulk carrier	0	0	0	0	5	17	16	12	2	4	1	0	0	0
Tanker	0	1	9	11	15	18	18	31	46	65	78	50	17	3
Support ship	18	24	17	10	18	16	24	46	64	74	79	44	16	14
Offshore ship	0	0	0	0	0	2	2	2	2	3	2	1	0	0
Fishing ship	7	49	836	191	146	47	52	133	216	241	270	498	161	0
Passenger ship	8	11	2	5	4	2	1	5	9	18	23	14	4	4
Passenger ship250	6	6	6	2	11	4	13	39	63	71	72	34	6	4
Class B	1	2	10	3	4	6	4	9	10	13	12	10	5	1
Other ship	6	17	31	10	9	7	6	19	31	38	41	23	4	2
All ships	49	112	972	250	245	236	209	416	600	694	753	800	255	33
2014 Areas	1	2	3	4	5	6	7	8	9	10	11	12	13	14
Cargo ship	1	4	31	20	50	140	106	149	196	215	216	143	47	6
Bulk carrier	0	0	0	0	2	22	9	8	0	0	0	0	0	0
Tanker	0	1	10	10	13	25	28	41	58	82	88	49	18	4
Support ship	19	23	29	19	34	33	28	57	89	95	68	41	26	18
Offshore ship	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Fishing ship	6	182	599	202	130	81	120	194	268	328	322	457	88	0
Passenger ship	6	15	2	2	5	2	2	9	14	34	52	28	10	6
Passenger ship250	9	5	12	6	20	15	23	63	100	103	100	49	4	1
Class B	1	8	8	3	2	6	11	19	25	29	29	14	5	5
Other ship	10	22	52	13	9	10	10	21	47	61	78	58	7	2
All ships	52	260	743	275	265	334	337	561	797	947	953	854	214	42

Figure 5.2 Map. Waters around Greenland divided into 14 defined areas.



Source: Danish Maritime Authority based on AIS data from ExactEarth

An increased level of activity will result in a greater risk of adverse events. Therefore, a number of different actors have to be involved in the emergency response system. The different stakeholders will have different responsibilities and different institutional anchoring. The actors and stakeholders involved are presented in the section below.

5.2.1 Domestic Cooperation Framework ¹⁹

The Act of emergency preparedness in Greenland states that the joint actions in case of accidents and disasters are coordinated by the Chief Constable of Greenland (Greenland Parliament Act no. 14, May 26, 2010: §13, 1). This principle is of general application for all actions regardless of, as an example, which authority is responsible for rescue actions. The principle is also applied in normal everyday life – for instance in case of fire and traffic accidents.

¹⁹ The section is based on Søfartsstyrelsen (2016). EFS A, Bilag til Efterretninger for Søfarende, februar 2016. Bilag EFS 1-1-2 2016.

The responsibility for providing SAR services in Greenland rests on:

- 1) The Joint Arctic Command (JACMD) that is responsible for the management of the Joint Rescue Coordination Centre (JRCC) and thus responsible for the air and maritime SAR in Greenland, Nuuk
- 2) The Chief Constable in Greenland that is responsible for Land and Local Maritime Search and Rescue Service, Nuuk

The Arctic Command is responsible for the management of maritime rescue services Maritime Rescue Coordination Centre (MRCC) – search and rescue of any type of vessels in distress, no matter whether the operation is carried out at sea, by air or by land. The aviation part of the JRCC Greenland is managed and manned by Naviar that is also located in Nuuk.

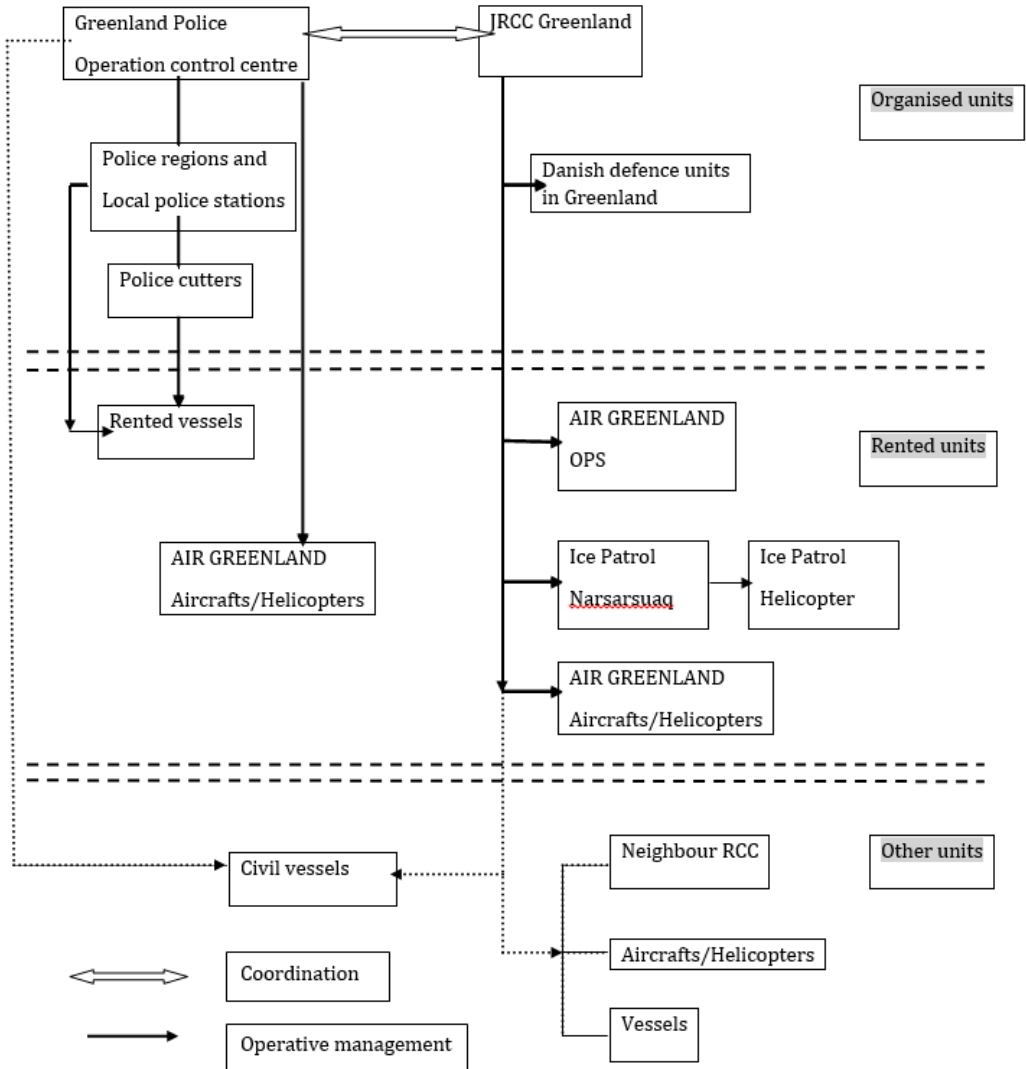
The police are responsible for directing the search and rescue operations in local waters and on land, for pollution control outside the three-mile limit and for assistance to other operators.

Furthermore, the local (municipal) emergency services, particularly the fire service, must provide reasonable assistance in cases of fire, injury to persons, property and the environment from accidents and disasters, including acts of war, or the imminent threat thereof. They also assist in searches for missing persons in the countryside, mountains, and fjords and at sea. They are responsible for the following:

- Release of jammed persons in traffic accidents
- Environmental rescue on land
- Accommodation and meals for evacuees
- Assistance to other operators

Figure 5.3 presents the organisational chart ‘The SAR service in Greenland’.

Figure 5.3 Organisational chart ‘The SAR service in Greenland’²⁰



Source: Skibsfartens og Luftfartens Redningsråd (2016: 1-1-2)

Resources available for SAR services

The obligation for the Danish State to ensure SAR services does not imply that there are units that are purchased and available exclusively for search and rescue operations in the Greenland SAR region. There are, however, a number of permanent or occasional resources that can be deployed in SAR operations, for instance:

²⁰ The chart is developed and the translation from Danish to English is made by the author.

- The vessels and helicopters of the Danish Navy.
- The police cutters.
- Danish state owned vessels.
- Other vessels with an obligation to provide information about positions²¹.
- Rented ships and boats.
- Aircrafts of the Danish Air force.
- Aircrafts of private airlines – of which one is a dedicated SAR helicopter²².
- The dog sledge patrol, SIRIUS

The Emergency Service Commission

To provide a basis for a coordinated use of Greenlandic and Danish resources in case of catastrophes (including crisis and war situations) a joint Greenlandic and Danish Emergency Service Commission (ESC) was created in 2010 based on Greenlandic legislation²³.

‘The Emergency Service Commission includes representatives of the Government of Greenland, the National Medical Office, the Municipal National Association (KANUKOKA), the Chief Constable of Greenland, and the High Commissioner of Greenland and Arctic Command. The Chairman of the ESC constitutes the Permanent Secretary of Ministry of Municipalities, Settlements, Remote Districts, Infrastructure and Housing.

The Emergency Service Commission is the organizational focal point for the overall transverse crisis management. The ESC is a forum for discussion between Greenlandic and Danish authorities and organizations and has no independent decision-making power. The primary role of the ESC is: ‘to ensure the preparation of a contingency plan for all of Greenland, and that this plan is continuously updated. Furthermore, the Commission must:

- *Advice and inform the Government of Greenland, the Mayors and Foreign Authorities of emergency conditions*
- *Coordinate and activate the Greenlandic authorities for emergency management activities at the request of the Chief Constable, as well as coordinate contingent emergency management activities from foreign authorities*

²¹ To be able to survey vessels in Greenlandic waters two report systems have been developed: ‘GREENPOS’ (for vessels travelling to and from Greenlandic waters) and ‘KYSTKONTROL’ (for vessels travelling between Greenlandic harbours). Registering is mandatory and free of charge.

²² To ensure part of its SAR service responsibility the Danish State and the Greenland Government have made agreements about dedicated helicopter SAR services. According to a press release from Air Greenland informing about an extension of the Search and Rescue (SAR) helicopter preparedness in Greenland between the Danish Defence Acquisition and Logistics Organisation (DALO) and Air Greenland until 31 December 2018 more detailed information was provided: *“The civil SAR preparedness consists of a dedicated S61 helicopter based in Kangerlussuaq, which is on standby 24 hours a day, 7 days a week, 365 days a year. It is supplemented with a Bell 212 helicopter based in Qaqortoq, which is on standby 8 hours a day, Monday to Saturday and throughout the year. Both helicopters are equipped with a hoist system, allowing for evacuation from sea level, ships/boats, from deep canyons and from impassable mountain peaks. The crew, which typically consists of two pilots, one mechanic plus a hoist operator, must be mobilised within one hour upon call-out.*

Air Greenland specifically trains for all kinds of rescue operations and willingly participates in all exercises initiated by Arctic Command.” (<https://www.airgreenland.com/about/news/extension-of-the-civil-sar-preparedness-contract>)

²³ By the Act of Inatsisartut (the Greenland Parliament) no. 14 of May 26, 2010 regarding the National Rescue Service in Greenland, and regarding fire and explosive preventive actions. (<http://beredskabsinfo.gl/en/Beredskab/Beredskabskommissionen>)

- *Carry out risk and vulnerability assessments in the society of Greenland*
- *Assist and coordinate the contact between Greenlandic authorities and the press.*²⁴

Information about the Emergency Service Commission is provided by the official web site of the ESC. Presenting the responsibility for the various sectors it is emphasized that the ESC 'it has no independent authority to make decisions' and '(i)n the event of a critical event, the Chief Constable of Greenland informs the Ministry of Justice, the Director of Public Prosecutions and the Danish National Police'²⁵.

