Red Cross Arctic Disaster Management Study

Finnish Red Cross

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The Finnish Red Cross is also grateful to all the Arctic National Red Cross Societies for the provision of data for research and their great interest in and commitment to the Arctic questions. The role of the IFRC as an expert was also important.

We hope that the cooperation we have now started together will continue in the future. The Red Cross has much to offer in terms of expertise and capabilities in preparing for Arctic emergencies.

Helsinki, 1.8.2018.

Sini Hangaslammi
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Photo: Sini Hangaslammi

Executive summary

The International Red Cross and Red Crescent Movement is the world's largest humanitarian network and therefore a key actor to be considered also in the Arctic. The Red Cross Arctic Disaster Management study defines the 'Arctic' from the Red Cross point of view and provides a comprehensive overview of the presence, services and response capacity of the International Red Cross and Red Crescent Movement (Movement) in the Arctic. The study is intended as a reference material for the Movement to better assess its capacities, but it is also meant to serve other stakeholders: public authorities, partners and other organizations in better understanding the Red Cross work in the Arctic and to find common ground for cooperation. The data used in the study has been collected through a survey, interviews and a joint seminar with representatives from the Arctic National Red Cross Societies held in Oulu, Finland in March 2018. The study provides a summary on the Arctic operational context, the collected data, conclusions, recommendations and suggestions for future research opportunities.

This study focuses on the Red Cross emergency response capabilities, including human resources, equipment, logistics, databases and alerting systems, training and capacity building, cooperation and coordination and long-term programmes in the Arctic. Although the focus is on the capacities for mass emergencies in the Arctic, the importance of everyday activities is recognized as the basis of all Red Cross preparedness. The Red Cross Red Crescent Movement is present in people's daily lives, building resilience and preparedness through its action and helping in everyday incidents and events.

A key finding of the study was that the presence of the National Red Cross Societies in the Arctic states (United States, Canada, Denmark (including Greenland and Faroe Islands), Iceland, Sweden, Norway, Finland and Russia) in the Arctic is mostly based on over 10 000 trained local volunteers with extensive know-how and knowledge about the Arctic conditions as well as national deployable groups and staff. A limitation noted was that the exact number of volunteers involved and available in case of an emergency is hard to define.

Material preparedness in the area varies. In general, local branches are prepared for everyday incidents, but in case of a major accident, material and support would have to be mobilized from outside the area. According to the study, National Societies are not however adequately prepared for this. The extensive knowledge and experience of the RCRC Movement in using harmonized Emergency Response Units (ERUs) could also be utilized in the Arctic context, but winterization, scaling and equipment testing would be needed.

National Societies have adapted to the Arctic conditions and developed capacities including, for example, mobile trailer systems for material preparedness, Arctic Emergency Survival Kits and Arctic First Aid. The Red Cross does not have a specific Arctic training programme, but many National Red Cross Societies practise regularly in the Arctic conditions and provide specialized training in, for example, search and rescue in avalanches. Community resilience is strengthened with training in first aid and psychosocial support.

National Red Cross and Red Crescent Societies have a special role as auxiliaries to states and state authorities in their countries. In general, cooperation with the different authorities and stakeholders in the Arctic was seen as fluent and well-functioning. Almost all of the National Societies involved in the study have national legislation that defines the role of the Red Cross in the country. Some National Societies are more closely integrated into the national systems with formalized agreements, while other National Societies work from a more needs-based approach.

Based on the findings, the study gives 13 recommendations to the Red Cross Red Crescent Movement. These recommendations relate to strengthening volunteer management in the Arctic including spontaneous volunteers, enhancing response capacities for major emergencies through winterization and harmonisation of existing units and pre-logistical planning, increasing cooperation with public authorities, external partners, stakeholders and indigenous communities as well as strengthening Red Cross advocacy and presence in the Arctic Council. The recommendations are aimed at facilitating deeper cooperation within the Movement on Arctic issues as well as at building regional preparedness and partnerships with relevant actors in the Arctic.

The Study has been compiled by the Finnish Red Cross as a part of the Finnish Border Guard's Arctic Maritime Safety Cooperation (SARC) project funded by the Ministry for Foreign Affairs of Finland. The study has been conducted in cooperation with the National Red Cross Societies of the United States, Canada, Iceland, Denmark, Norway, Sweden, Finland and Russia.

Tiivistelmä

Punaisen Ristin ja Punaisen Puolikuun kansainvälinen liike on maailman suurin humanitaarinen verkosto ja siten keskeinen toimija myös arktisella alueella. Punaisen Ristin arktisen valmiuden nykytilaselvityksen tarkoituksena on tarkastella arktista aluetta Punaisen Ristin näkökulmasta ja kartoittaa kokonaiskuvaa Punaisen Ristin liikkeen vahvuudesta, palveluista ja valmiudesta vastata arktisella alueella tapahtuviin onnettomuuksiin. Nykytilanselvitys tarjoaa parempaa ymmärrystä arktisesta kontekstista ja valmiuksista Punaisen Ristin liikkeen sisällä, mutta on tarkoitettu myös yhteistyötahoille, viranomaisille, kumppanijärjestöille ja muille toimijoille avaamaan Punaisen Ristin toimintaa ja kykyjä arktisella alueella. Selvityksen aineisto on kerätty arktisen alueen Punaisen Ristin kansallisille yhdistyksille lähetetyllä kyselytutkimuksella, haastatteluilla ja Punaisen Ristin arktisen valmiuden seminaarissa Oulussa maaliskuussa 2018. Raportissa on esitetty yhteenveto arktisesta toimintaympäristöstä, aineistoista, johtopäätöksistä, suosituksista sekä ehdotuksista jatkotutkimusteemoiksi.

Selvitys keskittyy tarkastelemaan Punaisen Ristin valmiuksia suuronnettomuuksiin ja katastrofeihin kuten henkilöresursseja, varusteita, logistiikkaa, tietokantoja ja hälytysjärjestelmiä, koulutusta sekä valmiuksien kehittämistä ja pitkäaikaisohjelmia arktisella alueella. Vaikka selvityksen painopiste on suuronnettomuusvalmiuksissa, arjen toimintojen merkitys ihmisten ja yhteisöjen selviytymisen ja varautumisen pohjana on ensiarvoinen. Punaisen Ristin vahvuus onkin läsnäolo arjessa ja apuna jokapäiväisissä tilanteissa jo ennen onnettomuuksia ja katastrofeja.

Selvityksen perusteella Punaisen Ristin kansallisilla yhdistyksillä Kanadassa, Yhdysvalloissa (Alaska), Tanskassa (Grönlanti ja Färsaaret), Islannissa, Suomessa, Ruotsissa, Norjassa (mukaan lukien Huippuvuoret) ja Venäjällä kaikilla on läsnäolo arktisella alueella. Toiminta perustuu pitkälti yli 10 000 koulutettuun paikalliseen vapaaehtoiseen, joilla on mittavaa osaamista ja ymmärrystä arktisen alueen olosuhteista. Lisäksi monilla kansallisilla yhdistyksillä on maansisäisesti lähetettäviä valmiusryhmiä ja henkilökuntaa. Selvityksessä kuitenkin huomattiin, että tarkkoja lukuja vapaaehtoisista ja hälytettävistä ryhmistä on vaikea määrittää.

Punaisen Ristin materiaalinen valmius alueella vaihtelee. Yleisesti paikalliset toimintaryhmät ovat varautuneita pienempiin tilanteisiin ja häiriötiloihin, mutta suuronnettomuuden sattuessa materiaalista tukea ja henkilöresursseja olisi tuotava arktisen alueen ulkopuolelta. Selvityksen mukaan tähän ei kuitenkaan ole riittävästi varauduttu. Punaisen Ristin laajamittainen katastrofiavun osaaminen ja nopean avustustoiminnan yksiköt (Emergency Response Unit, ERU) voisivat palvella myös arktisella alueella, mutta se vaatisi systemaattisempaa varustetestausta ja mukauttamista arktisiin olosuhteisiin.

Arktisen alueen Punaisen Ristin kansalliset yhdistykset ovat sopeuttaneet toimintaansa arktisiin oloihin ja kehittäneet erityisiä valmiuksia, kuten materiaalisen valmiuden hajauttaminen, arktisiin olosuhteisiin tarkoitettu selviytymispakkaus ja arktinen ensiapu. Punaisella Ristillä ei ole erityistä arktista koulutusohjelmaa, mutta Punaisen Ristin kansalliset yhdistykset harjoittelevat ja pitävät koulutuksia säännöllisesti arktisissa olosuhteissa ja tarjoavat myös erikoistunutta koulutusta liittyen esimerkiksi etsintä- ja pelastustoimintaan lumivyöryissä. Yhteisöjen resilienssiä vahvistetaan ensiapu- ja henkisen tuen koulutuksilla.

Punaisella Ristillä on erityinen rooli valtioiden ja viranomaisten tukemisessa. Punaisen Ristin yhteistyö viranomaisten ja muiden toimijoiden kanssa on selvityksen perusteella

sujuvaa ja toimivaa. Lähes kaikilla yhdistyksillä on kansallinen lainsäädäntö, jossa Punaisen Ristin rooli on kuvattu. Osa kansallisista yhdistyksistä on tiiviimmin integroitu kansallisiin järjestelmiin muodollisten sopimusten kautta, kun taas toiset kansalliset yhdistykset tekevät yhteistyötä tarpeisiin perustuen.

Selvityksen havaintojen perusteella annetaan 13 suositusta Punaisen Ristin liikkeelle. Suositukset koskevat vapaaehtoisten koordinaation vahvistamista mukaan lukien spontaanien vapaaehtoisten koordinaatio; suuronnettomuusvalmiuksien kehittämistä arktisella alueella varustetestauksen, olemassa olevien yksiköiden talvikestävyyden varmistamisen ja harmonisoinnin sekä logistisen suunnittelun avulla; yhteistyön edistämistä ja syventämistä kaikilla tasoilla sekä vaikuttamistyötä Arktisessa neuvostossa ja sen jatkuvuuden varmistamista. Suositusten tavoitteena on auttaa Punaista Ristiä syventämään arktista yhteistyötään liikkeen sisällä ja rakentamaan alueellista valmiuttaan ja kumppanuuksiaan keskeisten toimijoiden, kuten esimerkiksi viranomaisten ja alkuperäiskansayhteisöjen kanssa arktisella alueella.

Suomen Punainen Risti on laatinut selvityksen osana Rajavartiolaitoksen arktisen merellisen turvallisuuden yhteistyön kehittämisprojektia (SARC), joka on saanut rahoitusta Suomen ulkoministeriön Itämeren, Barentsin ja arktisen alueen yhteistyön määrärahasta (IBA).

Selvityksen teossa ovat olleet mukana Punaisen Ristin kansalliset yhdistykset Yhdysvalloista, Kanadasta, Islannista, Tanskasta, Norjasta, Ruotsista, Suomesta ja Venäjältä.

Contents

1. **INTRODUCTION** 1
   - 1.1. Red Cross in the Arctic 2
   - 1.2. Purpose of the study 3
   - 1.3. Methods and process of the study 5
2. **OPERATIONAL CONTEXT IN THE ARCTIC** 7
   - 2.1. The changing Arctic – risks and vulnerabilities 7
   - 2.3. Actors, political forums and agreements in the Arctic 11
   - 2.4. Local communities in the Arctic driving resilience 15
3. **RED CROSS ARCTIC DISASTER MANAGEMENT CAPABILITIES AND CAPACITIES** 17
   - 3.1. National Red Cross Societies in the Arctic 17
   - 3.2. Identified risks and vulnerabilities in the Arctic region from the point of view of the Red Cross 21

3.3. EMERGENCY RESPONSE CAPABILITIES 22
   - 3.3.1. Human resources (staff, volunteers and international delegates) 23
   - 3.3.2. Equipment and logistics 27
   - 3.3.3. Databases and alerting procedures 33

3.4. TRAINING AND CAPACITY BUILDING 34

3.5. COOPERATION AND COORDINATION IN THE ARCTIC 36
   - 3.5.1. Cooperation within the International Red Cross and Red Crescent Movement 36
   - 3.5.2. Cooperation and agreements with authorities 37
   - 3.5.3. Cooperation with NGOs 39
   - 3.5.4. Cooperation with private sector 40

3.6. LONG-TERM PROGRAMMES 41

3.7. IN-DEPTH CASE EXAMPLES 42

4. **CONCLUSION** 47
   - 4.1 Definition of the Arctic 47
   - 4.2 Red Cross capacity and services for mass emergencies in the Arctic region 48
   - 4.3 Red Cross capacity to work in cold conditions (techniques, equipment and arrangements) 52

4.4 RED CROSS PARTNERSHIPS AND COOPERATION WITH AUTHORITIES, PRIVATE SECTOR, NGOS AND OTHER RELEVANT STAKEHOLDERS IN THE ARCTIC REGION 53

4.5 RED CROSS CAPACITY BUILDING EFFORTS FOR ENHANCING PREPAREDNESS IN THE ARCTIC REGION 56

5. **RECOMMENDATIONS** 57
   - 5.1. Future research opportunities 61
6. **BIBLIOGRAPHY** 63
7. **ANNEX** 68

Abbreviations

ACGF	Arctic Coast Guard Forum
AMAP	Arctic Monitoring and Assessment Programme
EEH	Emergency Evacuation Hospital
EEC	Emergency Evacuation Centre
ERU	Emergency Response Unit
EPPR	Emergency Preparedness, prevention and response Working group
FACT	Field Assessment and Coordination Team
ICE-SAR	Icelandic Association for Search and Rescue
IFRC	International Federation of the Red Cross and Red Crescent Societies
IMO	International Maritime Organization
MOSPA	Marine Oil Pollution, Preparedness and Response in the Arctic
NS	National Society
PSS	Psychosocial Support
RCNS	National Red Cross Society
RCRC	Red Cross Red Crescent
RDRT	Regional Disaster Response Team
RIT	Regional Intervention Team
SAR	Search and Rescue
SAREG	Search and Rescue Expert Group
SDWG	Sustainable Development Working Group
UMCP	Union Mechanism for Civil Protection
Vapepa	Voluntary Rescue Service in Finland
WWF	World Wildlife Fund
ARC	American Red Cross*
CRC	Canadian Red Cross
FRC	Finnish Red Cross
DRC	Danish Red Cross
IRC	Icelandic Red Cross
NRC	Norwegian Red Cross
RRC	Russian Red Cross
SRC	Swedish Red Cross

* For clarity, the study uses the same logic for all the acronyms of the NSs. These acronyms are not necessarily the established acronyms used in other contexts.

Definitions of key concepts

SAR (Search and Rescue) Search for and provision of aid to people who are in distress or imminent danger on land or at sea. Search can be done using aircraft, surface craft, submarines, specialized rescue teams and equipment.

PSS Psychosocial support is an essential part of Red Cross emergency response. During and after an emergency or critical event, individuals and communities may be faced with emotional and psychological wounds that take time to heal. PSS can help change people into active survivors instead of passive victims. PSS early support and adaptation processes take into account local customs in mental health and psychosocial healing and allow affected populations to cope better with a difficult situation. Psychosocial support can be adapted in particular situations to respond to the psychological and physical needs of the people concerned, by helping them to accept the situation and cope with it.[1]

RELIEF refers to the provision of essential, appropriate and timely humanitarian assistance to those affected by a disaster, based on an initial rapid assessment of needs and designed to contribute effectively and speedily to their early recovery. It consists of the delivery of a specific quantity and quality of goods to a quantified group of beneficiaries, according to selection criteria that identify actual needs and the groups that are least able to provide them for themselves. Relief can be sub-divided into three categories: food, shelter and non-food items.[2] Nowadays, the Cash Transfer programming (CTP) is a part of relief operations and an important type of service for the disaster-affected people.

FIRST AID is immediate help provided to a sick or injured person until professional help arrives. It is concerned not only with physical injury or illness but also with other initial care which includes psychosocial support for people suffering emotional distress caused by experiencing or witnessing a traumatic event.[3]

RDRT (Regional Disaster Response Team) is composed of National Red Cross or Red Crescent Society volunteers or staff, usually members of their own national response teams, trained to work as a team and bring assistance to National Societies in neighbouring countries. RDRT teams are composed of generalists as well as experts in health, logistics and water and sanitation. Within defined geographical regions, members of National Red Cross or Red Crescent Societies are trained together as a team to be deployed within 24 or 48 hours to support neighbouring National Societies responding to a disaster. These regions can be extremely large, such as the Central American and Caribbean, or limited to a few countries which often share the same language and culture. The Regional Disaster Response Team initiative started in 1998 with the aim of effectively utilizing existing capacities of National Societies within each region. The RDRT training has a standardized training curriculum and it is designed so that regional teams are able to support national disaster response teams and work with international teams when necessary. RDRT teams have also been trained in Europe. About 10 years ago, new RDRT members were trained in the Baltic Sea region. During the years 2019–2020, the aim is to train about 60 members more. The IFRC Budapest office coordinates RDRT in Europe.[4]

1 http://www.ifrc.org/en/what-we-do/health/psychosocial-support/
2 http://www.ifrc.org/en/what-we-do/disaster-management/responding/services-for-the-disaster-affected/relief/
3 European First Aid Guidelines, Resuscitation, Volume 72, Issue 2, Pages 240-251 (February 2007) developed on behalf of the European First Aid Manual project by the Belgian Red Cross-Flanders 1
4 http://www.ifrc.org/en/what-we-do/disaster-management/responding/disaster-response-system/dr-tools-and-systems/regional-disaster-response-teams/

EMERGENCY RESPONSE UNITS (ERUs) An ERU is a standardised package of trained personnel and modules of equipment, ready to be deployed at short notice. ERUs are part of the global IFRC Disaster Response system and therefore used in large emergency response operations, when global assistance is needed and the Federation's delegation(s) and the affected National Society cannot respond alone. ERUs provide specific services where local infrastructure is damaged, temporarily out of use or insufficient to cope with the needs. Types of ERU: Logistics; IT & Telecommunication, Water & Sanitation (3 different types), Basic Health Care, Referral Hospital, Rapid Deployment Hospital, Relief and Base Camp.[5]

List of figures

Figure 1. The eight National Red Cross Societies in the Arctic
Figure 2. Areas of Application of the Arctic Search and Rescue Agreement
Figure 3. Long distances and swiftly changing weather conditions pose challenges
Figure 4. Finnish Red Cross volunteers helping during the power outages in Kainuu, Finland
Figure 5. The Emergency Evacuation Hospital (EEH) developed by the Finnish Red Cross
Figure 6. The Arctic Emergency Survival Kit developed by the Longyearbyen Red Cross
Figure 7. The Icelandic Red Cross relief trailers
Figure 8. Finnish Red Cross Logistics Centre
Figure 9. Finnish Red Cross and Norwegian Red Cross cross-border cooperation

List of tables

Table 1. Basic information about the National Red Cross Societies
Table 2. Legal status of the National Societies
Table 3. Available Red Cross human resources in the Arctic

5 http://www.ifrc.org/en/what-we-do/disaster-management/responding/disaster-response-system/dr-tools-and-systems/eru/types-of-eru/

1. Introduction

The Arctic is a vast northern area, characterized by severe conditions and challenging geography. It is home to numerous northern communities, but also a target of growing interest from outside the area looking to the untapped possibilities, resources and commercial interests the area has to offer. In many ways, the Arctic region is going through changes – related to the environment, economic activities and increasing human presence. The area has long been a challenging area for human activities, but with the Arctic environment changing, more and more people are looking to the north.

As a global humanitarian network, the International Red Cross and Red Crescent Movement is to be considered a key actor in the Arctic region. The International Red Cross and Red Crescent Movement is the largest humanitarian network in the world. The Movement is neutral and impartial and it provides protection and assistance to people affected by disasters and conflicts. Its mandate is based on the Geneva Conventions and their Additional Protocols, and the status of National Societies is recognized in national legislation. The purpose of the Movement is to protect and help the most vulnerable people. The Movement has a global presence: there is a National Society in 190 countries, with 17 million volunteers worldwide.

Risk scenarios in the Arctic look into the future and to the increasing activities in the area. Different disasters and emergencies are, however, taking place in the Arctic already at present and can occur any time. Recently, the Arctic region has experienced, for example, a tsunami in Greenland and large-scale winter time power outages in Kainuu, Finland. In both situations the Red Cross was a relevant actor. In January 2018, a 7.9 magnitude earthquake took place off the coast of Alaska, resulting in a tsunami warning. In the end, the situation turned out not to be severe and the warning was cancelled, but it served as a good reminder of the possible mass emergencies that could take place in the area. These are just a few examples of why it is crucial to prepare for the risks in the Arctic.

The Red Cross Red Crescent has valuable experience in preparing for, responding to and recovering from disasters all around the world. However, most of the operations have taken place in a warm context. In general terms, the discussion on major accidents tends to focus on events in a warm context with densely populated areas and a large number of people affected. The Arctic context is entirely different. According to Lauta et al. (2018), cold disasters differ from disasters happening in warmer areas in three dimensions. The first involves the pressuring time limit. The cold context and extreme weather set special requirements for equipment durability and training of people to act in cold conditions, but they also create time pressure. Survival in cold conditions is sometimes a matter of hours, even minutes. This puts enormous pressure on providing emergency relief in a timely manner. Secondly, cold disasters take place in sparsely populated areas which have a limited physical and social infrastructure. The third dimension involves the complex institutional set-up in the Arctic, which might mean ambiguities in the mandate, obligations and limitations that the countries and authorities involved might encounter in the area (Lauta et al. 2018). These dimensions are also the starting point for Red Cross action in the region and an overarching theme of the study.

One of the seven fundamental principles of the Red Cross Red Crescent is unity, the meaning of which is three-fold: there can be only one Red Cross or one Red Crescent Society in any one country; a National Society must be open to all; and a National Society must carry on its humanitarian work throughout its territory. This last point can also be looked at as a starting point for the role of the Red Cross in the Arctic and for the need to have a presence and the ability to act in the Arctic. In accordance with the principle of universality, all national Societies have equal status and share equal responsibilities and duties in helping each other. The mandate of the Red Cross underlines the necessity to help the most vulnerable. It can easily be argued that the communities in the remote areas of the north are vulnerable to the effects of the changing Arctic area in their everyday life. These communities are also possible first responders in case of large-scale emergencies in the

region, which makes the building the resilience of these communities a vital factor in the overall preparedness of the area.

This study aims to map out Red Cross capacities and capabilities in the Arctic. In order to do this, one of the key points is to define the area of interest – the Arctic. This, however, is not a simple task, as no single, clear and widely agreed definition on the borders of the Arctic area can be found. Instead, numerous different ways to define the area exist. Most of them are related to geography and natural sciences. Most commonly the region is defined as the area north of the Arctic Circle (66° 33'N). This northern latitude marks the point of summer solstice and winter solstice. Other definitions of the Arctic area are based on, for example, the Arctic tree line or average summer temperature.[6] The Arctic is also defined in political terms. Most prominently, the Arctic is defined in the political context through the Arctic Council that has defined the Arctic states to be the United States, Canada, Iceland, Denmark, Norway, Sweden, Finland and Russia.

The study focuses on the preparedness of the RCRC Movement for major accidents in the Arctic. Preparedness and emergency response, however, do not give a full picture of Red Cross activities. The Movement is present in people's everyday lives and its overall preparedness is built on the work that the Red Cross Red Crescent does in responding to people's needs in everyday life. Even though the focus is on the capacities for mass emergencies, the importance of the regular, daily activities should be recognized as the basis of the ability of the Red Cross Red Crescent to assist.

1.1. Red Cross in the Arctic

The 190 National Red Cross and Red Crescent Societies, the International Federation of Red Cross and Red Crescent Societies (IFRC, International Federation[7]) and the International Committee of the Red Cross (ICRC) together constitute the International Red Cross and Red Crescent Movement. They form a worldwide humanitarian movement whose mission is: "to prevent and alleviate human suffering wherever it may be found, to protect life and health and ensure respect for the human being, in particular in times of armed conflict and other emergencies, to work for the prevention of disease and for the promotion of health and social welfare, to encourage voluntary service and constant readiness to give help by the members of the Movement, and a universal sense of solidarity towards all those in need of its protection and assistance[8]."

As partners, the members of the Movement support communities in becoming stronger and safer through a variety of development projects and humanitarian activities. The Movement also works in cooperation with governments, donors and other aid organizations to assist vulnerable people around the world.

