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Timo Koivurova, Liisa Kauppila, Sanna Kopra, Marc Lanteigne, Mingming Shi, Malgorzata (Gosia) Smieszek, and Adam Stepien,
in co-operation with Juha Käpylä, Harri Mikkola, Egill Þór Níelsson and Matti Nojonen

China in the Arctic

and the Opportunities and Challenges for Chinese-Finnish Arctic Co-operation

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Abstract

The Arctic region is rapidly transforming from a peripheral region to a global theatre with an increasing number of non-Arctic stakeholders. One illustration of this transformation process is the growing presence of China in the Arctic.

This report first discusses China's changing role in global affairs (Chapter 1). This provides background for exploring China's interests, role and presence in the Arctic. The study of China's presence in the region is carried out through the lens of the Chinese government's four priority areas towards the region as expressed in the country's first official Arctic statement – the White Paper – from January 2018 (Chapter 2). Further, Chinese interests and actions in the Arctic are studied from the viewpoint of one particular Arctic State, Finland. The authors provide an overview of a broad spectrum of Chinese-Finnish interactions in different contexts, including investments in Northern Finland and co-operation within the areas of Finnish Arctic expertise and research. In addition, concerns and risks related to interaction with Chinese actors are discussed (Chapter 3).

Over the past decade, China has undertaken an effort to demonstrate its growing knowledge of, and commitment to, the Arctic region. Some actors and experts are concerned about China's aims and actions in the region, while others express hope for Chinese institutions, investors and companies to contribute to regional development and knowledge-building. The report presents a balanced and multifaceted, although necessarily not fully comprehensive, picture of China's rise as an actor in the Arctic.

This publication is part of the implementation of the Government Plan for Analysis, Assessment and Research for 2016 (tietokayttoon.fi/en).

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Tiivistelmä

Arktinen alue on nopeasti muuttumassa syrjäseudusta globaalisti tärkeäksi alueeksi. Perinteisten arktisten toimijoiden lisäksi alueella on enenevässä määrin ei-arktisia sidosryhmiä. Hyvä esimerkki tästä on Kiinan lisääntyvä läsnäolo Arktisella alueella.

Tämä raportti käy ensin läpi Kiinan muuttuvan roolin kansainvälisissä suhteissa (luku 1). Tämä mahdollistaa Kiinan intressien, roolin ja läsnäolon tarkemman tutkimisen alueella. Kiinan läsnäoloa arktiksella tutkitaan neljän Kiinan itselleen asettamaan prioriteettialueen kautta (luku 2). Kiina hyväksyi nämä prioriteetit ensimmäisessä arktisessa strategiassaan tammikuussa 2018. Kiinan intressejä ja toimia arktisella tutkitaan myös yhden arktisen valtion, Suomen, kannalta. Kirjoittajat käyvät läpi Kiinan ja Suomen vuorovaikutusta erilaisissa konteksteissa mukaan lukien Pohjois-Suomeen tehdyt investoinnit tai yhteistyön Suomen arktisessa osaamisessa ja tutkimuksessa. Lisäksi raportti nostaa esiin erilaisia huolenaiheita ja riskejä, jotka liittyvät kiinalaisiin toimijoihin.

Viimeisen vuosikymmenen aikana Kiina on osoittanut, että se on sitoutunut arktiseen alueeseen ja että sillä on enenevässä määrin tietoa alueesta. Jotkut toimijat ja asiantuntijat ovat huolestuneet Kiinan tavoitteista ja toimista alueella, kun toisaalta samaan aikaan monet muut ovat toiveikkaita kiinalaisten instituutioiden, investoijien ja yritysten kykyyn tukea alueellista kehitystä ja tutkimusta. Raportti pyrkii antamaan tasapainoisen ja moniulotteisen, joskin väistämättä vaillinaisen, kuvan Kiinasta Arktisen alueen nousevana toimijana.

Tämä julkaisu on toteutettu osana valtioneuvoston vuoden 2016 selvitys- ja tutkimussuunnitelman toimeenpanoa (tietokayttoon.fi).

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Sammandrag

Arktiska området håller på och genomgår en snabb förvandling från ett perifert område till en internationell scen med en snabbt ökande siffra av icke-arktiska aktörer. Kinas ökande närvaro i arktiska områden exemplifierar bra den här utvecklingen.

Denna rapport diskuterar i första hand Kinas skiftande roll i globala angelägenheter (Kapitel 1). Detta ger en helhetsbild av Kinas intressen, roll och närvaro i det arktiska området. Denna forskning i Kinas närvarande i regionen framskrider ur en synvinkel av Kinas regerings fyra prioriteter i regionen så som de framställdes i landets första officiella arktiska redovisning - det Vita Pappret från Januari 2018 (Kapitel 2). Dessvärre forskas Kinas intressen specifikt ur den Finska statens synvinkel. Författarna uträttar genom en vid synvinkel om finsk-kinesiskt samspel i många olika kontext, bland annat genom att ta upp kinesiska investeringar i norra Finland, samt landets samarbete med finska experter i arktisk undersökning. Dessutom diskuteras samtliga oro ämnen och risker i samband med kinesiska aktörer (Kapitel 3).

Under det senaste årtiondet har Kina engagerat sig genom att klarlägga sin ökande kunskap och fortsatta engagemang i den arktiska regionen. Samtliga aktörer har därmed uttryckt oro över Kinas möjliga syfte och ageringar i området, medan andra hoppas på regional utveckling samt satsning i gemensamt framväxande kunskap när kinesiska institutioner, investerare och företag medverkar i området. Rapporten framstår som en fullt nödvändig, trots inte helt komplett, dock balanserad och mångsidig inblick i Kinas framskrid som en aktör i det arktiska området.

Den här publikation är en del i genomförandet av statsrådets utrednings- och forskningsplan för 2016 (tietokayttoon.fi/sv).

The report *China in the Arctic;and the Opportunities and Challenges for Chinese-Finnish Arctic Co-operation* was produced as a part of a project "Suomen puheenjohtajuus arktisessa neuvostossa kasvaneen epävarmuuden aikakaudella" (Finland's Arctic Council chairmanship in the times of increasing uncertainty). The project is funded by the Finland's Prime Minister's Office as part of the Government's analysis, assessment and research activities (2016). It is implemented jointly by the Arctic Centre of the University of Lapland, the Finnish Institute of International Affairs and the Marine Research Centre of the Finnish Environment Institute.

Professor Timo Koivurova is a director of the Arctic Centre of the University of Lapland. His expertise covers, among others, Arctic legal and governance questions, international environmental law and indigenous rights. He is one of the key scholars dealing with the Arctic regional cooperation, including in particular the Arctic Council.

M.Soc.Sc., futurist Liisa Kauppila is finalizing her PhD dissertation at the University of Turku. Drawing from her academic background in East Asian Studies, Futures Studies and Politics and History, Kauppila's thesis explores rising China's role in the processes of Arctic regionalisation. Her research interests cover China's political economy, relational theory of IR and experimental methods of futures research.

Sanna Kopra is a postdoctoral researcher in the Arctic Centre at University of Lapland and a visiting scholar in the Aleksanteri Instititute at University of Helsinki. Her expertise covers, inter alia, international environmental politics and China's foreign policy, especially in the fields of climate change and the Arctic.

Marc Lanteigne is an Associate Professor of Political Science at the University of Tromsø: The Arctic University of Norway. His research specialities include Chinese politics and foreign policy as well as cross-regional diplomacy. He is the author of several books and articles on China's international interests, including in the Arctic, and is also the editor of Over the Circle, a news blog covering Arctic affairs.

Mingming Shi is a Master's student of West Nordic Studies at the University of Iceland in Reykjavík, and a Project Manager for the journal *Icelandic Times*. Her research specialties include Denmark-Greenland relations, Arctic political economy, and Asia-Arctic diplomacy. She is a contributor to the Asian politics journal *The Diplomat*.

Malgorzata (Gosia) Smieszek is a political scientist and a researcher at the Arctic Centre, University of Lapland in Finland. In her research she studies international environmental regimes, Arctic and ocean governance and science-policy interfaces. She is involved with the International Arctic Science Committee (IASC). Gosia is also a co-founder of the association "Women of the Arctic" (www.genderisnotplanb.com).

Adam Stępień is a political scientist at the Arctic Centre of the University of Lapland. His broad research interests include: policy coherence, Arctic governance, law and cooperation, Arctic indigenous governance, participatory decision-making, as well as the EU-Arctic nexus.

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TIIVISTELMÄ

Kiinan kansantasavallasta on tullut suurvalta, jonka ulkopoliittinen mahti ulottuu Aasian-Tyynenmeren alueen lisäksi ympäri maailman. Viime aikoina myös Arktis on kasvattanut painoarvoaan Kiinan alueiden välisten suhteiden ulkopolitiikassa, jonka pohjavire on muuttunut aiempaa itsevarmemmaksi. Tämä näkyy siinä, että Kiina hyväksyi vuoden 2018 alussa ensimmäisen arktisen strategiansa. Kiinan arktisessa toiminnassa on kuitenkin huomionarvoisia eroja verraten sen läsnäoloon muilla alueilla, johtuen Arktiksen erityislaatuisesta maantieteestä, väestörakenteesta ja taloudesta.