Table 2 below shows whether Greenland or Danish authorities have the authority over the different sectors related to emergency conditions.

²⁴ Ibid.

²⁵ Ibid. → Emergency → Partnership with Denmark

Table 2 Authority over the various sectors related to Emergency Conditions

Sector	Authority
Municipal Emergency Rescue Service	Greenlandic
Fire-fighting	Greenlandic
- Airports	Danish
Search and Rescue (SAR)	Danish
Nuclear emergency services	Danish
Rescue efforts in towns and coastal areas ²⁶	Greenlandic
Environmental emergency services on land and within three nautical miles	Greenlandic
Environmental emergency services outside three nautical miles	Danish
Research and raw materials extraction	Greenlandic
Health emergency services	Greenlandic
- Ships	Danish and Greenlandic
Food emergency service	Greenlandic
Animal foods, fish	Danish
Extraction of raw materials on land and within three nautical miles	Greenlandic
Supply crises	Greenlandic
Tele Emergency Services	Greenlandic
Maritime emergency and security services, allocation of radio frequencies	Danish
Accommodation and food	Greenlandic
Coordination of the overall emergency services	Danish and Greenlandic ²⁷
The Emergency Services Commission	Danish and Greenlandic

²⁶ The Police is responsible in the local waters and on land.

²⁷ Whereas the overall responsibility for preparedness coordination is a joint responsibility, the responsibility in a specific case of emergency is Danish according to the act of preparedness (§13).

5.2.2 International Cooperation Framework

Chapter 2 in the above mentioned publication from Skibsfartens og Luftfartens Redningsråd (Rescue Council for Navigation and Aviation): *Eftersøgnings- og redningstjenesten i Grønland. SAR – GRØNLAND, Bind I – Organisation* (Search and Rescue services in Greenland. SAR – GREENLAND, Volume I. Organisation) examines the SAR Regions (SARR) neighbouring to Greenland (Canada, Iceland, Norway) and stresses the fact that the regional boundaries do not exempt any SARR (SAR Region) to initiate a SAR operation even if a missing or lost vessel or aircraft is located in or supposed to be in a neighbouring SARR (Skibsfartens og Luftfartens Redningsråd 2016). Denmark has committed itself to a report and control service (GREENPOS – see footnote 5) for vessels bound for or leaving Greenland until 200 nautical miles and thus within the neighbouring SARRs. Furthermore, there is an exchange of information with the Canadian NORDREG system that corresponds to the Greenlandic GREENPOS.

One of the most significant achievements of the work of the Arctic Council member states has been the Agreement on Cooperation on Aeronautical and Maritime Search and Rescue in the Arctic²⁸ that was signed by the eight Arctic states at the Arctic Council Ministerial Meeting in Nuuk, May 2011²⁹. To keep the momentum created by the agreement the Danish Kingdom decided to conduct a major SAR exercise, SAREX 2012, in Greenlandic waters and to conduct a follow up SAR exercise, SAREX 2013.

Arctic SAR cooperation – experiences from SAREX 2012³⁰

The two Search and Rescue exercises in 2012 and 2013 in Greenland waters were prepared by the Joint Arctic Command. Both exercises consisted of a ‘search scenario’ and an ‘assistance and evacuation scenario’. In addition, SAREX 2013 focused on pollution including an ‘oil spill scenario’.

Based on the SAREX 2012 Joint Arctic Command identified a number of lessons learned including:

- *‘Joint Arctic Command needs to review and update contingency plans for major accidents at sea.*
- *The sparse population and the distances involved in the High Arctic put a limit to what ships can be made available for SAR within a reasonable timeframe.*
- *Other resources, apart from ships, can be flown in quickly from farther away, using strategic air transport.*
- *Helicopters on Arctic patrol and ships are essential to the search and rescue effort in areas where on-land SAR resources/installations.*
- *There are technical challenges to communication in the high Arctic.’*³¹

²⁸ <https://oaarchive.arctic-council.org/handle/11374/531>

²⁹ As the agreement includes all Arctic states the contents and impact will be dealt with elsewhere in the report.

³⁰ The paragraph is based primarily on material (such as press releases) from Joint Arctic Command.

³¹ Presentation by Niels Westergaard, Joint Arctic Command, at the Arctic Council working group meeting of the ‘Emergency, Prevention, Preparedness and Response (EPPR) on June 3-4, 2013. http://arctic-council.org/eppr/wp-content/uploads/2013/09/EPPR-Oulu_Final_report.pdf.

The experiences from SAREX 2012 further led Joint Arctic Command to the following plans for SAREX 2013:

*'The aim of the Search and Rescue Exercise Greenland Sea 2013 (SAREX13) is to exercise the SAR organisations of the 8 Arctic Nations in a real live exercise providing SAR cooperation training to all participants in a remote Arctic environment. Additionally, and as an add-on from last year's SAREX, maritime pollution will be incorporated into this year's SAREX.'*³²

Arctic SAR cooperation – experiences from SAREX 2013

The Joint Command's evaluation report³³ states the background for the chosen exercise scenario, namely:

- the scarce resources available for Arctic SAR compared to the geographic distances;
- an over all increased ship activity (despite a decline in cruise ship activities in 2011-12).

The third factor mentioned is that 'the above factors have led to a growing awareness that it is of vital importance to strengthen the Arctic emergency preparedness in general and SAR preparedness in the waters off Greenland in particular' (Joint Arctic Command 2013:6).

Whereas the overall evaluation of SAREX Greenland Sea 2013 was positive, stressing that 'the participating organizations were able to coordinate and cooperate in a remote area. The personnel in the tactical field response demonstrated very high professional skills and dedication in their efforts to save lives' (Joint Arctic Command 2013:18) the evaluation reports also highlights where there is 'room for improvement' such as:

- 'inadequate' means of communications;
- the need for an Air Task Organization for handling a large number of aircraft;
- the need for a formal SAR cooperation agreement between the national coordination forums at the strategic level in Denmark/Greenland and Iceland focusing on national coordination and cooperation in case of emergency responses;
- the need to develop a contingency plan for deploying counter maritime pollution equipment most effectively to Greenland' (ibid.)

The Joint Arctic Command repeatedly stresses the importance of developing the SAR cooperation between the eight Arctic states and following suggests:

In order to bring Arctic SAREX into a more suitable and long term planning cycle the Danish Arctic Ambassador recommended to the Arctic Council that responsibility for future SAREX should follow the chairmanship of The Arctic Council (ibid: 6).

³² Ibid.

³³ Joint Arctic Command (2013). Search And Rescue Exercise Greenland Sea 2013 (SAREX Greenland Sea 2013). Final exercise report, Version/Release: 2.0. Nuuk, Greenland. <http://www.sldinfo.com/wp-content/uploads/2014/05/SAREX-Greenland-Sea-2013-Final-Exercise-Report-Final.docx>

5.3 Oil spill response

Maritime preparedness also includes oil spill prevention, preparedness and response.

In 2010 and 2011 the first offshore oil exploration drillings were conducted in Greenland waters since the 1970s. The drilling results from the so-called West Disko and West Greenland exploration drillings (a total of eight exploration wells) did not indicate oil deposits of commercially interesting amounts³⁴. Since 2011 the only offshore activities related to oil exploration have been seismic surveys in the Greenland part of Baffin Bay.

5.3.1 Domestic Cooperation Framework

The legal foundation and regulations for minerals and hydrocarbons resources and activities in Greenland include – in general terms – measures to be taken in case of off shore accidents and emergencies. § 80 of the Mineral Resources Act (Greenland Parliament Act no. 7 of December 7, 2009/2012/2014³⁵ on mineral resources and mineral resource activities) states that:

‘(1) The Greenland Government will set up an emergency committee with the task of coordinating the action of the authorities in the case of accidents and emergencies, including war, on offshore facilities. The members of the emergency committee will supervise the measures taken by those responsible for offshore facilities and will coordinate the authorities' preventive, life saving and control measures.

(2) The Greenland Government will lay down rules of procedure for the emergency committee.’
(Greenland Mineral Resources Act 2009/2012/2014)

The following paragraphs of the Act establish in more detail the mandate and the procedures of the emergency committee and an accident investigation board that the Greenland Government may set up. The Mineral Resources Act also lays down the obligations for ‘those to whom duties have been assigned under this Greenland Parliament Act’ to provide necessary information to the emergency committee and the accident investigation board.

The Mineral License and Safety Authority (MLSA) under the Greenland Government is responsible for safety and security of the mineral resource activities in Greenland including Greenland waters. The role of the MLSA is ‘to ensure that the companies:

- Identify and manage the potential hazards associated with their facilities and operations;
- Conduct a risk analysis of those hazards; and
- Eliminate, reduce and manage the risks in order to protect the public and regulated company personnel and the environment, the safety and security of the facilities and the protection of property.

³⁴ Source: <http://www.npf.no/getfile.php/konferanser/offentlig/Arctic%20Exploration%20-%20Lessons%20from%20Cairn%20Energy's%20drilling%20in%20Greenland.pdf>

³⁵ Greenland Parliament Act no. 7 of December 7, 2009, on mineral resources and mineral resource activities (the Mineral Resources Act), with amendments from Greenland Parliament Act No. 26 of December 18 2012, regarding amendment of Greenland Parliament Act No. 7 of 7 December 2009 on mineral resources and mineral resource activities, as amended by Greenland Parliament Act No. 6 of 8 June 2014 to amend Greenland Parliament Act No. 7 of 7 December 2009 on mineral resources and mineral resource activities <https://www.govmin.gl/about-bmp/legal-foundation>

All companies under the MLSA's jurisdiction are responsible for developing and maintaining an Emergency Response and Preparedness Program generically referred to as 'Emergency Management Program' for all aspects of their operations. In the event that an emergency occurs, the regulated company is responsible for responding to the emergency and coordinating the emergency response activities. In the event that an emergency occurs, the MLSA's Contingency Committee is responsible for coordinating the authorities' response.³⁶

A 2017 report on oil spill response in Greenland describes the state-of-the-art techniques for combating marine oil spills: mechanical recovery, chemical dispersants and in situ burning, and their applicability in the Arctic³⁷ as well as the derived environmental effects from the techniques (Wegeberg et al. 2017).