National Red Cross and Red Crescent Societies provide humanitarian assistance to people who are vulnerable in their territories in situations of disaster, crisis and conflict. National Societies act in accordance with the Fundamental Principles of the Movement (7 Fundamental Principles[9]) and are auxiliaries to the public authorities in their humanitarian work. To make best use of their collective capacities and to extend their operational reach, National Societies support each other in their humanitarian activities and contribute to each other's development.

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6 National Snow & Ice Data Center. What is the Arctic? https://nsidc.org/cryosphere/arctic-meteorology/arctic.html.

7 The International Federation as used in this document refers to the International Federation as "the corporate body" created under its Constitution, which is comprised of its governance bodies (the General Assembly, the Governing Board, and the President) and the Secretary General supported by the secretariat.

8 Statutes of the International Red Cross and Red Crescent Movement.

9 humanity, impartiality, neutrality, independence, voluntary service, unity and university

As per the International Federation's Constitution, the National Societies have created the International Federation to, among other functions, "act as permanent body of liaison, co-ordination and study among National Societies", "assist National Societies in risk reduction, disaster preparedness, in the organization of their relief actions and the relief operations themselves" as well as "bring relief by all available means to all disaster-affected persons" and "organize, coordinate and direct international relief actions" in accordance with the Principles and Rules for Red Cross and Red Crescent Humanitarian Assistance[10].

The study considers all of the National Red Cross Societies in the Arctic states: Finland, Iceland, Canada, Norway, Sweden, Denmark, Russia and United States. Denmark is a special case in the Arctic. The Danish Realm consists of three parts – Denmark, Greenland and the Faroe Islands. Greenland and the Faroe Islands are, however, their own entities with their own language and culture and for Greenland also their own ethnic origin (Jensen 2003, 170). The Faroe Islands Red Cross and Greenlandic Red Cross are independent organizations under the Danish Red Cross umbrella and therefore included in the study under the Danish Red Cross.

Figure 1 *Red Cross National Societies in the Arctic: American Red Cross, Canadian Red Cross, Icelandic Red Cross, Danish Red Cross including Greenlandic Red Cross and Faroe Islands Red Cross, Norwegian Red Cross, Swedish Red Cross, Finnish Red Cross and Russian Red Cross.*

Map design: Jussi Latvala.

The Red Cross is present in the remote places of the Arctic, be it in the small communities of Alaska or the Canadian Arctic, Greenland, Iceland and Scandinavia to the Russian Arctic. Through local Red Cross branches, volunteers and activities, the Red Cross has a presence in the Arctic. However, the Arctic region has not been an area of specific focus for the Red Cross Red Crescent Movement as a whole. Recent developments in the Arctic region and especially the challenges posed by climate change are strong links to the existing work that the Red Cross is doing in the field of disaster preparedness, climate change and adaptation.

Official Red Cross involvement in the Arctic Council started in 2000, when the Arctic Council approved observer status for the International Federation of the Red Cross and Red Crescent Societies in its Barrow ministerial meeting.

1.2. Purpose of the Study

The aim of the Red Cross Arctic Disaster Management study is to define the 'Arctic' from the Red Cross point of view, and to provide a comprehensive overview of the presence, services and response capacity of the International Red Cross and Red Crescent Movement in the Arctic, from small-scale emergencies to major accidents and disasters. The objective is to form an understanding of the operational context and the current state of Red Cross capabilities and capacities in the area. The study aims to define the main risks and challenges related to the Arctic from the Red Cross point of view and to examine the existing capacities and capabilities to respond to these risks and challenges.

10 Principles and Rules for Red Cross and Red Crescent Humanitarian Assistance (2013)

Specific research questions:

- To what extent is the Red Cross Red Crescent Movement prepared to provide services for mass emergencies in the Arctic region?
- To what extent is the Movement prepared to work in cold conditions: what kind of technical solutions, equipment and arrangements exist?
- To what extent has the Movement established partnerships and cooperation with the public authorities, private sector, NGOs and other relevant stakeholders in the Arctic region?
- What kind of capacity building efforts has the Movement engaged in to enhance preparedness in the Arctic region?

Better understanding of these questions will provide opportunities for the Red Cross to build up these capabilities, enhance cooperation and help take the next steps in scaling up Red Cross activities in the region. The questions of the study also have wider relevance. The issues in the Arctic are not isolated from the rest of the world. The knowledge and experiences in the region can also serve other areas with similar conditions and challenges. For example, extremely cold conditions and the challenges posed by remote locations are issues that need to be overcome in many other places of the world as well.

Enhancing the resilience of communities to withstand these conditions is important, but it is also vital to prepare for the more unlikely events that could have devastating consequences. A major earthquake in severe winter-time conditions could be a possible scenario in the Arctic context in Alaska, but also in, for example, Central Asia and Northeast Asia. Preparing and planning for mass evacuations and emergency relief in these conditions is necessary. The National Societies in the Arctic region can also learn from best practices and experiences in other areas. Drawing from experiences of regional and sub-regional cooperation in other areas and exploring how the questions of remoteness and sparse populations have been dealt with in other areas could have many benefits.

The information gathered does not only serve the Red Cross Red Crescent Movement and the National Societies in the Arctic, but is also meant to serve other stakeholders: public authorities, partners and other organizations. One purpose of the study is to identify the added value of the role and activities of the Red Cross in the Arctic for cooperation. The challenging Arctic context requires cooperation across all sectors and between all significant actors. By identifying the strengths of the Red Cross in the area it is possible to develop and foster the existing cooperation patterns. Preparedness for the everyday incidents as well as the "black swans" that are harder to predict requires combining and utilizing all resources in the area. The Red Cross benefits from the resources and the expertise of other stakeholders, but others can also draw from the expertise of the Red Cross Red Crescent Movement in disaster relief, building community resilience and training and coordinating volunteers.

The study consists of five sections. The first section is the introductory section providing an overview of the background and purpose of the study, as well as a description of the process, methods and data that the study is based on. Section 2 describes the key factors of the operational context in the Arctic, including current changes in the area, key actors and agreements, Arctic communities and questions of resilience. Section 3 presents the existing capacities and capabilities of the National Red Cross Societies based on the data collection of the study. In section 4, conclusions are made based on the data about the strengths and gaps of the Red Cross in the Arctic. In section 5, recommendations are made for the future based on the findings of the study. Future research opportunities are also explored in brief.

1.3. Methods and process of the study

The study looks at Red Cross activities from a broad perspective including emergency response as well as long-term programmes in the region and the existing cooperation between the National Societies and other stakeholders. The study has considered all the National Societies in the Arctic countries: Finland, Iceland, Canada, Norway, Sweden, Denmark, Russia and United States. For practical purposes, this study started from a rough limit of 55° N and the areas north of this latitude as an area of interest. This boundary was not meant to serve as a restrictive line, but to ensure as wide inclusion of the northern areas as possible. As the study proceeded, each National Society was at liberty to define which area was most relevant for the study.

Data collection

Data collection was made by using multiple methodologies. The main data used was collected through the Red Cross Arctic Disaster Management survey targeted at the National Societies in the Arctic states. The collected data was complemented with interviews. Seven National Red Cross Societies from Alaska, Iceland, Denmark, Sweden, Finland, Norway and Estonia participated in the Red Cross Arctic Disaster Management seminar in Oulu, Finland in March 2018. Additional data as well as analysis of the initial findings and future recommendations were drawn from the discussions of the seminar. To give more concrete examples of Red Cross activities in the Arctic, additional case examples were established of the power outages in Kainuu, Finland, the rural air crash exercise in Bíldudalur, Iceland, and the tsunami in Nuugaatsiaq, Greenland.

The data collection proceeded in the following phases:

1. In December 2017, an electronic survey was sent out to the focal points of all the 8 Arctic National Societies. The electronic survey was comprised of an extensive questionnaire about the existing capacities and capabilities of the National Societies related to the Arctic. Responses to the survey were received from all of the National Societies. The responses from the Danish Red Cross were compiled of responses from the Red Cross departments in the Faroe Islands, Greenland and the headquarters in Denmark.
2. The survey responses were complemented with online or phone interviews in 11 interviews with 12 interviewees: 5 interviewees from the Finnish Red Cross, 1 interviewee from the Swedish Red Cross, 1 interviewee from the Canadian Red Cross, 2 interviewees from the Icelandic Red Cross, 1 interviewee from the Russian Red Cross, 1 interviewee from the Norwegian Red Cross (Svalbard branch) and 1 interviewee from the Danish Red Cross (Kalaallit Røde Korsiat/Greenland).
3. Representatives from 7 National Societies – from Alaska, Iceland, Denmark, Sweden, Finland, Norway and Estonia – took part in the Red Cross Arctic Disaster Management seminar in Oulu, Finland in March 2018. Additional data was collected in different sessions of the three-day seminar and initial findings from the collected data were considered as a group consultation.
4. In-depth case studies were established of 3 cases: the tsunami in Greenland in June 2017, the relief operation in Kainuu, Finland in January 2018 and the rural air crash exercise in Bíldudalur, Iceland in May 2018. Data for the Greenland case was gathered from external sources and interviews with the Greenlandic Red Cross and the Icelandic Red Cross. Data for the Kainuu case was gathered from situational reports and phone interviews with local branches. Data for the Bíldudalur case was gathered on a field mission in Iceland from 2 to 7 May 2018 during which the Finnish Red Cross observed the exercise and interviewed representatives of the Icelandic Red Cross and participants of the exercise.

Limitations of the study

The data collection and analysis proved to have some limitations. Excluding the response from the Danish Red Cross which was compiled from the answers of the Faroe Islands and Greenland, the survey received one response from each National Society, which means that the number of responses in the survey was quite small. Finding the appropriate focal points also proved challenging. In most National Red Cross Societies, activities are divided into domestic and international activities. In many cases, the Arctic falls somewhere in between domestic and international, which meant that finding the right focal point was not simple.

Domestic operational capacity in the National Red Cross Societies is not harmonized, which means that there are no standardized procedures or teams that would be exactly similar in all National Societies. This brought challenges to the comparability of certain features or figures in the data. It was also noted that since the Arctic is a very specific operational context, the study would have benefitted from more case examples and field studies to achieve a better understanding of the context.

2. Operational Context in the Arctic

As has already been established, the definition of the Arctic area varies, but the operational context in the area has some common denominators. The special characteristics of the region – remoteness, long distances and cold conditions – form a very specific operational context for all activities. Geographically, the region is quite large, which means that the conditions have local variations. Depending on the area, winter conditions can be more severe and there are differences in population density, level of activities and infrastructure. It is important to keep in mind that the area is not a cohesive entity and that each National Red Cross Society conducts their activities in their local context. This section outlines some of the key features related to Arctic disaster management and the operational context.

In order to successfully operate in the Arctic, one has to adapt to the challenging conditions. Extreme weather conditions, lack of infrastructure, inadequate situational awareness and climate change are factors that complicate for instance search and rescue (SAR) efforts in the Arctic (Goegebeuer 2014). Systems of communication, transportation, infrastructure, equipment, food supply and other services can be extremely vulnerable in the northern communities (Funston 2014, 8). Many types of emergencies need to be considered in the Arctic context, and search and rescue is just one of the possible operation types that needs to be assessed in the Arctic. Other emergencies like forest fires, avalanches, floods, blizzards and earthquakes also need to be considered. Major power outages and disturbances in communications can be detrimental in the Arctic conditions. Many consider that the current systems in place are struggling to meet even the day-to-day needs of the northern communities. Especially the realities of climate change increase the demand for revised systems (French 2014, 32).

2.1. The Changing Arctic – Risks and Vulnerabilities

The changes that have taken place in the region in recent decades make the operational context in the Arctic even more challenging as conditions become less predictable and extremes increase. These changes are profound and unravelling at a fast rate. Climate change affects the area in a myriad of ways. The changing environment has opened up opportunities for trade, shipping, resource extraction and tourism. The increased Arctic activities also increase possible risks and vulnerabilities in the area. Climate change is not the only driving force in the region. Several different drivers, many of which are external to the Arctic area, affect the changes in the area. The changes are strongly interconnected to each other and comprise ecological, geophysical and social-ecological systems (see, for example, Arctic Resilience report 2016).

Effects of climate change on the Arctic environment

Climate change is affecting the Arctic area in a severe way. The rise in temperature is twice as rapid as in the rest of the world. In January 2016, the Arctic area was 5°C warmer than the 1981–2010 average for the region, a full 2°C higher than the previous record set in 2008. Sea temperatures are also increasing, both near the surface and in deeper water. Since 2006, the National Oceanic and Atmospheric Administration (NOAA) of the U.S. Department of Commerce has annually issued an Arctic Report Card, a peer-reviewed source for environmental information and current state of different components of the Arctic environmental system. The most recent report card states that in the year 2017

there were again many signals indicating that the Arctic environmental system has reached a "new normal": the Arctic air temperatures are warming at double the rate than the rest of the globe and the extent and volume of the sea-ice cover, the extent and duration of the winter snow cover and the mass of the Greenland ice sheet and Arctic glaciers has shown decade-long declines. The surface temperature of the Arctic Ocean is increasing, which contributes to the later formation of sea-ice cover in the autumn (Richter-Menge, Overland, Mathis & Osborne, 2017).

Changes in the climate have profound effects on the environment and the ecological system. The melting of sea-ice causes acidification of the Arctic Ocean. Carbon dioxide dissolves more easily in cold water and the open sea soaks up more carbon dioxide affecting many species and the ecosystem. The melting permafrost causes methane to be released to the atmosphere which accelerates the climate change further. The melting of the Greenlandic ice sheet raises sea levels globally and the casting of fresh water to the ocean causes changes in the composition of the sea-ice and the ecosystems in the area. (Koivurova 2017, 11–17.) Even though the focus of climate change is on the rising temperatures and the melting sea ice, the Arctic conditions remain harsh with extreme cold conditions. Some studies have also discussed the possibility that the changes in the Arctic and in the polar vortex could possibly affect other areas and cause periods of extreme cold also in the mid-latitudes (see Kretchmer et al. 2017). The exact relationships and mechanisms are still unclear. In February 2018, the Polar area experienced exceptionally high temperatures while at the same time most of Europe was going through unusually cold weather. This could be a mere coincidence, but it has been established that climate change intensifies conditions and extreme weather conditions and the possibility of natural hazards.

Economic, cultural and health effects on Arctic communities associated with climate change

Changes in the Arctic boosted by climate change concern the communities in the Arctic and the everyday life in the northern areas. The effects are manifold, including changes in economy, society, culture and health. Climate change affects housing, infrastructure and transport connections in the Arctic. Thawing and warming of permafrost is affecting infrastructure in many areas where permafrost forms the foundation for buildings and roads. Telecommunication towers have also been known to settle due to the changes in permafrost. Climate change will most likely increase the future costs for public infrastructure and cause potential risks for man-made systems in many areas (Larsen et al. 2008). This is a crucial point for the Red Cross as well, as functioning infrastructure is the basis for healthy and safe living and a significant enabler of external assistance in emergencies.

The coastal communities in the Arctic are especially affected because previously the sea-ice protected the Arctic coasts from erosion. With the sea-ice diminishing, erosion can have severe effects, particularly on many indigenous villages in Alaska. In some areas this might result in displacement of entire communities to new areas (Koivurova et al. 2008, 3; Koivurova 2017, 19–20). Storms in the Arctic Ocean are also likely to become more incontrollable because the thick sea-ice does not restrain the conditions of the sea (Koivurova 2017, 23). Damages and hazards related to storms could increase vulnerabilities in Arctic communities.

Societal and cultural implications in the Arctic are closely linked to the changes in the environment. Traditional livelihoods that depend on hunting, fishing and herding are under threat. This can mean many changes for the communities. In the Canadian Arctic, changes have already been seen in the communities including transition from semi-nomadic lifestyle to more centralised settlements, increased involvement of the federal government in people's lives, dependence on external markets, development of formal economic sector activities and compulsory schooling for children (Ford et al. 2006, 150). The changes in the Arctic environment not only danger the traditional livelihoods of the Arctic communities but also affect the traditional knowledge that is being used in everyday activities. Traditional knowledge that has been based on past environmental conditions is less dependable under the new changing conditions (Ford & Smit, 2004).

8

Climate change has a strong link to the well-being and health of the Arctic communities, even though the impact of this is still not fully understood (Healey et al. 2011). The effects on health can be direct or indirect. According to Parkinson and Berner (2009, 88) direct threats can be caused by environmental factors such as extreme weather events or injuries and mortality associated with unpredictable ice and storm conditions. Indirect threats to health are caused by increased mental and social stress related to the changes in the environment and the loss of traditional lifestyle, potential changes in bacterial and viral diseases and access to quality water sources and the changes in permafrost affecting sanitation infrastructure. The dietary shift from a traditional diet to a more Western one can bring along new health issues like obesity, diabetes and cancer. Climate change will affect the transport, distribution and behaviour of contaminants which might threaten the safety of traditional food supply in the Arctic.

Opportunities and risks in resource extraction in the Arctic

As the Arctic waters become more navigable, many resources are becoming more accessible. The Arctic region holds untapped oil and mineral resources, but also new possibilities for fishing. It has been reported that as much as one-fifth of the undiscovered oil and natural gas resources could be in the Arctic. This would potentially mean 13 per cent of the undiscovered oil and 30 per cent of undiscovered natural gas (Ellis & Brigham 2009, 97.)

Extraction of gas and oil is still very difficult and expensive in most parts of the Arctic waters and the low price of oil has reduced the oil and gas exploration somewhat. With the changes in the sea ice conditions and the constant need for new resources, the search for oil and gas is accelerating in the Arctic. The mining industry is also very active in many parts of the Arctic area. Many researchers and environmental organizations have been warning the industry of the risks and impacts of the oil and gas exploration in the harsh conditions and the fragile ecosystem of the Arctic waters. The impacts of a major oil spill in the Arctic could be serious. Oil spills in the ice are complicated to address and the long distances and lack of infrastructure make the response challenging.

As the interest for new resources in the region accelerates, the ethics of utilizing these resources are also questioned. Teemu Palosaari (2012) calls the phenomenon the Arctic paradox: the faster we use fossil fuels, the faster we get the access to new, untapped oil and gas resources. Use of hydrocarbon contributes to climate change, which causes the Arctic sea-ice to melt – uncovering new oil and gas resources. The use of these resources further accelerates climate warming (Palosaari 2012, 24).

Increased shipping in the Arctic waters

The Arctic Ocean has been used for maritime activities in many ways for a long time, including indigenous marine use, expeditions and explorations, supply and re-supply activities for the communities and global shipping (Ellis & Brigham 2009, 36). Changes in the area and the reduction in the sea-ice levels, especially during the summer months, have however increased the interest in Arctic shipping. The first sea-ice free summer in the Arctic Ocean is predicted to happen sometime between the years 2030 and 2040. Gradually the perennial sea-ice will disappear and the Arctic Ocean will only freeze during the winter months (Koivurova 2017, 14).

One of the reasons the interest in Arctic shipping has increased is the potential economic benefits that could be drawn from using the Arctic waterways. The Arctic sea routes could provide an alternative to Suez and Panama canals and a shortcut between the Pacific and Atlantic ports. In theory, the Arctic routes could be 35 to 60 per cent shorter than the usual routes and costs would be saved through reduced fuel consumption and increased trip frequency (Melia et al. 2016). The increased interest does not merely focus on trans-Arctic marine use, but more and more also on destinational use, such as tourism (see Ellis & Brigham 2009.)

The shipping activity in the Arctic varies a great deal depending on conditions, routes and population density. Shipping activity in the Arctic is mainly comprised of local transport, fisheries, cargo transport and cruise-ship tourism. During 2015, there were 71 reported shipping incidents in the Arctic Circle waters, the highest number in a decade. In comparison, there were only 8 incidents in 2006. Machinery damage or failure was the cause of 65% of the incidents, driven by the harsh environment. Due to lower oil prices, the activity to find shorter sailing routes has decreased somewhat, but the reduction is believed to be temporary and to intensify again when oil prices recover. All in all, there have been 415 reported shipping incidents in the Arctic Circle waters over the past decade up to the year 2015 (Safety and Shipping Review 2016).

The increasing activity and number of ships in the Arctic waters correspond to an increase in risks. The increased risk of Arctic emergencies can, according to Østhagen (2017, 8), be categorized as geographic factors, the lack of infrastructure and limited information. Geographic factors include ice conditions that are more and more difficult to predict as new areas are opening up from sea-ice, low temperature and winter darkness. The infrastructure in the region is often times limited and underdeveloped and the distances are long. Lack of information is related to insufficient understanding of the area, issues with using the satellites and the fact that the underwater Arctic geography has not been sufficiently mapped. From the point of view of shipping and maritime activities, the infrastructure is underdeveloped. Ensuring the safety of maritime activities can be difficult due to the long distances to harbors, airports and hospitals (Marchenko et al. 2015).

Attempts to mitigate risks related to Arctic shipping have been made through governance and management of shipping requirements. Increasing shipping safety in the Arctic waters has been the main motivator for the creation of the international Polar Code. The International Maritime Organization has adopted the International Code for Ships Operating in Polar Waters (Polar Code) and related amendments to make it mandatory under both the International Convention for the Safety of Life at Sea (SOLAS) and the International Convention for the Prevention of Pollution from Ships (MARPOL). The Polar Code entered into force in the beginning of the year 2017. The Polar Code covers shipping-related matters related to navigation in the Arctic and the Antarctic. The relevant areas include ship design, construction and equipment, operational and training concerns, search and rescue, and the protection of the unique environment and eco-systems of the Polar Regions.

Arctic tourism on the rise

In recent years there has been an upsurge in Arctic tourism. The number of tourists, however, varies considerably across the Arctic region, which also means that opportunities and risks are spread unevenly across the area. Generally, the most accessible areas, i.e. Finland, Norway, Sweden and Alaska are the most visited alongside Iceland, which has experienced booming tourism in recent years. Norway's Arctic Policy (2014) states that there has been an increase of 206% in the number of overnight stays in winter by visitors from abroad from the 2005–2006 season to the 2012–2013 season. The number of foreign visitors to Iceland has nearly quadrupled since 2010. The average yearly growth rate has been 24.4% since 2010 with the biggest increase of 39% from 2015 to 2016 (Icelandic Tourist Board 2017).

Marine-based tourism is the largest segment of the Arctic tourism industry in terms of numbers of persons, geographic range and types of recreation activities (Ellis & Brigham 2009, 78). Large numbers of tourists are visiting the area with cruise ships. In the summer of 2016, the cruise ship Crystal Serenity completed a 32-day cruise through the Northwest Passage, from Alaska to New York City, with more than 1 000 guests and 600 crew members. It was the first time a cruise ship of this size and volume had traversed the Arctic waterways. News about the Northwest Passage cruise were met with contradiction. Risks of a cruise ship of that size and calibre to meet with any kind of accident or problem could have been too much for the Arctic search and rescue systems and infrastructure to handle. The risk of oil spill was also a concern. Remote location, severe weather and the ab-

sence of oil spill clean-up equipment and personnel make oil spills in the Arctic marine areas especially problematic (Byers, 2016.) Previous examples of cruise ship accidents have already been seen. In June 1989, the Maxim Gorkiy, which was on its way from Iceland to Magdalena fjord in North Spitsbergen, hit ice and begun to sink rapidly. A total of 953 people, 575 passengers and 378 crew members, were on board. The rescue operation was hindered partly due to communication problems with language barriers (Roud et al. 2016).

Mass tourism brings along challenges. The increased number of people put pressure on land, wildlife and water, waste disposal and pollution through increased airplane and ship traffic, the risk of major accidents increases and there might be conflicts between local cultural practices and the recreational activities of the tourists (Keil 2017). It has been established that there is a missing link between tourism and disaster risk reduction and management as well as frameworks for examining climate change and tourism (see Becken & Hughey 2013; Kaján 2012). As tourism increases human presence in the area and people often lack the crucial know-how of the local conditions, it would be very important to build tourism risk reduction patterns and practices. In some cases, unnecessary risks related to tourism are being taken. There have been cases of cruise ships intentionally travelling close to the ice edge and shorelines to provide best opportunities for wildlife viewing, at the same time increasing the risk of interaction with ice and other hazards (Ellis & Brigham 2009, 79).