Kiina ei ole arktinen valtio, koska sillä ei ole arktisia maa- tai merialueita. Se pyrkii kuitenkin arktiseksi toimijaksi, ja se on muuttanut alueiden välisen diplomatiansa suuntaviivoja tämän mukaisesti. Kasvaessaan erityisesti taloudelliseksi suurvallaksi Kiina on asteittain haastanut Yhdysvaltoja monilla ulkopolitiikan osa-alueilla, mikä näkyy esimerkiksi maiden välisenä kauppasotana. On ilmeistä, että Kiinan suurvalta-asema tulee vain vankentumaan ajan myötä. Tämä tarkoittaa myös, että Pekingin arktinen läsnäolo eri politiikan sektoreilla tulee mitä todennäköisimmin kasvamaan. Siinä missä tiedediplomatia tulee todennäköisesti olemaan Kiinan arktisten intressien kärjessä, tulevat myös taloudelliset kysymykset eittämättä yhä merkityksellisemmiksi, ottaen huomioon Kiinan kasvavan energian ja raaka-aineiden tarpeen sekä uusien merireittien tarjoamat mahdollisuudet.

Vaikka Kiina on painottanut, että sillä ei ole Arktiksella strategisia intressejä, on maan kasvava merimahti saanut monet tutkijat kyseenalaistamaan Kiinan arktisen toiminnan motiiveja. Nämä tutkijat näkevät Kiinan lisääntyvän läsnäolon Arktiksella epäsuotavana ja tulkitsevat Kiinan toimia alueella turvallisuus- ja sotilasviitekehyksen kautta. Kriitikot ovat varoittaneet kiinalaisrahoitteisen arktisen infrastruktuurin kaksikäyttöpotentiaalista ja epäilleet, että Kiina voi huomaamatta laajentaa vaikutusvaltaansa tieteellisten ja taloudellisten toimien kautta. Toiset tutkijat puolestaan näkevät tämän lähestymistavan liian reduktionistisena ja yksityiskohdiltaan puutteellisena analyysinä Kiinan arktisesta politiikasta. Jälkimmäisen ryhmän mukaan huolet kumpuavat siitä, että Kiina on suurvalta ja täten sillä automaattisesti nähdään olevan strateginen agenda useimmissa arktisissa toimissaan. On kuitenkin selvää, että media, asiantuntijat ja viranomaiset tarkastelevat Kiinan arktista toimintaa seikkaperäisesti. Siksi onkin epätodennäköistä, että Kiina pystyisi vaivihkaa merkittävästi laajentamaan otettaan ja vaikutusvaltaansa Arktiksella.

Kiina on omalla toiminnallaan ja retoriikallaan pyrkinyt purkamaan sen suurvalta-asemaan nousun mukanaantuomia pelkoja. Kiinan hallitus onkin ollut huomattavan varovainen, jotta se ei vaikuttaisi haastavan vallitsevaa voimatasapainoa Arktiksella. Jos Kiinaa verrataan moniin muihin ei-arktisiin valtioihin, kuten Iso-Britanniaan, Ranskaan, Saksaan, Japaniin ja Etelä-Koreaan, Kiinan arktinen politiikka on ollut paljon laajemman kriittisen tarkastelun alla. Tämä johtuu erityisesti huolista, joiden mukaan Kiina on mahdollisesti kehittämässä ”kovan turvallisuuden” agendaa alueella. Tämä kansainvälisen huomion määrä suurelta osin rajoittaa Kiinan mahdollista revisionistista käytöstä, eikä Kiina halua provosoida arktisia valtioita, erityisesti Venäjää. Lisäksi Kiinan yksityiskohtaisen tieteellisen ja strategisen tiedon puute arktisesta alueesta tekevät sen mahdollisista revisionistisista toimista liian riskialttiita. Näin ollen nykyinen hyöty-kustannusarvio on saanut Kiinan paitsi valitsemaan konservatiivisen ja multilateraalin strategian arktisessa toiminnassaan myös kunnioittamaan kansainvälistä

oikeutta ja alueellisia hallintajärjestelmiä. Täten Kiinan arktinen politiikka tuleekin nähdä identiteetin rakentamisena: maalla ei ole arktisia maa- tai merialueita, ja sen täytyy näin ollen löytää muita työkaluja arktisen identiteettinsä rakentamiseen tavoilla, jotka eivät nosta vastustusta arktisissa valtioissa.

Kiina ei ole tällä hetkellä haastamassa olemassa olevia yleisiä arktisia turvallisuus- ja hallintarakenteita. Se on kuitenkin alkanut vaikuttaa alueellisiin normeihin osallistumalla keskusteluun, joka ohjaa kansainvälisen yhteisön toimijoiden käytöstä. Kiina ei ole enää tyytyväinen ainoastaan passiiviseen normien vastaanottajan asemaan Arktiksella. Sen sijaan se on ottanut yhä vahvemman roolin normien tekijänä; siis toimijana, joka aktiivisesti ehdottaa omia ideoitaan, ja joka ei ainoastaan tarkkaile ja osallistu jo olemassa oleviin rakenteisiin. Tämä tuli selväksi, kun Uusi Silkkitie –hanke (Belt and Road Initiative, BRI) laajeni Jäämerelle. Tällä hetkellä BRI ulottuu Arktiksen lisäksi monille eri alueille maapallolla, mukaan luettuna Afrikka, Keski-Aasia, Eurooppa, Lähi-itä ja Venäjä. Varovainen arvio BRI:n kustannuksiksi on noin triljoona Yhdysvaltain dollaria. BRI:stä on muodostunut presidentti Xi Jinpingin ensisijainen ulkopolitiikan väline siitä lähtien, kun hän astui virkaansa vuonna 2012.

BRI ei ole ainoastaan moniulotteinen ja globaali kehittämisprojekti, vaan myös viitekehys, joka pyrkii sementoimaan Kiinan roolin kansainvälisen järjestelmän taloudellisena napana. BRI on hyvin keskeinen Kiinan ulkopolitiikalle ja identiteetille, erityisesti kehittyvien alueiden ja nousevien markkinoiden kontekstissa. BRI-viitekehys edistää valtiokeskeistä kansainvälistä järjestelmää, jossa painotetaan hallitusten välisiä kumppanuuksia. BRI heijastelee myös Pekingin perinteistä poliittista linjaa, jonka mukaan kansainvälinen avustustoiminta ja taloudellinen yhteistyö tulisi pitää erillään hallintaan liittyvistä kysymyksistä; tämä tapahtuu yleensä taloudellisen kehityksen ja köyhyyden vähentämisen nimissä. Kiinan perinteinen poliittinen linja miellyttää monia kehitysmaita, jotka ovat kritisoineet lännen kehitysyhteistyöpolitiikkaa. Kiina on moneen otteeseen painottanut turvattomuuden ja köyhyyden välistä suhdetta ja samalla korostanut, että yhteistyön tulisi perustua taloudellisten etujen jakautumiseen kaikille osapuolille eikä sen ei tulisi olla riippuvaista kehitysyhteistyön kohdemaiden hallintorakenteista. BRI pyrkii kytkemään Kiinan erityisesti Afrikassa, Asian- ja Tyynenmeren alueella sekä Euraasiassa harjoittaman talousyhteistyön sen politiikan uuteen painopistealueeseen, fyysisten ja virtuaalisten yhteyksien lisäämiseen. Ajatus on, että taloudellinen kehitys, joka hyödyttää paitsi Kiinaa myös kaikkia kumppanivaltioita mahdollistuu vain turvallisuusyhteistyön kautta (sisältäen turvallisuusyhteistyön eri puolilla kehitysmaita). Vaikka Kiina on painottanut, että BRI on vain taloudellinen viitekehys, sen etenemisellä on merkittäviä vaikutuksia kansainväliseen diplomatiaan ja turvallisuuteen, erityisesti kehitysmaiden kontekstissa.

Huolimatta pyrkimyksisistä kasvatttaa rooliaan Arktiksen hallinnassa, Kiina on jatkanut toimimista kansainvälisen oikeuden mukaan arktisessa politiikassaan, sekä Arktisessa neuvostossa että YK:n merioikeussopimus UNCLOSin, Polaarikoodin ja uuden keskistä Jäämerta koskevan kalastussopimuksen kohdalla. Kiina sitoutui noudattamaan kansainvälistä oikeutta ja arktisten valtioiden lainsäädäntöä tammikuussa 2018 julkaisussa arktisessa strategiapaperissaan. Toisaalta, Etelä-Kiinan meren tapaus osoittaa, että Kiinan ja länsimaiden tulkinta kansainvälisestä oikeudesta, mukaan luettuna UNCLOS, voivat erota toisistaan. Valtiot tulkitsevat usein kansainvälistä oikeutta tavalla, joka parhaiten tukee niiden intressejä ja tavoitteita. Näin ollen ei ole poissuljettua, että tulevaisuudessa ei voisi ilmetä erimielisyyksiä Kiinan ja arktisten valtioiden välillä tietyistä kansainvälisen oikeuden säännöistä tai säädöksistä, jotka vaikuttavat osaltaan arktiseen hallintaan.