Greenland Oil Spill Response

The Greenland Parliament Act No. 4 of June 4, 2012 on Greenland Oil Spill Response A/S states that '(t)he company's aim is to operate on a commercial basis on Oil Pollution Preparedness, oil pollution control, environmental clean-up after oil spills and other related activities within the mineral resources area in Greenland³⁸.

Greenland Oil Spill Response (GOSR) was established soon after the legislation was in place. The Government of Greenland owns Greenland Oil Spill Response.

In 2016 Greenland Oil Spill Response (GOSR) together with 12 research institutes and companies formed a consortium with the purpose of researching and improving Arctic oil spill response.

5.3.2 International Cooperation Framework

The Ministry for the Environment and Natural Resources and the Environment Agency participate in international cooperation in the field of pollution prevention within the IMO, EMSA and the Arctic Council as well as between the Nordic countries. In the event of a large accident, the Environment Agency can request assistance from the other Nordic countries in accordance with the Copenhagen Agreement. The Agreement – which was originally signed in 1971 and revised in 1993 – applies to coastal and territorial waters as well as to other waters within fishing zones, continental shelves and economic zone boundaries.³⁹ The Environment Agency can also seek support from EMSA, which has a network of stand-by oil spill response vessels available to assist in oil recovery and pollution prevention operations. Additionally, EMSA provides organizational and co-ordination support.

5.4 Counterterrorism

As Greenland is a part of the Danish Kingdom and as foreign and security policy as well as police enforcement are under Danish authority, the territory of Greenland is included in the overall Danish strategies and policies on the prevention and suppression of terrorism as well as measures for the

³⁶ <http://www.govmin.gl/petroleum/emergency-response>: Petroleum → Emergency Response.

³⁷ <http://dce2.au.dk/pub/SR221.pdf>

³⁸ <http://www.gosr.gl/upl/website/legal-foundation/ParliamentActNo4ofJune2012unofficialtranslation.pdf>

³⁹ See further information at: <http://www.copenhagenagreement.org/>

suppression of terrorist activities. Furthermore, the annual Intelligence Risk Assessments also includes Greenland⁴⁰.

The evaluation of the level of the threat of terror is the same in in the Danish Kingdom as a whole and thus the same in Greenland as in Denmark⁴¹.⁴². This implies that the counterterrorism preparedness is the same in Greenland as in Denmark and that the police in Greenland can draw on the same special units as the police in Denmark⁴³. It should be noted that the Greenland police routinely considers whether incidents of emergency reported are conventional search and rescue incidents or might be terrorist activities (which also might include a need for SAR management).

The international conventions and treaties that Denmark is a part of also cover Greenland.

⁴⁰https://feddis.dk/SiteCollectionDocuments/FE/EfterretningsmaessigeRisikovurderinger/Risikovurdering2017_EnglishVersion.pdf

⁴¹ At the time of writing (April 2018) this means that the police in Greenland is in a reinforced alert as well as the police in Denmark as the level of the threat of terror is evaluated as serious.

⁴² The Danish Police Intelligence regularly publishes assessments of threads of terror against Denmark, most recently January 12, 2018

(<https://www.pet.dk/Publikationer/~media/VTD%202018/VurderingafterrortruslenmodDanmark2018pdf.aspx>)

⁴³ Because of distances and other logistical challenges response times might, however, vary.

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6 DIFFERENCES AND SIMILARITIES BETWEEN THE VARIOUS PREPAREDNESS SYSTEMS – OPPORTUNITIES AND CHALLENGES AS TO COLLABORATION

6.1 Norway

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Improving national preparedness and international preparedness cooperation have been on the agenda among all Arctic countries. This goal is gaining importance as commercial activities stretch further into areas with limited infrastructure. A major part of the commercial activity in the Arctic region today is taking place in areas under Norwegian jurisdiction. As a result, the Norwegian government aims to strengthen all parts of the national preparedness system and cross-border cooperation. The government has a vision that the High North should be a peaceful, innovative and sustainable region. Norway's Arctic Strategy, prepared by the Norwegian Ministry of Foreign Affairs and the Norwegian Ministry of Local Government and Modernisation, calls for an integrated strategy that incorporates foreign policy and domestic policy. With regards to the preparedness system, the government is willing to continue and strengthen international cooperation with the Arctic countries, in particular on search and rescue, maritime safety and environment, and globalized implementation of the Polar Code. Environmental protection, safety, emergency preparedness and response are some of the key priority areas for Norway's Arctic strategy. This chapter presents the main challenges and goals for improving emergency preparedness within search and rescue, oil spill response and counterterrorism.

6.1.1 Search and Rescue

Renewal of agreements. Norway has signed a number of bilateral and multilateral agreements with the Arctic countries that define search and rescue responsibilities. The latest is the Agreement on Cooperation on Aeronautical and Maritime Search and Rescue in the Arctic, which was signed in May 2011. The agreement promotes collaboration between all eight Arctic countries: Norway, Sweden, Finland, Denmark (Greenland), Iceland, Russia, Canada and the United States. In addition, the government's Arctic Strategy 2017 intends to engage in international cooperation on cross-border challenges, be at the forefront and participate actively in the joint development of knowledge relating to the Arctic. It is important that the agreements are developed further based on the experiences made from real incidents and exercises. There is not enough focus on these issues. The renewal of the agreements has to take into consideration:

- Changes in the activity patterns of the Arctic
- New technology in use
- Changes in the legal and governance system of the countries

- New organizations and platforms for cooperation

The total amount of resources and limitations. The Norwegian SAR system is organized under the Ministry of Justice and Public Security. Based on the Norwegian principle of obligatory cooperation in SAR incidents, institutions coordinating SAR operations have a broad set of capacities from other ministries at their disposal, like the ministries of Defense, and Health and Transportation. In addition, large commercial stakeholders, such as oil and gas companies, have significant resources on the continental shelf of Norway. The Norwegian responsibility for SAR is subject to both multilateral and bilateral (Norway-Russia) agreements and has a wide geographical scope: it stretches up to the North Pole and between the zero meridian and the Russian border. The Norwegian mainland has a well-developed emergency preparedness infrastructure. If we include the preparedness capacity of the oil and gas industry, few other countries have a similar resource base.

However, the area that has the worst operating conditions is a challenge in Norway too. A large part of the Norwegian SAR region in the Northern part of the Barents Sea and especially the area around Svalbard is a demanding territory with harsh climate conditions and limited infrastructure. Therefore, there is broad political consensus to prioritize an effective SAR service in this region. There is unanimity between the Arctic countries that increased traffic combined with long distances, tough weather conditions and relatively few rescue resources in the region require enhanced international rescue cooperation. Norway participates actively in several cross-border cooperation projects. Among others, the Joint Rescue Coordination Center North Norway participates in different international seminars, workshops, exercises and projects. The bilateral and multilateral agreements with the Arctic countries, including the Host Nation Support agreements, may also provide significant additional resources in larger incidents. Norway is also active within the recently established Arctic Coast Guard Forum.

The basic idea of the principle of obligatory cooperation is that all available resources in the country – whether they belong to the national, county or local governments, or are private or volunteered – may be mobilized in a government-coordinated rescue service (Ministry of Justice and Police, 2002). The challenge is what is able to mobilize at the time of an accident, and mobilization time.

Coordination of many institutions. Maritime SAR operations in the High North are coordinated by Joint Rescue Coordination Centres. In Northern Norway, the Joint Rescue Coordination Centre North-Norway (JRCC NN) in Bodø is responsible for SAR operations under jurisdiction of the Ministry of Justice and Public Security. Land rescue operations are supervised by JRCC NN, and coordinating responsibility is normally delegated to local Rescue Sub-Centres within the police district headquarters. In other Arctic countries, Rescue Coordination Centers may be under different jurisdictions. In Russia the Federal Marine and River Transport Agency (RosMorRechFlot) under the ministry of Transport is responsible for Maritime SAR. The service is ensured by the State Maritime Rescue Service (MorSpasSluzhba) with their regional branches and the Maritime Rescue Coordination Center with regional divisions. In Iceland, the Icelandic Coast Guard, under the Ministry of the Interior, is responsible for maritime SAR. In Greenland, the structure is also different. Danish Ministry of Defence is responsible for maritime SAR. The Joint Rescue Coordination Centre managed by the Joint Arctic Command located in Nuuk is responsible for the maritime rescue

services. Comparing all the four countries, the governmental structures for overall maritime SAR responsibilities and coordination are different, and therefore it is essential to have good collaboration between the coordination centers in different incidents.

The JRCC NN maintains frequent contact and good dialogue as well as joint exercises with the rescue coordination center in Murmansk. The Vessel Traffic Control Center (VTS) in Vardø also provides an overview and exchange information. There is also good dialogue with the Rescue Coordination Centers of the Icelandic Coast Guard in Reykjavik and the Danish Joint Arctic Command in Nuuk of SAR operations in Greenlandic waters. Good dialogue between the relevant institutions in different countries in the High North enables exchange of capacities and experience, as well as development of best practice plans for SAR operations. The Arctic Council EPPR working group provides an important political platform and a meeting place for joint efforts within the SAR area. A significant limitation in this respect is the lack of strategic apex resources within the JRCCs hampering their very important role, as both providers of knowledge to the public and representations in cooperative fora and other networks.

There has been significant reorganization of the police districts that may strengthen operational capacity, also in the Northern regions. However, the maritime competence may be limited within the regional police forces.

Helicopter resources. Helicopter capacity is vital for SAR operations in the High North. In Norway, the two JRCCs in Stavanger and Bodø control 12 (2016) rescue helicopters located at six bases along the coast, each with a doctor and a paramedic/rescue man from the regional hospitals as a part of the crew. Sixteen new AW 101 rescue helicopters will be deployed from 2018-2021 with twice the range compared to today's helicopters (Ministry of Justice and Public Security, 2013). In the spring 2014, the Government strengthened the preparedness in Svalbard with a second rescue helicopter (Super Puma). New rescue helicopters in the service of the Rescue Coordination Centers and new Coast Guard helicopters (NH90) will represent a significant increase in the SAR-capacity of Norway when they eventually become operational, possibly in 2020.

Vessel capacities. The Coast Guard vessels are very important resource for SAR operations in the High North. Based on Norway's Arctic Strategy 2017, the Norwegian Armed Forces should make a substantial contribution to the overall search and rescue capacity in the North, particularly by operating the rescue helicopter service and through the Coast Guard's continuous presence in Norwegian waters. The Coast Guard has a limited capacity that makes it difficult to keep a continuous presence in the northernmost areas. Three new ice-classed Coast Guard vessels will replace three older ones by 2022 and will represent a significant improvement in capacity. Additional icebreaking capacity may be considered to service alongside the only icebreaking vessel KV Svalbard. The acquisition of new AWSAR-helicopters, the new NH90 helicopters for the Coast Guard, and the new Coast Guard vessels are in line with government's goals for improving SAR capacity in the High North. Coast Guards in the Arctic states have different jurisdiction and varied tasks and responsibilities, which may hamper cross-border coordination of their resources in case of emergency. The Norwegian Coast Guard is a part of the Norwegian Armed Forces, as a separate entity under the Royal Norwegian Navy, while Greenland does not have a specific coast guard entity.