2.3. Actors, political forums and agreements in the Arctic

The Arctic institutional and political landscape is multifaceted with several institutions, states and actors taking part in the activities in the region, as well as organizations and states not physically present in the Arctic. A variety of commercial and geopolitical interests are at play in the Arctic, which makes it an area in a constant state of flux. The global power struggles might not directly influence disaster management efforts in the Arctic, but they do influence the overall stability of the area and might influence questions of resource allocation or other issues related to emergency relief and disaster management (Lauta et al. 2018).

Understanding these different levels of cooperation and the management of activities through different agreements and arrangements in the Arctic is important also from the point of view of the Red Cross. The Red Cross takes part in different forms of cooperation and is directly and indirectly affected by many agreements and arrangements in the region.

Arctic Council and Working Groups

The Arctic Council is the main political forum in the Arctic area. According to the Arctic Council, the Arctic States are Canada, Denmark, Finland, Iceland, Norway, Russia, Sweden and the United States. An important emphasis is also given to the cooperation with indigenous communities in the Arctic that are represented by the Permanent Participants in the Arctic Council. Following the Rovaniemi process in 1991 when the eight Arctic countries signed the Arctic Environmental Protection Strategy (AEPS), the Arctic Council was formed in 1996 in the Ottawa Declaration. There are six organizations representing Arctic indigenous peoples as Permanent Participants. The Arctic Council concentrates on issues of sustainable development and environmental protection, but also on issues of emergency preparedness and prevention in the area.[11]

11 The Arctic Council: A backgrounder. http://www.arctic-council.org/index.php/en/about-us

The Arctic Council is also open for observation by non-arctic states and inter-governmental, inter-parliamentary, global, regional and non-governmental organizations that the Council determines can contribute to its work. The area is also of great interest to other states outside the Arctic. For example, China, India, Japan, the Republic of Korea and Singapore have obtained observer status and China especially has shown an increased interest in the area. In the beginning of 2018, China published a white paper on Arctic policy defining plans to encourage companies to build infrastructure and conduct commercial trial voyages with a goal of building a "Polar Silk Road" (China's Arctic Policy 2018). The European Union does not have a formalized observer status in the Arctic Council, but is in practice invited to attend the Arctic Council work at all levels. The engagement of the EU in the Arctic has concentrated especially on sustainable development and climate change. In its latest Arctic communication in 2016, the European Commission emphasizes the objectives of the Paris agreement and the goals set in the Agenda 2030 for sustainable development. The European Parliament also published a new Arctic resolution on an integrated European Union policy for the Arctic in March 2017.

All decisions in the Arctic Council are made by the eight Arctic States with the involvement of the Permanent Participants. However, the observers are expected to make relevant contributions through their engagement in Arctic Council Working Groups. Observers may propose projects through Arctic States or Permanent Participants. In 2017, 13 non-arctic States, 13 intergovernmental and inter-parliamentary organizations and 13 non-governmental organizations have been approved as observers in the Arctic Council.

The International Federation of the Red Cross and Red Crescent Societies has had observer status in the Arctic Council since the Barrow Ministerial meeting in 2000. IFRC´s activity and involvement has varied over the years. The IFRC has not been involved as a partner in projects under the Arctic Council.

A large part of the work that is done in the realm of the Arctic Council takes place in the Working Groups that convene around different themes. The Red Cross has particularly participated in the Emergency Prevention, Preparedness and Response Working Group (EPPR) and the Sustainable Development Working Group (SDWG). The mandate of the EPPR Working Group includes contributing to the prevention of, preparedness for and response to environmental and other emergencies, accidents and Search and Rescue (SAR). Expert groups for Search and Rescue (SAREG) and for Marine Environmental Response (MEREG) work under the EPPR Working Group. The aim of the SDWG is to advance sustainable development in the Arctic by pursuing opportunities to protect and enhance the environment and the economies, culture and health of indigenous peoples and Arctic communities.

Agreements concerning disaster management in the Arctic area

Disaster management and emergency response is in many ways also dependent on the legal frames that define the roles and responsibilities of different actors. In the context of the Arctic, Lauta et al. (2018) note that cold disasters commonly involve complex institutional set-ups and sometimes even contested jurisdictions in the form of ambiguities regarding the mandate, obligations and limitations of countries and authorities, and these ambiguities must often be resolved while cold disasters unfold. Effective disaster response requires a clear regulative framework. The absence of regulation can result in uncoordinated and inefficient response, and legal barriers can result in disaster relief operations being delayed and can lead to disaster-affected communities not receiving the right kind of assistance at the right time (see Fisher 2007). The IFRC has drawn attention to the importance of the questions of Disaster Law to deal with regulatory barriers in disaster response. At the moment, very few states have comprehensive rules or regulation in their national legislation that would facilitate and oversee outside assistance. In the Arctic, the geopolitical context means that there are cross-cutting jurisdictions and regulations. While there are several agreements that are applied in the Arctic area, including social rights (like the ILO 169 convention) or the flora and fauna of the area (e.g. Agreement on Conservation of Polar Bears 1973), the focus here is set on the Arctic Council treaties and treaties concerning emergency response and disaster management.

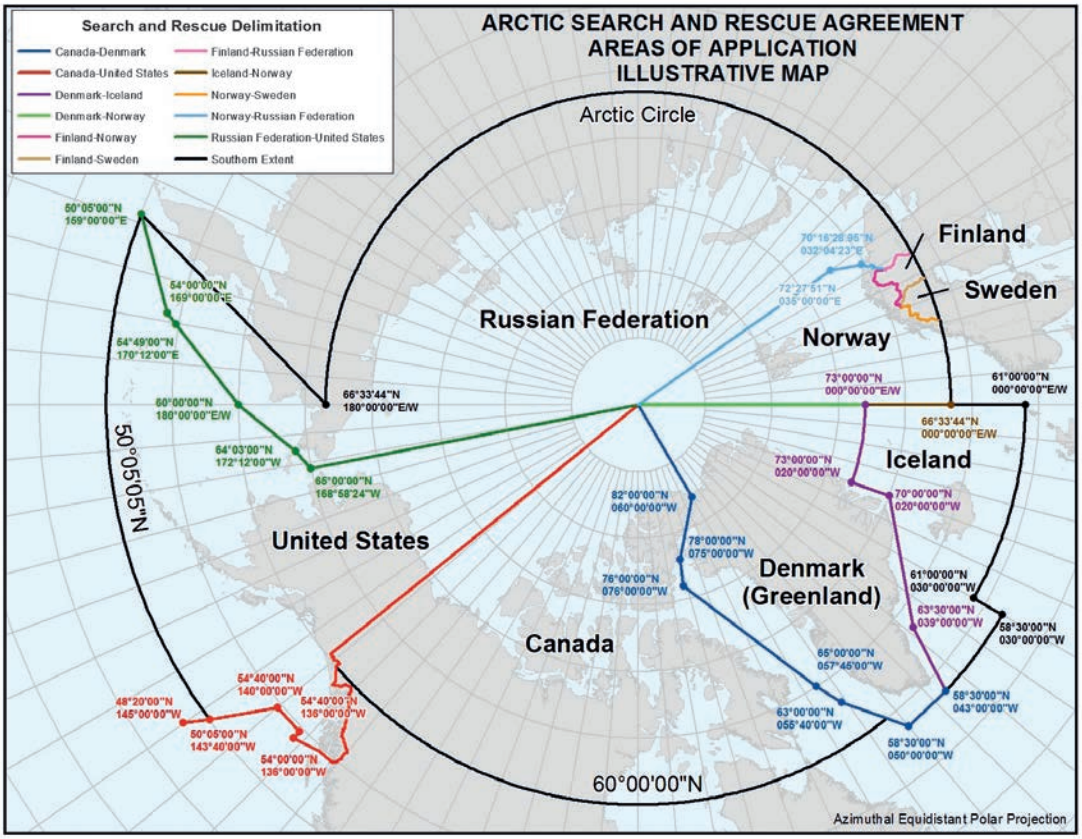

Figure 2 *Areas of Application of the Arctic Search and Rescue Agreement*
Map: Norwegian Ministry of Foreign Affairs.

The Arctic Council has negotiated three agreements that specifically concern the Arctic area. The international treaty on Arctic Search and Rescue was concluded among the eight Arctic States of the Arctic Council in 2011 in Nuuk, Greenland. The *Agreement on Cooperation on Aeronautical and Maritime Search and Rescue in the Arctic* is meant to strengthen the cooperation and coordination of aeronautical and maritime search and rescue operations in the Arctic. The agreement came into force in January 2013. The SAR agreement became the first ever legally binding agreement to be negotiated in the Arctic Council and has been ratified by all of the member states in the Arctic Council. The parties to the treaty are the Arctic member states with no specific mention of civil society or other stakeholders. Competent authorities and search and rescue agencies are defined in the treaty.

Most significantly, the treaty outlines the area of SAR responsibility of each treaty party and the search and rescue coverage and response in the Arctic. Article 3 of the treaty states that "each Party shall promote the establishment, operation and maintenance of an adequate and effective search and rescue capability within its area". Even though the parties to the treaty only include State entities, the areas of application are important for the Red Cross as well since the National Red Cross Societies hold a particular role as auxiliaries to the states and state authorities.

Article 9 of the Agreement outlines cooperation among the parties. Enhancing cooperation and exchanging information is meant to serve the effectiveness of search and rescue. The exchange of information is also extended to pertain "knowledge of fueling, supply and medical facilities" (Article 9 2.d.).

The inclusion of medical facilities in the agreement could also mean that Red Cross medical field units and expertise are more firmly integrated in the search and rescue system in the Arctic.

The Arctic Council has also negotiated the *Agreement on Cooperation on Marine Oil Pollution, Preparedness and Response in the Arctic* called MOSPA, which was signed in the Kiruna Ministerial meeting in May 2013. The aim of the agreement is to strengthen cooperation, coordination and mutual assistance among the agreement parties on oil pollution preparedness and response in the Arctic in order to protect the marine environment from pollution by oil. A third agreement negotiated by the Arctic Council entered into force in May 2018 and concerns scientific cooperation in the Arctic.

These agreements concern the Arctic area specifically, but there are also international and regional agreements and legislation that fall in the realm of the Arctic. Main international maritime treaties are the United Nations Convention on the Law of the Sea[12] (UNCLOS) and International Convention for the Safety of Life at Sea[13] (SOLAS). UNCLOS defines the rights and responsibilities of states regarding the use oceans relating to commercial use, environment and the management of natural resources. The claims of territorial waters and the continental shelf also fall under the UNCLOS jurisdiction. SOLAS is an international treaty defining the set of minimum safety standards for the construction, equipment and operation of merchant ships. In terms of climate change, the Paris Agreement under the United Nations Framework Convention on Climate Change is relevant also in the Arctic.

Three of the Arctic states are also European Union member states, which means that the European Union level and for instance the EU Civil Protection Mechanism (UCPM) should also be considered in the Arctic context. The UCPM coordinates assistance from participating states to victims of natural and man-made disasters in Europe and elsewhere. There are also regional agreements in place for cooperation concerning emergency prevention, preparedness and response. The Nordic countries have an agreement on rescue services (NORDRED[14]) that concerns cross-border cooperation to prevent and limit damage to persons or property or to the environment in case of accidents. Nordic countries also have an agreement for social welfare and assistance in crises called the Nordic Framework Convention on Health Care (NORDHELS).

A regional agreement concerning emergency prevention, preparedness and response in the area has also been negotiated for the Barents Euro-Arctic region: *Agreement between the Governments in the Barents Euro-Arctic Region on Cooperation within the Field of Emergency Prevention, Preparedness and Response* (signed in November 2008, entered into force May 17, 2012). The contracting parties are the governments of Finland, Norway, Russia and Sweden. Geographically the agreement concerns the provinces of Lapland and Oulu in Finland, the counties of Nordland, Troms and Finnmark in Norway, in Russia the republic of Karelia, the republic of Komi, Arkhangelsk Oblast, Murmansk Oblast and the Nenets autonomous area and in Sweden the counties of Norrbotten and Västerbotten. One of the core activities of the rescue cooperation is the Barents Rescue Exercise, organized in the country of the respective BEAC Chairmanship. The agreement works to improve conditions for cross-border operations of rescue services and to ensure that the closest rescue service available is able to assist in an emergency situation regardless of national borders. Along with international and regional agreements there are numerous bilateral agreements concerning emergency preparedness and management (see, for example, the list of Finnish bilateral agreements Pimiä 2014).

12 Convention on the Law of the Sea, Dec. 10, 1982, 1833 U.N.T.S. 397 (entered into force Nov. 1, 1994)

13 International Maritime Organization (IMO), International Convention for the Safety of Life At Sea, 1 November 1974, 1184 UNTS 3, available at: http://www.refworld.org/docid/46920bf32.html [accessed 24 May 2018]

14 Agreement between Denmark, Finland, Norway and Sweden on cooperation across state frontiers to prevent or limit damage to persons or property or to the environment in the event of accidents, SopS 21/1992.

The mechanism of international and regional agreements works at several levels. At the upper level, the international and regional treaties form an umbrella that covers states and state authorities. At the state level however, there are several agreements and arrangements that support the application of the umbrella treaties. States and state authorities have made agreements and memorandums of understanding (MoUs) also with National Red Cross Societies. The National Red Cross Societies have a very particular role as auxiliaries to state authorities and for this reason international treaties and their application areas are particularly important. It should also be noted that the main international treaties on emergency response in the Arctic focus mainly on search and rescue and response to oil spills, while relevant sectors from the point of view of the Red Cross like relief, psychosocial support and health are not explicitly included.

2.4. Local communities in the Arctic driving resilience

In 2013, the Arctic area had a little over four million people living there permanently (Arctic defined with the Arctic Council AMAP boundary). The proportion of indigenous people is estimated to be around 10 per cent of the total population. There are more than 40 different ethnic groups living in the Arctic. Groups vary from their cultural, historical and economic backgrounds.[15] From the point of view of the Red Cross, the role of local communities in driving the overall resilience in the Arctic area is an important factor that is often neglected.

Resilience is a central concept in disaster and risk management and reduction. As mentioned in the Arctic Council's Arctic Resilience Report (2016), the concept of resilience is used across different disciplines and contexts and there has been a noticeable increase in the use of the term in academia as well as popular uses. As the concept is used in very different contexts, there are several definitions of the term. In the Arctic Resilience Report 2016, resilience is defined as "the capacity of people to learn, share and make use of their knowledge of social and ecological interactions and feedbacks, to deliberately and effectively engage in shaping adaptive or transformative social-ecological change" (Arctic Council 2016). The emphasis is put on learning and the use of knowledge in adaptive or transformative change.

For the Red Cross, resilience is at the very core of its work. Since its creation, the Red Cross Red Crescent Movement has been guided by a clear set of humanitarian principles and values that aim, in one way or another, to effectively contribute to building resilience. The International Federation of Red Cross and Red Crescent Societies (IFRC) defines resilience as "the ability of individuals, communities, organizations or countries exposed to disasters, crises and underlying vulnerabilities to anticipate, prepare for, reduce the impact of, cope with and recover from the effects of shocks and stresses without compromising their long-term prospects" (IFRC 2014). The Red Cross Red Crescent uses participatory facilitation to encourage communities to adopt demand-driven and people-centred approaches to community resilience with broad, multi-sector, community-led activities.

Different definitions of resilience tie the concept closely to the idea of adaptation. Given the specific operational context of the Arctic and especially the reality of climate change transforming the area, climate change adaptation is a prevalent theme in dealing with community capacity in the Arctic. In Arctic research literature, the role of local communities in the Arctic has been particularly looked at from the point of view of climate change and the vulnerabilities posed by the changing environment. Community adaption and vulnerability and the different direct and indirect impacts of climate change have been important subjects of study (see Hovelsrud et al. 2010; Ford et al. 2004; Parkinson & Berner 2009).

15 Arctic Centre. Arctic Indigenous Peoples, https://www.arcticcentre.org/EN/communications/arcticregion/Arctic-Indigenous-Peoples

Climate change has been established as the inevitable state of today and the impact on the environment and ecosystem has already begun to shape the living conditions and operational context of the Arctic communities. The accelerated rate at which the changes are happening require the ability to adapt to the changing environment. Many bodies dealing with climate change actions have started to stress the importance of adaptation to new conditions. In order to facilitate adaption, it is more and more important to contemplate on the nature of vulnerabilities regarding the matter: who and what are vulnerable, to what conditions, in what way and what kind of capacities exist to adapt to the risks (Ford & Smit 2004, 390). The Red Cross Red Crescent Movement has recognized the humanitarian consequences of climate change. IFRC's Framework for Climate Action Towards 2020 (2017) outlines the Movement's vision for communities across the world to be more resilient and better prepared for climate change impacts now and in the future. The comparative advantage of the Movement in climate action is the extent and scale of working with vulnerable people impacted by climate change.

While there is rather extensive literature concerning the impacts of climate change on the communities and their adaptability and viability, the role of local communities and resources in Arctic emergency management or risk reduction has not been mapped out exhaustively. According to Andreas Østhagen (2017), local capacities can, however, be of great importance in contingency planning and emergency management. Local resources already present in the Arctic communities are often neglected when looking at the capacity to manage potential emergencies in the Arctic region. Instead, the focus is often in relatively expensive Arctic capacities, such as coast guard vessels, long-range helicopters and oil spill response units. A more efficient utilization of local resources could be a way to reduce costs and raise the level of preparedness, but it is quite unclear what type of resources exist in the Arctic communities and how they could be further utilized.

It has been noted that a lot could be gained by incorporating remote communities to observing networks and systems in the Arctic, since they are themselves located in the area and the ones impacted by the delays in response (Alessa et al. 2016). Local knowledge and practices should be utilized in disaster risk reduction and community-based risk reduction activities could, for example, reduce vulnerabilities to climate change and build resilience (Hiwasaki et al. 2014; Keim 2008).

According to Østhagen (2017), local communities in the Arctic should form the foundation for emergency management in the Arctic. The local level is always linked to the larger context and national capacities and international efforts interplay with one another. In his study, Østhagen examines regions in the Canadian Arctic, Greenland, Iceland and Norwegian Svalbard and concludes that local efforts in all the regions were contributing significantly to their countries maritime emergency resources along with national capacities.

From the view point of community resilience, one of the key factors is the fact that most of the Arctic region has low population density. Population determines the pool from which local efforts can be drawn. Beyond the largest communities, organized or structured volunteer activity can be difficult (Østhagen 2017, 31–32). This is a prominent feature of the operational context in the Arctic that also significantly defines the activities of the Red Cross at the local level.

3. Red Cross Arctic Disaster management capabilities and capacities

This section on the National Red Cross Societies' capabilities and capacities in the Arctic is based on the data collected during the study through the electronic survey, interviews, e-mail exchanges and in the Red Cross Arctic Disaster Management Seminar in March 2018 in Oulu, Finland. The section provides an overview of the National Societies and their presence in the Arctic. The data will be considered through the frame provided by the research questions concerning the capabilities for mass emergencies, operating in cold conditions, cooperation and capacity building.

3.1. National Red Cross Societies in the Arctic

Eight National Societies are considered in the study. All of the eight National Societies in the Arctic are different in their size and main activities. To understand the capabilities and capacities in the Arctic or northern parts, it is beneficial to understand the overall picture of the National Societies involved.

As mentioned earlier, the notion and definition of the Arctic is not explicit or clear. Even though the guiding definition for the purposes of this study was 55 ° latitudes north and the area to the north from that, the National Societies were at liberty to define themselves which areas in their opinion were the most relevant for the purposes of this study and the common questions and issues. It should also be remembered that the areas in question are quite diverse with regard to infrastructure, population density and remoteness. To some extent, all of the areas share the same challenging conditions of remoteness, cold conditions and sparse and dispersed populations; however, the scale can be different and each National Society has unique features in their operational environments. It should be noted that the study does not comment on the financial situation of the National Societies.

Though the Arctic gives a general frame to examine the activities in a certain area, a strict geographical perspective might not convey the whole truth. In the end, National Societies form a whole and preparedness is built on processes that include resources also from other geographical locations, not just the ones that are physically situated in the north. The overall preparedness of the National Societies is important from the point of view of the Arctic, which is why the National Societies are presented in Table 1 as a whole and later looked at from the perspective of the Arctic. General key figures and indicators of the National Societies are listed in Table 1. In the case of the Danish Red Cross, the organizations under the umbrella of the Danish Red Cross, the Greenlandic Red Cross and the Faroe Islands Red Cross, are also considered.

Table 1 *Basic information about the National Red Cross Societies*[16]

NS	Volunteers	Staff	Local Units	Main activities	ERUs
American Red Cross	330 000	21 000	264 chapters	Disaster Relief, Blood Services, Preparedness, Health and Safety Services, International Services, Services to the Armed Forces	IT & Telecommunications, Relief
Canadian Red Cross	15 000	3 000	314	Disaster Management domestic & international, Community Health Prevention & Safety	Basic Health Care, Rapid Deployment Hospital
Danish Red Cross	33 000	281	208	First aid and first aid training, PSS, Asylum seekers and integration, International humanitarian assistance and programmes Faroe Island: Recycling (clothes and books), friend activities and door-to-door collection. Greenland: First Aid Training; Second hand clothing; Social activities	Logistics, Relief, Base Camp
Finnish Red Cross	35 000 (of which ca. 15 000 are active)	2095	12 districts, 469 branches	First Aid, Friend visitor services, Emergency preparedness activities, Blood services, Refugees and asylum seekers, International humanitarian assistance and programmes	Logistics, IT & Telecommunication, Basic Health Care, Referral Hospital, Rapid Deployment Hospital, Relief, EEH/EEC
Icelandic Red Cross	4 000	117	42	Disaster services, first aid, refugees and asylum seekers, social programmes.	International Delegates
Norwegian Red Cross	41 000	700	19 districts, 381 local branches	Search and rescue, Care-relating activities, International operations	Basic Health care, Referral Hospital, Rapid Deployment Hospital
Russian Red Cross	79 000	384	84 regional branches, 1200 local branches	First Aid Training, legal, medico-social and humanitarian support, disaster preparedness	-
Swedish Red Cross	30 000	440	830	Psychosocial support, disaster management and first aid, migrant and protection activities.	Water & Sanitation (Module 15 and 40 and Mass Sanitation 20)

16 Information gathered through data collection, IFRC databank http://data.ifrc.org/fdrs and Red Cross EU Office Mapping of Red Cross National Societies in UCPM Participating States. ERU information: IFRC http://www.ifrc.org/en/what-we-do/disaster-management/responding/disaster-response-system/dr-tools-and-systems/eru/types-of-eru/ and revised during data collection with NSs.

Legal status of the National Societies

As outlined in the previous section, there are several legal agreements and treaties that concern the different aspects of emergency management and preparedness in the Arctic, both internationally and regionally. Signatories to the treaties are usually states and state authorities. From a legal point of view, the status of National Red Cross Societies in their respective countries is different. Most National Societies have an auxiliary role described in the national legislation or a specific act on the Red Cross in their national legislation.

The American Red Cross received its first Congressional Charter from the US Government in 1900. The American Red Cross has the legal status of "a federal instrumentality," due to the charter requirements to carry out responsibilities delegated by the federal government. These responsibilities include fulfilling the provisions of the Geneva Conventions, providing family communications and other forms of support to the U.S. military and maintaining a system of domestic and international disaster relief, including mandated responsibilities under the National Response Framework coordinated by the Federal Emergency Management Agency (FEMA). Despite this close relationship with the federal government, the American Red Cross is not a federal agency, nor does it receive federal funding on a regular basis to carry out their services and programs.

The Government of Canada passed the Canadian Red Cross Society Act in 1909, conferring legal status on the Canadian Red Cross Society. The Act also supports the intention of the Geneva Conventions, and protects the Red Cross emblem in Canada.

In Iceland there is an Act pertaining to the Icelandic Red Cross and the emblem of the Red Cross, the Red Crescent and the Red Crystal (No. 115/2014). The Icelandic Red Cross maintains an auxiliary role to the state based on the Civil Protection Act (No. 82/2008), and also has a Memorandum of Understanding with the government.

The Danish Red Cross maintains an auxiliary role to the state based on the Danish Government's signature to the Geneva Conventions. It operates reception centres and other activities for asylum seekers for the Government. The Danish Red Cross is not given a specific role in the Danish National Preparedness Act. It is indicated as a representative for volunteers in the preparedness sector along with other volunteer based civil protection organizations. The Danish RC is part of the National Strategy for Disaster Prevention and has a general cooperation agreement with the Ministry of Defence. The situation with the Danish Red Cross is a specific one as Greenland and the Faroe Islands that are legally part of Denmark have their own Red Cross Societies that are independent organizations under the Danish Red Cross. The Greenlandic Red Cross nor the Faroe Islands Red Cross have their own legislation on the Red Cross.