Kiinan ensimmäisen virallisen arktisen strategian julkaiseminen oli tärkeä askel maan pyrkimyksissä määritellä itsensä arktiseksi toimijaksi. Tämä raportti osoittaa, että Kiinan moninainen läsnäolo Arktiksella on kasvanut huomattavasti viimeisen kymmenen vuoden aikana, ja erityisesti sen jälkeen, kun maa sai vuonna 2013 virallisen tarkkailija-aseman Arktisessa neuvostossa. Kiina on suhteellisen lyhyen ajanjakson aikana kasvattanut merkittävästi tieteellisiä resurssejaan ja tutkimustoimintaansa pohjoisilla alueilla. Kiinalla on tällä hetkellä tutkimusasema Huippuvuorilla. Lisäksi maa on aktiivinen jäsen Kansainvälisessä arktisessa tiedekomiteassa (IASC), suorittaa säännöllisiä tutkimusmatkoja jäänmurtajallaan sekä on liittynyt lisääntyvässä määrin kansainvälisiin tiedeyhteistyöprojekteihin. Kiinan tutkimukseen ja kehittämiseen kohdistamien investointien määrä ja laajuus ovat kasvaneet ennennäkemättömällä tavalla sekä Arktiksella että yleisemminkin. Maa pyrkii enenevässä määrin ymmärtämään, kuinka arktinen ilmastonmuutos vaikuttaa paitsi arktiseen alueeseen myös Kiinaan itseensä.

Kiina on maailman suurin kasvihuonekaasujen tuottaja ja merkittävä ilmansaasteiden lähde, joten sillä on keskeinen vaikutus arktisiin ympäristöongelmiin – paitsi ilmastonmuutoksen seurausten kautta, myös Arktikselle kulkeutuvien pienhiukkasten takia. Vuonna 2014 Kiinan pääministeri Li Keqiang julisti “sodan saasteita vastaan”, sillä ilmanlaatu oli huonontunut merkittävästi eri puolella maata. Kiinan ilmanlaatupolitiikka onkin alkanut tuottaa tuloksia viime vuosina. Sen jälkeen kun Yhdysvallat ilmoitti vetäytyvänsä vuoden 2015 Pariisin ilmastosopimuksesta, kansainvälinen yhteisö on toivonut Kiinan omaksuvan johtajan roolin kansainvälisessä ilmastopolitiikassa – ja jossain määrin Kiina vaikuttaa halukkaalta tämän roolin ottamiseen.

Toisaalta on kuitenkin odotettavissa, että Kiina ei merkittävästi korota tavoitteitaan toisessa, vuonna 2020 julkaistavassa kansallisesti määritellyssä panoksessaan (Nationally Determined Contribution, NDC) Pariisin ilmastosopimukseen, sillä maan täytyy tyydyttää nopeasti laajentuvan taloutensa vaatima energiantarve. Tämä tarve täytetään suurelta osin edelleen hiilellä. Valitettavasti Peking ei tällä hetkellä osallistu Arktisen neuvoston mustan hiilen ja metaanin asiantuntijaryhmään, joka voisi tuottaa merkittävän kontribuution ilmastonmuutoksen vastaisiin toimiin Arktiksella, missä osa maahan laskeutuneesta mustasta hiilestä saa alkunsa Kiinasta. Kiinalla on sama dilemma myös muiden saasteiden kanssa: vaikka maa osallistuu pysyviin orgaanisiin ympäristömyrkkyihin (elohopea ja muovijäte) liittyvään kansainväliseen yhteistyöhön, se tuottaa samalla merkittävän osan näistä aineista, jotka lopulta päätyvät ravintoketjuihin arktisissa ekosysteemeissä.

Kiinan kansainvälinen taloudellinen rooli on kasvamassa, ja vaikuttaa selvältä, että maa on valmis hyödyntämään Arktiksella mahdollisesti avautuvia merenkulkuun liittyviä mahdollisuuksia ja investoimaan erityisesti arktisiin energiaresursseihin. Tällä hetkellä kiinalaiset toimijat keskittyvät kaasu- ja öljyinvestoinneissaan Venäjälle, kaivostoiminnassa Grönlantiin (jossa lähitulevaisuudessa myös mahdollisesti öljy- ja kaasuyhteistyötä), biotaloudessa Suomeen ja Islantiin sekä tietyssä määrin turismin suhteen Suomeen. Kiinan osallistuminen arktisen alueen kansainväliseen yhteistyöhön on kasvanut huomattavasti vuodesta 2007 lähtien, kun maa lähetti delegaation Arktisten virkamiesten (SAO) kokouksiin. Kiina näkee arktista aluetta hallinnoitavan sekä globaalilla että alueellisilla tasoilla, mikä kävi selvästi ilmi maan 2018 arktisessa strategiapaperissa. Näin ollen Kiina näkee Arktisen neuvoston vain yhdeksi osaksi laajempaa arktisen alueen hallinnoinnin verkostoa, ja että maan kasvanut rooli kansainvälisissä asioissa tehokkaasti osoittaa, että maa on jo nyt yksi relevanteista toimijoista arktisen alueen hallinnoinnissa.

Arktisen alueen alkuperäiskansoihin liittyvät kysymykset ovat tärkeä osa arktista hallintoa. Kiinan näkökulma aiheeseen on mutkikas. Kiinan näkemyksen mukaan millään sen omalla maa-alueella olevalla etnisellä tai vähemmistöryhmällä ei ole alkuperäisväestön statusta, ja Kiina on ollut herkkä erityisesti suhteessa mahdollisiin etnisiin levottomuuksiin erityisesti Tiibetin tapauksessa, kuin myös Xinjiangissa maan länsiosassa. Kiina on kuitenkin melko johdonmukainen alkuperäiskansojen oikeuksien kannattaja YK:ssa. Tämä on maalle poliittisesti helppoa, koska se katsoo, että alkuperäiskansojen oikeudet perustuvat ainoastaan kolonialistiseen historiaan, joten ne eivät koske sitä itseään. Kiinan kansainvälisellä näkemyksellä alkuperäiskansojen oikeuksista on kuitenkin potentiaalista merkitystä arktisessa kontekstissa.

Arktisen neuvoston tarkkailijana Kiina on hyväksynyt Nuukin tarkkailijakriteeristön, jonka mukaan tarkkailijoiden tulee ”kunnioittaa arktisten alkuperäiskansojen ja muiden arktisen alueen asukkaiden arvoja, intressejä, kulttuuria ja perinteitä, [kuin myös] on täytynyt osoittaa poliittista halua ja taloudellista kykyä kontribuoida pysyvien osallistujien ja muiden arktisten alkuperäiskansojen työhön”. Tähän mennessä Kiina ei ole kuitenkaan puhunut alkuperäiskansoihin liittyvissä yhteyksissä näiden oikeuksien näkökulmasta, eikä Peking ole järjestänyt minkäänlaista käytännöllistä yhteistyötä Arktisen neuvoston pysyvien tarkkailijoiden kanssa, toisin kuin esimerkiksi Singapore tai Euroopan unioni.

Suomen ja Kiinan välinen yhteistyö on lisääntymässä. Yhteistyö sai lisää poliittista voimaa sekä presidentti Xin vierailusta Suomeen vuonna 2017 että presidentti Niinistön jatkovierailusta Pekingiin tammikuussa 2019. Tämä raportti osoittaa, että myös arktisten kysymysten suhteen on käynnissä pienimuotoista yhteistyötä ja että on olemassa huomattavaa potentiaalia suomalaisten ja kiinalaisten toimijoiden yhteistyön lisäämiseksi arktisessa kontekstissa. Suomalaiset yritykset toimivat Kiinassa ja kiinalaiset investoinnit ovat alkaneet rantautua Suomeen, mukaan luettuna Suomen pohjoisiin osiin. Suomalainen arktinen osaaminen voidaan valjastaa tukemaan Kiinan arktista toimintaa, mikä saattaa tuoda kaupallisia hyötyjä Suomeen. Toistaiseksi kuitenkin vain muutamia sopimuksia on toimeenpantu ja investointeja toteutettu, mukaanlukien investoinnit matkailumajoitukseen Lapissa. Useimmat kiinalaisiin toimijoihin yhdistetyt projektit ovat suunnitelmien tai alkuvaiheen ideoiden tasolla. Jonkinlaista kiinalaista osallistumista voi liittyä myös suomalaisiin infrastruktuuriprojekteihin, joista useissa on nähtävissä pienimuotoista edistystä. Näihin kuuluvat suomalaista rataverkostoa Jäämerelle laajentava hanke ja suunnitelma merellisen tietoliikennekaapelin vetämiseen Kiinan (ja Aasian) ja Suomen (Euroopan) välille. Kiinalaisten toimijoiden rooli näissä projekteissa on kuitenkin epäselvä.