Here it is the Royal Danish Navy, which is responsible for providing services that normally fall to coast guards. In Iceland, the preparedness system is exclusively run by civilian institutions and is dependent on the limited resources of the Icelandic Coast Guard. The Coast Guard of the Russian Federation is a part of the Border Guard Service of Russia under the Federal Security Service, which is a military service.

Coast Guard collaboration in the Arctic countries is essential for strengthening Arctic emergency response capabilities, not the least through joint procedures and transparent operational patterns. The Arctic Coast Guard Forum (ACGF) established in 2015 has a variety of complex tasks and it provides new opportunities for improvements in cooperation at operational level. All Arctic countries; Canada, Denmark, Finland, Iceland, Norway, Russia, Sweden and the United States are members of the forum. The ACGF is an independent, informal, operationally driven organization, not bound by treaty. It is meant to foster safe, secure, and environmentally responsible maritime activity in the Arctic (www.arcticcoastguardforum.com). The ACGF has an opportunity to build upon the existing Atlantic and North Pacific Coast Guard Forums and is a good platform for sharing best practices and lessons learnt (Pincus, 2015). All member countries have different capacities, so the purpose of the Arctic Coast Guard Forum is to lift the collective resources of all of the Arctic coast guards in a major event that requires multilateral response (Eckstein, 2016). One challenge is the mix of tasks between the countries regarding their roles. As an example, the RCCs that are not run by the coast guard, as in Norway, are not taking part in the SAR cooperation within the coast guard forums, for example in the development of joint search and rescue unit (SRU) vessel routines.

The development in vessel capacity and technology causes new challenges for the SRU vessel capacities. In several countries and especially around Greenland and the Svalbard-region, the increased number and size of cruise ships present a potential emergency response problem. To meet with the changes in activity level in the Northern regions, and especially as the number of cruise tourists is increasing around Svalbard, more permanent presence by coast guard vessels in the Svalbard region should be considered. This implies that the coast guard should provide additional vessel capacity in the North. In addition, there has to be close cooperation between the commercial actors and the government with regard to their capacities in the North. The Polar Code is a step in the right direction considering equipment, operating systems and crew competence. However, it may be regarded as a minimum regulation, for example as to competence demands. For operations such as cruise and offshore oil and gas there is a need to educate and train all safety personnel on board in the challenges of Arctic operation, and the equipment has to be winterized and certified. There may also be a need for improvements in SAR-technology⁴⁴, especially when it comes to personal and collective rescue equipment⁴⁵.

Communication. Radio and internet communication challenges emerge at around 72 degrees North. The emergency radio communication network in the GMDSS system is working through MF/HF maritime radio and INMARSAT C emergency satellites. Inmarsat C has coverage only up to 78 degrees North. There is limited capacity for broadband communication for channeling the large amount of data needed for a large scale emergency operation. The Stoltenberg government report

⁴⁴ See reports from the Sarinor-project http://www.sarinor.no/?ac_id=348&ac_parent=1

⁴⁵See report from the SARex exercise: <http://hdl.handle.net/11250/2414815>

(2009) claimed that the current military systems in Denmark, Iceland and Norway for maritime monitoring and early warning at sea has limitations. This is because of the varied national institutions involved, various practices for sharing data, limitations of computer systems, and the lack of information exchange and coordination. Norway has plans to further develop a more systematic cooperation with Nordic countries on issues with expanded civilian maritime monitoring system providing common situational data. There is a proposal to develop Nordic polar orbit satellite system by 2020 (Archer & Joenniemi, 2016). Satellite navigation, communications and surveillance systems are important in the North for search and rescue efforts. The Norwegian government plans to facilitate improvements with broadband in Northern Norway and present a national space strategy during the course of 2017 (The Norway's Arctic Strategy, 2017).

The challenges of cross-cultural communication should also be highlighted. There are differences in languages and cultures between the Arctic countries. The threshold for asking help may be different. There may be a lack of experience and knowledge of the main management structures to handle crises, and a lack of common language and terminology. Differences in organizational platform and operating procedures is a challenge even among Norwegian SAR institutions⁴⁶.

Organizational challenges. As to organizational capabilities, the Office of the Auditor General of Norway has carried out an analysis, which assesses how the Ministry of Justice and Public Security and the Norwegian Directorate for Civil Protection (DSB) are fulfilling their heir obligations to coordinate civilian emergency preparedness (Riksrevisjonen, 2015). The analysis shows that the national preparedness system has some serious limitations, among others related to the ability to learn from past experiences (Ibid. p. 16) The main recommendations are:

- to strengthen monitoring of the authorities' work within the national preparedness system
- to improve coordination and partnership between agencies within the national preparedness system
- to ensure that lessons learned from accidents and exercises are followed up in the organizations
- to clarify responsibilities of the Ministry of Justice and Public Security and the DSB in order to improve coordination of emergency preparedness (Riksrevisjonen, 2015).

There is a need to increase the analytical capacity related to experiences from incidents and exercises. The JRCCs have the responsibility for collecting and analyzing data but has limited resources for R&D, and to compare best practice and dissemination of lessons learned between countries.

⁴⁶ See Mulighetsstudien

<https://www.regjeringen.no/contentassets/8412978e25084fd5b31e65c491f09bd3/mulighetsstudien-rapport.pdf>

Norway will maintain and strengthen international cooperation with the Arctic states on search and rescue, in particular with further implementation of the Agreement on Cooperation on Aeronautical and Maritime Search and Rescue in the Arctic, through the work of the Arctic Council's Emergency Prevention, Preparedness and Response Working Group (EPPR) (Norway's Arctic Strategy, 2017).

In sum, Norway is investing heavily in modernizing its SAR resources and adding new resources to the SAR capacity in the North. Additional capacity may be considered in the northernmost regions and especially in the Svalbard-region. There is a need for technological innovations concerning cold climate equipment. Communication is a significant challenge for larger SAR operations. In addition, efforts for improved knowledge and understanding is needed. This includes more emergency response training and exercises, especially to be prepared for large-scale SAR operations in extreme cold climate environment. The police has an important role in coordinating larger operations at sea, and response to violent action. The police has to keep up the competence related to operations at sea. This also includes the interplay with the national Special Forces from the police and Armed Forces.

6.1.2 Oil Spill Response

Oil spill response in the High North requires sufficient resources adapted to cold climate operations. As this equipment is very expensive and seldom used, there may be a lack of capacity available within one geographical area in the North. In order to ensure quick response, it is vital that equipment can be transported quickly and efficiently. In some cases, oil spill response operations can require capacity from other countries, which encompasses cross-border cooperation in notification and response.

Norway has developed a national preparedness model that combines private and public oil spill response resources under the supervision of the Norwegian Coastal Administration (NCA) (The Norwegian Coastal Administration, 2015). The NCA has been increasing its capacity along the coast over several years, including building new tailor-made vessels for oil spill recovery operations. Norway has a well-established oil spill preparedness system with national and regional capacities for the mainland and along the main coastal line. In addition, the oil and gas companies have significant resources that are pooled in the organization for operators on the Norwegian continental shelf, the Norwegian Clean Seas Association for Operating Companies (NOFO). At the regional level, the oil spill preparedness system is developing through close cooperation with the cross-municipality IUA organizations, administrated by the larger regional fire brigades. In addition, the Norwegian Coastal Administration cooperates with several other agencies, including the Norwegian Armed Forces. This cooperation entails sharing personnel and material resources, including oil spill equipment deployed on Coast Guard vessels. The Norwegian Petroleum Directorate plays an important role both in terms of capacities and for handling incidents on oil and gas platforms and installations on the Norwegian continental shelf. The Norwegian Maritime Directorate is involved in information gathering and dissemination in the event of incidents involving vessels. The Directorate for Civil Protection and Emergency Planning contributes personnel and other resources of the Norwegian Civil Defence. The Governor of Svalbard is an important coordinator in the event of acute pollution on Svalbard.

Comparing with other countries, there are differences in multiple levels concerning authorities involved. Various ministries are in charge of operations. In Russia, the Ministry of Transport is responsible for OSR at sea, however the service is composed of several federal agencies. The Ministry for the Environment and Natural Resources is in charge of pollution prevention in Iceland. The Greenland Oil Spill Response, a company owned by the Government of Greenland, is responsible for oil pollution preparedness close to shore in Greenland, while the Danish Navy is responsible in open waters. The responsibility for maritime and environmental preparedness is divided between a number of national institutions, and it can be difficult to gain fluent coordination and achieve a complete overview of the situation when an incident occurs.

Therefore, international agreements, forums and exercises are essential for strengthening dialogue on collaboration on oil spill response and recovery capabilities. Norway's participation in international cooperation on oil spill preparedness is coordinated through several multilateral and bilateral agreements and forums.

According to the vision of Norway's Arctic Strategy 2017, the government will continue with cross-border cooperation efforts. Norway will establish a centre with leading competence on oil spill preparedness and response and marine plastic litter, located in the Lofoten and Vesterålen archipelago. There will also be a revised management plan for the Barents Sea-Lofoten area in 2020. Norway also participates in efforts under the IMO and the Arctic Council to harmonize implementation of the Polar Code worldwide. Norway will continue its close cooperation with Russia on oil spill preparedness and response in the Barents Sea, and continue to push for closer cooperation between the Arctic states on oil spill preparedness and response (Norway's Arctic Strategy, 2017).

The working group for Emergency Prevention, Preparedness and Response (EPPR) under the Arctic Council is essential for cross-border cooperation among the Arctic countries. The EPPR emphasizes the necessity of cooperation in oil spill response operations in the High North and works on acute pollution preparedness. The EPPR aims to foster international cooperation on environmental protection and sustainable development in the Arctic (<http://www.arctic-council.org/eppr/>).

Knowledge about oil spill response must be enhanced through courses, training and national and international research. Currently, there is a limited number of small research groups working specifically with research on oil spill in Norway with SINTEF/NTNU in Trondheim and the Arctic University of Norway in Tromsø as the leading research communities (NCA, 2015). There is much scope for innovation due to a broad range of technology companies as well as oil and gas companies, which are demanding more advanced and adequate capacities for the High North. In addition, the Norwegian government institutions play a vital role in this innovation process and in cooperation across borders, especially through grants for research and innovation purposes and for supporting exercises such as the Exercise Barents and the "oil on water" (OPV) exercise.

6.1.3 Counterterrorism

Norway has experienced several violent incidents such as the Utøya massacre in 2011, and the In Amenas terrorist attack on an oil and gas installation in Algeria operated by Norwegian Statoil and

British BP in 2013. Norway has over the last few years focused strongly on preparedness capacities against violent actions. Several government white papers outline the challenges and the need for increased capabilities. A police reform process has been launched for an improved organization of the police. A similar reform has been launched within the fire and rescue services.