In Norway the Royal Decree of 14 August 1907 (reconfirmed 6 April 1984) states that the Norwegian Red Cross maintains an auxiliary role to the Armed Forces Joint Medical Services in times of war and the Royal Decree of 21 August 2009 states that the Norwegian RC maintains an auxiliary role to the state authorities in times of peace.

There is no law on the Swedish Red Cross, but it maintains an auxiliary role to the state, acknowledged by the Geneva Conventions. It is appointed with specific tasks and mandated by a number of Acts and Ordinances. The Swedish Red Cross has also signed agreements with Swedish government agencies further specifying responsibilities within the auxiliary role.

The Finnish Red Cross maintains an auxiliary role to the state, acknowledged by the Geneva Conventions of 1949 and the Act on the Finnish Red Cross (238/2000). The Presidential Decree on the Finnish Red Cross (827/2017) was updated in 2017 (the regulation contains FRC's Statutes, updated at the 2017 General Assembly). The Finnish Red Cross takes part in the development and revision of Disaster Law in Finland. In Finland, disaster management legislation is incorporated in several laws. The

Act on Rescue Services will be updated as a part of the regional government and health and social services reform in Finland. In addition, key legislation for disaster management can also be found, for example, in the Emergency Powers Act (crisis legislation). Also, the European Commission legislation on the Union Mechanism for Civil Protection (UMCP) is currently under revision.

In Russia, there is currently no law or act on the Russian Red Cross, but a new law is under way and could possibly be approved in 2018. At the moment the Russian Red Cross does not receive any financial support from the government. In the new law there would be a new financial frame from the government and the Russian Red Cross would be under the Ministry of Health. The new law would also protect the Red Cross emblem in Russia. As of now, the Russian Red Cross has an auxiliary role to the Ministry for Civil Defence, Emergencies and Elimination of Consequences of Natural Disasters (EMERCOM).

Table 2 *Legal Status of National Societies*

NS	Law, Act or Decree on RCNS
American Red Cross	Congressional Charter 1900; mandated responsibilities under the National Response Framework
Canadian Red Cross	Canadian Red Cross Society Act in 1909
Danish Red Cross	National Act from 1876. Auxiliary role to the state based on Danish Government's signature to the Geneva Conventions
Finnish Red Cross	Act on the Finnish Red Cross (238/2000) Presidential Decree on the Finnish Red Cross (827/2017)
Icelandic Red Cross	The Icelandic Red Cross act no 115/2014; Civil Protection Act no 82/2008
Norwegian Red Cross	Royal Decree of 14 August 1907; Royal Decree of 21 August 2009
Russian Red Cross	New law on Red Cross under discussions; Auxiliary role to EMERCOM
Swedish Red Cross	Auxiliary role to the state, acknowledged bythe Geneva Conventions

3.2. Identified risks and vulnerabilities in the Arctic region from the point of view of the Red Cross

Several risks and vulnerabilities were identified by the National Red Cross Societies in the data. Many of these risks are related to the general conditions and the environment in the region linked to the operational context discussed in section 2: challenging weather patterns, long distances and poor infrastructure, limited livelihood options for the northern communities, erosion threatening entire villages, increasing risks of landslides linked to tsunamis and risks related to increased tourism. The main risks that came up in the survey for Norway were pandemics and epidemics, maritime accidents, extreme weather conditions and cold condition incidents and failures of infrastructure such as long-term power outages. These factors could be thought to apply to all of the Arctic.

In addition, certain areas have very specific risk scenarios. According to the interviews with the Icelandic Red Cross, several volcanos in Iceland are currently showing increased activity and could erupt. In Alaska, the worst-case scenario that the Red Cross prepares for is a wintertime earthquake that would impact multiple communities, interrupt transportation including shipping of materials and transportation of outside personnel. Providing adequate shelter for the thousands that would be displaced by this type of emergency would be challenging and there would not be enough personnel in place in Alaska to meet the needs. In the case that airports would be closed, the shelters could not be supplied with adequate food and other basic items.

Almost none of the National societies have made formal risk assessments in the Arctic as such. In some cases, risk assessments made by other entities are used as a basis for Red Cross work. In Norway, national and municipal actors make risk and vulnerability analyses that are the basis for Norwegian Red Cross work on disaster preparedness in the respective areas. The Norwegian Directorate for Civil Protection (DSB) publishes a national risk and vulnerability analysis, and at the district and local levels there are risk and vulnerability analyses made by County Governors and municipalities. The Russian Red Cross regional branches in the area have made their own risk assessments related to cold conditions and especially concerning avalanches. In Finland, each district and branch is prepared for the risks in their respective area and has their own contingency plan in place.

From the point of view of the Red Cross, the sparse population in the Arctic region also means a smaller population to draw volunteers from. Lack of volunteers is a growing phenomenon. Like in other places in the world, also in the Arctic young people are moving to bigger urbanized centres, also meaning that the average age of volunteers is getting higher. Engaging new volunteers in the area can be an issue in many places. Long distances also set challenges to the training and cooperation between different branches. The Red Cross district in Lapland, Finland noted that training events and exercises between branches and the district office are often hard to arrange during the week, because the distances are too long for the volunteers to travel during the week. The challenges in the area that also need to be considered include ensuring the safety of Red Cross volunteers and staff.

The cultural aspects in the area were also brought up as a factor that needs to be considered from the point of view of the Red Cross. The Arctic area is host to many kinds of communities. In the event of an incident or major accident in the area, language barriers need to be addressed: there are non-English speaking populations and different writing systems. Volunteers and staff with language skills can be an important asset in operations. Local volunteers are also members of the communities and generally the Red Cross is recognized and welcomed in many communities. The knowledge of the cultural ways of handling things is an important factor to be taken into account.

Many of the risks identified by the National Red Cross Societies are linked to increasing tourism in the northern areas. In Iceland more and more cruise ships are coming each year to the area and

many sail up the east coast of Greenland that should be covered by the Icelandic authorities for search and rescue. Cruise ships are starting to sail also in winter time and, according to the interview with the Icelandic Red Cross, if something happened, the current capacity would not be adequate to respond. Vessels may be several days away and the infrastructure is lacking in many areas. The Greenlandic Red Cross does not have disaster management services. In Finland, wintertime tourism in Lapland is growing and can also be a concern. Tourists might not be prepared for winter conditions and do not have appropriate equipment. There is an increasing number of foreign bus companies not used to winter conditions driving on the roads. The active mining industry in Lapland also creates active truck traffic. Major traffic accidents in the north are a rising scenario. There are charter flights to the northern airports in Lapland and an accident at one of these airports in winter conditions would be challenging as there might not be enough ambulances or other capacities nearby.

Figure 3 *The long distances and swiftly changing weather conditions in the Arctic pose challenges to emergency response. Proper equipment and vehicles are important.*

Photo: Finnish Red Cross/Sini Hangaslammi

Situations that would overwhelm the current systems would especially be related to several incidents happening simultaneously. The Red Cross branch in Longyearbyen, Svalbard, also noted that an emergency arising at the same time as weather conditions are bad for instance for flying would have severe impacts on emergency response in the Arctic. According to an interview with the Icelandic Red Cross, it would not take a very large scenario for the Icelandic system to be overwhelmed, both as a National Red Cross Society and as a part of the civil protection in Iceland. The Icelandic Red Cross has on several occasions responded to incidents that test the durability of overall systems in Iceland. In a recent incident, a camp of 200 foreign boy and girl scouts was affected with Norovirus. The local hospital was not able to admit the affected people, which lead to the Icelandic Red Cross opening a treatment and quarantine centre. This could be a scenario that the Red Cross would be dealing with also in the future in different parts of the Arctic with increasing tourism and overstressed health systems in many places.

The Greenlandic Red Cross estimated that from the Red Cross perspective, there are risks of smaller incidents with lower effect but great probability, such as people getting injured, getting lost on hikes, people falling in very cold waters, snow mobile accidents and avalanches. There are also risks with great impact but lower probability, such as tsunamis due to tipping icebergs and landslides.

3.3. Emergency Response capabilities

The National Red Cross Societies maintain capacity to support the authorities and to act in accordance with their own role in accidents and emergencies. The National Red Cross Societies have been used for emergency response in various ways and provide different kinds of services in the Arctic.

In Alaska, Red Cross volunteer teams respond to every disaster within the region, the most common disasters being single family fires. The Red Cross in Alaska also responds to floods, wildfires, multi-family fires, earthquakes, aviation and rail disasters, active shooter events, and other natural and man-made disasters. The Norwegian Red Cross has been alerted for action related to extreme

weather conditions, search and rescue operations and assisted the police and government with snow removal and evacuations. In Norway the search and rescue units have also participated in SAR operations at sea, on land and in the mountains, with approximately 1 600 operations annually. Swedish Red Cross activities in the north focus mainly on social activities, migrants, second-hand stores and some disaster management preparedness. Migration response was a big effort in 2015 for the Red Cross in Norway, Sweden and Finland. In Iceland, the Icelandic Red Cross has responded hundreds of times to road closures, avalanches, bus accidents, airplane crashes and volcanic eruptions and assisted in Greenland with tsunami response in 2017. The Russian Red Cross has especially assisted with search and rescue in avalanches.

The National Societies have defined the areas in the scope of this study as follows:

- American Red Cross: Alaska
- Danish Red Cross: Greenland
- Canadian Red Cross: Yukon, Northwest Territories and Nunavut
- Finnish Red Cross: Lapland and Oulu area
- Swedish Red Cross: Northern Sweden
- Russian Red Cross: Murmansk and Arkhangelsk areas
- Norwegian Red Cross: Nordland, Troms and Finnmark.

3.3.1. Human Resources (staff, volunteers and international delegates)

The Arctic region is sparsely populated and communities are dispersed, which also means that the human resources of the National Red Cross Societies in the area are limited. The human resources of the Red Cross in the Arctic consist mainly of volunteers and staff in regional offices. The Red Cross Red Crescent human resources deployable for international operations should also be considered for the Arctic context.

Volunteers participate in the activities through local Red Cross branches or chapters. The Canadian Arctic does not have Red Cross branches as such, but volunteers are remote-supported from corresponding provincial offices. For example, in the case of Yukon, the support is provided by the provincial office in British Columbia and for Nunavut the support is provided by the provincial office in Manitoba. Branches are supported from district offices and the headquarters level. All of the National Societies also have staff, excluding the Canadian Red Cross, in regional or district offices, but only a few in number.

Activities at the local level rely heavily on the active participation of volunteers. As the communities in the Arctic are generally very small in their size, the number of people available as volunteers for the Red Cross is similarly small in many places. However, the survey responses and the discussions highlighted that the volunteers involved have a lot of know-how and are very well adapted to work in the Arctic conditions. Volunteers in the Arctic are members of the northern communities themselves and live their day-to-day life in the Arctic conditions. Therefore the volunteers have a lot of understanding of the conditions and the environment. It was also mentioned that the limited resources and population in the north tend to result in communities having a strong sense of community. It was mentioned in many of the interviews that the volunteers and local people have a strong willingness to work together and help. In the event of an emergency or disaster, people will most likely mobilize and provide assistance.

Knowledgeable volunteers are a great asset in many places. For example in Svalbard, the experienced Red Cross volunteers are key assets to local authorities. In Svalbard, there are many personnel

changes and people move a lot. This may mean that many of the employees have either just arrived or are just leaving. These entities rely a lot on Red Cross resources and the local knowledge that they can provide.

Volunteers are organized in different formations and teams that vary with each National Society. Volunteers perform various tasks and are trained with different skills. The Red Cross both trains volunteers in first aid and provides commercial first aid services. There are volunteers trained in first aid all around the Arctic.

Search and rescue activities are especially central in Norway, with Red Cross volunteers forming trained Search and Rescue units. Many Norwegian Red Cross branches have emergency response volunteers specifically for emergency situations. The Norwegian Red Cross has approximately 6 000 volunteers with training at least in first aid, psychosocial support and disaster preparedness. They are alerted when necessary for tasks such as psychosocial support, food supply, transportation, child minding and information distribution during emergency situations. The emergency response volunteers are a supplement to the additional resources the Red Cross may mobilize during emergency situations. In Svalbard, the Red Cross also has avalanche and glacier teams.

In Finland, first aid teams take part in organized search activities, while the actual rescue part is done through the Voluntary Rescue Service network. The FRC also has volunteers in teams of Emergency Support Services (ensihuolto), which combine PSS activities, relief and first aid. The Emergency Support Services consist of the imminent actions after an emergency including psychosocial support, information gathering, restoring family links, clothing and other material assistance, providing emergency shelter and supplying food.

Psychosocial support is a particularly strong asset in Red Cross Arctic response. Surviving major accidents and emergencies are long processes, and support in the aftermath of an incident is equally important for the recovery of the people and communities. Red Cross volunteers are trained in PSS and can provide material on PSS to support people in crises. In Iceland, for example, the Icelandic Red Cross is the main provider and coordinator of PSS.

Red Cross resources are not only limited to the number of local people involved in the activities. Many National Societies are able to deploy groups or teams when needed. The Swedish Red Cross has a national Psychosocial Support Mobile Pool of volunteers, which is deployable all over the country. The Russian Red Cross has Disaster Response teams in Moscow that can be deployed. The Disaster Response teams in Moscow have not been deployed to the Arctic but they have assisted in floods in Siberia. The Finnish Red Cross has a national Emergency Team of Psychologists consisting of professional psychologists who plan, arrange and coordinate psychosocial support in major accidents and emergency conditions by the request of and in cooperation with the public authorities.

In addition to staff and volunteers, the Red Cross also has a trained pool of delegates for international aid. Delegates are not volunteers but are remunerated for their work on missions. The personnel reserve can be joined through a week-long basic training course called IMPACT. The personnel pool contains professionals from different fields such as health, logistics, disaster preparedness, financial management, IT and communications. Aid workers for missions are drawn from the personnel reserve and can be alerted at a very short notice in case of an emergency. Delegate pools could be important also in domestic incidents.

Key figures of the Red Cross human resources in the Arctic are given in Table 3, including information on branches and volunteers. It should be noted that the numbers might not be directly comparable as National Red Cross Societies do not use similar databases or systems for managing resources or volunteers. Even more than actual databases, the difficulty in comparability is attributable to the fact that requirements for example for a first aid team or emergency response team are not

standardized. It is also hard to define the level of involvement of volunteers, as some volunteers can be more actively involved than others.

The Red Cross has a certain number of members and active volunteers in the Arctic, but the numbers itself may not convey the whole picture of the possible volunteer capacity, as spontaneous volunteers can be involved. As an example, in Greenland the number of Red Cross volunteers is quite low in some areas but in case of an emergency, the local population would most likely mobilize and offer assistance, shelter and equipment. It was noted that high-profile emergencies in particular can motivate a lot of spontaneous volunteers. Spontaneous volunteers can increase the capacity in an emergency but they need to be well managed and coordinated.

An important question in an emergency is the ability to alert volunteers. In Greenland there are volunteers trained in first aid, but no systems in place to alert them. On the other hand, in Svalbard 30 of the 60 active volunteers are usually deployable immediately. Alert systems are discussed in more detail in section 3.3.3.

Another factor to be considered in relation to the volunteers is availability due to conflicting roles in the community. This is not only characteristic to the Arctic and has been noted in general in relation to volunteer work (see Hatakka 2014), but the issue may be highlighted in the Arctic communities due to their size and lack of resources. The matter came up especially in the case of Iceland where the volunteers involved often also hold many other important roles in their communities. Volunteers can be a part of the local rescue or police force, which naturally means that in the event of an emergency the role of the Red Cross volunteer might not be the first role to assume. On the other hand, these overlapping roles can also be an asset, as good networks and connections can usually ensure a very timely and fluent information flow between the relevant actors and the Red Cross.

Figure 4 *Red Cross volunteers can take on many tasks. Finnish Red Cross volunteers checked houses from door to door and distributed water and power sources during the extensive power outage in Kainuu, Finland.*

Photo: Finnish Red Cross / Juha Hankkila

Table 3 *Available Red Cross human resources in the Arctic.*

NS	Districts and branches in the Arctic area	Offices and staff in the Arctic area	Number of Volunteers in the Arctic area	Response teams
ARC	Alaska chapter	Anchorage (Regional Headquarter), Fairbanks, Juneau, Wasilla and on Kodiak Island Staff: 17	600 in Alaska Region, 200 in Disaster Cycle Services	Response teams located in "hub" communities such as Anchorage, Fairbanks, Juneau, Mat-Su District. Teams are deployable and will respond to every disaster no matter how remote.
CRC	No branches in the Arctic as such, volunteers supported from Provincial offices	No offices or staff	No information	-
DRC	Departments in Faroe Islands and in Greenland with local branches	Nuuk, Greenland (2 paid staff) and Tórshavn, Faroe Islands	Greenland: 200 Faroe Islands: No information	No emergency response systems
FRC	District of Lapland, 23 branches District of Oulu, 44 branches	District offices in Rovaniemi and Oulu	650 trained stand-by volunteers in Northern branches	First Aid, Emergency Support Services, PSS, National Emergency Team of Psychologists
IRC	42 local branches	117 staff (20-25 trained in disaster management)	4 000 in Iceland of which 700 part of disaster services	National Disaster operation team of 50
NRC	District of Nordland: 31 branches; District of Troms: 20 branches (including Svalbard), District of Finnmark: 18 branches	District offices in Nordland, Troms and Finnmark	Nordland: 2800 Troms: 1947 (60 certified in Svalbard) Finnmark: 880	Nordland: 21 SAR units, 500 emergency response volunteers, Troms: 11 SAR units, 100 emergency response volunteers, Finnmark: 12 SAR units, 20 emergency response volunteers
RRC	Regional branches in Murmansk and Arkhangelsk	Offices in Murmansk and Arkhangelsk	1 000 active	Two groups of 15 in Murmansk and 15 people in Kirovsk, a volunteer team of 39 trained in First Aid in Arkhangelsk; Deployable disaster response team in Moscow
SRC	80 branches in Northern Sweden	National office in Umeå, staff: 10	2 000–2 500 volunteers	4 First Aid Response teams, deployable National PSS team of 40–50 members

3.3.2. Equipment and logistics

To varying degrees, the National Societies have material preparedness and equipment in the Arctic. Material preparedness in the Arctic consists of the available material in the north, material that can be transported to the area with logistical systems and the personal equipment of staff and volunteers. Operating in cold conditions requires proper equipment and protection from the elements. Logistics and transportation in the area are complicated by the long distances and poor infrastructure.

Branches in the north are generally prepared for smaller-scale incidents and day-to-day activities. In general, the National Societies have small stocks in the Arctic. In Alaska, basic disaster response supplies such as cots, blankets and shelter start-up supplies are stored in hub communities. Additional warehousing would be needed if there was a disaster that would require more than a few hundred cots and blankets. There is a lack of heated storage for equipment and vehicles. The Canadian Red Cross has very minimal stocks in the Canadian Arctic and personnel and equipment would have to be flown up from provincial and national warehouses that are significantly further south. The Canadian Red Cross has provincial and national emergency plans that are designed to be implemented anywhere in the National territory including a relief stocks for 25 000 people. The Northern districts in Finland have some small regional stocks with blankets and jerry cans, but in large-scale events they would rely on the Finnish Red Cross logistics centre in Kalkku, near the city of Tampere. The Norwegian Red Cross has depots and transportation capacity at the local level. For instance, the branch in Svalbard has a depot with glacier equipment, field kitchen, shovels, radios and other basic shelter and protective equipment. The Icelandic Red Cross has shelter supplies in 20 locations around Iceland. The Swedish Red Cross does not have warehouses or stocks in the north, but has second-hand stores in the north that could serve as possible shelters and provide clothing in case of emergencies or incidents in the north. The Greenlandic Red Cross or Faroe Islands Red Cross do not have warehouses or stocks. The Russian Red Cross has a joint warehouse with the EMERCOM in Murmansk and stock for the regional branch in Arkhangelsk for 500 families including hygiene sets and blankets.

For the most part, in case of a major accident involving a large number of people, material assistance would have to be brought from elsewhere in the country. Red Cross material readiness or resources may be limited in the Arctic, but many of the staff and volunteers have very good personal equipment. Staff and volunteers in the northern branches are prepared for and used to using arctic-proof equipment in their everyday activities. Arctic conditions maybe harsh, but it is still the everyday environment for the people living in the area. The Finnish Red Cross Lapland district noted that the district or branches may not have enough vehicles or snow mobiles for activities but they can often rely on the personal equipment of the volunteers and assume, for example, that volunteers have weather-proof clothing. In a major incident, it would be likely that people would provide a lot of their personal resources in the emergency. These resources or material are harder to map out and it would be difficult to estimate the true figures of people providing assistance and to what degree.

For many of the National Societies, the Arctic conditions are not anything extraordinary. Red Cross activities are conducted all year round in all seasons. That is why the basic equipment and materials are usually already meant to endure the demanding conditions. Equipment testing was, however, raised as a common issue. Systematic equipment testing has not really been done for the Arctic context in any of the National Societies. The ability to heat tents or the durability of the equipment in extreme cold has not been established for a lot of the equipment. It was also noted that planning for equipment testing and exercises in harsh winter conditions can be challenging due to the fluctuating weather patterns. As conditions may vary a lot, it can be very hard to predict the right kind of conditions for large-scale testing or exercises. Cold is not the only relevant condition to be considered, as Arctic conditions are more than just cold weather. Equipment in the Arctic does not only have to endure extreme cold. The Icelandic Red Cross noted that the inflatable tents used in Red Cross activities are often quite impractical in windy conditions common in the Arctic area.

Figure 5 *The Emergency Evacuation Hospital is prepared to treat 20 seriously injured patients at the same time. The EEH includes an outpatient clinic, operating room and bed space for 20 patients. The hospital can be running for a week and service up to 200 patients.*

Photo: Finnish Red Cross/ Jarkko Mikkonen

Communications systems and connectivity

Another important question regarding the functionality of the equipment is communications systems and connectivity. Communication infrastructure has gaps in the Arctic region, and particularly in Arctic maritime conditions communication systems normally used might not function. Long-term power outages are a concern in the area. In prolonged situations loss of mobile connections complicate activities a great deal. It was also noted that nowadays mobile phones run out of battery quickly and for many, this might be the only form of communication. In Iceland particularly, a volcanic eruption would complicate communication and transportation systems.

Use of radio and other communication systems would need to be considered. The Finnish Red Cross Oulu district has discussed establishing cooperation with radio amateurs to ensure connections in case of an emergency where communication failure would be a risk.

Specific tools for emergency response for the Arctic context

For Arctic-specific material preparedness, some National Societies have specialized equipment related to transport and heating. For example, the American Red Cross of Alaska has three Emergency Response Vehicles in Alaska that have insulated walls, 4-wheel drive and are suited for the Arctic conditions. The Finnish Red Cross has diesel heaters that can be used to warm up big inflatable tents. There are also two snow mobiles in the FRC Logistics Centre.

The Icelandic Red Cross and Finnish Red Cross have developed quite similar systems for relief and evacuation. The Finnish Red Cross is in the process of developing a system called the Emergency Evacuation Centre (EEC). The evacuation materials, such as inflatable tents, first aid and PSS material, mattresses and IT-equipment fit in a trailer and the unit can provide triage, first aid, relief, shelter and psychosocial support services in an emergency. Trailers can be placed in locations around Finland. The Icelandic Red Cross already has 20 relief trailers around Iceland that contain material for setting up an emergency shelter or triage centre in an emergency, including cots, blankets, food supplies and first aid equipment. The Icelandic relief trailer concept has been designed by volunteers. The Red Cross in Alaska also maintains 5 trailers of supplies, each of which contains shelter supplies, like cots, blankets, towels, hygiene products and shelter start-up kits. Each trailer holds between 50–100 cots. They are located all around Alaska in the district locations in Anchorage, Fairbanks, Wasilla and Juneau.

Some Red Cross branches have also created new tools for emergency response that are specifically meant for the Arctic context. The cold environment in the Arctic means that from the rescue point of view, hypothermia is one of the main issues in remote areas where it might take a long time for people to be evacuated in case of an emergency. The Red Cross branch in Longyearbyen in Svalbard has created and copyrighted an Arctic Survival Emergency Kit that is meant for people even with little experience of Arctic conditions to keep warm. The Emergency kits provide immediate support, warmth and windshield to protect people from the elements while waiting to be evacuated.