Useat mahdolliset kiinalaiset investoinnit Lappiin ovat vielä toteuttamatta, mukaan luettuna kaksi biojalostamo- ja biopolttoaineprojektia Kemijärvellä ja Kemissä. Sama pätee matkailumajoitukseen kohdistuviin lisäinvestointeihin. Lapissa ja Pohjois-Suomessa on edelleen suurta potentiaalia lisätä talviturismia ja urheiluinvestointeja, kylmän ilma-alan testausta, datakeskuksia jne. Nämä projektit odottavat vielä toteutumistaan. On myös toistaiseksi epäselvää mikä Suomen asema Kiinan Silkkitie-hankkeessa tulee olemaan.

Suomalaisen arktisen osaamisen kaupallistamiseksi Kiinassa on periaatteessa olemassa paljon potentiaalia. Tällä hetkellä lupaavin alue on jääkelpoisten alusten ja komponenttien suunnittelu ja rakentaminen. Näillä osa-alueilla on jo toteutunut projekteja; esimerkiksi Aker Arctic on osallistunut Kiinan toisen jäänmurtajan (*Xuelong II*) suunnitteluun ja Wärtsilä rakentanut jääolosuhteissa toimimaan kykenevät moottorit. Vaikka tällä hetkellä ei ole käynnissä yhteistyötä, mahdollisuuksia on olemassa myös liittyen suomalaiseen *cleantechiin*,

tulevaisuuden jäänmurtoon ja näihin liittyviin tekniikoihin. Suomi pyrkii säilyttämään teknologisen asiantuntemuksen ja kehitystoiminnan kotimaassa, erityisesti mitä tulee jääkelpoisten alusten ja rakennelmien suunnitteluun. Tämän vuoksi suomalaiset päättäjät ovat haluttomia houkuttelemaan ulkomaisia suoria investointeja (FDI) tälle sektorille.

Vaikka joillakin liiketoiminnan alueilla suomalaisten tuotteiden ja osaamisen markkinoinnista “arktisina” on ollut selkeää etua, tämä ei pidä välttämättä paikkaansa kaikilla sektoreilla mikäli suomalaiset teknologiat opitaan tuntemaan Kiinassa vain pohjoiseen ilmastoon soveltuviksi (esim. rakentaminen, vesihuolto tai ilmastointiteknologiat).

Yhteistoimintaan kiinalaisten kanssa liittyy erinäisiä huolenaiheita ja riskejä, jotka voidaan eritellä kolmeen kategoriaan. Ensinnäkin, kiinalaiset investoinnit ja taloudellisen, tieteellisen ja muun yhteistoiminnan muodot voivat kasvattaa Kiinan vaikutusvaltaa Suomessa. Kiinalaisten sijoittajien ja toimijoiden (samoin kuin minkä tahansa yksittäisen ulkomaisen investoijan) pelätään saavan liian suuren, pitkäaikaisen vaikutuksen Lapin alueellisessa taloudessa tai Suomen talouskehityksessä yleisemmin, mikä altistaisi Suomen talouden Kiinan makrotalouden heilahteluille. Toiseksi, kiinalaisten sijoittajien ja kumppaneiden ympäristöllinen ja yhteiskunnallinen toiminta aiheuttaa huolia. Kiinalaisten investointien vaikutus paikalliseen liiketoimintaympäristöön ja työmarkkinoihin täytyy arvioida joka hankkeen kohdalla erikseen. Kiinalaisilla investoijilla ja yrityksillä ei ole olemassa yhtä ainutta toiminnan tapaa. Lisäksi tekijänoikeuksiin liittyvät kysymykset ovat ongelmallisia. Kolmanneksi, paikalliset toimijat, jotka usein vahvasti kannattavat kiinalaisia investointeja, epäilevät, että kiinalaisten investoijien ilmoittamat suunnitelmat jäävät usein toteuttamatta tai lyhytikäisiksi.

Useat huolet Kiinan arktisen toiminnan aiheuttamista riskeistä perustuvat negatiivisiin arvioihin Kiinan toimista muilla alueilla kuten Afrikassa tai Etelä-Aasiassa. Toisaalta tutkimukset ovat nostaneet esiin, että kiinalaiset toimijat ovat kyvykkäitä sopeutumaan paikallisiin olosuhteisiin ja säädöspohjaan, ja että kiinalaisten investoijien toiminta on kauttaaltaan parantunut viimeisen vuosikymmenen aikana.

Tietyt arktisen toiminnan osa-alueet ovat erityisen herkkiä yleisen mielipiteen kääntymiselle kiinalaistoimintaa vastaan, vaikka tällä hetkellä Pohjois-Suomeen kohdistuviin kiinalaisinvestointeihin suhtaudutaankin yleisesti ottaen positiivisesti. Näitä ovat muun muassa suuret maakaupat erityisesti alueilla, joilla on suuri ympäristöllinen, biodiversiteetti- tai maisemallinen arvo; kiinalaisen työvoiman suurimuotoinen tuonti alueelle; tai kiinalaisten rakennusyritysten toiminta ehdoilla, jotka paikalliset toimijat kokevat epäreiluksi kilpailuksi. Suomalaisten päätöksentekijöiden täytyy käyttää erityisen huolellista harkintaa investoinneissa, jotka antaisivat kiinalaisille toimijoille vaikutusvaltaa kriittisen infrastruktuurin, kuten rautateiden tai lentokenttien, rakentamiseen ja käyttöön.

Suomen tulee harkita resurssien suuntaamista Kiinan kansainvälisen vaikutusvallan ja kiinalaisten liiketoiminnan harjoittajien toimintatapojen parempaan tuntemukseen, sekä yleisemmin Kiinan yhteiskunnan ja kulttuurin ymmärryksen kasvattamiseen, mukaan luettuna mandariinikiinan osaamisen edistäminen Suomessa.

EXECUTIVE SUMMARY

The People's Republic of China has now become a great power in the international system, and its foreign policy affects not only the Asia-Pacific but also numerous other regions. The Arctic is but the most recent part of the world to be incorporated into Beijing's increasingly confident cross-regional diplomacy. This is manifested in the country issuing its first Arctic strategy document in 2018. However, there are noteworthy differences between China's Arctic engagement and its foreign policies in other parts of the world, especially given region's distinct geography, demographics and economy.

China is not an Arctic State, since it has no sovereign areas in the Arctic, but it seeks to become an Arctic partner and player, and so has had to adjust its cross-regional policies accordingly. In the process of becoming a great power, especially in the economic realm, China is gradually challenging the United States in many areas of foreign policy, a trend that is manifesting (at the time of writing) as an emerging trade war between the two countries. It is apparent that China's great power status will only consolidate with time. That means that Beijing's Arctic presence in various policy areas will also likely grow over time. While scientific diplomacy will likely continue to be the vanguard of Chinese Arctic interests, economic concerns are also starting to take precedence, given China's ongoing need for energy and raw materials as well as new shipping lanes.

Although Beijing has also stressed that it has no strategic interests in the Arctic, the country's growing maritime power and its rising presence in other oceans, including the Indian and Pacific, has led some scholars to question the motives of Chinese engagement in the region. Accordingly, they view China's increasing involvement in the Arctic in unfavourable and hostile terms, and they interpret Chinese actions in the region predominantly in security and military terms. Critics have pointed to the potential for the 'dual-use' of Chinese facilities in the Arctic and warned against China silently expanding its influence and dominance through scientific and economic engagement. Other scholars, however, have found this approach to be highly reductionist and limited in the necessarily nuanced analysis of Chinese Arctic policy. This latter group notes that such concerns have much to do with the fact that China is a great power and therefore is seen as having a strategic agenda in much of its activities in the Far North. Most of all, in light of very high international scrutiny that the media place on any actions of China in the Arctic, among experts and state officials, it is highly improbable that China could significantly extend its reach and increase its power in the Arctic via covert means.

Such an approach, however, is not seen as being potentially beneficial to China itself. Instead, Beijing has been notably cautious about being seen as challenging the strategic status quo in the Far North. In comparison with other non-Arctic States that have been developing Arctic policies and strategies, including United Kingdom, France, Germany, Japan and South Korea, China's Arctic policies have been subject to a much greater amount of global scrutiny, especially out of concern that Beijing may be seeking to develop a 'hard security' agenda in the region. This level of international attention strongly inhibits any sort of revisionist behaviour on China's part. In addition, China is affected by a desire not to antagonise the 'Arctic Eight' states, especially Russia, and China's general lack of on-the-ground knowledge in the region makes any overt Chinese revisionist policies unacceptably risky. Thus, at present the cost/benefit equation has strongly directed China to take a conservative and multilateral approach to the region, as well as one that respects international law and regional governance

and regimes. China's Arctic policy is therefore a noteworthy exercise in identity-building. The country cannot claim Arctic geography, and therefore must find other tools to build an Arctic identity that would be acceptable, or at least not resisted, by the Arctic Eight.