Norway's strategy for the country's contribution to the fight against international terrorism has the following goals:

- contribute to an effective framework for fighting terrorism,
- ensure that international law is observed and that human rights are respected,
- contribute to reconciliation, conflict resolution and restoration,
- foster understanding between religions and societies,
- fight poverty
- contribute to peace and security through participation in international operations,
- prevent the spread of weapons of mass destruction,
- prevent financing of terrorism,
- strengthen international law enforcement and intelligence cooperation (Norwegian Ministry of Foreign Affairs, 2006, p. 8).

After the terror attacks in 2011 on the national government buildings in Oslo and at summer youth camp on the island of Utøya, Norway has set out to strengthen its counterterrorism. Norway's counterterrorist efforts initially had an international focus promoting respect for international law and human rights, dialogue across religions and communities, peace and reconciliation, stability and reconstruction; and on fighting poverty, proliferation of weapons of mass destruction, and financing of terrorism. The Ministry of Justice and Public Security presented a report that addresses the main challenges for counterterrorism and provided policy guidelines. The government has taken on the responsibility to create a safer Norway (Meld. St. nr. 21 (2012–2013)).

At the local level, each police district has its own Emergency Response Unit (UEH) for coordinating response to violent destructive actions. The Oslo police force is also responsible for national counterterrorism and has at its disposal a national emergency special response unit Delta (Beredskapstroppen). This unit is the police special task force in the event of hostage situations, terrorist attacks and acts of sabotage. The police has expertise for negotiating in situations that involve hostage situations (Politidirektoratet, 2010). In addition to police capacity, the Norwegian Army and Navy's Special Command may provide additional support. Their training includes countering terrorist attacks on oil and gas installations offshore. These capacities have been increased, including capacities for quick response using both civilian and military transport.

Norway has also strengthened its international counterterrorist cooperation within the context of the EU, the UN and NATO in order to fight transnational terrorist networks. Combating terrorism requires a comprehensive and long-term approach founded on international law, respect for the rule of law, democracy, and human rights (Innst. 425 S, 2012–2013). The government has established a Department for Security Policy and the High North within the Ministry of Foreign Affairs. The department is tasked with promoting Norwegian security policy interests including bilateral and multilateral cooperation in organizations such as NATO and the OSCE.

The probability of large-scale violent action in the High North is low, but should such an event take place it could have large consequences. High-risk targets are cruise vessels, transports of dangerous goods and oil carriers, and oil and gas installations. Rapid response is of very high importance during violent action. As anti-terrorist resources are very costly, and they will not be available for large-scale deployment on short notice. The Norwegian government is now strengthening both helicopter transport and training capacities of the police and the Army Special Forces (FSK).

There are limited capacities within a small country like Norway. Cross-border cooperation is therefore important. However, in the area of anti-terror response, countries have limited set of agreements, and cooperation and exercises are hampered because a large part of the capacities includes military Special Forces, which creates secrecy challenges.

The political situation is important and can influence international coordination in anti-terror preparedness. A notable example is Russia's recent annexation of the Crimean Peninsula, which resulted in the suspension of bilateral military cooperation between Norway and Russia. Cooperation between Norway and Russia in the fields of search and rescue, safety at sea, the coast guard and the border guard was not affected (Pettersen and Nilsen, 2014). However, the colder political climate between Norway and Russia has an impact on the overall relations (Eilertsen, 2015). Since counterterrorism includes military actors and capacities, cooperation in this field may be affected.

In counterterrorism preparedness, efforts should focus on strengthening international cooperation and competence as well as promoting attitudes and culture that make Norwegian society better equipped to prevent and respond to terrorism. In doing so, the Norwegian government aims to continue strengthening international counterterrorism in light of other global security threats and based on national experiences and priorities. The Norwegian government aims to strengthen UN's main coordination role in fighting international terrorism by working for a comprehensive convention against terrorism, by supporting the UN's global counterterrorism strategy, and by strengthening coordination mechanisms. In line with this, it is important to promote respect for human rights, democracy, good governance and security, especially in the countries that are threatened by terrorism. It is also important to combat international terrorism in the context of work against other organized crime, and to continue efforts to promote peace and reconciliation. Finally, it is important to strengthen efforts against terrorism financing in cooperation with the EU, the Financial Action Task Force (FATF), the International Monetary Fund (IMF) and the World Bank; and to help prevent the spread of weapons of mass destruction (Innst. 425 S, 2012–2013).

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6.2 Russia

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This section looks into the Russian maritime preparedness system in light of political goals and perceptions of anticipated activity in the Arctic. The chapter aims to provide a foundation for assessment of the prospects for collaboration with other states on SAR, oil spill preparedness and response, and terrorism.

6.2.1 Search and Rescue

Current and anticipated risks

There is increasing traffic in the Russian part of the Barents Sea, as well as in the White and Kara seas. This increase in traffic is not due to shipping through the Northern Sea Route. It results from increase in deliveries to the populations in the coastal settlements by sea, internal shipping, and transfer of personnel working on drilling platforms and construction sites in the Arctic.

An analysis of emergency incidents in the White and Barents seas during the period 2011-2015 has shown that distress calls are mainly being issued by coastal ships and privately owned boats in bad weather (Murmansk and Arkhangelsk Maritime Rescue Coordination Center and Subcenter). One of the reasons for this may be that over the last 10 years smaller ships of river-sea navigation and coastal vessels have more often been used instead of large-tonnage vessels that are more adequate for navigation in the Arctic seas (Marchenko, 2015).

The number of Arctic cruises in Russian waters is not large, but this type of shipping activities is increasing. The harbors of both Murmansk and Arkhangelsk are witnessing an increase in Arctic cruise activity (<http://www.rus-arc.ru>).

Increased shipping in the Arctic seas entails heightened risk of accidents. Such accidents may involve many people and multiple injuries, which would require rescue assets in sufficient quantities. This gives rise to concerns about the adequateness of search and rescue capacities, involving security issues and cooperation opportunities with other countries.

Cooperation Agreements

Arctic states have attempted to maximize the effectiveness of existing SAR resources by entering into multilateral and bilateral SAR agreements with neighboring nations that have improved coordination of SAR responses in specific areas of the Arctic.

In 2008, the Agreement between the Governments in the Barents Euro-Arctic region on cooperation within the field of emergency prevention, preparedness and response was signed by four countries: Russia, Norway, Finland, and Sweden.

In 2011, the Agreement on Cooperation on Aeronautical and Maritime Search and Rescue in the Arctic was signed by the member states of the Arctic Council. The multilateral SAR agreement for the entire Arctic region facilitates the most effective use of limited SAR resources throughout the Arctic. The region-wide agreement also improves SAR response by serving as a framework for information sharing, as well as for identifying and improving mechanisms for cooperation, coordination and support in search and rescue and emergency response.

Norway and Russia have long-standing experience in SAR cooperation. The first agreement on SAR cooperation at sea was set in 1956. At present, SAR collaboration between the two countries is based on the bilateral Agreement between the Russian and Norwegian governments on cooperation in search and rescue of people suffering distress in the Barents Sea of 1995. The document stipulates that the parties shall provide assistance in search and rescue in the Barents Sea and identifies the competent national authorities responsible for the implementation and their tasks. It also clarifies how requests for help are forwarded as well as procedures for information exchange, etc.

The Barents exercise is held on an annual basis in accordance with the above-mentioned 1995 Agreement and the 1994 Agreement on Oil Spill Response in the Barents Sea. The exercise is organized on a rotational basis by representatives of Russian and Norwegian SAR and OSR services. The exercise scenario includes traditional tasks such as lifesaving and oil spill recovery.

The increasing activities in the Arctic are creating new challenges for SAR systems and cooperation patterns.

To increase joint preparedness in the Arctic, bilateral agreements like the SAR agreement Russia has with Norway, must be set up with other countries (Ilukhin, 2015). Joint exercises may well include more actors and resources. More diverse exercise scenarios could also provide valuable insights for analysis of SAR capabilities that may be required in the future and would give more flexibility in rescue operations.

Russian and Norwegian SAR preparedness systems: differences and similarities

Russia is usually not in direct contact with Denmark or Iceland on maritime safety and security, but Norway can serve as an intermediary between the countries when needed. That is why the differences and similarities in SAR at sea between Norway and Russia are examined in this report.

The Russian SAR preparedness and response system at sea is based on cooperation between different ministries, agencies and services – central among them are the Ministry of Transport, the Ministry for Civil Defense, Emergencies and Elimination of Consequences of Natural Disasters (EMERCOM), and the Ministry of Defense.

According to Russia's legislation, two ministries, the Ministry of Transport and EMERCOM, share the main responsibilities for SAR at sea. In the Agreement between the governments in the Barents Euro-Arctic region on cooperation within the field of emergency prevention, preparedness and response of 2008, the state competent authority in Russia is EMERCOM. In the Agreement on Cooperation on Aeronautical and Maritime Search and Rescue in the Arctic of 2011, both Ministries are listed as competent authorities. In the bilateral agreement between Russia and Norway, the responsible agency on the Russian side is the Maritime Rescue Coordination Centre in Murmansk.

Maritime SAR distribution of functions and an absence of a united management centre to coordinate all SAR activities during an emergency operation may cause longer response time and more time spent on coordination of the emergency services (Polivany, 2010).

The SAR distribution of functions and shared responsibility in Russia *is a main difference from the SAR preparedness system in Norway where the Ministry of Justice and Public Security* has an overall responsibility for the preparedness system. In addition, the Norwegian ministry is responsible for

coordination with the other ministries with responsibility and resources within the preparedness system.

Russian experts have underlined a need for a centralized, scientifically and economically grounded organization of the maritime SAR preparedness and response system in Russia (Ilukhin, 2015).

SAR coordination

The same division of responsibilities also applies to SAR operations both GosMorSpasSluzhba (Ministry of Transport) and EMERCOM's regional centers, which are responsible for coordinating SAR emergency response in the event of people being in distress at sea (Ilukhin, 2015). During real SAR operations at sea and during joint exercises within the bilateral agreement with Norway, the Maritime Rescue Coordination Centre in Murmansk (Ministry of Transport) coordinates the emergency resources involved. In order to involve firefighters or rescuers, or EMERCOM's resources, the MRCC can contact EMERCOM's emergency management centers or regional emergency coordination centers.

In Norway, the Ministry of Justice has been given responsibility for the administrative coordination of the land, sea and air rescue service. The overall operational coordination is executed by the Joint Rescue Coordination Centres Southern Norway and Northern Norway or rescue sub centers. Larger operations of the JRCCs are led by the emergency management team, headed by the police chief officers in Southwestern (Stavanger) and Nordland (Bodø) that also operates under the jurisdiction of the Ministry of Justice.

Serious gaps still exist with regard to satellites and communications. Permanent satellite coverage is of utmost importance in order to get a full picture of activities in the area of operations. In order to coordinate any SAR effort, reliable communications channels must exist.

Both Norway and Russia have taken some steps to close the gap. In Norway, this problem has been identified and plans exist to cope with this challenge.