The Arctic Emergency Kits have two components: one consists of 5 large tents that altogether can host 150 people sitting or 60 people lying down. The tents can be heated. The other component consists of watertight bags that contain the emergency kits for 8 people and can be airdropped. There is a total of 30 Arctic Emergency Survival kits in Longyearbyen. The kits have been designed by the Red Cross Longyearbyen branch and the branch is currently the only one in possession of these kinds of kits in the area or Red Cross elsewhere in Norway. The kits were designed and tested in Svalbard in 2013–2014. The kits can de airdropped from a long-range fixed-wing aircraft and have been successfully tested with P-3 Orion and Dornier aircrafts (Marchenko et al. 2016).

Figure 6 *The Arctic Emergency Survival Kit developed by the Longyearbyen branch of the Norwegian Red Cross has protective survival equipment for 8 people packed in water-tight and airdroppable bags.*

Photo: Longyearbyen Røde Kors Hjelpekorps (LRKH)

Currently the kits can be used for smaller accidents. Volunteers can take, for example for a search and rescue operation in avalanches or glaciers, 1 or 2 bags for smaller operations. The local Red Cross branch in Svalbard works in close cooperation with the Governor's office, which has two helicopters and the Lufttransport company in Svalbard with Dornier planes. The Red Cross depot in Longyearbyen is located near the airport. It was estimated by the local branch that in case of a maritime emergency, the Coast Guard could also take the kits on vessels. The Arctic Emergency kits have worked well and are easy to use and quite self-explanatory, which ensures that people with little experience of the conditions can easily use them.

The Longyearbyen Red Cross Hjelpekorps is also in possession of a field Hospital in Svalbard. According to the interview with the Longyearbyen Red Cross branch, the field hospital is owned by the University Hospital of North Norway (UNN) in Troms, which has contracted the local Red Cross branch to store the hospital in Longyearbyen. The Field Hospital is equipped with an operating theatre and four care units and has the capacity to serve 100 people. In case the field hospital was deployed, Red Cross volunteers would most likely help set it up and coordination would come from the Hospital of Svalbard. The field hospital has only been used in exercises so far. The hospital is undergoing updating during the summer of 2018.

In addition to Red Cross equipment, many National Societies have access to the equipment and resources of other stakeholders in the event of an incident or emergency. For example in Lapland, the Finnish Red Cross does not have a lot of equipment for cold protection, but the Rescue services have very good equipment for this and in an incident where Red Cross would be assisting the Rescue services, the equipment could also be used by the Finnish Red Cross. The voluntary rescue service organization ICE-SAR in Iceland is very well equipped and Icelandic Red Cross works in close cooperation with them and can also benefit from their equipment.

Winterization of Emergency Response Units (ERU)

Six out of the eight Arctic National Societies maintain Red Cross Emergency Response Units (ERUs). These capacities have been used in disasters and emergencies all around the world but usually in a warm context. The winterization of the ERUs was brought up as a topical question for Arctic response. In the meeting in Oulu it was discussed that in their current state, the ERUs would not be convenient for the Arctic conditions. The units have not been properly tested in extreme cold conditions and the volume of the ERUs is often meant to serve a very large number of people. Many of the ERUs could mean overkill for the Arctic context where it is not as likely to have a very large mass of people affected. This, however, could be changing in the upcoming years with the cruise tourism. The main concept and purpose of the ERUs was in any case seen as something that might be needed in the Arctic as well, but the current units would have to be winterized and scaled to better serve the Arctic context. Creating smaller modules of existing capacities and resolving heating issues could be one way of modifying the units.

An interesting development was noted in Canada. The Canadian Red Cross is in discussion with representatives of the Cree Nation about the possibility of supporting the establishment of a winterized field hospital to serve indigenous communities. This could lead to further developments and enhancement of its capacity to respond to cold weather emergencies.

There are also response units that are not a part of the standardized ERU system, like the previously mentioned relief trailers and EEC. The Finnish Red Cross has also designed an Emergency Evacuation Hospital (EEH) which is a faster and lighter version of an ordinary ERU field hospital. It can be deployed in just a couple of hours from Tampere-Pirkkala Airport and upon arriving to the destination, it will be up and running in a few hours. The evacuation hospital is equipped to work up to one week and can treat up to 200 people in this time, which means that it can significantly ease the pressure on local clinics and hospitals.

Logistics

Logistical systems in the Arctic are particularly crucial due to the long distances and remote locations and often challenging transport connections. In any kind of emergency or disaster, time is of the essence, but in the Arctic setting, acting fast is particularly urgent due to the demanding conditions. As was previously mentioned, branches in the Arctic are not very well equipped for large-scale emergencies in Arctic conditions. In case of a major accident involving a big number of people, material assistance would have to be brought from other parts of the country. In Alaska, the Red Cross is prepared to respond to disasters no matter how remote. There are no formal agreements for the transportation of supplies, but the state of Alaska Emergency Management is generally able to help Red Cross transport supplies in a state disaster. The Red Cross in Alaska works with various transportation companies to get supplies where they need to be.

It was noted in the data that instead of stocking and maintaining big warehouses, many National Societies are investing in more mobile systems to provide material assistance. The Icelandic Red Cross has 20 relief trailers stocked with shelter supplies in 20 locations around the island and the Finnish Red Cross is also developing mobile trailers for setting up an Emergency Evacuation Centre (EEC). The Swedish Red Cross also has several mobile units – trucks and equipment, which may be used in the Arctic region. The Swedish Red Cross is building up its national preparedness and one of the focuses in the coming years will be to establish 10 national preparedness warehouses for Swedish Red Cross activities, with at least one warehouse located in Northern Sweden. The American Red Cross in Alaska has 5 trailers with shelter supplies in districts locations.

The Red Cross maintains second-hand stores in many places. Second-hand stores could potentially provide material assistance in case of an emergency. They could also be important as shelters for people. The Swedish Red Cross is currently preparing the northern branches to use the second-hand stores in crisis management. In the event of an emergency the second-hand stores could serve as possible shelters in Northern Sweden.

Based on the data, the Finnish Red Cross Logistics centre in Kalkku is strategically located in view of the Arctic. Kalkku is located at 61° latitudes North making it a significant logistics hub near the northern areas. It is located near Tampere-Pirkkala airport and the Logistics Centre could potentially provide rapid material assistance in the nearby areas including the northern parts of Scandinavia and Russia. The Logistics Centre handles the procurement for disaster relief and development cooperation activities and stockpiles, packs and arranges transport of relief supplies. It manages the constant readiness of ERUs and also maintains a national stockpile for disasters.

Through the harmonized response units, the Red Cross has gained a lot of expertise in efficient packing and transportation of materials and equipment. The Emergency Response Units are packed in smaller and lighter modules. The units are designed to be transported in modules that can be moved to different transportation vehicles or systems if necessary. This helps in building logistical chains that are able to reach remote places as the modules can be loaded, for example, on trucks or snow mobiles.

Figure 7 *The Icelandic Red Cross has relief trailers with emergency shelter supplies in 20 locations around Iceland. The trailers are adjusted to be as low as possible to better withstand windy conditions in the Arctic.*
Photo: Finnish Red Cross/Sini Hangaslammi

Figure 8 *The Emergency Response Units are packed and ready to be deployed from the Finnish Red Cross Logistics Centre in Tampere, Finland. The equipment is packed in smaller units that can be loaded on planes, trucks, cars or even snowmobiles.*
Photo: Reijo Hietanen

3.3.3. Databases and alerting procedures

Databases

All of the eight Arctic National Red Cross Societies have different systems to manage their capabilities, i.e. the systems are not harmonized within the Red Cross. The Norwegian Red Cross has a mutual alert system, digital member and volunteer database (DiBa), digital resource and competence database (ressurssystemet) and local disaster preparedness plans. The American Red Cross has a national database that tracks all Red Cross resources across the nation. In Canada, an Emergency Management Information System (EMIS) Is used to register and case manage all evacuees affected by the emergency. The Icelandic Red Cross has a disaster management platform that they use in cooperation with ICE-SAR. In Finland, the Finnish Red Cross uses a joint database with the Finnish Voluntary Rescue Service (Vapepa) to both map the volunteer-based emergency teams and to deliver alerts.

Alert systems/procedures

The National Red Cross Societies in the Arctic do not have special arrangements in terms of alert systems for the Arctic. Standard routines and alert systems applicable for all situations are generally used. In Norway, the Norwegian Red Cross alert system is integrated in the national notification plan, as well as the district plans. The districts are alerted from the national level if an extraordinary event takes place nationally or within the Arctic, and the district branches alert the local branches. The County Governor alerts the representatives of the county council for disaster preparedness (in which the Red Cross is usually represented). The district alerts the local branches by email or SMS. The police alert the search and rescue units locally when their resources are needed. This is done through emergency phone numbers.

In Alaska, the Red Cross maintains relationships with the emergency management across the state and nationally. The Red Cross is alerted by local emergency managers about potential threats and when response is necessary. The local disaster responders of the Red Cross contact their disaster program manager. If there is a disaster that may require scaling up with additional material and human resources, an Initial Incident Report is written and sent to the Disaster Operations Coordination Center (DOCC) at National Headquarters. When there is a response that requires a local or state Emergency Operations Center to open, the American Red Cross of Alaska staff the EOC with a Government Liaison for the duration of the activation. This ensures that the Red Cross has accurate information and coordinates the response, aligned with government.

Using mobile technology and SMS dispatches is common in many cases. The Icelandic Red Cross is mainly alerted through SMS dispatches and alerts in cooperation with 112 Iceland. 112 Iceland has information about the volunteers that can be alerted and is able to send an SMS to them. In Finland, the Finnish Red Cross coordinates and is a part of the Voluntary Rescue Service that can be alerted by the authorities. The Voluntary Rescue Service uses a new alert system OHTO, which is a text message based system for alerting different units and volunteers. The system has been taken into use in 2017 and is used in most FRC districts.

The Russian Red Cross headquarters and some of the regions have early warning systems. The Russian Red Cross cooperates and has an auxiliary role to the Russian ministry of Civil Defence, Emergencies and Elimination of Consequences of Natural Disasters (EMERCOM). Some members of the disaster management or disaster preparedness teams are rescuers of the EMERCOM and through this role get information about emergencies. Each region has a unique local relationship with the EMERCOM and authorities. The Greenlandic Red Cross does not have a system in place for alerting volunteers.

3.4. Training and capacity building

Red Cross training and capacity building for the Arctic conditions seems to be two-fold: on one hand, there is not a lot of training available dedicated specifically for the cold conditions or for action in the Arctic context because the operational context in the area is a very natural thing for the staff and volunteers in the area. In the Arctic area, the local communities and actors are used to working in cold conditions, with long distances and winter elements. On the other hand, preparing for activities and action in cold conditions usually comes as a natural component when other training is given in the working environment. Cold conditions are an integrated part of the everyday work and training conducted in the area.

Many of the trainings at the very core of Red Cross activities are also essential in the Arctic area: training for first aid and psychosocial support (PSS) is one of the main tasks of many National Societies in the Arctic. These basic trainings also build up community resilience locally. First aid training ensures that a number of volunteers and people are qualified in first aid in the Arctic region. Basic first aid training also deals with questions of cold weather and dangers specific to cold environments like frostbites and hypothermia.

A specialized Arctic First Aid programme has been developed in Greenland. The Greenlandic Red Cross (Kalaallit Røde Korsiat) works under the umbrella of the Danish Red Cross, which means that most of their training material also comes from the mainland. However, it was noticed in Greenland that the material does not take into account the special conditions in Greenland. This was the starting point for the creation of the Arctic First Aid guide, which is a comprehensive guide on first aid in Arctic conditions. The Arctic First Aid guide explains the basic principles of first aid but also has additional sections, for example, on preparing for nature hikes, equipment lists for Arctic conditions, predicting wind and weather conditions, extensive guidance for the treatment of hypothermia and frostbites, extreme situations like surviving avalanches and digging snow caves for survival. The Arctic First Aid guide also deals with Arctic-specific incidents such as encountering a polar bear.

Although most of the National Societies indicated that they do not have specialized training programmes or modules for the Arctic, they do have regular trainings and exercises that take place during wintertime and in conditions that can be characterized as Arctic: cold, windy, dark, remote, etc. A lot of experience and know-how on operating in Arctic conditions is acquired through these regular trainings. Alongside basic training for first aid and search and rescue, different National Societies give scenario-specific training for specific incidents or hazards related to the Arctic context. The National Societies build up resilience and the citizens' own capacity to act in case of emergencies. Community resilience is strengthened by first aid and PSS trainings. In Finland and Iceland, the National Societies highlight the ability of how to survive 72 hours with your own supplies. In Alaska, the Red Cross instructs the communities to be prepared for a week.

The Norwegian Red Cross has specific training for Search and Rescue in avalanches and water rescue. There are over 300 local units (hjelpekorps) in Norway trained to assist with search and rescue, first aid and evacuations all over the country. The districts assist the local branches with planning and implementing exercises at both local and district levels. The local branches and the search and rescue units participate in exercises organized by the municipality governments and the police. Furthermore, the local search and rescue units practise regularly to maintain competence. Some local branches have alpine search and rescue units that train specifically on rescue in steep mountain terrain. The district branch also arranges table-top exercises for the local branches.

In Svalbard, the Longyearbyen Røde Kors Hjelpekorps has added more specialized training for the conditions in Svalbard, including features relating to meteorology, avalanches, glaciers and polar bears. The courses are organized in accordance with the Norsk Fjellsportforum educational system. The training includes an obligatory 40-hour first aid course and offers basic and advanced courses in avalanches and glaciers. Additionally, volunteers are expected to acquire local know-how of the

conditions and the environment themselves, and people applying for the special teams need to list their previous experience for example in climbing or their winter camping experience. There are certain trainings that have to be passed in order to become a certified member. These trainings are arranged every year in Svalbard from August to March. The Longyearbyen Red Cross branch also has avalanche and glacier training with the Governor's Office in Svalbard each year. In Finland, the Finnish Red Cross trains volunteers for ski-patrolling services in ski resorts. The teams provide first aid for people injured in ski slopes.

The limited resources in the Arctic call for shared exercises with local authorities. The National Societies have joint training with different authorities and build up their capacities in this manner. The Russian Red Cross has an auxiliary role to the EMERCOM in disasters and trains regularly with the EMERCOM. The Finnish Red Cross has regular exercises with the authorities and takes part in national preparedness exercises, also as a part of the Voluntary Rescue Service. In Finnish Lapland, a National Rescue Service Seminar has been arranged 26 times between the years 1988–2017. The seminar programme includes knowledge-sharing between safety authorities, the private sector and volunteer organizations as well as exercises. Red Cross volunteers in Lapland have taken part in the seminars as a part of the Voluntary Rescue Service. The theme of the latest seminar held in 2017 was the role of volunteers supporting authorities and the special know-how related to this in Lapland. The exercises over the years have offered a variety of major accident scenarios, such as air crashes, bus accidents and large-scale fires.

In Iceland, the Icelandic Red Cross has regular exercises for air crashes in small rural areas, bus accidents and volcanic eruption exercises. There are a lot of table-top exercises related to realistic scenarios and high-risk incidents in the headquarters and with branches. The Icelandic Red Cross has a lot of pre-disaster planning and exercising. In Iceland, the resources of all the relevant actors are very limited, especially in the most remote areas of the island. A rural air crash exercise in Bíldudalur, in the Westfjords is discussed in more detail in section 3.7. as a case example of emergency response in remote areas and cooperation between stakeholders with limited resources.

The Red Cross has taken part in large-scale exercises in the area. The Canadian Red Cross has to varying degrees taken part in the Operation Nanook, which is an annual military exercise of the Canadian armed forces and the Canadian Coast Guard. The Red Cross has also taken part in international cross-border exercises. The Finnish Red Cross has participated in the biannual Barents Rescue Exercises. The Emergency Evacuation Hospital concept has been exercised and tested in Barents Rescue Exercises, most recently in 2015 in Kittilä, Finland. The Norwegian Red Cross participates in total defence exercises at the national level, such as the NATO Trident Juncture 2018 exercise.

As of today, the Red Cross does not have a common training programme dedicated to operations in the Arctic. In the Red Cross Arctic Disaster Management seminar, a common interest was shown for establishing a Regional Disaster Response Team (RDRT) training and teams in the Arctic. National Societies coordinated by the IFRC have Regional Disaster Response Teams (sometimes referred to as Regional Intervention Teams or RIT), which is a regional disaster response tool aiming at actively promoting the building of regional disaster management capacities.

3.5. Cooperation and coordination in the Arctic

It was very apparent in all the survey responses, interviews and discussions that cooperation and coordination in the Arctic is vital. None of the actors or stakeholders in the Arctic could say that they have adequate resources to be prepared for all possible scenarios in the Arctic. Therefore, cooperation in all sectors is essential.

Fluent coordination of actions is important in situations where different actors with different mandates work together. That is why agreements between the various actors clearly defining these roles and mandates can significantly streamline the cooperation. Often agreements are not in place or their scope is exceeded. In these situations, actions are often taken over in an ad hoc manner. This might not be a problem in all situations but in the worst case hinder the action or create barriers to it.

The following section will go through the different cooperation agreements and arrangements in the Arctic within the International Red Cross and Red Crescent Movement and with relevant partners.

3.5.1. Cooperation within the International Red Cross and Red Crescent Movement

Cooperation within the Red Cross Red Crescent Movement in the Arctic varies at different levels, with not a lot of institutionalized cooperation. Certain districts and branches have cooperation at the grass-root level. For example, a joint emergency first aid service is arranged annually for a cross-border ski race by the Kautokeino branch on the Norwegian side and Enontekiö branch on the Finnish side. The Icelandic Red Cross has a close relationship with the Red Cross in Greenland with a memorandum of understanding (MoU) concerning youth services and vulnerability assessment. There is branch-to-branch cooperation with the branch on the eastern coast of Greenland closest to Iceland.

A few examples of sharing of good practices and joint trainings among National Societies came up. Good experiences have been gained by the Norwegian and Russian Red Cross. The Norwegian Red Cross has arranged a joint training on SAR in avalanches for the Russian Red Cross. In 2018, the Finnish Red Cross invited the Swedish Red Cross to take part in first aid team leader training for Swedish-speaking volunteers for the first time.

There have been more active and institutionalized patterns of cooperation in the past between the National Societies in the north. In the 1990s and early 2000s, the Swedish, Norwegian, Finnish and Russian Red Cross had cooperation under the Northern Cap programme. The collaboration included joint meetings and youth activities, including summer camps. There was also an assistance element targeted at the northern branches in Russia. In recent years, this cooperation has faded and regular meetings have not been held. One of the reasons was believed to be the strong person-centered quality of the cooperation: the cooperation has faded when the active people have changed.

It was noted that international cooperation between the National Societies needs to be well organized and coordinated in advance for it to work efficiently. There might be legal barriers or restrictions that affect the operations. The health sector was especially mentioned, as there might be strict regulations related to the permits of health professionals to work in another country.

The IFRC and the National Societies work together in Arctic matters. The International Federation of the Red Cross and Red Crescent Societies has had observer status in the Arctic Council since the Barrow Ministerial meeting in 2000. Since then, the IFRC has been dealing with a dramatic increase in humanitarian needs globally: wide-spread conflicts, especially the Syria conflict in the Middle East, the Ebola epidemic in West Africa and large-scale migration have dominated the humanitarian landscape in an unprecedented way. This has contributed to the fact that IFRC has not been able to en-

gage in the work of the Arctic Council in a very active manner. During the Finnish chairmanship of the Arctic Council in 2017–2019 it was agreed that the Finnish Red Cross represents the IFRC in the observer role in the Arctic Council meetings and working groups. According to the feedback, this arrangement has been perceived to be effective by the National Societies and the IFRC. It also brings the National Red Cross Society closer to the Arctic Council Chairmanship country, reinforcing wider cooperation.

3.5.2. Cooperation and agreements with authorities

Close and fluent cooperation with public authorities is an important factor for most of the National Societies operating in the area. All the National Societies work in close cooperation with different authorities, but the degree of contracts and agreements regarding these activities is very different. Some have formal, written agreements that clearly define roles and responsibilities. Some National Societies work from a more ad hoc based approach in situations and the cooperation is based on more informal handshake deals.

The Norwegian Red Cross has cooperation with the government, army, directorates, police, health and civil protection, department of justice and disaster preparedness. At the local level, the branches have close cooperation with County Governors. Branches have cooperation agreements with municipalities at the local level. Local branches are encouraged to sign cooperation agreements with the local municipalities on disaster preparedness. The agreements are specific and include, among others, the number of Red Cross volunteers available for extraordinary situations, the volunteers' competences (first aid, search and rescue, language, psychosocial support, etc.), and the available equipment the Red Cross can contribute with. In addition, many local branches have emergency response volunteers specifically for emergency situations.

The Icelandic Red Cross has a MoU with the Ministry of Justice on civil protection. The role of the Icelandic Red Cross is outlined in the Civil Protection Act. The Icelandic Red Cross, along with the Search and Rescue organization ICE-SAR, is described as the backbone of Icelandic civil protection. According to the Civil Protection Act, the Icelandic Red Cross is able to take over municipal buildings in evacuation situations and disasters. The Icelandic Red Cross is the primary provider of shelter in Iceland. In each police district local branches make local agreements with the municipalities, which formalize the nationwide agreement in each district. The Icelandic RC has agreements with all the relevant authorities in PSS including the directorate of health, national hospital in Iceland, national commission of the police, municipalities and the Lutheran church. The Icelandic Red Cross coordinates PSS nationally. The IRC has also acted as a liaison to foreign embassies when responding to accidents or emergencies involving foreign nationals.

The Russian Red Cross has main cooperating agreements with the Ministry of Emergency Situations (EMERCOM) at the Federal level and all regional branches have local cooperation agreements with the EMERCOM in their regions. Arkhangelsk and Murmansk regional branches of the Russian RC hold joint simulations and trainings with the EMERCOM.

In Alaska, **the American Red Cross** has partnerships with the Department of Health and Social Services that provide trained nurses and mental health clinicians for the shelters when needed. The ARC trains local government and community members to run shelters, cooperates with State Emergency Management, e.g. Department of Health and Social Services and Division of Homeland Security. There is also cooperation with the Federal Emergency Management Agency (FEMA). The Red Cross has access to FEMA-trailers in the event of a disaster. The American Red Cross does not participate in search and rescue.

In Canada an agreement has been discussed with the Government of North West Territories. Discussions are beginning for preparedness/emergency response in the Arctic region. There are also ongoing discussions with Public Health Canada to prepare for a potential ERU deployment (Emergency field hospital).

The Danish Red Cross has a cooperation agreement with the Ministry of Foreign Affairs for international response and for support for Danes in a crisis abroad. There are also cooperation agreements with the Ministry of Defence and DEMA, the Danish Emergency Management Agency. The Red Cross in Greenland has good connections with local authorities. The Faroe Islands Red Cross is discussing a cooperation agreement with the national rescue organization on the Faroe Islands.

The Swedish Red Cross is going through an extensive scaling up of its national preparedness. As a part of this, the Swedish Red Cross is looking to authorities for cooperation and defining its role in disaster management. In the coming years, the Swedish Red Cross is focusing on making the Swedish Red Cross more visible for civil society and the authorities.

The Finnish Red Cross has agreements or Memorandum of Understanding (MoU) type of documents with authorities at three levels: national, district and local level. Agreements and MoUs can cover cooperation at a general level or on a case-by-case or scenario basis. For example, the FRC has an agreement with the Finnish Immigration Service for large-scale influxes of immigrants. The FRC has MoUs with the Ministry of Social Affairs and Health and with the Ministry of the Interior. FRC districts have agreements with, for example, rescue departments. FRC branches have contracts with municipal social and health authorities, for example regarding psychosocial support services. As the coordinator and a part of the Voluntary Rescue Service network (Vapepa), there is a nationwide agreement with the National Police Board. The signatory is the Finnish Red Cross because the Voluntary Rescue Service is an informal network without the right to sign contracts. Making a formal agreement with rescue services has been discussed in Lapland, but the processes have not taken headway yet. The FRC cooperates with various authorities also outside the written agreements and MoUs.