At present, China is not challenging the existing general Arctic security and governance frameworks; however Beijing is starting to make changes in the realm of regional norms, meaning affecting the informal understandings that govern the behaviour of actors in international society, including states and governments. China is no longer content to be merely a 'norm-taker' in the Arctic. Instead, China is becoming more comfortable with acting as a norm-maker, that is, an actor proposing its own ideas and norms and not only observing and participating in existing frameworks. This is evident from the 2017 extension of the Belt and Road Initiative (BRI), as well as other forms of Chinese diplomacy, into the Arctic Ocean. Conservative estimates place the overall cost of the BRI, which extends to many parts of the world, including Africa, Central Asia, Europe, the Middle East and Russia in addition to the Arctic, at US$1 trillion. The BRI has coalesced into the primary foreign policy of President Xi Jinping since he took office in 2012.

China's Belt and Road Initiative (BRI) is not only a multidimensional and global development endeavour, as it is also a framework designed to establish and fortify China as an economic pole in the international system. The Belt and Road is especially central to Chinese foreign policies and identity-building in developing regions and emerging markets. The BRI framework promotes a neo-Westphalian, state-centric approach, stressing partnerships between governments. At the same time, the initiative matches China's traditional views that international assistance and economic co-operation should be kept apart from governance issues, especially in the name of promoting development and eradicating poverty. This view has proven popular among many developing country governments which have been critical of Western approaches to aid and assistance. Beijing has frequently stressed the connections between security and underdevelopment, while stating that cooperation should be based on economic benefits for all sides and not contingent on the specific internal governance structures of potential partners. The BRI serves to connect existing Chinese economic engagement policies, for example those in Africa, the Asia-Pacific and Eurasia, with a focus on building actual and virtual roads connecting China with key economic partners. This includes the idea that cooperation for economic development, based on "win-win" (shuangying 双赢) partnerships between states, cannot be addressed separately from security cooperation in many parts of the developing world. As such, even though Beijing has stressed that the BRI is primarily an economic exercise, its evolution will have profound effects on international diplomacy and security, including in the developing world.

In its pursuit of expanding China's role in Arctic governance, Beijing continues to abide by public international law in its Arctic policy, including in the cases of the Arctic Council, UNCLOS, the Polar Code and the new fishing agreement in the Central Arctic Ocean. Regarding its Arctic activities, China's commitment to abide by international law and legal frameworks of Arctic States was restated in the Chinese government's January 2018 White Paper (*Zhongguo de Beiji Zhengce Baipishu*《中国的北极政策》白皮书). In the White Paper, China's role in the region was directly connected to existing legal and political frameworks. However, the South China Sea case shows that Chinese and Western interpretations of international law, including UNCLOS, may differ. International law is interpreted, in some occasions, by states in a way that best supports their interests and objectives. It cannot be excluded that there will be future disagreements between China and Arctic States on particular international law rules in the Arctic or of those provisions' relevance to the Arctic.

The White Paper, the country's first ever official Arctic policy document, has been China's final step in establishing itself very clearly as an Arctic actor. The current report confirms that its manifold presence in the region has grown significantly in the last ten years, in particular since the country received formal observer status in the Arctic Council in 2013. Over the course of a relatively short time, China has significantly increased its scientific facilities, thereby enhancing its scientific potential in the North. At present, among others, China has its research station in Svalbard Archipelago, is an active member of the International Arctic Science Committee (IASC), conducts regular icebreaker science expeditions in the Arctic, and is becoming increasingly involved in international science cooperation projects. The scale and increase of Chinese investments in research and development over the last twenty years remains largely unparalleled, both in the Arctic and in the Chinese research in general. The country has become increasingly interested in how climate change in the Arctic affects not only the region itself but also China.

As the world's major emitter of greenhouse gases and a major source of air pollution, China contributes significantly to the Arctic environmental problems, most conspicuously through its share in the global emissions of greenhouse gases but also through other pollutants that end up in the Far North. Since early 2014, when Chinese Premier Li Keqiang (李克强) declared a 'war on pollution' in the wake of worsening air quality conditions in many parts of the country, Chinese air quality policies have begun to produce results. After the United States announced its decision to withdraw from the 2015 Paris Agreement, the international community has hoped for China to take a leadership role in international climate politics; to some extent, China appears to be willing to assume this role.

On the other hand, it can be expected that the country will not substantially enhance the level of ambition of its second Nationally Determined Contribution (NDC) to be published in 2020, since it faces the dilemma of needing to satisfy the energy needs of a country with a rapidly-expanding economy, while much of its own energy consumption based on coal. Beijing, regrettably, does not currently participate in the Arctic Council Expert Group's work on black carbon and methane, which could present an important contribution to addressing the impacts of climate change in the North, where some of the black carbon that is deposited there originates from China. Beijing faces the same challenge in terms of other pollutants. The country participates in global co-operation on persistent organic pollutants (POPs) and mercury as well as on plastic waste, but it also produces a lot of these substances that then end up in the Arctic ecosystems and food chains.

China's global economic role is growing, and it seems clear that the country is prepared to utilise the emerging navigational opportunities and to invest in the Arctic's energy resources in particular. At present, Chinese actors focus mainly on Russia in terms of oil and gas investments, Greenland with respect to mining (and potentially oil and gas in the near future), bio-economy in Finland and Iceland, and to a degree Finland in the area of tourism co-operation. Thus, it can be concluded that China's presence in international co-operation in the Arctic has grown significantly from 2007 onwards, when it started to send delegations to the Arctic Council Senior Arctic Official (SAO) meetings. China's view is that Arctic is being governed in both global and regional levels. This view became evident at the latest in its 2018 Arctic strategy. Thus, China perceives the Arctic Council as only one segment of a broader network of Arctic governance, and that its own expanded role in international affairs successfully demonstrates that it is already one of the relevant parties in Arctic governance.

Indigenous Peoples' questions are an important element of Arctic governance. Beijing's approach to these questions is complex. China does not consider any of the ethnic or minority groups inhabiting its territory to have the status of an Indigenous People, and in broader ethnopolitical context China has been sensitive to the potential for ethnic unrest, especially in the cases of Tibet and Xinjiang in the country's far west. China, however, is a fairly consistent supporter of Indigenous rights at the United Nations. This is politically easy for China as Beijing believes indigenous status arises exclusively from the history of colonization and is not applicable to China itself. Chinese international stance does, however, potentially matter in the Arctic context. In the Arctic context, China, as an Observer to the Arctic Council, has accepted the organisation's Nuuk Observer criteria, which calls upon Observers to 'respect the values, interests, culture and traditions of Arctic indigenous peoples and other Arctic inhabitants as well as have demonstrated a political willingness as well as financial ability to contribute to the work of the Permanent Participants and other Arctic indigenous peoples.' Thus far, however, Beijing has not spoken of indigenous issues in terms of indigenous rights, nor has Beijing organised any practical co-operation with the Arctic Council Permanent Participants organisations, in contrast to, for instance, Singapore or the European Union.

Co-operation between Finland and China is growing, and received a political boost with the visit of President Xi to Finland in 2017 and the follow-up visit by Finnish President Sauli Niinistö to Beijing in January 2019. This report demonstrates that there is also modest co-operation in regards to Arctic questions, and there is a notable potential for enhancing collaboration between Chinese and Finnish actors in this respect. Finnish companies are operating in China and Chinese investments are starting to enter Finland, including in the northern regions of the country. There are possibilities for Finnish Arctic expertise to bring commercial benefits to Finland by supporting China's expanding Arctic activities. However, at present, there are only a few instances of realised investments (such as accommodation in Lapland) and implemented contracts. Most projects associated with Chinese actors remain at the stage of planning or initial ideas. There is modest progress regarding several Finnish infrastructure projects, which may entail some form of Chinese involvement. These include the project to extend the Finnish rail network to the Arctic Ocean and the plan to lay a marine fibre-optic cable connecting China (and Asia) and Finland (Europe). The role of Chinese actors in these projects is unclear.

Many potential Chinese investments in Finnish Lapland have yet to be implemented, among them two bio-refinery and biofuels projects in Kemijärvi and Kemi, respectively, and further investments in tourist accommodation. In Lapland and northern Finland, there remains great potential for further winter tourism and sports investments, cold climate testing or data centres. However, those projects, as of now, await realisation. Finally, the specific place of Finland within the BRI is yet to be clarified.

There is, in principle, much potential for commercialising Finnish Arctic expertise in China. Currently, the most promising area is the design and construction of polar-class vessels and components. It is in this area that examples of implemented projects can be found, including the role of Aker Arctic in designing China's second polar icebreaker (*Xuelong II*) or the construction of engines capable of operation in polar conditions by Wärtsila. While there are no current instances of cooperation, potential also exists in Finnish clean technology, future icebreaking services and in related technologies. The approach in Finland is to maintain technological expertise and development in the country, especially when it comes to the design of polar-class vessels and installations. Consequently, Finnish decision-makers are unwilling to invite foreign direct investments into this sector.

While in some business areas the ‘Arctic’ labelling of Finnish products and expertise has been a marketing advantage, this is not necessarily the case for all sectors if Finnish technologies come to be seen in China as applicable only to the northern climate, (e.g. construction, water engineering or air-conditioning technologies).