In order to ensure stable communications along the NSR, Russia is in the process of establishing a satellite network that provides navigational aid and communication between vessels, aircrafts and ground stations in the Russian part of the Arctic. Compared to the U.S. Global Positioning System (GPS), the Russian system GLONASS gives somewhat better coverage in the Arctic. For GPS satellites, the inclination angle is 55°. This means in practice that no satellite signals are received in the zenith direction north of the corresponding latitudes (i.e. north of 55° and 56° N). The GLONASS inclination angle is 65°, providing slightly better conditions for use at high latitudes (Jensen, 2010).

Rescue Helicopter Service

Rescue helicopters play a key role in emergency response in the High North. A survey of search and rescue resources indicates limited availability of fixed wing aircraft and helicopters in Russia. The regions in Russia have different experiences concerning the involvement of helicopters depending on their available resources, location, and other factors. In the Murmansk region, the helicopters of the Northern Fleet are used to conduct SAR at sea. In the Arkhangelsk region, the regional rescue authorities have come to an agreement with a private aviation enterprise to perform SAR activities but this practice is quite new in Russia and needs a proper legislative base. The helicopter resources are sufficient if an emergency occurs within 400 km of the coastline but the level of difficulties would increase if it would take place further from land and/or involve many casualties.

In Norway, about 100 registered civilian helicopters operated by a number of different companies may be called out for various types of SAR missions throughout the country. The major lifesaving resources are the Sea King helicopters of the 330 Squadron in Royal Norwegian Air Force. The service belongs to the Ministry of Justice and Public Security and is operated through the Ministry of Defense.

The rescue helicopter services of Norway and Russia need to cooperate more closely and gain more experience to provide joint SAR emergency response. The fact that some rescue helicopters belong to the two countries' ministries of Defense may cause some complications in the SAR field.

Icebreakers

Maybe the most important feature of Russia's SAR capabilities is its icebreaker fleet. Russia operates nuclear-powered heavy icebreakers and conventionally powered heavy icebreakers, all of which are capable of independent Arctic operations all year long and can be used for SAR when they are near to an incident. It should be noted that the icebreakers as well as ice class rescue vessels also act as floating SAR and oil response units. Newly built icebreakers may be equipped with SAR helicopters.

SAR professional and voluntary resources

To manage effective response, the Norwegian national preparedness system mobilizes resources of public, civil and military actors as well as commercial companies, NGOs and voluntary agencies. The rescue efforts are closely linked to public health services, the fire brigades, the Civil Defense Peacetime Contingency Teams, the Police, the National Coastal Administration, the Air Traffic Service and the Armed Forces.

According to the Head of the Maritime Rescue Coordination Centre in Murmansk, the main rescue resources to coordinate in SAR missions are the MorSpasSluzhba (Ministry of Transport), the North Expeditionary Division of SAR operations (Federal Fishing Agency), and the Northern Fleet. In the Arkhangelsk region, the main rescue resources at sea include the MorSpasSluzhba, the Arctic Rescue Centre opened in October 2014 (EMERCOM), the Arkhangelsk regional rescue service (Regional Government), the private aviation enterprise, and resources of oil companies, etc.

In Norway, Iceland, and Denmark voluntary organizations are particularly useful in search operations and in first-aid situations, where they can provide great numbers of well-trained people who are familiar with the local area at sea and on land. In Russia, the voluntary organizations are not involved in SAR operations at sea, only professional certified rescue organizations. The only volunteer organization in the Arkhangelsk region that usually participates in SAR provides search dogs for on land SAR operations.

Medical Authorities and Air Ambulance Service

Like the Norwegian National Air Ambulance service, the Russian Ambulance Aviation provides air ambulance service for health authorities across the country. Hospitals have responsibility for the medical service.

Armed Forces

The Ministries of Defense in Russia and Norway are responsible for a large part of the emergency resources including vessels and helicopters deployed in the High North. The challenge is, that these capabilities are primarily not meant for a search and rescue. Moreover, many warships are not constructed for operations under ice conditions.

In Iceland the preparedness system has an exclusively civilian nature, and interactions with militaries have led to minor complications, though domestic rescue organizations maintain good relations with sister organizations in the neighboring countries and regional forums and organizations. The same may concern other partner countries. Interactions with or between militaries in relation to SAR could be challenging if the political situation takes a turn for the worse.

Oil field operators

Private oil industry companies address some gaps and shortfalls in the SAR capacity by providing their own SAR resources as part of their ongoing Arctic operations. In both Norway and in Russia, oil companies are responsible for preparedness related to the oil and gas fields they operate in.

Strategies

The Arctic has assumed increasing importance in the foreign policy of countries in and bordering the Arctic, and every party takes certain steps to increase SAR preparedness.

A vision for better knowledge and improvements of the emergency response system in northern sea areas was taken by the Norwegian Government (Meld. St nr. 7, 2011-2012). New rescue helicopters in the service of the Rescue Coordination Centers and new Coast Guard helicopters and other measures represent a significant increase in the SAR capacity of Norway.

Russia is going to increase its preparedness level by creating maritime rescue centers in the Arctic, locating additional aviation resources at the airports, building Air Force bases all along the northern coast of Russia, building nuclear icebreakers of the new generation, and building new rescue vessels. However, the experts emphasize a need for rescue helicopters designed especially for operating in Arctic conditions (Polivany, 2015).

6.2.2 Oil Spill Response

As Arctic oil and gas production projects get underway, this will involve some risk of oil spills. The greatest challenge to efficient oil spill response is primarily the severe climate. Winter temperatures may go down to -50°C . The Barents and Kara seas are frozen for 247 days a year on average and the ice may be as thick as 2 meters. The polar night lasts for several months and the winter storms produce very rough seas.

Harbor trans-shipment complexes, as compared to onshore ones, enable lower spending on cargo handling. They do not need any port infrastructure and, as a result, reduce transport expenditure, thus enhancing the competitiveness of oil from the Russian Arctic.

At the same time, as harbor trans-shipment complexes lead to increased navigation and greater number of facilities to be surveilled, they may easily become sources of environmental pollution in the Russian zone of responsibility. The damage to harbor trans-shipment complexes, as potential sources of fire and environmental safety hazard, may inflict on marine ecosystems and humans can be fatal.

The Russian oil and gas companies Gazprom and Rosneft have implemented a project for exploration drilling in the Pechora sea shelf and on Novaya Zemlya that significantly impacted marine life

(Association of sea commercial ports of Russia, 2015). It is uncertain whether this activity will continue in 2017.

Oil companies' responsibility

In Russia and in Norway, every company in the oil industry is obliged to establish an oil spill response strategy and to implement oil spill response plans. In Norway, operators have their own logistics and preparedness centers that coordinate their efforts and interact with the public preparedness system. In Russia organizations engaging in petroleum exploration, production, processing and transportation may ensure oil spill response either via their own dedicated SAR divisions or via external contracts. In case of oil spills, the operators are responsible for handling them, and for the cleanup and restoration.

Both the EU and the US introduced sanctions against the Russian Arctic oil industry in 2014. These sanctions ban cooperation in energy technology and services that may influence cooperation in the Arctic. Current international tensions due to the Ukrainian crisis might have a detrimental impact on SAR preparedness cooperation between oil companies and on new technologies development.

The OSR preparedness system in Russia includes only federal and regional services and organizations unlike Norway, where each municipality has the Inter-Municipal Committee for acute pollution (IUA), which has a public responsibility within a given time to respond to an acute pollution from regular activities in the municipality, such as oil spills.

There are currently more than 50 legal documents, including federal laws, governmental resolutions, presidential decrees, ministerial orders and regional law documents, regulating different aspects of oil spill response in Russia. Nevertheless, it is difficult to identify a unified state policy regarding oil spill protection that clearly defines the system and delineates the main actors and their functions (Uvanova, 2011).

MorSpasSluzhba in Russia provides both SAR and OSR activities at sea and is considered to be the key organization in Russia able to provide the best qualified OSR service at sea. It has a wide set of responsibilities including the overall responsibility for acute pollution, towage, and navigation safety. Within the framework of the ORS agreement with Norway, MorSpasSluzhba cooperates closely with the Norwegian Coastal Administration also on cross-border OSR exercises (<http://morspas.com>).

The Agreement between the Government of the Kingdom of Norway and the Government of the Russian Federation on cooperation to combat oil-spills in the Barents Sea and the Agreement on Cooperation on Marine Oil Pollution Preparedness and Response in the Arctic provide a good base for cooperation in oil spill preparedness in the Barents Sea and the Arctic.

6.2.3 Counterterrorism

Given the increasing presence of industrial projects in the Arctic offshore areas, the occurrence of environmental incidents is highly probable. The main service responsible for handling environmental incidents, the Border Service of the Russian Federal Security Service (FSB), is also responsible for identifying and combating terrorist attacks. Federal authorities engaged in defense, internal affairs, justice, foreign affairs, civil defense, emergency, water and fire protection are all involved in counterterrorism. A full-fledged military base will soon be installed in the Russian part of the Arctic and these resources may be involved in SAR on the Novaya Zemlya Archipelago to handle non-

defense tasks. In addition, all-weather airfields are being constructed in the Arctic and will function as bases for military units.

The issue of counterterrorism (preparedness) may be the most challenging for current international cooperation because military and security service resources must be involved. The experience of the “Northern Eagle” exercises has shown these challenges. The “Northern Eagle” was held for the first time in 2004 as a bilateral naval exercise with participation from the U.S. and Russia. The exercise was then held every second year. The exercise’s focus was on anti-terror and anti-piracy operations, coordinated maneuvering, joint air defense drills, communications and search and rescue operations. Norway was invited to participate in 2008. There was no exercise in 2010, and in 2012 the second exercise with a Norwegian contribution was organized. The intention was for “Northern Eagle” to become a biannual occurrence again, now as a multilateral rather than a bilateral exercise. In 2014, however, the exercise administration canceled the exercise due to the Ukrainian crisis.

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6.3 Iceland

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The Arctic has, as noted, assumed an ever-increasing importance in Icelandic foreign policy. One key area is the strengthening of active bilateral cooperation on maritime preparedness, including surveillance, search and rescue, and pollution prevention. Iceland's National Security Policy, which was approved in 2016, emphasizes the role of the Arctic in Icelandic security policies. The Prime Minister of Iceland has also appointed a Special Committee of Ministers on Arctic matters with the participation of the Minister for Foreign Affairs, the Minister of the Interior, the Minister of Industry and Innovation, and the Minister for the Environment and Natural Resources. The object of the committee is to monitor developments in the Arctic and to ensure efficiency and coordination within and between ministries and institutions dealing with the region.