The Finnish Red Cross is also included in the cooperation plan for the preparedness for multisectoral maritime accidents called MoMeVa[17]. The plan outlines the roles of different actors in a major maritime accident or multisectoral accident. The Finnish Red Cross is also included in the SAR Coordination Committee that brings together Finland's maritime SAR authorities and key volunteer organisations. The cooperation plan is updated by the SAR Coordination Committee that supports the Border Guard Headquarters in the planning, development and monitoring of maritime SAR.

An extensive administrative reform will take place in Finland in the upcoming years. The regional government reform is meant to centralize different functions into clear, autonomous regions – counties – and rearrange the roles and responsibilities of municipalities and counties. In the interviews with the Finnish Red Cross it was indicated that more contracts will most likely be negotiated as a result of the regional government reform. However, it was brought up in the interviews that written and binding contracts present challenges because Finnish Red Cross activities are based on volunteering. It is therefore difficult to give exact numbers of capacities and capabilities available.

As an example of bilateral cooperation with the administrative sector, the Finnish Red Cross started cooperation in 2017 with the Finnish Border Guard, which coordinates the SARC project that aims at developing practical level cooperation connected to Arctic maritime safety. The project also supports the Finnish Chairmanships of the Arctic Coast Guard Forum (ACGF) and the Arctic Council in 2017–2019.

17 Monialaisiin merionnettomuuksiin varautumisen yhteistoimintasuunnitelma (MoMeVa). www.raja.fi/ohjeita/sar/momeva.aspx

Cooperation with public authorities is crucial in the Arctic context. The interviews and the survey mostly indicate that information flow between the authorities and the National Red Cross Societies is fluent and timely. In Norway, the district branches have close cooperation with the County Governors and therefore receive information when crises occur. At the local level, the local branches often have close cooperation with local governments which secures regular information flows. In Iceland, the Red Cross gets the message at the same time as other responders. In Russia, some of the presidents and staff of regional branches are members of the EMERCOM and have necessary information about an emergency in time. In Finland the cooperation with rescue services, police and social and health services is straightforward and timely. In sparsely populated areas close personal relationships are also important, which can have both positive and negative effects.

3.5.3. Cooperation with NGOs

Cooperation and building networks with relevant non-governmental organizations in the Arctic can build up preparedness through sharing resources and knowledge. The National Red Cross Societies are involved in various forms of cooperation and networks of NGOs in different sectors.

In Iceland, the Icelandic Red Cross has close cooperation with ICE-SAR, the Icelandic Association for Search and Rescue. The ICE-SAR is an association of about 100 voluntary rescue teams located throughout Iceland. The teams are highly trained and specialized in SAR operations on land and at sea. The ICE-SAR also has units and boats, among them 14 all-weather rescue boats for maritime emergency operations. The network of high-speed rescue-boats are meant for emergency response operations but can also be made available for coast guard duties if needed. The ICE-SAR is composed of numerous volunteer rescue workers and is financed mainly by voluntary donations (Geirsson 2011, 12, 43.) Both organizations are partners of the Civil Protection Act in Iceland. According to the Icelandic Red Cross, ICE-SAR puts a lot of effort on training in very harsh conditions and is very well equipped for Arctic response. ICE-SAR has also participated in exercises off the coast of Greenland with the Danish navy. Learnings from these exercises have also been shared with the Icelandic Red Cross. The Icelandic Red Cross has a disaster management platform that is used in cooperation with ICE-SAR and the Icelandic Civil Protection. Other than the cooperation with ICE-SAR, the Icelandic Red Cross does not have nationwide agreements with NGOs but local agreements or MoUs on assistance exist.

According to the Russian Red Cross, there are no NGOs or public organizations besides the Russian Red Cross that would work in the sphere of preparedness in the Arctic in Russia. These questions are supervised by the EMERCOM in the region.

In Finland, the Finnish Red Cross is a part of the Voluntary Rescue Service, a network of 52 organizations whose emergency teams support the authorities when accidents or other crises occur. In most cases, the Voluntary Rescue Service is called in to search for a missing person but volunteers are also needed to provide psychosocial support and first care /relief, control traffic or assist with evacuations. The Finnish Red Cross is the main coordinating organization for the Voluntary Rescue Service, with the coordination responsibility for the network operations related to general rescue service. In the realm of the Voluntary Rescue Service, there are agreements with the National Police Board. In addition, the Finnish Red Cross works closely with social and health care organizations in Finland. The FRC coordinates, in accordance with the MoU agreed with the Ministry of Social Affairs and Health, on how voluntary teams from social and health care organisations are deployed in severe disturbances. Cooperation is also carried out with voluntary defence organizations. To operationalize this aim, the Finnish Red Cross also has a Community resilience project in 9 northern branches in Finland that aims to bring together different organizations on health and social activities that are not a part of the Voluntary Rescue Service network. The aim is to build local resilience and everyday safety and find out how to utilize the assets and know-how of different organizations in an emergency situation and build up well-being and safety networks locally.

The Finnish Red Cross cooperates with voluntary organizations in an oil spill response project. The project aims to support public authorities by forming regional volunteer teams that work with authorities in oil spill response on the shore. The project is coordinated by the Finnish Red Cross and conducted by volunteer organisations under the Voluntary Rescue Service umbrella including WWF, the National Defence Training Association of Finland, the Finnish Air Rescue Society and the Finnish Lifeboat organization.

The Greenlandic Red Cross has a lot of informal cooperation with NGOs working in Greenland. As there are not so many people there, contacts are easy to establish and some of the NGOs in Nuuk work in a shared office. The NGOs are mainly working in the field of human rights and child rights.

In Alaska, the American Red Cross is actively involved with many voluntary organizations. The strongest collaborative relationship is with the Salvation Army. The Red Cross in Alaska is the lead in sheltering in the state and Salvation Army is the lead in feeding. The Red Cross contacts the Salvation Army in Alaska when they have opened shelters and the Salvation Army provides feeding there for the duration of the disaster. The Red Cross is involved in the national VOAD[18]. Each of the organizations has a specific role in disaster relief and recovery. The Alaska VOAD meets monthly. At the moment, the Salvation Army is the chair and the Red Cross is the vice-chair.

Many environmental organizations, such as WWF, are active in issues relating to the Arctic region, but apart from the oil spill project in Finland, cooperation with environmental organizations did not come up in the data.

3.5.4. Cooperation with private sector

Cooperation with the private sector varies in the National Societies. Most often, cooperation with the private sector takes place at the local level through cooperation and agreements with local stores or companies providing assistance in the event of an emergency or crisis.

Airlines and aviation companies are important partners for many National Societies. In Iceland the IRC has cooperation with Icelandair and Air Iceland. Isavia, the national airport operator arranges exercises in Iceland in cooperation with different organizations and authorities. In Finland, the FRC has cooperation with the national air carrier company Finnair concerning the deployment of the Emergency Evacuation Hospital. Finnair arranges the first possible plane for the hospital equipment and staff. Another main partner is Helsinki and Uusimaa Hospital District and its MEDEVAC (medical evacuation) team and coordination. In Alaska, a Home Fire campaign has been promoted with RAVN air. The Swedish Red Cross has cooperation with SVEDAVIA on providing PSS services at airports and with Viking Line on ferries between Sweden and Finland. The Canadian Red Cross has partnerships with key suppliers in airlift, shipping and food.

The Icelandic Red Cross also has cooperation with other transport companies, and for example can transport donated clothes with Eimskip ships free of charge. This cooperation has been ongoing for 20 years. The IRC also has cooperation with companies like Land Rover. Land Rover cooperates globally with the Red Cross Red Crescent Movement. Previously, Land Rover had a co-operation agreement with the IFRC. In the Arctic region, Land Rover has donated SUVs to the Icelandic Red Cross. In addition, the Finnish Red Cross worked together with the Tajikistan Red Crescent on a community-based health and water project funded by Land Rover. The Russian Red Cross has cooperated with Coca-Cola in setting up a warehouse in Arkhangelsk.

18 The National Voluntary Organizations Active in Disaster (VOAD) is an association of organizations that mitigate and alleviate the impact of disasters and is a forum for promoting cooperation, communication, coordination and collaboration of organizations and aims for a more effective delivery of services to communities affected by disaster.

The National Red Cross Societies in the Arctic region cooperate with the tourism sector. Cooperation can be formal or it may be reactive. The Red Cross cooperates, for example, with tourism companies in case of search and rescue operations of missing tourists. Cooperation with the tourism sector is important. Local people are well prepared but the people unfamiliar with the area can be a different thing. As the Icelandic Red Cross noted, local Icelanders know the weather conditions and stay at home when the conditions get too rough. Tourists, on the other hand, might not be accustomed to the conditions, are not familiar with the early warning systems or simply just refuse to follow the guidelines. Finnish Red Cross representatives noted that many of the tourists in Lapland are not well prepared and, for example, in the case of a tourist bus accident the affected people might not wear appropriate winter clothing. In these cases, it would be helpful to collaborate with local businesses and, for example, the Red Cross could turn to tourist offices and snow mobile safari enterprises for larger amounts of snow suits or warm clothes.

Finding common ground and solutions with relevant actors in the Arctic is important in order to find new innovative ways to work in the challenging Arctic conditions. For example, the Finnish Red Cross has started cooperation with Arctia Ltd, a Finnish state-owned company that provides ice breaking services and other multipurpose vessel services. Future cooperation could involve equipment testing in Arctic conditions and exploring the possibilities of utilizing FRC know-how and experience in medical units on the icebreakers in the Arctic.

Many National Societies have good relations with local businesses and companies. In Norway, the Norwegian Red Cross has cooperation with the private sector with local variations. Some of the local branches in Finland have agreements with local stores to collect supplies at any time if needed. In Greenland, there are no formal agreements with the local stores and businesses but as the community is so small, good relations are easy to maintain and assistance can be asked for when needed.

3.6. Long-Term Programmes

Most of the National Societies have some kind of long-term programmes in the Arctic or northern parts of their country. Long-term programmes can either be national projects or programmes (core activities of the NS) or involve another Red Cross family member and/or external donors.

The Swedish Red Cross mostly has social programmes, second-hand stores, first aid assistance in local events and PSS in the north as well as integration programmes and activities. The Norwegian Red Cross has cooperation between district branches, twinning cooperation across national borders, health transportations, first aid assistance in local events and rescue boats. In Alaska, the Home Fire Campaign has proved to be successful. It is a nationwide campaign with the goal of reducing home fire fatalities and injuries by 25%. Since the campaign's inception in 2014, 7 000 smoke alarms have been installed across communities in Alaska. It has been impactful and welcomed.

The Canadian Red Cross has a variety of long-term programmes in the Arctic focusing mainly on social emergencies in the Arctic, including programmes like Ten Steps planning and community resilience work, Sexual Abuse Prevention, Human Rights and Diversity, Nunavut Mental Wellness and Suicide Prevention, Nunavut Health - Psychosocial Research on Pathways to Wellness through Red Cross programs, Nunavut: Research Respect Education, Nunavut Justice Department Ten Steps planning, Nunavut Justice Department First Aid and Water Safety.

The Icelandic Red Cross has community-based programmes in Iceland, but also in Greenland related to a vulnerability assessment project, youth services and branch development. In Russia, the Russian Red Cross holds sessions for students and school children on prevention of frostbite and right rules of conduct in cold conditions. In Finland, the FRC has for several years run a community resilience project in the northern branches funded by an external donor which aims to bring together different organizations on health and social activities as well as on disaster preparedness and response. The

project has aimed to build local resilience and everyday safety and to find out how to utilize the assets and know-how of different organizations in an emergency situation and build up well-being and safety networks locally.

The indigenous population is a significant feature in the Arctic, but cooperation with the indigenous communities and organizations varies in different National Red Cross Societies. The American Red Cross in Alaska works very closely with the indigenous communities. Communities are encouraged to have some of their village members to be trained in Red Cross disaster response activities such as sheltering and casework. Red Cross in Alaska is welcomed to the villages when there have been disasters and as an entity independent of the government, the participation has been well received. The Canadian Red Cross has agreements and ongoing relationships with over 200 indigenous communities countrywide, covering the whole spectrum of the Canadian Red Cross activities, but focusing on prevention and safety, emergency evacuations and safety and well-being. The Swedish Red Cross has previously worked on human rights as they apply to the Sami population but has no current programmes in this field at the moment. Formalised relationships or cooperation with indigenous communities did not come up particularly strongly in the data.

3.7. In-depth case examples

To provide deeper understanding of the ways the Red Cross contributes to disaster response in the Arctic region, the following section presents three in-depth case studies describing Red Cross activities in accidents or disasters. The cases have been chosen to best illustrate the various scenarios the Arctic region can face. Another criterion has been topicality. Two case examples took place at the time of writing the study (long-term power outage in winter conditions in Kainuu, Finland, and a tsunami in Greenland). The third case example is a traffic accident, which can be one of the severe risks in the region. Case studies highlight operational models but also issues for development.

Finnish Red Cross and the relief operation in a long-lasting power outage situation in a rural part of Finland in January 2018
– Finnish Red Cross approach to comprehensive preparedness

The Finnish Red Cross defines comprehensive preparedness as the flexible use of all the resources and capacities of the organization in the management of incidents or emergency conditions and the recovery phase. Comprehensive preparedness is based on human resources, know-how, material preparedness, systems and processes and the ability to channel and manage the willingness of people to help in the activities. The preparedness is built on expertise, volunteering, cooperation with the authorities and NGO network (FRC 2017). A topical example of FRC comprehensive preparedness is the relief operation in Kainuu, Finland in January 2018. Large-scale power outages due to heavy snow in the area mobilized Finnish Red Cross local branches, the district level, headquarters and the FRC Logistics Centre.

At the end of year 2017 and the beginning of 2018, heavy snow was causing extensive power outages in Kainuu in eastern Finland. The heavy snow was causing large trees to bend and eventually fall on power lines and roads. The area is used to short term power outages but a power outage of this scope and in winter conditions was a new situation in many ways. The power outage was exceptional both in its scope and length. On 30 December, 6 600 households in the area were without electricity. The area is sparsely populated and repairing the electricity network takes time.

Red Cross action in the situation started from the local level. As the situation in the municipalities was getting dire, local Red Cross branches responded by working closely with the municipalities and the social and health services. In the municipality of Hyrynsalmi, most households in the municipality were without electricity during the days following the Christmas holidays. The focal point for domestic preparedness of FRC Hyrynsalmi branch contacted the chairperson of the municipal council

for further action. It was decided that the Hyrynsalmi municipality building would be opened for the public to distribute water and to offer washing facilities and shelter if needed. This information was distributed through the social media and the Red Cross Facebook page. In the situation, the responsibility of the Red Cross was to provide immediate relief and shelter and to distribute food. In the following days the FRC acquired mattresses and ensured 20 beds from local businesses in the municipality for emergency accommodation. As the prolonged power outage continued, the rescue services and municipality decided to check the houses from door to door. At first FRC volunteers contacted all the houses with inhabitants over the age of 75. Later the volunteers checked the houses that had been without electricity over 12 hours and distributed water and backup power sources to charge mobile phones.

A task force was established in the Hyrynsalmi municipality. It met three times a day to get an update on the operation. A representative of the Red Cross branch was also present in the meetings. Other representatives included municipality officials, representatives of the social and health care district, the agricultural officer and the rescue department. The fact that Red Cross was a part of the task force ensured a timely and fluent information flow to the Red Cross. The FRC Hyrynsalmi branch had also built strong and good relationships with the municipal administration during the large-scale entry of asylum seekers in 2015 and the establishment of a reception centre in the municipality. This further facilitated the fluent flow of information and straightforward communication.

The FRC Kajaani branch also raised their preparedness and contacted response units to map out the availability. The branch was ready to take action in case the rescue services would have made the request. The branch in Kajaani also took care of communications and received, unloaded and distributed material assistance sent from the FRC Logistics Centre. Branches in the area worked together.

The Red Cross branches were supported by the FRC district and headquarters. The headquarters informed the Oulu district office of the possibility to send material assistance from the FRC Logistics Centre in Tampere. Needs were mapped out and a truck was dispatched from the Logistics Centre with 7 aggregates, 1 080 water cans, 800 mattresses and 840 blankets. The truck was unloaded at the Kajaani branch by 12 volunteers. The material was distributed from Kajaani to nearby municipalities according to the needs. Red Cross activities were run by existing Red Cross volunteers but new volunteers also joined in the effort.

During the grid disruptions, the electricity network company in the affected area requested assistance from the Finnish Defence Forces but for legislative reasons they were not able to respond to requests from private companies. Only after the Rescue Services of Kainuu took the lead in the operation, assistance could be requested from the Defence Forces that then provided, among others, proper vehicles to access the areas with problems with the power lines.

The Red Cross relief operation in Kainuu was an opportunity for the branches and district office to assess Red Cross activities in this kind of situations. The Finnish Red Cross branch and district representatives noted that the distribution of water was identified as a critical challenge. The lack of water dishes and containers was a problem. Communication was another critical point. The Ministry of Transport and Communication made sure that the cell phone connections worked and the mobile phone masts were powered. The failure of communications systems would have been detrimental in the situation.

The situation was new to the FRC branches and the process involved a lot of learning along the way. The Hyrynsalmi branch was proactive and had around 10 active volunteers that took shifts. The reception from the municipal authorities was very positive and the action and activities of the Red Cross were perceived as very beneficial and essential in supporting the authorities. Cooperation between the authorities and Red Cross staff and volunteers was mostly fluent. According to the Hyrynsalmi branch, the situation and process was quite similar to the aid the Red Cross provides in a fire but the scale of the action was significantly bigger. Social media proved to be an important tool in

the operation. The message on the Facebook page of the local Red Cross branch was the first information on the situation for many actors in the municipality and also in the adjoining municipalities that were also suffering from the power outage.

Based on the experiences of the branches and district office, the relief operation in Kainuu appears to be an example of the comprehensive preparedness of the Finnish Red Cross. The ability to act in the situation was based on the local human resources in the branches but also on the support provided from the district and headquarters level. The know-how and the connections of the local volunteers were a key element in the operation. The material preparedness in the Red Cross Logistics Centre was deployed for the use of the local branches. Cooperation with authorities was mostly fluent and the municipal authorities gave positive feedback to the branches for their assistance and for the significant role that volunteers played especially in contacting dwellings.

The local rescue departments did not alert the Red Cross branches. Instead, the Red Cross branches themselves were very proactive. Nearby branches raised their preparedness and would have had around 20 volunteers ready for deployment if the authorities had requested. The example of Kainuu also showed the strength of the Red Cross in the ability and experience of coordinating volunteers and being able to receive spontaneous volunteers that become active when an incident occurs. The municipal authorities noted that the efforts of Red Cross volunteers were very helpful to them, especially in tasks that required a lot of people.

The Greenlandic Red Cross and the tsunami operation in June 2017 – Bringing in external assistance for emergency response

In June 2017, a huge land slide in a fjord in Nugaatsiaq on the west coast of Greenland caused a 90-meter tsunami. The tsunami caused damage in nearby villages, washed away eleven houses and left four people missing, presumed to be dead. The tsunami was presumed to be caused by a large rock that had plunged from a steep side of the fjord into the water also shattering chunks of glacier. This caused the water to be pushed more than 90 meters along the coastline. [19]

The Greenlandic Red Cross was involved in distributing relief in the affected villages. According to the Greenlandic Red Cross, the situation was handled by the Greenlandic Red Cross with the best ability they had. Overall, it was noted that none of the actors in Greenland were well prepared or geared for this type of event. Landslides and smaller scale tsunamis happen in Greenland but very rarely have human consequences. The Greenlandic Red Cross does not have any emergency preparedness activities in Greenland, which meant that external assistance was needed. Delegates from the Icelandic and Danish Red Cross were deployed to Greenland. Their main tasks included planning and assisting with distribution of relief in the villages.

The Arctic challenges of remoteness and long distances were particularly evident in the case of the Greenland tsunami. The municipality in question has one of the largest geographical areas in the world but very few people or resources in the area. Transportation is extremely limited, with no road connections and difficult access for boats. The Greenlandic Red Cross followed the situation from Nuuk 3 000 kilometers away, which posed challenges to the information flow.

The Icelandic Red Cross noted that the operation in Greenland was hindered by the lack of civil protection assets in the area and the lack of clear contingency plans. The roles and responsibilities of the Red Cross and the municipality were not always clear in the operation. The Icelandic Red Cross has cooperation with the Greenlandic Red Cross and a MoU on youth services and a vulnerability assessment project.

19 Schiermeier, Quirin. "Huge Landslide Triggered Rare Greenland Mega-tsunami." Nature 2017. https://www.nature.com/news/huge-landslide-triggered-rare-greenland-mega-tsunami-1.22374

There are no agreements on disaster services, and the tsunami operation was conducted from an ad hoc base. The Icelandic Red Cross noted that in the future disaster management capacities in Greenland should be scaled up.

In the case of the tsunami, the Greenlandic Red Cross waited to have a request from the communities in the north to provide assistance before reaching out to sister organizations for outside assistance. It was important to consider the local communities and the Greenlandic Red Cross did not want to overrule the local community by bringing in outside help if it was not sought after. In hindsight, the Greenlandic Red Cross estimated that one of the lessons learned in the operation was that the Greenlandic Red Cross should appeal for outside assistance from sister RC organizations much sooner. As the Greenlandic Red Cross does not have emergency preparedness activities in Greenland, they lack experience of an operation of this nature and the leadership required. National Red Cross Societies with emergency response experience are essential in providing support to the Greenlandic Red Cross in the coordination and leadership of the operations.

The Icelandic Red Cross and the rural air crash exercise in Bíldudalur – Building capacities to respond to major accidents in remote areas

In remote areas, cooperation between different authorities, local communities and other stakeholders is key in maintaining preparedness for emergency response. In Iceland, the Icelandic Red Cross trains regularly with relevant actors in rural areas.

The Icelandic Red Cross took part in a rural air crash exercise in Bíldudalur in May 2018. Bíldudalur is a village situated in the Westfjords of Iceland. Five kilometres south-east of the village is the Bíldudalur airport that has six weekly-scheduled flights between Bíldudalur and Reykjavik. Bíldudalur airport consists of a single airstrip and a small terminal building. The rural air crash exercise in the Bíldudalur airport is part of regular exercises that Isavia, the Icelandic airport operator, hosts in all the airports around Iceland. Exercises are held at each airport every four years. The scenario of the exercise in Bíldudalur was a BEECH 1900 aircraft crashing with 20 passengers at the airstrip.

Technically, the exercise consisted of briefing before the actual exercise, a table-top exercise, live exercise and debrief after the exercise. On two nights before the exercise, relevant actors and volunteers gathered to a community centre in Patreksfjörður to get briefings on the scenario, triage and general information related to the exercise. A table-top exercise was held at the local police station a day before the exercise. The scenario was ran through several times, which built up the confidence of the sector coordinators who were all in the position for the first time.

The actual exercise took place on 5 May in Bíldudalur. Relevant actors in the exercise were the voluntary search and rescue organization ICE-SAR, Isavia, representative of the National Hospital of Iceland, representatives of the Civil Protection authority of Iceland, local police, local health professionals, fire brigade and the Icelandic Red Cross. Two days before the exercise the 112 Iceland had also sent out alert messages to test connectivity. All Red Cross volunteers had received the messages.

10 Red Cross volunteers took part in the exercise. A special feature to be noted was that 2 of the volunteers were Polish. Immigrants make up for 10% of the population in Iceland and 37.7% of the total immigrant population were born in Poland (Statistics Iceland 2016). The area in Westfjords has a significant Polish population, with some communities having almost a Polish majority of people living there. Two Polish men also participated in the exercise as Red Cross volunteers and it was the first time they were involved in Red Cross activities. Considering the size of the Polish community in Iceland and in the Westfjords, it is important for the local branch to involve also the Polish communities in the activities. The participation of the Polish volunteers raised some language issues in the exercise, as most participants spoke in Icelandic during the exercise and the sector coordinators had to be reminded to also communicate in English.

The role of the Red Cross volunteers in the exercise was to set up a triage centre in the terminal building. Usually Red Cross volunteers do not work at the accident site, but in this exercise, some of the Red Cross volunteers participated in the transportation of victims at the crash site as well. Red Cross volunteers used the contents of their mobile relief trailer to set up a triage centre in the terminal building. A smaller waiting room with chairs was dedicated to green patients. Red Cross volunteers provided PSS and collected information. The rest of the terminal was set up with cot beds meant for red and yellow patients. Volunteers helped move the patients to the triage centre, helped with transportations, collected information, helped health professionals with secondary triage, gave PSS and took care of a baby that was found among the passengers.