There are various concerns and risks related to cooperation with Chinese partners. Three dimensions of such risks can be distinguished. First, there are anxieties related to the perception of Chinese investment and economic, scientific and other forms of co-operation as constituting instruments of increasing Chinese influence. There are anxieties about Chinese investors and operators, (and similarly any single major foreign investor) gaining too strong a long-term influence on the regional economy in Lapland, and China as a whole gaining too great an influence on the Finnish national economy. This would also translate to Finland’s higher level of exposure to fluctuations in the Chinese economy. Second, there are concerns related to the environmental and social performance of Chinese actors as investors or business partners. The impacts of Chinese investments on the local business landscape and labour market need to be assessed for each project. There is no single pattern of Chinese investors and companies’ behaviour. Moreover, issues related to intellectual property rights remain problematic. Third, local actors, who are often strongly in favour of Chinese investments, have misgivings that plans announced by Chinese investors often remain unimplemented or ephemeral.

Many perceptions are based on the negative assessment of past Chinese activities in regions such as Africa and South Asia. On the other hand, studies have underlined that Chinese operators are capable of adjusting to local conditions and regulatory frameworks, and that the performance of Chinese investors has overall significantly improved over the last decade.

Some types of Chinese presence in the North are particularly likely to adversely affect the current, generally positive, attitude towards Chinese investors in Northern Finland. These include: major land purchases, especially in areas of high environmental, biodiversity or landscape value; bringing in Chinese workforce in significant numbers; and the involvement of Chinese construction companies on terms that would be perceived by local actors as unfair competition. Finnish decision-makers have to apply particular scrutiny in the case of investments that would give Chinese companies influence over the construction and use of critical infrastructure such as railways or airports.

Finland should consider dedicating resources towards better understanding Chinese foreign influence, the modes of operation of Chinese business actors and generally improved understanding of the Chinese society and culture, including facilitating Mandarin language skills in Finland.

LIST OF ACRONYMS

A2/AD	Anti-access/Anti-denial
AC	Arctic Council
ACIA	Arctic Climate Impact Assessment
ADIZ	Air defence identification zone (China)
AEC	Arctic Economic Council
AIIB	Asian Infrastructure Investment Bank
AMSA	Arctic Marine Shipping Assessment
APEC	Asia-Pacific Economic Cooperation
ASO	Atmosphere-Sea-Ice-Ocean
ASSW	Arctic Science Summit Week
BASIC	Brazil, South Africa, India and China grouping
BAT	Baidu, Alibaba, Tencent firms
BFRs	Brominated flame retardants
BRI	Belt and Road Initiative
BRICS	Brazil-Russia-India-China-South Africa group
CAA	China Arctic and Antarctic Administration
CAMCE	CAMC Engineering Ltd.
CAO	Central Arctic Ocean
CCAC	Climate and Clean Air Coalition
CCAMLR	Convention for the Conservation of Antarctic Marine Living Resources
CCCC	China Communications Construction Company
CDEM	Construction, design, equipment and manning standards (law of the sea)
CIAO	China-Iceland Arctic Science Observatory (earlier China-Iceland Joint Aurora Observatory)
CMA	China Meteorological Administration
CNARC	China-Nordic Arctic Research Centre
CNOOC	China National Offshore Oil Corporation
CNPC	China National Petroleum Corporation
COSCO	China Ocean Shipping Company
CPEC	China-Pakistan Economic Corridor

CSSC	China State Shipbuilding Corporation
CWEC	CSSC Wärtsilä Engine Co Ltd
EFTA	European Free Trade Area
EU	European Union
FinChi	Finland-China Innovation Centre
FONOPs	Freedom of Navigation Operations (US)
FTA	Free Trade Agreement
GPS	Global Positioning System
HCB	Hexachlorobenzene
IASC	International Arctic Science Committee
ICT	Information and communication technology
IMO	International Maritime Organization
IPRs	Intellectual property rights
KMI	Korea Maritime Institute
KOPRI	Korea Polar Research Institute
LNG	Liquefied natural gas
MARPOL	International Convention for the Prevention of Pollution from Ships
MCC	Microcrystalline cellulose
MNR	Ministry of Natural Resources (China)
MOSAIC	The International Multidisciplinary drifting Observatory for the study of the Arctic Climate
MOST	Ministry of Science and Technology (China)
MOU	Memorandum of Understanding
NATO	North Atlantic Treaty Organization
NDB	New Development Bank
NDC	Nationally Determined Contribution (Paris Agreement)
NDRC	National Development and Reform Commission (China)
NPC	National People's Congress (China)
NSR	Northern Sea Route
NWP	Northwest Passage
OECD	Organization for Economic Cooperation and Development
PCA	Permanent Court of Arbitration
PLA	People's Liberation Army (China)
PM	Particulate matter

POPs	Persistent organic pollutants
PPP	Public-private partnership
PRIC	Polar Research Institute of China
R&D	Research and development
RANNIS	Icelandic Centre for Research
REEs	Rare earth elements
RFE	Russian Far East
SAOs	Senior Arctic Officials (Arctic Council)
SCAR	Scientific Committee on Antarctic Research
SCS	South China Sea
SLCPs	Short-Lived Climate Pollutants/Forcers
SOA	State Oceanic Administration (China)
SOE	State-owned enterprise
SOLAS	International Convention for the Safety of Life at Sea
SYKE	Finnish Environment Institute
UN	United Nations
UNFCCC	United Nations Framework Convention on Climate Change
UNIFI	Universities Finland
UNPFII	United Nations Permanent Forum on Indigenous Issues
UNCLOS	UN Convention on the Law of the Sea
UNSC	United Nations Security Council
US	United States
USGS	United States Geological Survey
USSR	Union of Soviet Socialist Republics
VMI	National Forest Inventory (Finland)
VTT	Technical Research Centre of Finland
WTO	World Trade Organization

INTRODUCTION

This report investigates China in the Arctic. In particular, it examines and tries to understand China's evolving Arctic policy and the country's diplomatic, economic and strategic presence in the region. The report further pays special attention to the ramifications that China's growing interest in the Arctic may have on Finland, and what opportunities for co-operation it facilitates.

To understand Beijing's Arctic engagement, it is necessary to examine China's overall foreign policy interests as well as to analyse the ongoing global economic, political and legal transformations that shape China's overall interests in the region. In fact, the rise of China constitutes one of the key drivers of Arctic transformation, and so the report identifies recent changes and continuities in China's Arctic policy. Chapter 1 serves as an important background section for understanding how China's Arctic policy has evolved. One significant area of China's foreign policy — combating global climate change — is studied as one example of the country's rising role in global affairs.

Beijing released its first official Arctic strategy document in January 2018. The White Paper, titled *China's Arctic Policy* (PRC State Council, 2018), was the culmination of a long process that Beijing undertook over the previous decade to demonstrate its growing knowledge of, and commitment to, the Arctic region in order to be accepted as an Arctic player despite its lack of geography north of the Arctic Circle. Thus far, the responses to Beijing's Arctic strategies have been mixed and have been viewed differently in various parts of the Arctic region.

The nordic states have been largely positive about greater Chinese engagement, especially with the prospect of an 'Ice Silk Road' (*Bingshang Sichouzhilu* 冰上丝绸之路) emerging in the region (*Global Times*, 2018, November 9). This development would mean increased numbers of Chinese cargo vessels making use of the Northern Sea Route (NSR) in the Arctic Ocean between Siberia and Northern Europe, but also other communication and transportation projects that would link China with Arctic States and organisations. Canada and Russia, states that have traditionally been more wary about their Arctic sovereignty, have been cautious of Beijing's longer-term goals in the region. However, the Sino-Russian relationship in the region has arguably been one of convenience; Chinese support has been crucial for Russian economic initiatives in Siberia and the Russian Far East (RFE), such as the Yamal liquified natural gas (LNG) initiative (Reuters, 19 July 2018). The United States is becoming more concerned about the growing Russian and Chinese strategic interests in the Arctic, including an emerging 'icebreaker gap' and the possibility of shared Sino-Russian technology exchanges, such as in the area of nuclear powered icebreakers and submarines.

The Chapter 2 examines China's evolving policy stances and its behaviour in various areas as identified in its first ever Arctic Policy, published in 2018. The focus is on Chinese interests in and contributions to Arctic governance, as expressed in the White Paper and manifested in its diplomatic, economic and other policies in the region. This chapter is structured according to the main ideas expressed in the White Paper, including the deepening exploration and understanding of the Arctic, protecting the environment of the Arctic and addressing climate change, utilising polar resources in a lawful and rational manner, and participating actively in Arctic governance and international co-operation.