Predictions on the opening of new sea routes in the Arctic Sea have also fueled discussions on Iceland's role in the new geography. First, ideas for Iceland serving as a transshipment port have received considerable attention. The German engineering company, Bremenport, has invested in preliminary research on the possibility of building a trans-shipment port in *Finnafjörður* in the northeast of Iceland. A government-backed Letter of Intent, with no financial obligations on the part of Iceland, on the project was signed with Bremenport in 2016. Still, in view of a reduction in Arctic economic activity due to external factors, such as low oil prices, Bremenport has downplayed the immediacy of the issue, stating that it will not be known until after 2022 whether anything will come of the project. What also needs to be taken into account is possible political opposition to the plan, if it proves economically feasible.

Second, a Joint Steering Group of the Icelandic Ministry for Foreign Affairs and the Ministry of the Interior is currently evaluating the possibility of establishing an International Rescue and Response Hub in Iceland. The aim is to increase capability of support to rescue and response operations in the Arctic and to offer facilities and opportunities for joint SAR training. Additionally, the Steering Group considers suggestions of the hub to serve as a Center of Excellence on training for Arctic SAR operations. The current idea is for the hub to be located in *Keflavík* on the *Reykjanes* peninsula, with the aim of utilizing the former US Naval Air Station, which is close to the *Keflavík* International Airport. No government decision, however, have been made on the issue.

Third, the Icelandic government has shown interest in providing services to what has been dubbed the "energy triangle", the space from North-East Greenland to Jan Mayen and from there south to Iceland.⁴⁷ It is, however, not known whether oil and gas explorations in the area will lead to natural resource exploitation in the foreseeable future.

6.3.1 Search and Rescue

Given the enormous size of the Icelandic Search and Rescue Region compared to the size of Iceland itself and the available resources, large accidents in the area would present great challenges to the maritime preparedness system. The success of search and rescue or pollution prevention operations is partly contingent upon the availability of the Icelandic Coast Guard's resources. Lack of personnel and the absence of ICG's airplane, helicopters and patrol vessels can weaken the responsiveness.

⁴⁷ See e.g. the 2013 address of Össur Skarphéðinsson, Minister for Foreign Affairs, to the Icelandic Parliament: <http://www.mfa.is/media/Raedur/framsoguraeda-OS-14-feb-2013.pdf>

Currently, discussions are taking place between Iceland and Denmark on joint surveillance flights around Greenland and Iceland. If successful, they could make it possible to station *TF-SIF* permanently in the North. Any such regional cooperation is likely to benefit both the Icelandic preparedness system and maritime security in the area. Given the long tradition and positive experience of bilateral maritime safety and security cooperation between Iceland and Denmark, it will probably be extended. Iceland would also benefit from more operational cooperation with Norway, but currently it revolves, mainly, around information exchange and regional exercises

Drawing from SAREX Greenland Sea 2013, there is room for improvement in communication between the coordination centers in Iceland, Greenland, and Denmark. This was the central theme of a tabletop exercise, which took place in October 2014. It focused on transporting people from the Greenland Sea to Iceland for medical care. In such a case, the civil protection system needs to be activated with the participation of health authorities and border control. The fact that all institutions involved in SAR matters in Iceland are civilian, has affected operational preparedness. Thus, cooperation and communication with some military institutions in the neighboring countries could be smoother.

In the event of a severe incident within the Icelandic SRR, the Icelandic preparedness system would be dependent upon regional and international assistance. Bilateral and multilateral agreements, along with operational exercises, are, considered essential for the maritime preparedness system in the area. The ICG has proven to be well equipped to respond to SAR incidents in the sea around Iceland, but the level of pressures and difficulties would increase if they were to take place further from land and/or involved more people. While not very likely, a large cruise ship in distress north of Iceland and east of Greenland would pose a great challenge to the preparedness system. The regular international SAR exercises, and the follow-up processes, are vital for the success of potentially larger operations. Such cooperation mechanisms are already in place.

Current international tensions due to the Ukrainian crisis might have a detrimental impact on civil preparedness cooperation in the Arctic region. Preparedness institutions in Iceland seek to “avoid politics” and guarantee continuous cooperation on Search and Rescue. However, the current cooperative framework in the Arctic is, of course, dependent on the larger Arctic states, notably, Russia and the United States.

6.3.2 Oil Spill Response

While no large pollution accidents have taken place in the sea around Iceland, such incidents would pose a significant threat to its biota, fish stocks and the economy. Oil spill is, in general, more harmful closer to the coast, and coastal cleanup can be difficult. On the other hand, the preparedness time is shorter in such cases. In the event of an oil pollution accident, the ICG and the Environment Agency of Iceland would always have to depend on *Þór*, which is the only coast guard vessel equipped with an oil boom and oil skimmer. Similarly, *TF-SIF* is the only surveillance airplane also able to detect pollution at sea available anywhere from Norway to Canada. Iceland would always have to rely on international assistance to arrive in as short time as possible. Building on the Copenhagen Agreement and the pollution prevention capability in neighboring countries, such assistance should be easily available. Since the shipping companies are financially responsible for oil recovery, a strong argument can be made for the case that member states should not have cause to hesitate before sending vessels and crews to assist when the polluter is known.

6.3.3 Counterterrorism

Possible cases of terrorism within the Icelandic EEZ would first and foremost be the matter of the Icelandic police, even if it would depend on the location and the nature of the incident. If the target is a cruise vessel, the complexity is likely to add up, given the different nationalities of passengers. Continuing cooperation on risk assessment and intelligence exchange is essential to be able to respond to such incidents in the Arctic.

Conclusion

This section has outlined the maritime preparedness system of Iceland in relation to search and rescue, environmental accidents and counterterrorist measures. Overall, it may be argued that the preparedness system has proven effective in SAR and pollution prevention operations. The Icelandic Coast Guard, the central institution for maritime security, is adequately equipped for its core functions. It is, however, not fully capable of putting its resources to optimal use due to insufficient operational funding. This could lessen the responsiveness capability in the event of severe accidents. Increased regional cooperation, for example between Iceland, Denmark and Greenland, could help strengthen the ICG's resources in the Arctic and, thus, improve security in the area. While the threat of a terrorist attack is considered low in Iceland, it cannot be ruled out that terrorist and criminal organizations might target oil-, gas-, and passenger transportation in the Arctic. The National Commissioner of the Icelandic Police, which is the authority dealing with terrorism, benefits from international cooperation and information exchange in the field. In general, such cooperation, as well as regional operational exercises, are essential for maritime security in the Arctic.

As conclusion, the relevant Icelandic preparedness institutions generally work well together when responding to contingencies. No major institutional problems have been detected, which could adversely impact response capability. The same applies to international cooperation on maritime safety and security in the Arctic. Given the exclusively civilian nature of the Icelandic preparedness system, interactions with militaries have led to minor complications. It is a reflection of vast resource disparities: When it comes to long-range readiness in the region, militaries possess far more capabilities than civilian authorities and NGOs. However, overall, the ICG, the National Police and other domestic organizations maintain good relations with sister organizations in the neighboring countries and regional forums and organizations.

6.4 Greenland (Denmark)

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In May 2008, the Danish Ministry of Foreign Affairs initiated the “Ilulissat Meeting”, and the Danish minister of foreign affairs, together with the Greenlandic prime minister, invited ministers from Norway, Canada, Russia and the US to a conference in Ilulissat in Greenland about the Arctic Ocean (Arctic Council, 2008). The meeting of these “Arctic Five” states (Kuersten, 2016) adopted the “Ilulissat Declaration” that i.a. stated that the “increased uses of Arctic waters for tourism, shipping, research and resource development also increase the risk of accidents and therefore the need to further strengthen search and rescue capabilities around the Arctic Ocean to ensure an appropriate response from states to any accident. Cooperation, including the sharing of information, is a prerequisite for addressing these challenges. We will work to promote safety of life at sea in the Arctic Ocean, including through bilateral and multilateral arrangements between or among relevant states” (Danish Ministry of Foreign Affairs, 2008). So, maybe for the first time, collaboration on SAR and OSR was depicted as an important common task for the Arctic Council member states.

This formed the background for the SAR agreement adopted at the Arctic Council 2011 ministerial meeting in Nuuk, Greenland (Arctic Council, 2011) and the OSR agreement adopted at the Arctic Council 2013 ministerial meeting in Kiruna, Sweden (Arctic Council, 2013). Still, it is in the overall interest of the Government of Denmark to maintain the Arctic as a regional regime complex i.a. for the cooperation on SAR and OSR to meet specific challenges (Rahbek-Clemmensen & Thomasen, 2018). That the Danish Government has invited for a 10 years jubilee meeting in Ilulissat in 2018 shows the Ilulissat Declaration 2008 is key to the Danish cooperation on emergency preparedness in the Arctic.

In general, the Arctic has become more and more important to the Danish Government, and in recent documents on foreign and security policy the Arctic is among the top five most important challenges facing Denmark today, and specifically, the Government of Denmark will promote pragmatic international cooperation under the auspices of the Arctic Council, since it has a fundamental interest in a peaceful and stable Arctic, which enables sustainable development in the region; but “with opportunities follow new challenges”: “There is a need for increased monitoring [...] and better search and rescue services” and, therefore, Danish authorities is strengthening their efforts in the Arctic (Government of Denmark, 2017). In this way, at the regional level the goal is to preserve Arctic relations as constructive cooperation.

At the nation-state level, the perhaps most decisive difference between the Greenland/Denmark on one side and Iceland, Norway and Russia on the other is the state formation issue of the Kingdom of Denmark. While Iceland and Norway are unitary states, Russia is formally a federal state but in reality a unitary state with a strong tendency towards centralization (Russell, 2015). Denmark, however, is formally a unitary state but in practice rather a federacy between Denmark proper and the two constituencies of Greenland and the Faroe Islands (Sundberg & Ackrén, 2015); (Stepan, Linz, & Yadav, 2011). Even if Greenland is a sub-state part of the Danish state with considerable self-government (Ackrén & Jakobsen, 2015), it considers itself a future independent state. This is clearly

stated in the coalition agreement for the current government in of Greenland that opens with the statement: “Greenland is irreversibly on its way to independence” (Government of Greenland, 2016). However, no exact date is settled for Greenlandic independence, but the stability of the political framework for the emergency preparedness system is, of course, brought into question. For the time being, Greenlandic political parties demand that Greenlandic authorities, institutions and civil society are integrated into the emergency preparedness system (Inuit Ataqatigiit, 2018): 4-6). However, even if the obviously increasing sentiments in favour of independence in Greenland has important ramifications for the framework of Danish Arctic policy, it is surprisingly not mentioned in the Danish Arctic Strategy (Government of Denmark, Government of the Faroe Islands, & Government of Greenland, 2011).

The institutional framework and governance structure of the preparedness system of Greenland make things even more complicated. As a self-governing sub-state territory within the Kingdom of Denmark, Greenland has only limited responsibility for emergency preparedness. As part of the self-government arrangement of Greenland a number of policy areas has been transferred to Greenlandic authorities, while other policy areas remain with Danish authorities (Ackrén & Jakobsen, 2015). This leaves two issues of utmost importance for the institutions and governance of emergency preparedness in Greenland: The coordination of responsibilities between Greenlandic and Danish authorities and the command structure over facilities and resources of emergency operations.