The preparation and the actual exercise highlighted the fact that cooperation between different actors and authorities in Iceland is fluent and does not seem to have a lot of significant barriers. With a small population, all the relevant actors have limited resources and therefore have to work together and utilize each other's resources when possible. With the limited number of people and limited resources, cooperation has to be institutionalized and maintained.

In Iceland institutionalization exists at many levels. There is a shared database system for situational awareness in civil protection that the Red Cross also has access to. This promotes and facilitates timely information exchange. In Iceland, the Red Cross is legally obliged to provide Red Cross staff to the National Crisis Coordination Centre in Reykjavik that in the event of a crisis brings together representatives of the police, search and rescue, Coast Guard, health, road administration, aviation, 112 Iceland, Red Cross and science institutions to coordinate operations. The 112 emergency number in Iceland has information about Red Cross disaster management volunteers and can dispatch an alert SMS upon request to the volunteers. The Red Cross has appointed seats in the National Crisis Coordination Centre and works in close cooperation particularly with the health authorities.

The resources of the different actors are scarce but the tight cooperation and coordination ensures that the resources complement each other. For example, the Red Cross works in close cooperation with ICE-SAR. ICE-SAR is very well equipped including vehicles, boats and trained volunteers. For major accidents, the Red Cross relief trailer with 30 cots and equipment for triage and care could be used to fill up ICE-SAR inflatable tents.

The exercise highlighted the importance of the local people and volunteers. All the actors rely heavily on the support of volunteers. The village communities appear to actively take part in the exercises and people of all ages were present in the exercise. Responsible tasks of sector coordination were also given to young people. From the Red Cross point of view, each village should have enough volunteers to open up an emergency shelter. Iceland has 100 predefined locations and buildings for setting up emergency shelters. In remote villages, volunteers should prepare to open up an emergency shelter and maintain it up to 24 hours, before additional assistance arrives.

4. Conclusion

The aim of the Red Cross Arctic Disaster Management study was to define the 'Arctic' from the Red Cross point of view, and to get a comprehensive overview of the presence, services and response capacity of the International Red Cross and Red Crescent Movement in the Arctic, from small scale emergencies to major accidents and disasters. The objective was to form an understanding of the operational context and the current state of Red Cross capabilities and capacities in the area. Also, the study aimed to define the main risks and challenges related to the Arctic from the Red Cross point of view and to examine the existing capacities and capabilities in relations to these risks and challenges. Key findings and conclusions are presented next structured by the specific research questions.

4.1 Definition of the Arctic

From the point of view of the Red Cross, no single definition of the Arctic can be established as definitions vary in different studies. One of the most interesting definitions from the Red Cross point of view is established by Kristian Cedervall Lauta et al. in the article "Conceptualizing Cold Disasters: Disaster Risk Governance At the Arctic Edge" published in the International Journal of Disaster Risk Reduction in 2018.

In the article, three dimensions of cold disasters are given: pressuring time limit due to conditions, limited physical and social infrastructure and complex institutional set-up (Lauta et Al. 2018). Similar conditions and dimensions can be taken to define other areas as well but when all these three dimensions are put together, they form the challenging Arctic context.

The definition raises the time limit as one key factor for the Arctic. This means that actors, such as the Red Cross, need to put effort in pre-planning. Also, cooperation and coordination play a very important role as long distances and remoteness pose challenges to all actors.

Lauta et al. also highlight limited physical and social infrastructure. Especially the limited social infrastructure is a very interesting point from the Red Cross point of view. In general, what could be the role of the Red Cross in strengthening social infrastructure in the Arctic, and for example, could Red Cross volunteers be defined as a part of critical social infrastructure in the Arctic? Lauta also highlights the complex institutional set-up in the Arctic, which may be ambiguous in the mandate, obligations and limitations that countries and authorities might encounter in the area. For the Red Cross, the mandate is clear: "auxiliary to the government". However, how this mandate is operationalized into practical cooperation is crucial to National Societies and the Movement.

Although Lauta and many others have defined the Arctic as a very challenging operational environment, for the Red Cross, the Arctic also highlights several strengths of the Red Cross Red Crescent Movement. The Arctic context is challenging but not unique in the sense that the Red Cross would not nor could not operate there. The context highlights cooperation with other stakeholders, the independent role of the Red Cross but also a place for peer-learning and active sharing of good practices.

4.2 Red Cross capacity and services for mass emergencies in the Arctic region

All the eight National Red Cross Societies have a presence and they operate in the Arctic. Also, the National Red Cross Societies have been used for emergency response in various ways. As a concrete example, the Greenlandic Red Cross with support from the Danish and Icelandic Red Cross took part in the tsunami operation in Greenland in summer 2017.

However, with regard to identified risks and vulnerabilities in the Arctic region almost none of the National Societies have made formal risk assessments in the Arctic as such. Risks assessments by other entities, like Government authorities might be used in some countries. Many risks and vulnerabilities were, however, identified by the National Societies and presented in the study. Although the National Red Cross Societies have not formally analyzed Arctic risks, they have adapted their activities and capacities to the Arctic environment. They also have specific understanding and knowledge of the Arctic context but the knowledge is fragmented between different National Societies and levels.

Human Resources (staff, volunteers and international delegates)

Red Cross human resources in the Arctic are mainly composed of volunteers at branch level. Put together, the volunteer capacity in the Arctic reaches thousands, even over 10 000. Volunteers have different skills, have gone through different specialised trainings and hold a lot of expertise in local conditions. Volunteers are not spread evenly across the area. Bigger hubs naturally have a wider volunteer base. Volunteers conduct important activities and support public authorities. In the National Societies, volunteers are formed in teams and units such as Disaster cycle services, First Aid, Emergency Support Services, PSS, SAR and Emergency response.

The National Red Cross Societies have a presence in the region at branch level. Additionally, district offices with staff members provide a support mechanism to local level branches and volunteers. However, one of the key findings of the study was that it is difficult to give exact numbers of volunteers involved and how many can be alerted in case of an emergency.

This is mainly due to the fact that the National Red Cross Societies do not use harmonized definitions for emergency resources (i.e. units or teams) or systems for managing resources or volunteers. Comparable figures are therefore hard to define. It is also hard to define the level of involvement of volunteers as some volunteers can be more actively involved than others. This challenge has also been identified in other regions, particularly related to volunteer-based units, and is not only characteristic to the Arctic area. Only the global tools[20] of the Red Cross are well defined in the Red Cross family.

It was noted that Red Cross resources are not only limited to the number of local people involved in the activities. Many National Societies are able to deploy groups or teams when needed from other parts of the country based on the needs and requirements. These can be volunteer teams or professionals. Some of the Arctic National Societies have more advanced systems while some are still under development.

20 Emergency Response Units (ERUs), Regional Disaster Response Teams (RDRT) or Regional Intervention Teams (RIT), Field Assessment Coordination Teams (FACT)

A prevalent feature in the Arctic is the small communities, which can also have an effect on the number of available volunteers. Volunteers involved often also hold many other important roles in their communities. For example, one individual person may have multiple roles in different kinds of organizations or the person can work as an authority but participate in Red Cross voluntary action in their free time. The impact of this can be two-fold: very positive because the actors will have a better understanding of what others are doing and the exchange of information is fluent. Cooperation therefore often works better. On the other hand, in an emergency, this may lead to lack of sufficient resources as one person can only take on one role in the situation.

The primary goal of developing Arctic preparedness and capacities should be to strengthen the actors in the Arctic region at the local level. On the other hand, it is necessary to strengthen a wider understanding of the Arctic issues and needs within, for example, the Red Cross Red Crescent family.

In terms of building preparedness in the Arctic, a new initiative to establish an Arctic Regional Disaster Response Team (RDRT) was mentioned in the data several times. The Red Cross RDRT teams are part of the global tool to assess, manage and coordinate in times of the disasters. RDRT teams are also compatible to work in other regions and thus bring expertise from other areas to the Arctic and vice versa. The RDRT was seen as a very useful tool for the Arctic, mainly because operating in the area requires wide understanding of the conditions and cultural specificities.

An important finding was that six out of eight Arctic National Societies currently maintain a specific Red Cross set-up for emergencies called Emergency Response Unit (ERU). In addition, the Icelandic Red Cross trains international delegates who can be used in the ERUs operated by other National Societies. ERU cooperation is an excellent example of increasing knowledge by enabling participation in non-ERU countries as well.

Globally, volunteer management is one of the most important tasks and areas of expertise of the Red Cross Red Crescent Movement. Also, the management of spontaneous volunteers is emerging as an important issue in many countries. Currently, there are no unified policies or guidelines on the management of spontaneous volunteers. In an emergency, people would most likely mobilize. This can mean local people who are willing to get involved and share their resources. Spontaneous volunteers can also be tourists, who might not have a comprehensive understanding of the circumstances. Spontaneous helpers can also be, for example, employees of tourism companies. The added value of the Red Cross could in the future be to strengthen its capacity to lead, coordinate and manage spontaneous volunteers by also utilizing good practices and learnings from other regions and applying them to the Arctic.

Local know-how of the environment and conditions can be particularly valuable in incidents involving people with limited experience in the Arctic conditions, for example tourists. Experienced Red Cross volunteers with a lot of local knowledge are an extremely valuable asset also for other authorities. In Svalbard, for example, the turnover rate for local authorities is high and the local knowledge of experienced Red Cross volunteers is important also for the integration of new people.

In addition to disaster response, the Red Cross provides a wide range of other services. The strength of the Red Cross is that it has a presence in communities before but also after the acute phase of emergencies or disasters. This is mainly because Red Cross volunteers are members of the community. The Movement has a lot of know-how about how to support communities in the recovery phase. Also, the Red Cross can develop community resilience through long-term programmes. According to the data, most of the National Societies have some kind of long-term programmes in the Arctic or northern parts of their country. Long-term programmes can either be national projects or programmes (core activities of the National Red Cross Society) or involve another Red Cross Red Crescent family member and/or external donors.

Indigenous populations are a specific characteristic in the Arctic. The National Red Cross Societies work with indigenous communities and organizations. However, joint guidelines, strategies or tools have not been put in place by the Red Cross Red Crescent Movement or by the IFRC. Long-term programmes in the Arctic are important, as many of the vulnerabilities related to the Northern populations can be chronic or systemic vulnerabilities rather than disaster-related. As an example, the Canadian Red Cross has worked with social emergencies in the Arctic and has, for example, suicide prevention programmes there.

Databases and alert systems

Each National Red Cross Society has its own databases for resource management and for alerting. These systems are incompatible with each other. Some are a part of or linked with the authorities' similar systems; some are specific to the Red Cross. The Red Cross networks do not have a common resource management system or database to coordinate resources nor do National Societies use harmonized definitions for emergency resources, such as volunteer-based response units. This study is one of the first summaries that seek to analyze information about existing resources. As can be seen in Table 3 (page 26), all Arctic National Societies define especially volunteer-based units and assets differently.

With regard to international assistance, various practices have been agreed upon for alerting or receiving international assistance. In a mass emergency or regional crisis, an alert goes through the IFRC Geneva. In a smaller situation, assistance can be requested directly from neighbour National Societies. In both cases, National Societies agree on the assistance with the host state. The Union Civil Protection Mechanism (UCPM) coordinates the assistance provided through the European Union. The Red Cross is currently negotiating with the Commission on how it will cooperate with the UCPM. A part of this process is how the Red Cross works together with the mechanism in international assistance or receiving international assistance.

When looking at developments of other actors in the field of disaster management, there is a trend towards harmonization of capabilities and alarm databases. For example, there are ongoing initiatives to coordinate resources especially for preparedness for oil spills with harmonized databases and joint resource management systems in the EPPR working group. Linking with existing systems could be beneficial also from the point of view of the Red Cross.

Equipment and logistics

The survey responses indicated that the National Societies have material preparedness and equipment in the Arctic to varying degrees. Branches in the north are generally prepared for smaller-scale incidents and day-to-day activities. For the most part, it was noted that the branches in the Arctic are not very well equipped for larger-scale emergencies in Arctic conditions. In case of a major accident involving a large number of people, material assistance would have to be brought from other parts of the country. The question of whether to have material preparedness and equipment stored in remote areas comes down to sufficient resources to maintain the capacities. Based on the data, these questions are still to be resolved in many areas.

Instead of stockpiling and maintaining big warehouses, it was noted that many National Societies are investing in more mobile systems and decentralization of material in providing material assistance. Since the Arctic is sparsely populated, mobility of actions needs to be considered. Some Red Cross branches have also created new tools for emergency response specifically designed for the Arctic context. For example, both the Icelandic and Finnish Red Cross have developed similar mobile units for emergency relief. These units are for major emergencies, such as traffic accidents. In Iceland, the Icelandic Red Cross has established 20 Emergency Relief Trailers and is currently decentralizing

these. In Finland, the Finnish Red Cross is developing a unit for major evacuation called the Emergency Evacuation Centre (EEC) with the aim to enhance preparedness for major accidents. These kinds of similar new initiatives express both joint analysis of the operational context and its needs but also raise the need to develop cooperation and capacity for an Arctic accident: there is no need to invent the wheel many times in different places.

It was also noted that while the National Red Cross Societies material preparedness and resources in the north may be limited, they can often rely on the personal equipment and protection gear of staff and volunteers, who are used to the conditions in their day-to-day lives. However, this material strength is difficult to map and document.

Some National Societies have Arctic-specific material preparedness and equipment. For example in Svalbard, the local Norwegian Red Cross branch has developed the Arctic Emergency Survival kit that serves remote locations with air-droppable equipment for survival, cold protection and shielding from the elements for 8 people. The use of the kits can be scaled up according to needs. There are 30 kits in total, which means that the kits could serve up to 240 people. In a smaller incident, like a search and rescue operation, 1 or 2 kits can be used. For transportation, the American Red Cross in Alaska has insulated Emergency response vehicles suited for the Arctic conditions. The Longyearbyen branch in Svalbard is storing and maintaining a Field Hospital that belongs to the University Hospital of North Norway.

Six of the Arctic National Societies maintain Red Cross Emergency Response Units (ERUs). These capacities have been used in disasters and emergencies all around the world but usually in a warm context. The winterization and the scope of the ERUs were brought up as topical questions. Existing units might have to be designed into smaller modules to better serve the Arctic context. ERUs are part of a standardized disaster response tools system, which means that their modification needs to follow a certain process. There are also capacities that are not ERUs exactly but compatible with the system, like the Emergency Evacuation Hospital (EEH) and the Evacuation Emergency Centre (EEC) that could be more easily adapted to the Arctic conditions. An interesting development is ongoing in Canada where the Canadian Red Cross is in discussions with representatives of the Cree Nation on winterization of a field hospital.

Equipment testing was raised as a common issue. Systematic equipment testing has not really been done for the Arctic context in any of the National Societies. Some remarks had been made about equipment suitability and durability as a part of normal activities but not testing as such. In Svalbard, general remarks had been made about the plastic and rubber parts in equipment not working well in very low temperatures. An important point was also made by the Icelandic Red Cross about the Arctic conditions not being merely about the cold. Windy conditions can be severe in the Arctic and, for example, inflatable tents often used as a part of standardized Red Cross units are not suitable for harsh winds. The Icelandic Red Cross has also adjusted their relief trailers to be as low as possible to ensure their stability in storms and strong winds.

Due to the fact that resources in the north are scarce and all of the actors are required to conduct activities with a limited basis, the importance of cooperation and pooling and sharing of capabilities is highlighted between the authorities and other NGOs.

Logistics is an especially crucial aspect of emergency response in the Arctic since distances are long and some areas are extremely remote. The Arctic is a vast and varied area and it would be important to identify possible regional hubs and nodal points of Red Cross activities to build up the regional preparedness for possible Arctic disasters. Geographically speaking, Iceland has a very central location in the Arctic. It is situated at the juncture of the North Atlantic and Arctic Oceans. Iceland is centrally located in relation to the Arctic islands: Greenland, Faroe Islands and Svalbard. Keflavik International Airport is an active hub for flights from Europe to North America. Iceland also has smaller airports and ports around the island. In the event of an emergency the Icelandic Red Cross is able scale up activities

with access to large warehouses at Keflavik airport. Also, in the event of an Arctic cruise ship emergency, Iceland could be an important hub for bringing people in after the emergency, depending on where the accident site is located.

In the Arctic, distance is not always the best measure of things. In terms of logistics, infrastructure is even more crucial when it comes to accessibility. That is why it would be important to identify places that have proper infrastructure and chains of help to reach remote locations. For example, the Greenlandic Red Cross noted that Canadian Arctic might be geographically closer to some places in Greenland but the infrastructure there is often limited and the Greenlandic capital Nuuk only has regular flight connections to Iceland and Denmark.

In terms of logistics, the Finnish Red Cross Logistics Centre in Kalkku, Tampere was discovered as the northernmost logistics centre in the area in terms of size and volume. While the Centre is not situated in Northern Finland but at 61° latitudes north and located near an airport, it is centrally located especially in view of northern Scandinavia and northern parts of Russia. Rapid material assistance could be provided from the Logistics Centre, but pre-logistical planning should be made for the Arctic context.

4.3 Red Cross capacity to work in cold conditons (techniques, equipment and arrangements)

At the local level, Red Cross day-to-day activities and trainings are conducted in the cold conditions of the Arctic area. Staff and volunteers have good personal equipment for operating in the Arctic elements in general. The local know-how and understanding of the Arctic context, for example understanding weather patterns and special conditions related to snow, ice, glaciers and avalanches, improves the overall ability to operate and take action in the Arctic context.

In addition to the everyday good practices of working in the Arctic conditions, specialized techniques and equipment were also identified in the Red Cross activities. The Arctic emergency survival kits in Svalbard, Norway, developed by the Longyearbyen branch of Norwegian Red Cross are an example of an Arctic-specific innovation that takes into account the challenges of the Arctic environment. The equipment in the kit helps protect from the Arctic elements of cold and wind, giving important support for example in the evacuation of a large number of people that takes a lot of time. Another example of a Red Cross approach for working in cold conditions is the Arctic First Aid programme that has been developed by the Greenlandic Red Cross. The Arctic First Aid programme and guide gives specific guidance for the Arctic context and for working and surviving in the Arctic conditions.

In many National Societies the question of placing the equipment was raised as a central question. Many National Societies in the Arctic are building more decentralized systems for the placement of material. In Iceland and Finland, quite similar systems have been developed in the form of mobile units in trailers. The Icelandic Red Cross has relief trailers in 20 locations that hold equipment for setting up emergency shelters. In Finland, the trailers have the equipment to set up an Emergency Evacuation Centre (EEC).

A lot of the Red Cross equipment and material can be used in the everyday cold conditions but an identifiable gap is in the sufficiency of the equipment and the modification of equipment and units for extreme cold. Systematic equipment testing has not been done by the National Societies for extreme cold and there are lacks in winterization of equipment and winter sustainable tents and heating systems. It was also noted that inflatable tents often used as a standardized component of Red Cross units can be unsuitable for the harsh Arctic winds.

Experiences and best practices have not been systematically shared with other areas that have similar conditions to the Arctic. Peer-to-peer support with National Societies for example in the Baltic Sea region that also has cold winter conditions could give added value in preparing for the conditions. It was also noted that the Red Cross should draw from existing reports and experiences of actors that frequently act in cold conditions like the Coast Guards, icebreakers or the army.

4.4 Red Cross partnerships and cooperation with authorities, the private sector, NGOs and other relevant stakeholders in the Arctic region

Cooperation and coordination in the Arctic

It was very apparent in all the survey responses, interviews and discussions that cooperation and coordination in the Arctic is key, at all levels. At the broader level, the Red Cross is linked to the relevant cooperation forums in the Arctic, namely the Arctic Council and the Arctic Council Working groups. The activity of the IFRC as observer has varied over the years and awareness among the National Societies related to the topical issues in the Arctic Council has been limited. However, a joint interest was expressed in the Oulu seminar about the relevance and importance of the observer role in the Arctic Council. Building cooperation and finding synergies with the key actors involved in the Arctic Council is important and can bring added value to all actors.

At the operational level, the Arctic Coast Guard Forum has been identified as an important forum in the field of Arctic maritime safety. A joint session between the ACGF experts group and representatives of the Arctic Red Cross National Societies was held in Oulu in March 2018. The common operational context and similar challenges in the area advocate the relevance of cooperation between Red Cross and the ACGF. In the Oulu meeting, the possibility of exploring a MoU with the ACGF on relevant cooperation in the future was discussed among the National Red Cross Societies. A MoU between the Arctic National Red Cross Societies and the ACGF in the future could support the Arctic SAR agreement at the operational level.

Cooperation within the Red Cross Red Crescent Movement

The strength of the Red Cross Red Crescent Movement is in the common foundation that all Red Cross activities are built on. There might be differences on how National Societies have organised their activities and structures, but the basis of all that work is built upon shared principles and values. All National Societies are committed to the shared operating models of the Red Cross Red Crescent. The seven fundamental principles of the International Red Cross and Red Crescent Movement, as well as mutually agreed upon documents like the Principles and Rules for Red Cross and Red Crescent Humanitarian Assistance guide all actions and activities of the National Societies. That is why National Societies are able to find common ground for cooperation despite their differences.

At the moment, there are examples of Red Cross cooperation and peer-to-peer support at different levels but there is no institutionalized cooperation for the Arctic between the National Societies. Peer-to-peer support among and between branches and National Societies as well as at a regional level would have many advantages. More fluent information flow and sharing of best practices would enhance the overall regional preparedness. Branch-to-branch cooperation can have a lot to offer, since northern branches of different National Societies may have a better understanding of the operational context in the Arctic than with southern branches in their own National Society.

Since the Arctic area is a very specific operational context, local actors with the best knowledge of the area are a key asset. Local capacities should be strengthened and supported by the other NSs in the region. National Societies in the area with particular expertise in emergency response are important

in supporting the National Societies that do not have similar national preparedness systems. This was apparent in the case of the tsunami in Greenland. The Greenlandic Red Cross, which does not have activities related to emergency preparedness, would require support from other NSs in the Arctic area with more experience in emergency response, leading operations and logistics.

Although there are systems in place within the Red Cross Red Crescent Movement for the provision of and request for international assistance for large-scale events, there are no clear practices or operating models that could be applied to smaller scale incidents requiring assistance from National Societies in the region. Establishing clear practices for regional support could lead to better information flow, timeliness and streamline actions than when working on an ad hoc basis.

A deepened cooperation was welcomed by the National Societies in the Oulu meeting. Even though strong institutionalized cooperation would not be in place today, the shared principles and understanding of each other's structures would enable the building of a more structured cooperation and network. This would require establishing and maintaining communication lines and regular meetings between relevant actors at all levels regarding Arctic matters.

Cooperation and agreements with authorities

In general, the available data indicated that from the point of view of the National Societies, cooperation between the Red Cross and relevant authorities in Arctic works well. Information flow between National Red Cross Societies and the authorities is usually fluent and timely, and the Red Cross is recognized as a relevant actor.

Most National Societies have cooperation at the Government level with different ministries and authorities, as well as at the local level with local authorities and municipalities. Some have very specific agreements, like the Norwegian Red Cross that encourages local branches to sign agreements with local authorities that specify the number of available volunteers and the competence of the volunteers, while some National Societies have more general agreements about supporting authorities.

The level of cooperation with the authorities varies in different National Societies. Some National Societies are more strongly integrated in the civil protection and disaster management structures like in Iceland. The Icelandic Red Cross is an integral part of civil protection and disaster services defined by the Civil Protection Act and is legally obliged to provide staff to the National Crisis Coordination Centre. On the other hand, some National Societies do not have similar national preparedness, which is the case with the Swedish Red Cross, which is at the moment starting to build and scale up its national preparedness and just starting to form these cooperation patterns with relevant authorities.

Some National Societies have formalized agreements with the authorities that define responsibilities and roles, while other NSs have more hand-shake based deals about operational models. Even in the absence of formal agreements, the National Red Cross Societies have a lot of cooperation with different authorities outside the formal agreements.

Agreements in the Arctic are concluded at different levels: umbrella agreements, like the Arctic SAR agreement, are between states. At another level there are the agreements made by the states and state authorities with the National Societies. A third level is the agreements made between the National Red Cross Societies. These three levels form the frame that steer the formalized activities in the region. The interplay between these levels should be recognized and taken into consideration.