In Chapter 3, Chinese interests and actions in the Arctic are studied from the viewpoint of one Arctic State, Finland. Within which Arctic fields of activity and Arctic business sectors is there the potential for establishing or enhancing Chinese-Finnish interaction? Are there any concerns and risks related with Chinese-Finnish Arctic co-operation? The focus is on commercial activities. The section provides an overview of current and potential areas of co-operation. First, China's presence in the Finnish Arctic (Northern Finland and especially Lapland) is outlined. This includes the areas of bio-economy, tourism and transportation. Second, the section considers, in a general manner, the co-operation potential within the numerous fields of Finnish Arctic expertise. These are chosen based on the areas identified in the Finnish Arctic strategic documents, which assume the whole of Finland to be an Arctic country (Prime Minister's Office 2013, 2017).

The potential for the commercialisation of Finnish expertise is considered in relation to the present and expected in the future Chinese Arctic activities. The assessment was carried out across a variety of sectors in a qualitative, general manner. Any quantitative, monetary assessment of Chinese investment potential or Finnish business potential within vaguely defined "Arctic sectors" would be mostly speculative and thus of little practical use for policymakers. At the end of the chapter (Section 3.4.), the authors highlight concerns and risks, (or their perception by local actors), related to Chinese investment in Finland and to the co-operation with Chinese partners. The research on the themes outlined in Chapter 3 was carried out as a desk study with the support of personal communication (mainly interviews) with key actors relevant for each discussed sector or project. Section 3.1. provides a broader discussion on the methodology for the study.

The Finnish government's 2013 Arctic Strategy (p. 28) states that the "growing presence of China and other Asian countries and companies in the Arctic is a fact of life that needs to be taken into account". This report seeks to shed light on the scope of that "growing presence" and the ways it can be "taken into account".

1. CHINA IN THE CHANGING WORLD

Chinese foreign policy continues to be dictated by changing global and regional events, including those described below, but also by internal dynamics in China, including the fact that there is a greater understanding of foreign policy issues in the country well beyond that of the government and its major agencies. China has sought to modernise both its government and its economy to reflect the current international sphere. Beijing is also seeking to expand its security interests in order to better protect its citizens and assets abroad and to increase the country's general influence in world politics.

Internally, many recent developments have had a clear impact on Chinese foreign policy. These have included ongoing domestic economic reform, the combating of corruption, the drive to reduce environmental damage, and the promotion of liberalised trade to better improve Chinese businesses. Moreover, there is now a greater concentration of domestic and foreign policy decision-making power by President Xi Jinping (习近平). This consolidation was most prominently illustrated by the decision at the country's National People's Congress (NPC *Quanguo Renmin Daibiao Dahui* 全国人民代表大会) meeting in March 2018 to remove term limits for the position of president, thus giving Mr Xi the power to shape both China's domestic policy and its international relations for an indefinite period (Buckley and Bradsher, 2018; Tepperman, 2018). The question now is what Beijing's foreign policy and strategic priorities will be in the near future, and whether China's ongoing rise as a great power will lead to greater co-operation or competition on a regional and potentially even global scale.

There is also an expansion of various ministries and departments that are involved in foreign affairs as Chinese influence in world affairs is growing. Recent additions have included a dedicated aid agency as well as a greater concentration on environmental affairs. The ongoing importance of the People's Liberation Army (*Zhongguo Renmin Jiefangjun* 中国人民解放军), or PLA, in foreign policy concerns is still of much relevance, given that the PLA retains strong decision-making powers within the Chinese government, a legacy of the country's revolutionary era under Mao Zedong (毛泽东) between 1949 and 1976. Chinese foreign policy interests have been greatly expanded over the past three decades, with an emphasis on developing Chinese interests on the global stage as opposed to primarily within the Asia-Pacific. Under the administrations of Hu Jintao (胡锦涛) in 2002-12 and now Xi Jinping, Beijing's foreign policy interests have expanded well beyond the Pacific Rim, including Africa, Eurasia, Europe, and the Middle East. The Arctic is one of the most recent examples of Beijing's commitment to cross-regional diplomacy as the country grows more confident of its great power status. The development of the Belt and Road Initiative (*Yidaiyilu Changyi* 一带一路倡议), or BRI, first announced by President Xi in 2013, has been the most recent manifestation of China's economic diplomacy and strategic thinking on the international level (PRC Foreign Ministry, 2013).

At the same time, Chinese bilateral diplomacy efforts are ongoing. Since the 1990s, under the presidency of Jiang Zemin (江泽民) between 1992-2002, Beijing often developed bilateral diplomacy in the form of strategic partnership arrangements, and under President Hu, China became more comfortable with developing bilateral free trade agreements (FTAs) once China was admitted to the World Trade Organisation (WTO) after fifteen long years of negotiations (Lanteigne, 2013). FTAs have been a little-noticed opening for China to develop its Arctic policies, as China penned an FTA with Iceland in 2013 and has been in similar negotiations

with Norway since 2017 after diplomatic relations were fully restored the previous year following a six-year freeze due to tensions related to awarding the Nobel Peace Prize to Liu Xiaobo in 2010 (Watts and Weaver, 2011). In the case of Russia's Vladimir Putin government, there has been much enthusiastic talk about the emergence of an 'Ice Silk Road', (although specifics are still not determined), which would link both states as well as the Nordic region through the Arctic. Current projects such as the Yamal project — as well as potential infrastructure such as the cross-Siberian railways and fibre optic links that may link Finland with China — would form part of this 'road'.

1.1. Challenging American hegemony

The growing trade frictions between China and the United States, especially since the start of 2018, can be seen as one manifestation of power rivalry between the two great powers and a possible power transition. The two sides have engaged in retaliatory tariffs on each other's goods since the middle of 2018, partially spurred by Washington's concerns about a leap in China's high technology capabilities as part of its 'Made in China 2025' (*Zhongguo Zhizao 2025* 中国制造2025), including artificial intelligence, robotics, quantum computing, driverless vehicles, and blockchain (*qukuailian* 区块链) applications (Tse and Wu, 2018). The American government under Trump is concerned that the Chinese government's push towards more advanced manufacturing by Chinese industries is a direct challenge to US technological superiority. From a wider viewpoint, the US is concerned about eventually being overtaken in terms of overall GDP by China in the coming years. Additionally, China has been building its political and military power on a global scale and has become more involved in diplomatic endeavours as well as peacekeeping and peace-building in parts of the world that are well-beyond the Pacific Rim. Although China's military spending, reported at about US$175 billion for 2018, remains far behind that of the United States, especially given the possibility for the US military budget for next year to rise to levels of US$700 billion or more (Rajagopalan 2018; Stein 2018), China's power projection capabilities have developed considerably in the past decade, as has been seen in the Indian Ocean and deeper into the Pacific region.

Thus, it can be argued that China under President Xi has now developed to the point of becoming a confident great power,[1] after many years of settling carefully into that role. One of the Chinese leader's first domestic initiatives after taking power, for example, was the concept of the 'Chinese dream' (*Zhongguomeng* 中国梦) (Xi, 2014) which refers to China's growing economic power, rejuvenation and widening opportunities for people in the country (Wang, 2014). There is much debate about whether China is abandoning a long-held foreign policy philosophy, in existence in some form since the leadership of Deng Xiaoping (邓小平) in the 1980s, of 'keeping a low profile' (*taoguang yanghui* 韬光养晦). There has also been the argument that this Dengist philosophy has been superseded by the idea of 'trying to accomplish something' (*yousuo zuowei* 有所作为) under Xi, and that more recently Chinese foreign policy

[1] This means that the country no longer fears subjugation by other great powers, as was the case during much of the Cold War.

has been marked by a greater ‘assertiveness’, although that term is also widely open to interpretation (Wang, 2014; Johnston, 2013).

Soon after Xi Jinping came to power, Beijing changed its overall strategic narrative, pointing in the direction that China is rapidly altering its traditional 'passive', 'never seek leadership' and 'non-intervention' principles in its foreign policy conduct. In 2014, the Politburo announced that China needs to strengthen its institutional power in multilateral institutions and to move from 'side-by observer’ and 'follower' to 'active participator' and 'guiding actor' (Xinhua Agency, 2014). In other words, Beijing aims at becoming a rule-maker and an active shaper of the architecture, rules and norms of international institutions. At the 2016 Group of Twenty (G20) meeting in Hangzhou, Xi Jinping proudly announced a new political slogan that China should become a ‘guiding power’ of the world (*Zhongguo yinling shijie* 中国引领世界) marking a clear demarcation from Dengist 'keep a low profile and never seek leadership' principles (G20 meeting website, n.d.).

Furthermore, in a concerted fashion the Xi government has stipulated new laws that provide Beijing the right to send troops overseas to prevent or counter terrorist activities that threaten Chinese people or assets, thus paving the way of abandoning the treasured foreign policy principle of 'non-intervention’ (The US-China Business Council, 2015). For example, China is increasing its security forces’ presence in Tajikistan and Afghanistan, and based on international media reports China has already been participating in counter-terrorist joint operations in Afghanistan during the past year (Clover, 2017, February 26). China is also reportedly building a military base in Afghanistan, but Beijing denies that it has troops or will send combat troops to Afghanistan (Putz, 2018, August 29). China has also established hundreds of private or semi-private armed security companies that provide security services to Chinese State-Owned Enterprises (SOEs) in politically unstable environments, including a number of Belt and Road partner countries such as African states (Legarda and Nouwens, 2018, August 16). Few outspoken Chinese scholars and politicians have pointed out that abandoning Dengist foreign policy principles is not only wrong, but China is too weak to seek the position that Xi’s regime aims to reach. Scholars warn that the imminent economic risks instigated by the Sino-American trade war combined with the radical shift in foreign policy conduct could turn out to be a damaging imperial overstretch for the current regime (Sheng, 2018, October 25; Barmé, 2018, August 1; Mai, 2018, October 30). What can be said, however, is that the Arctic is the latest example of the growing comprehensive approach that Beijing has taken in its foreign policy development, as will be described later in this report.