The governance structure consists of both Danish, Greenlandic and mixed Danish-Greenlandic authorities, with and without decision-making power, with or without operational control over available SAR resources, which are either fully or only partly available for SAR and OSR purposes, with military or/and civil tasks, and with overall national or/and local authority. This is certainly a governance challenge, even if the numbers are small, in cases when responsibilities cannot be placed immediately. Within the last five years the Chief Police Constable office has coordinated between 44 and 105 yearly incidents, the military Joint Rescue Coordination Center (JRCC), manned by the Joint Arctic Command, coordinated between 2 and 20 yearly incidents, while between 0 and 4 yearly incidents were coordinated jointly or consecutively by the Chief Police Constable office and the JRCC (Skibsfartens og Luftfartens Redningsråd, 2017).

In the society of Greenland, however, shipping is the most important part of the infrastructure. Due to the natural conditions, the vast and sparsely populated territory, there are only road systems in the towns of Greenland and not between towns. Therefore, means of transportation only consist of boats and aircrafts - apart from snowmobiles etc. Aircraft tickets are normally expensive for ordinary citizens, and mostly ships are used for transportation of goods and passengers, fishing, recreational sailing etc. With the importance of shipping comes, of course, the importance of SAR and OSR facilities. The population is less than 56.000 inhabitants. The vastness of the territory of the size of more than 2 million square kilometres and the small population mean that Greenland is a sparsely populated country. Almost 17.000 people live in the capital of Nuuk, and the rest lives in 16 towns and 60 smaller settlements, most of them situated on the western coast and very few on the eastern coast. This leaves most of the country in a situation of extreme remoteness and potential long distances for national emergency operators to travel.

6.4.1 Search and Rescue

The operating authorities in SAR situations are the Greenland Police in case of SAR situations in coastal waters and the Joint Arctic Command (JRCC) in SAR situations outside coastal waters to the limits for the SRR. Currently, most search and rescue operations take place in and around inhabited areas in Greenland, and in the assessment of the Danish Ministry of Defense, the results are considered satisfactory, even if the availability of aircrafts to search operations and the availability of special search and rescue equipment for helicopters could be improved (Forsvarsministeriet, 2016).

In 2011, the common Danish/Greenlandic Preparedness Service Commission established the “Operative Contact Group Arctic” of Greenland in order to further smooth cooperation and further swift implementation of SAR operations; this operative group has four permanent members with operational control over different SAR resources in Greenland: the Joint Arctic Command of the Danish Armed Forces (acting as JRCC), the Chief Police Constable Office, Aasiaat coastal radio station (Aasiaat Radio) and Air Greenland (Forsvarsministeriet, 2016). It is one of their tasks to draw a yearly assessment of SAR operations in Greenland, and in its 2016 yearly report the conclusion is that the cooperation between the many authorities has been strengthened but that more can be done to improve the procedures; however, the “Operative Contact Group Arctic” is optimistic that a better coordination of SAR operations is obtainable due to an institutional make over (Skibsfartens og Luftfartens Redningsråd, 2017): 25). The target and performance requirement for the SAR service in Greenland is set as an average rescue percentage of 94 percent or more over a five-year period. Over the last five-year period (2012-2016), the SAR service has had an average rescue percentage of 96.7, thus fulfilling the target and performance requirements. The results for 2016 is even better than the average, since 98.1 percent of those persons in the geographical area of the Greenlandic SAR organisation that have been in danger of perishing have been rescued (Skibsfartens og Luftfartens Redningsråd, 2017).

However, the severe maritime risks in Arctic waters are not these daily incidences but potential need of mass rescue operations. Potential mass rescue operations are a severe risk in the Arctic due to the severe consequences because of the limited availability of SAR capacities. The cruise liner *Crystal Serenity* that sailed along the Northwest Passage and through Greenlandic waters from Ilulissat to Nuuk with 1.700 passengers and crew aboard in the summer of 2016 and 2017 is a case in point. In its 2017 overview of current risks by the Danish Emergency Management Agency (DEMA) three factors that contribute to heightened risks of severe largescale incidents in the Arctic are highlighted: increased research activity, increased resource extraction, and increased commercial shipping incl. tourism. The huge distances, sparse infrastructure, insufficient emergency preparedness capabilities and lack of SAR capacities are the considerable challenges. The Danish Emergency Management Agency admits that in emergencies with a need for immediate involvement, Danish capacity will not do because the large distances prevent Denmark from being present with short notice. Therefore, in cases like this “Greenland will be left to itself”; but, also, they stress that no country will be able to manage rescue situations of this size (Beredskabsstyrelsen, 2017), thus pinpointing the urgent and inevitable need for regional, trans-border cooperation in the Arctic.

What are the solutions in scenarios like this? Apart from regional, cross-border cooperation, more national resources could be the solution, however, another possibility would be volunteers. More national resources in the case of Denmark would not solve the time factor problem in case of an emergency where equipment would have to be transported from Denmark to Greenland. Hence, local,

volunteer capacities would be a solution according to the conclusions in the analysis of future tasks of the Danish military in the Arctic by the Danish Ministry of Defence (Forsvarsministeriet, 2016). Compared to Iceland that has a long tradition for volunteer SAR organisations, and partly Norway that combines military and civilian capacities, Greenland does not have a volunteer organisation and are totally dependent on Danish SAR capacities from the Police and the military (especially the Navy and Airforce). However, the Greenland tradition of volunteer assistance in small communities to fellow citizens in distress could be developed into an organisation of volunteers by means of the adequate capabilities, education and training.

6.4.2 Oil spill response

Also in the case of oil spill response (OSR) there is a division of labour and responsibilities between Danish and Greenlandic authorities. The Government of Greenland, in practical terms the (municipal) fire brigades in eleven towns on the Western coast and one on the eastern coast of Greenland, have the responsibility for OSR within the three nautical miles border. The Government of Denmark, in practical terms the Joint Arctic Command, is responsible for OSR in the Greenlandic Exclusive Economic Zone (EEZ) or within the 200 nautical miles limits.

However, for the future task performance the Ministry of Defense plans to utilise a broader set of actors. In addition to navy vessels, also other state owned or private vessels and aircrafts can be used to perform OSR tasks, including volunteering citizens. Also, cooperation with the civilian and volunteer emergency preparedness system in Iceland is mentioned as a possible resource (Forsvarsministeriet, 2016).

6.4.3 Counterterrorism

Formally, the level of a terrorist threat is the same for all parts of Denmark and, therefore the same level in Greenland as in Denmark, where it currently according to the Danish Security and Intelligence Service and is “serious” (Politiets Efterretningstjeneste (PET), 2018). However, in practical terms at least the consequences of a terrorist attack in Greenland would be less. Neither, there is no actual examples of terrorist attacks in Greenland. Counterterrorist actions would have to be based on resources based in Denmark or abroad, and they might need 24 hours or more to arrive in Greenland.

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7 CONCLUSION

In this report, we have presented the preparedness systems in Norway, Russia, Iceland and Greenland (Denmark). Chapters 2-6 have given us a seldom opportunity to compare preparedness institutions across different countries of the High North, and to reflect on similarities and differences between them. Our authors have pointed to important similarities as well as significant differences. We would here like to emphasise some of these and to share some of our reflections on the prospects for successful international collaboration on emergency preparedness in the High North.

First, in terms of similarities, there is wide consensus that the High North is and should remain a peaceful and prosperous region. Second, there is a will to continue and expand cooperation in the region. Third, the countries have common interests that provide ample scope for continued cooperation. Fourth, improving emergency preparedness in the High North is one such shared interest. Fifth, the countries have complex systems of emergency preparedness in place that involve varied but large numbers of actors and that take some effort to overview. Finally, the countries' emergency preparedness systems also have in common that counterterrorism is a marginal and underdeveloped field.

On the other hand, Norway, Russia, Iceland and Greenland (Denmark) differ in many important respects, ranging from linguistic and cultural differences to dissimilar roles in international politics. These differences shape and diverge their respective views of the High North and also affect their respective emergency preparedness systems in the region. Even though Russia holds an immensely large share of the Arctic, the expanse of the Russian Federation means that the Russian Arctic looks relatively more distant from Moscow compared to the geographically much smaller Norwegian High North that looms large and closer in the eyes of Oslo.

Each country's location in the High North affects its outlook and neighbourly relations. Norway and Russia, who share the Barents Sea, have developed close links in emergency preparedness. Iceland, located at some distance from its Arctic neighbours, has followed an alternative route with no armed forces and an entirely civilian emergency preparedness system. Iceland has also opted to rely on Norway as an intermediary rather than cooperating directly with Russia on maritime security. On the other hand, there is extensive cooperation between the Icelandic Coast Guard and the Danish Navy on matters of maritime safety and surveillance. Greenland differs from the other parties represented here by being an autonomy under the Danish Crown. Denmark, otherwise a non-Arctic country, thus holds responsibility for emergency preparedness in the Greenlandic Arctic.

Stemming from these similarities and differences, there are challenges to and potential for Arctic cooperation. Long distances can pose challenges to cooperation. Due to the large size of the Arctic and differing definitions and understandings of what areas the Arctic comprises, practical cooperation may be difficult to achieve. Long distances coupled with scarce infrastructure also inspire cooperation. Each country is incapable of handling the challenges on their own. It is in their common interests to pool resources for the sake of better emergency preparedness in remote areas of the Arctic. The countries of the High North acknowledge the need for improved search and rescue service and oil spill response in the High North; they also consider bilateral and multilateral agreements and joint exercises to play important roles to this end.

Working to enhance cooperation is consensus that the Arctic should be isolated from overall developments in international politics. Accordingly, cooperation in the Arctic may to a certain extent

continue regardless of frozen relations within other policy areas or related to other parts of the world. The period of heightened tension following the Ukraine-crisis has shown that cross-border cooperation continues in northern Norway and Russia despite cool relations between Oslo and Moscow. As pointed out by our Norwegian authors, search and rescue and other activities pertaining to safety and security in the Arctic have been deliberately insulated from the current frostiness in international relations.

Although there is common will to isolate the Arctic from developments in international politics, Arctic cooperation is inevitably affected at some level. Less trust leads to less information exchange and hinders cooperation, particularly when military institutions and capabilities are involved. It has taken many years and targeted efforts to foster trust and openness across the former East-West divide. It will also require targeted efforts to uphold this trust and openness in the face of current political tension.

In sum, maritime emergency preparedness in the High North is a challenging undertaking that requires international cooperation as well as extensive national resources. The countries presented here all acknowledge these needs and have come some way in addressing them. Going forward, it is important to continue the process of familiarising with the emergency preparedness systems in neighbouring countries in the High North. Only through improved knowledge about our respective emergency preparedness institutions can we begin to understand how we can realise our common goal of improved emergency preparedness in the High North. We hope that this report and its insights into the emergency preparedness systems of Norway, Russia, Iceland and Greenland (Denmark) as well as its insights into similarities and differences among them can help promote international cooperation and support our aspirations for a safer High North.

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