Cooperation with non-governmental organizations

Examples of close cooperation with national NGO networks were found in Iceland and Finland. In Iceland, the Icelandic Red Cross has cooperation with ICE-SAR which is an umbrella organization for res-

cue and accident prevention organizations in Iceland. The IRC and ICE-SAR work in close cooperation, which also enables the sharing of resources. Another example of cooperation with a national NGO network is the Voluntary Rescue Service (Vapepa) in Finland which brings together volunteer helpers from 52 different organizations. Resource sharing and pooling volunteer assets is a good example of the advantages of having cooperation networks with NGOs.

There are variations in local level involvement with NGOs. Informal involvement is typical especially in smaller communities, like in Greenland where the Greenlandic Red Cross has informal cooperation with local NGOs and shares office space with some NGOs.

Cooperation with environmental organizations did not come up in the data, apart from the cooperation between the Finnish Red Cross and WWF in an oil spill project. Many of the environmental organizations have been working with the Arctic context for a long time and have know-how and experience in the area. Ongoing projects and activities could also provide a common platform for cooperation with the National Red Cross Societies.

In the data collection, the National Societies were asked to give information about their cooperation with the NGO sector. Based on the data, the overall picture of cooperation with the NGO sector was not very exhaustive, which might have been affected by limitations in the data collection. It should be noted that cooperation with the NGO sector was examined from the point of view of the Red Cross, which might influence the results. A more extensive review of the relevant NGOs in the Arctic would have required a wider approach. The focal points providing information also might not be aware of all the cooperation networks at the local level. Red Cross branches are fairly independent and all forms of cooperation might not be known centrally.

Cooperation with private sector

Cooperation with the private sector is an important form of cooperation for the National Societies at different levels also in the Arctic area. Most often, cooperation with the private sector takes place at the local level. Local businesses and companies support Red Cross activities in different ways. Many National Societies have agreements and arrangements at the local level with local stores and companies about providing assistance in the event of an emergency or crisis.

Airlines and aviation companies were brought up as important partners for many National Societies, for example for the Icelandic Red Cross, Finnish Red Cross and American Red Cross in Alaska. Formalizing partnerships in the aviation sector could be an important asset when promoting and exploring the concepts of logistical hubs in the Arctic. Alongside local level businesses, there is also cooperation with global brands like Land Rover and Coca-Cola that are important donors through foundations and projects.

An example of long-lasting partnerships with the private sector is the partnership between the shipping company Eimskip and the Icelandic Red Cross, which has ensured the transportation of donated clothes for the Icelandic Red Cross on the Eimskip ships free of charge for some 20 years. Future cooperation has also been explored between the Finnish Red Cross and the icebreaker company Arctia Ltd with the intention of exploring common ground on questions of equipment testing and medical units. These examples demonstrate some of the varied forms and possibilities that can be found through private sector cooperation.

The data indicated versatile forms of cooperation with the private sector at many levels. However, cooperation in the Arctic does not differ from the basic activities of the Red Cross when it comes to private sector cooperation and fundraising. The IFRC has an extensive experience in fundraising and cooperation with the private sector and these assets could be utilized more strongly also in the Arctic region.

4.5 Red Cross´s capacity building efforts for enhancing preparedness in the Arctic region

The Red Cross training and capacity building efforts in the Arctic consist of everyday activities, specialized trainings and participation in exercises. There are normal training activities that are not specific for the Arctic but are nevertheless conducted in the Arctic environment all year round. The National Societies train regularly during wintertime and in conditions that can be characterized as Arctic: cold, windy, dark, remote, etc. A lot of experience and know-how on operating in Arctic conditions is acquired through these regular trainings. Preparing for the conditions is integrated in the everyday capacity building efforts. The National Societies might benefit from making this know-how more visible and sharing these everyday practices more broadly within the Red Cross Red Crescent Movement and with other stakeholders.

On the other hand, many National Societies also have specific training designed for the Arctic conditions, such as the Arctic First Aid programme in Greenland and SAR in avalanches and water rescue in the Norwegian Red Cross. The Longyearbyen branch of the Norwegian Red Cross has integrated sections of meteorology, polar bears, avalanches and glaciers in their training programme. The Icelandic Red Cross has a lot of pre-disaster training based on possible risk scenarios.

The National Red Cross Societies also regularly take part in exercises at different levels, locally, nationally and regionally with relevant actors. The case example from Iceland presented a regular exercise that brings together relevant authorities, actors and volunteers to exercise for air crash scenarios in Iceland, with Red Cross having a relevant role. The National Red Cross Societies have taken part in large-scale regional exercises such as the biannual Barents Rescue exercise but the attendance of different National Societies has varied.

The National Red Cross Societies in the Arctic do not have joint training activities or exercises on a regular basis, with the exception of few examples like the joint training for SAR in avalanches with the Norwegian Red Cross and Russian Red Cross. Joint table-tops or other gatherings have not been arranged alongside other exercises like the Barents Rescue.

However, it was expressed in the data that more training and exercises would be needed and the idea of increased joint trainings was welcomed. As local responders are used to responding to small-scale incidents, training for large-scale incidents in the Arctic context would be needed. In addition to arranging joint exercises, it would be profitable to invite other NSs to also observe national or regional exercises or include side-events such as joint table-tops to existing institutionalized exercises.

As of today, the Red Cross does not have any common training programmes specifically for operations in the Arctic. However, a common interest was expressed in the Oulu Arctic Disaster Management seminar about establishing a Regional Disaster Response Team (RDRT) that would be specifically trained for the Arctic context. Many advantages were seen in this approach as the Arctic is a very specific context and would require a certain amount of understanding of the context. The RDRT would promote the building of regional capacities in disaster management in the Arctic.

5. Recommendations

The study gives 13 recommendations based on the collected data and the conclusions drawn. The recommendations are directed to the Red Cross and the aim is to support the development of Arctic capabilities and capacities in the future.

Strengthening voluntary management in the Arctic

The Red Cross Red Crescent Movement has gained strong knowledge on managing volunteers, maintaining around 17 million volunteers in 190 National Societies worldwide. Guidebooks, approaches, policies and practical tools are examples on how the volunteer management is supported from local level to global. Volunteer management is a joint approach for the Red Cross and therefore it should be developed together, taking into consideration the context, specificities, strengths and weaknesses.

The Red Cross has the experience and the structures in place for volunteer management and coordination and should therefore be considered a key player in the reception and coordination of spontaneous volunteers in case of a major accident. In a major accident or incident the reality is that people will mobilize. Spontaneous volunteers can be a significant asset in emergency response but they need to be well coordinated and organized. As an example, in Greenland the number of Red Cross volunteers is quite low but in case of an emergency the local population would most likely mobilize and offer assistance, shelter and equipment. It is difficult to estimate the scope of these capacities. The role of the Red Cross in mapping these resources and capacities could be essential.

R1: *The study recommends that the Arctic National Red Cross Societies consider strengthening volunteer management capacities together by sharing best practices and lessons learned, also taking into account the utilization and involvement of spontaneous volunteers.*

Strengthening response capacities for major emergencies in the Arctic

In the Arctic, as of now, there has rarely been a need for large and heavier emergency units. However, when taking into account current and future risks, there is a need to develop response capacity for major accidents and severe disasters in the area. The Red Cross is one of the best actors in the world to develop emergency units for major accidents, and the National Societies in the region have a lot of expertise in this.

For example, a total of six National Societies are already at the moment maintaining special Emergency Response Units (ERU) for emergency response in disasters. These units are standardized and compatible with each other. However, these units have mainly been used in warm conditions. According to the study, the main concept and purpose of the ERUs was seen as something that could be needed in the Arctic as well but the current units would have to be winterized and scaled to better serve the Arctic context. Creating smaller modules of existing capacities and resolving heating issues could be one way of modifying the units. In addition to the ERUs, Red Cross readiness for Arctic response can be strengthened through harmonization of voluntary response units and capacity for rapid assessment and coordination by establishing Regional Disaster Response Teams (RDRT) in the Arctic, as well as by better pre-planning of support services such as logistics.

R2. *The study recommends that the Arctic National Red Cross Societies explore how the Emergency Response Units (ERU) could be ensured to operate in cold conditions and to be prepared for Arctic accidents. The cold resistance and durability of the general ERU equipment and the equipment of the personnel should be evaluated and verified through equipment testing. Equipment testing could benefit*

from cooperation with relevant actors dealing with cold conditions, for example icebreaker companies or other companies and authorities operating in the Arctic area.

***R3.** The study recommends that in addition to ERU winterization, the Arctic National Red Cross Societies explore harmonization and pooling of emergency units and assets for major accidents in the Arctic and for cold conditions in general. For example, the Icelandic and Finnish Red Cross have developed very similar types of mobile emergency relief units for major accidents. It would be beneficial to explore possibilities of harmonizing and pooling these types of emergency units for major emergencies to be able to better assess existing capacities and enhance joint deployment in the region. Sharing of good practices and lessons learned is key.*

***R4.** The study recommends that the Arctic National Red Cross Societies should together with authorities analyze and strengthen how medical readiness for emergencies in the Arctic could be improved by utilizing Red Cross capacities in the Arctic preparedness planning better. The Red Cross has strong knowledge and capacity related to field medical services. A total of three Arctic National Red Cross Societies maintain medical ERU units. In addition, the Finnish Red Cross maintains a specific Emergency Evacuation Hospital (EEH) for rapid deployment. Additionally, many other Arctic National Societies collaborate closely with those National Societies. For example, the Icelandic Red Cross regularly deploys health delegates to those medical ERUs.*

***R5.** The study recommends that in order to ensure readiness for major emergencies, the Arctic National Red Cross Societies should explore developing pre-planning of logistical chains and establishment of logistical hubs together with regional actors, taking into account the challenging geography, remoteness, long distances and the existing infrastructure in the area. This would allow better preparedness planning and thus more comprehensive readiness for response.*

***R6.** The study recommends that in order to build stronger regional disaster response systems in the Arctic, the Arctic National Red Cross Societies should explore the possibility of establishing Arctic Regional Disaster Response Team (RDRT) training and teams. Teams trained in the specific context of the Arctic could strengthen the Arctic National Societies day-to-day preparedness and capacity building by supporting, for example, in the arrangement of exercises and trainings. The RDRT members would be deployed at short notice to support and bring assistance to National Societies in the region. The RDRT mechanism would also link Arctic National Societies into the IFRC mechanism for global tools.*

Strengthening Arctic cooperation and coordination within the Red Cross Red Crescent Movement

The National Red Cross Societies in the Arctic all operate based on the same seven Fundamental Principles, which provide a natural and strong foundation for cooperation. According to the study, there is a willingness to expand cooperation and peer-to-peer support within the Arctic National Societies at several levels: branch-to-branch support at the local level, neighbour-wide cross-border cooperation and institutionalized regional networking.

Sharing of best practices, experiences from different types of preparedness practices, emergency response operations but also long-term programmes could benefit all parties and build on the strengths of each National Society in the area. The National Societies in the Arctic might also consider looking outside the Arctic area. National Red Cross Societies in different parts of the world already have strong regional cooperation in place and experience could be drawn from successful operations and practices.

***R7.** The study recommends institutionalizing the cooperation between the National Red Cross Societies in the Arctic to improve sharing of information and preparedness and to ensure the continuity of the cooperation. The form of the cooperation should be explored, discussed and decided among the*

National Arctic Red Cross Societies with the support of the IFRC. Examples of well-functioning forms of cooperation could be looked for in existing arrangements including Disaster Management Technical Working Groups between National Red Cross Societies in other areas or other organizations, such as the Arctic Coast Guard Forum, which is independent and informal but at the same time operationally-driven with established practices like a rotating chairmanship.

Increasing cooperation with authorities, external partners and stakeholders

The study has shown that the Red Cross cooperates with a variety of actors in the Arctic, including public authorities, non-governmental organizations and private companies. Close cooperation and sharing of resources is essential especially in the Arctic due to the challenges in resources and conditions. Maintaining and increasing cooperation with all relevant parties is important also in the future. The Red Cross also needs to strive to make its role and capacities known to the relevant actors to highlight the added value and expertise in local conditions the Red Cross has in the Arctic. The Red Cross has a very particular role as auxiliary to state authorities.

R8. *The study recommends that the Arctic National Red Cross Societies strengthen their cooperation with states and relevant authorities in the Arctic through formalization of cooperation in the form of agreements, MoUs and arrangements. Definitions of roles and responsibilities should be streamlined, encourage action and ensure well-functioning cooperation in case of emergencies.*

R9. *The study recommends that the Arctic National Red Cross Societies strengthen and expand on existing partnerships with the NGO sector as well as explore new forms of cooperation with different NGOs. The Red Cross would benefit from a better understanding of the NGO sector in the Arctic. For example, the Red Cross could learn from environmental organizations with extensive experience in the Arctic context and particularly from advocacy work related to the Arctic.*

R10. *The study recommends that the Arctic National Red Cross Societies explore sharing experiences internally and actively regarding cooperation with the private sector. Cooperation could improve common preparedness but it may also improve resources through fundraising. The tourism sector is a good example of possibilities for new forms of cooperation. It should be explored how the Arctic innovations among the National Red Cross Societies, like the Arctic First Aid material, could be utilized to promote safe and sustainable tourism in the Arctic, for example by distributing this material to tourist offices. Additionally, collaboration at the local level could be beneficial and the Red Cross could, for example, look to tourist offices and snow mobile safari enterprises for large amounts of snow suits or warm clothes in case of emergencies.*

Strengthening Red Cross advocacy in the Arctic Council

The Arctic Council is one of the most important forums for Arctic cooperation and advocacy. The IFRC has had observer status in the Arctic Council since 2000 but the activity level has varied over the years. Taking a stronger observer role and conveying more strongly the message and mandate of the Red Cross also in the Arctic context would be beneficial for building partnerships and cooperation in the Arctic Council. Especially the themes of EPPR and SDWG Working groups resonate with the core activities and principles of the Red Cross, and continued involvement in these working groups is important.

Local communities are the most valuable actors in the Arctic. Finding common ground and synergies with the Arctic Council Permanent Participants representing the indigenous communities in the Arctic could be a particular focus for the Red Cross. Learning from the know-how of the local communities and sharing Red Cross experiences of community resilience would be a fruitful starting point. Also, the Red Cross Red Crescent Movement has established knowledge, tools and practices in community resilience programming. These could include useful ideas also for resilience programming in the Arctic.

Figure 9. *A good example of branch to branch cooperation is the Sami Ski Race during which Finnish Red Cross and Norwegian Red Cross volunteers provide First Aid services together. The Snowbulance rescue unit can be attached to a snowmobile for the transportation of injured patients.*

Photo: Finnish Red Cross / Jouni Porsanger

During the Finnish Chairmanship of the Arctic Council in 2017–2019 the Finnish Red Cross has represented the IFRC in the observer role. The next chairmanship country will be Iceland and preliminary talks have been made with the Icelandic Red Cross about the observer work. Cooperation during the chairmanship term is also an opportunity to build stronger cooperation and relations with relevant actors within the chairmanship country. For future continuation of active observer work, the arrangements for the Observer work should be clarified and formalized, linking Arctic National Societies to working closely with the IFRC:

R11*. The Study recommends that the Arctic National Red Cross Societies together with the IFRC strive to formalize the coordination and arrangement of the Observer work in the Arctic Council and ensure fluent information exchange and better awareness of the Arctic Council work among the National Societies. The Arctic National Societies together with the IFRC should agree upon a well-functioning way of working in the Arctic Council and clarify the role of the National Society in the chairmanship country regarding the preparations of the chairmanship and the involvement in the Arctic Council work.*

R12. *The Study recommends that the Arctic Red Cross National Societies together with the IFRC more actively utilize the Arctic Council and the variety of communication channels that the Arctic Council Secretariat uses in better conveying the message of the Red Cross. The Red Cross communications*

and for example, the use of Red Cross Field Communication Units, could be explored in the Arctic context, both for the benefit of the Red Cross and the Arctic Council. Improved information flow to the Arctic Council and vice versa is important in the future.

***R13.** The Study recommends that the Arctic National Red Cross Societies together with the IFRC deepen the cooperation with the Arctic Council Permanent Participants and build on the common questions of community resilience, health and adaptation to learn from the local communities and also share experiences of the Red Cross from long-term programmes, community resilience projects and relevant tools.*

5.1. Future research opportunities

The study provides a basis and opportunities for future research to further elaborate on the themes from the Red Cross point of view. Common and cross-cutting interests, projects and partnerships should be further explored with Arctic research institutes and science networks like the University of the Arctic (uArctic).

Further studies should be conducted regarding the cold conditions, cold protection and equipment testing. Bringing together relevant actors already engaged in formalized equipment testing and with existing know-how of the conditions with the Red Cross that has extensive knowledge and experience in disaster management and preparedness could be a fruitful ground to explore new innovations, technological solutions and equipment development for the Arctic.

The study touched upon the legal framework in the Arctic and the legal status of different National Societies but further studies should be directed to these matters also in the future. A closer examination of the legal agreements and the role of the Red Cross within these agreements could help clarify the different roles and interdependencies in case of emergencies and disasters. Agreements that specifically concern the Arctic, namely the Arctic SAR agreement and the SAR boundaries should be examined more closely from the Red Cross point of view. The IFRC already has a Disaster Law Programme that promotes legal preparedness for disasters and looks at legal gaps in disaster risk reduction. Linking the Arctic legal issue more closely to the Disaster Law Programme and the research done within that programme could be fruitful.

Further research should also be directed towards the financial frames and resources that are at play in the Arctic. Better understanding of current cost estimates and funding mechanisms as well as key funders in the Arctic are important for building disaster preparedness and disaster risk reduction mechanisms for the area and could help in the advocacy work of the Red Cross in channeling funding for preparedness work in the Arctic.

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Annex

First phase questionnaire

Background information

1. National Society
2. Name of the respondent
3. Position
4. Respondent is stationed in:
   a. Headquarters, domestic
   b. Headquarters, international
   c. Provincial/District Office
   d. Local/Branch Office
5. Email
6. Phone number

National Society

7. Is the status of your NS described by a national law, act or decree?
Please give the name and date.

8. Name the three sectors/activities your National Society is most active in (e.g. First Aid training, friend activity, youth programs, reception centres for refugees and asylum seekers, international operations...)?

9. a) Does your National Society have a presence in the Arctic region?
   a. Staff
   b. Volunteers
   c. Offices
   d. Warehouses
   e. Other ____?

   b) Please give a brief description on these resources (E.g. voluntary teams in branch/district level, emergency units for accidents, Emergency Response Units (ERU) etc.)

Preparedness for response

10. Has your NS assessed risks in the Arctic region?
   a. If yes, what risk assessment tools or methods (i.e. VCA) have been used?

11. Which are the main risks in the Arctic that have been identified in relation to Red Cross mandate or activities?

12. A) Are there cooperation agreements in place between your NS and authorities for preparedness and/or emergency response in the Arctic region?

12 B) If yes, which authorities?
   a. Search and Rescue authorities
   b. Emergency health authorities
   c. Social and Psychosocial Support authorities
   d. Border Guard authorities

e. Army
f. Navy
g. Other _____

12 C) Please describe briefly (partnerships, main activities).

13. How has the arctic context or cold conditions been taken into account in your NS's preparedness/contingency plans?

14. What kind of alert system is in place for Arctic emergencies on a national/provincial and/or local level?

Please describe how alerting is done internally in your National Society, how is your NS alerted by authorities and how does your NS alert authorities.

Trainings and capacity building

15. What kind of trainings are being conducted for Red Cross volunteers, staff and international delegates for cold conditions?

16. What kind of challenges or needs have been identified relating to cold conditions?

17. A) Has your NS participated in exercises in the Arctic?
a. On local level
b. On national level
c. On cross-border level
d. On international (multilateral) level

17. B) If yes, what kind of exercises, simulations or drills has your NS participated in:
a. Live Exercise (LIVEX)
b. Table-Top Exercise (TTX)
c. Simulation Exercise (SMX)
d. Other

18. What regular training projects or specific capacity for the Arctic conditions does your NS have which could be of interest to other NS in the Arctic region?

Emergency response capabilities

19. In case of emergency operations in the Arctic, which of the following services/activities would your NS be able to provide?
a. First Aid
b. Search and Rescue
c. Relief
d. Psychosocial support
e. Basic health care
f. Advanced health care
g. Assistance in evacuations
h. Shelter
i. Other _____

20. To what extent have the units been specifically modified for the Arctic context (cold conditions)?

21. What kind of systems or databases does your National Society have for the management of these capacities?

22. What kind of logistics capacities (including warehouses, logistics centres) does your NS have for operations in the Arctic area or for cold conditions?

23. What kind of preparedness or capacities do you have elsewhere in your country that could serve in emergencies in the Arctic area?

24. Has your NS taken part in emergency response in the Arctic area during the past five years? This can include local level first responders or national resources. Please give some examples and describe briefly.

25. What are the opportunities and strengths for Red Cross actions and operations in the Arctic?

26. What are the main challenges and risks for Red Cross action and operations in the Arctic?

Coordination

27. How timely is the information flow from the authorities to the other stakeholders (including NS) in emergency situations in the Arctic region?

28. How well have best practices and learnings related to cold conditions been shared between the Red Cross and national authorities; within the Red Cross movement; between the Red Cross and private sector/ companies?

29. Does your NS have cooperation with the private sector (i.e. shipping companies, tourism companies) for operations in cold conditions and/or in the Arctic?

30. Does your NS have cooperation with the NGO sector for operations in cold conditions and/or in the Arctic?

Long-term programmes

31. Does your NS have long-term community based programmes in the Arctic area? If yes, please describe briefly in which sectors, where, with whom.

32. How is your NS involved in local indigenous communities and do you have cooperation with indigenous organizations?

Questions related to data-collection of the study

33. Will there be any trainings / drills / exercises arranged in 2018 that could be linked to the study and could be observed by the Finnish Red Cross or other National Societies?

34. Would your national society be willing to volunteer for the in-depth case study? For the case study FRC will conduct a field mission to have face to face interview.

35. If there are any plans, strategies or other documents related to the Red Cross preparedness in the Arctic or in cold conditions that you could share, please upload here.

Second phase data collection

1. Revise the tables (1 and 3) attached concerning key figures and main facts of your National Society as some of these might be outdated figures/information. These tables will be summaries of the narrative text and included along with the text with more detailed information.

2. Provide any additional information on cooperation with NGO's in the Arctic context. The main interest is to build a picture on how the NGOs work together in terms of preparedness, resilience, capacity building and what good practices already exist and what is missing still.

a. with environmental organizations (e.g. WWF)
b. with voluntary organization working in the field of preparedness and response
c. what kind of coordination mechanisms are in place for coordination of voluntary based
d. action within the NGOs? What is the RC´s role in that?

3. Logistics:

a. Please provide more detailed information on local warehouses/stocks in the Arctic/north: where are they located and what is the size and main content.

b. What would be the most far away location or distance that the material is planned to be used in (i.e. is it only for the use of local branch or used in broader area)?
What kind of transport system has been agreed on and how long would the transport take?

c. Give the location of the nearest relevant Red Cross warehouse (city is sufficient) that would be of use in a major accident in the Arctic for your NS. (e.g. For the Finnish Red Cross, in case of a major accident in Finnish Lapland, it would be the FRC logistics Center in Tampere) This information might be used for an infograph/map and that is why a specific location would be needed.

d. Are there agreements in place with logistics service providers or with government entities (i.e. army, rescue services..) or other actors concerning logistical support?

e. Do you have training specifically related to logistics?

4. Give some concrete examples of long-term programmes in the Arctic.

5. Provide any additional information about the capabilities concerning evacuations and medical field units for major accidents.

The International Red Cross and Red Crescent Movement is the world's largest humanitarian network and therefore a key actor to be considered also in the Arctic.

The Red Cross Arctic Disaster Management Study is the first effort to define the 'Arctic' from the Red Cross point of view and provide a comprehensive overview of the presence, services and response capacity of the International Red Cross and Red Crescent Movement in the Arctic.

The study focuses on the Red Cross emergency response capabilities, including human resources, equipment, logistics, databases and alerting systems, training and capacity building, cooperation and coordination and long-term programmes in the Arctic and offers recommendations for future developments based on the findings. The Study is compiled by the Finnish Red Cross as a part of the Finnish Border Guard's Arctic Maritime Safety Cooperation (SARC) project.

Finnish Red Cross

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SARC DEVELOPING ARCTIC MARITIME SAFETY COOPERATION

Ministry for Foreign Affairs of Finland