As noted above, relations between China and the United States have become more problematic, partly as a result of expanded Chinese economic and military power, but also due to the current turn towards greater isolationism, unilateralism and transactionalism by the Donald Trump government since 2017 (Sinkkonen, 2018). These events have led to intensified debates over whether a ‘power transition’ (Organski, 1968; Kugler and Tammen, 2001) will take place between China and the US in the coming decades. History has demonstrated, with some exceptions, that such transitions often result in war if dissatisfied challenger power aligns against a satisfied status quo power. This has also been referred to in recent media as the ‘Thucydides Trap’ (Allison, 2017), drawing parallels to the ancient rivalry between the city states of Athens and Sparta. As the centenary of the First World War was observed starting 2014, there was also some debate as to whether similar conditions that caused a regional Balkan conflict to escalate into a global conflict were being replicated in the Pacific Rim.

However, as both states are nuclear powers, the possibility of a great power war along the lines of conflicts on the nineteenth and twentieth centuries are seen as far less likely. In addition, solving today's global problems such as climate change and pandemic diseases provides a strong impetus for co-operation amongst great powers. Moreover, in contrast to previous centuries, the growing number of institutions, regimes and other forms of communication, not to mention global markets, may act as a restraint against a plunge into an overt Sino-American conflict (see, however, Henry M. Paulson Jr., 2018). Nonetheless, the world might be entering into, or is perhaps already in, a period of more overt great power rivalry as Chinese power reaches American levels.

Even during his election campaign, Donald Trump was openly hostile to China and its alleged detrimental policies for the United States. This strategic competition is being felt most acutely in the Pacific Ocean (but also in the Indian Ocean, a major conduit for the Belt and Road), including disputes regarding maritime security, disputed islands, and border demarcation such as the ongoing disputed status of the South and East China Seas. In China, this has led to concerns about containment by the United States and its allies.

Over the past half-decade, the situation in South China Sea Sea (SCS *Nanhai* 南海) has worsened as China has increased its military presence, including via the so-called 'Third Force' of a Chinese maritime militia, supplementing Chinese naval and coast guard vessels, in some of the islands within the area Beijing claims as its 'historical waters' (*Strategic Comments*, 2016). This has been viewed as a type of 'hybrid warfare' in the SCS via developing a layered maritime presence. These acts have caused concern for the region's states and the United States. Over the past three years, China has begun to augment disputed reefs, first by adding sand to transform them into de facto islands and then placing various types of infrastructure on them, including runways, monitoring equipment, port facilities and weaponry, including missiles. Despite periodic US-led 'freedom of navigation operations' (FONOPs) in the SCS by American military planes and vessels since the previous US administration of President Barack Obama, Beijing continues to fortify its positions in the SCS, suggesting an 'anti-access/area denial' (A2/AD) strategy in the region, which may hamper the entrance of American or other foreign military vessels into the waterway in the coming years (Erickson, 2016).

1.2. Projecting (evolving) economic interests abroad

There is also a growing importance of 'economic security' as China develops its great power status, with related concerns about more overt trade competition. After many years of GDP development levels often in the double digits, economic growth has slowed down in China to below seven percent. However, fears of a 'hard landing', meaning a sharp downturn in the Chinese economy leading to a recession and potentially a cascade effect involving the greater global financial system, have been so far proven unfounded. Thus far, Beijing has managed to work with its slower economic growth successfully, remaining an island of stability in the global markets as other regions including Europe are still struggling to continue on the path towards recovery. The emerging trade war with the United States since the middle of 2018 is also a wild card in China's short-term economic policies. Concerns about the long term fallout from the trade conflict with Washington has prompted the Xi government to further develop ties with alternative markets, including Europe, Russia, the Middle East and Latin America, with varying degrees of success. There have also been emerging negative effects on China's domestic

environmental policies, including cases in which polluting factories that had previously been shut down being reopened due to economic strains exacerbated by the 2018 Sino-US trade war (Cai, 2018).

There is also a quiet transition in place between the secondary and tertiary economies, but manufacturing remains the cornerstone of the Chinese economy and so the country is still sensitive to the state of the global trading system. While manufacturing continues to be the mainstay of China's economic growth, there has been much greater attention paid to the tertiary/services sector, including various forms of e-commerce. China is also an innovator in the areas of financial technology, including mobile payments, microloans, and online retail. Witness the massive online sales in China during 'Singles Day' (*Guanggun jie* 光棍节) in the country every 11 November — the online store Alibaba recorded a record profit of US$30.8 billion in sales on that day in 2018 (Rapoza, 2018). Much attention has been paid in this area to the so-called 'BAT' firms, meaning the technology giants Baidu (百度), Alibaba (阿里巴巴) and Tencent (腾讯) as well as their subsidiary companies. From a wider viewpoint, there is also no shortage of 'unicorns', (privately held startup firms valued at over US$1 billion) and even 'decacorns' (firms with a net worth of ten billion dollars US), within the Chinese economy (Yu and Zhang, 2018; Fannin, 2017).

Nonetheless, challenges to the Chinese economy remain. The rapid growth not only of regional level governmental debt, but also rapidly growing domestic debt ratio has created serious structural challenges for the sustainability of the Chinese economic growth model. The current trade war and the possibility of greater economic protectionism in the United States and other Western economies, are also potential hazards for Beijing. The Belt and Road processes have also been challenged by concerns about Chinese 'debt traps' among some BRI partners, including Djibouti, Pakistan and Sri Lanka (Hurley *et al*., 2018). This has led to the question of whether Beijing will be able to reconcile its economic challenges at home with the large amount of startup capital that will be needed in building the Belt and Road networks.

In addition, there are ongoing concerns about energy security as China's economy modernises, including access to fossil fuels but also the technology to improve Chinese energy efficiency. China's indigenous energy supplies remain dominated by coal, which is polluting, expensive and difficult to transport, as well as being inefficient. Thus, there has been a great deal of enthusiasm for alternative resources, including oil, natural gas, nuclear power, and greener alternatives such as hydro-electricity, wind power, and thermal energy. There is a clear need for more varied sources of energy from different parts of the world in order to move the country away from its high dependency on coal. Many regions, including the Arctic, are seen as sources of oil, gas, LNG and potentially other types of energy as the Chinese economy matures. Connected to this is China's growing need for other raw materials such as metals and minerals, including those required for high-technology and 'green' technologies such as cobalt, columbite-tantalites (coltan) and rare earth elements (REEs) (Kalantzakos, 2017). One of the reasons why the Arctic has recently assumed a stronger profile in China's resource diplomacy is that not only is more of the region becoming accessible to resource extraction due to climate change, but the Arctic States are viewed as politically stable and generally predictable, which is not the case with other resource-rich regions.

1.3. China as a maker of norms and institutions

As part of Beijing's widening diplomatic interests, China has begun to practise greater 'structural power' in the areas of establishing new rules and norms in the international system. These have included the development of alternative organisations that operate outside of the existing framework established by the West. These include the Asian Infrastructure Investment Bank (AIIB), a financial institution that began operations in January 2016, with a membership which includes all of the Arctic States, including Finland, save the United States (Dollar, 2015). There is also the New Development Bank (NDB), which began in 2015 as an offshoot of the 'BRICS' (*Jinzhuan Guojia* 金砖国家) grouping. The BRICS has linked China with other large emerging markets, namely Brazil, India, Russia and South Africa.

Although China has no interest in creating exclusionary organisations to directly balance the West, along the lines of a Cold War Soviet-led Comecon or Warsaw Pact, China is nonetheless beginning to develop as a 'norm-maker' in addition to being a 'norm-taker' in the area of international regime-building (Hirono and Lanteigne, 2012). This means that after many years of China's accepting rules and regimes that were largely created and developed by the United States and other parts of the West, especially when China first opened up to the international community in the late 1970s-80s and when the country engaged in the 'deep reform' processes in the 1990s under Jiang Zemin (Dittmer and Liu, 2006), Beijing is now interested in developing norms of its own, including organisations that do not follow Western guidelines.

The most prominent of these new regimes has been the Belt and Road Initiative (BRI), introduced by President Xi in 2013, and it can be argued that the BRI is a prominent example of China's interests in norm-making, given that the initiative represents a Chinese commitment to building an alternative economic pole not only for the Asia-Pacific but also for other regions, including the Arctic. The Belt and Road Initiative is a series of trade corridors that are being created in order to expand Chinese trade with key partners in Africa, Europe, Eurasia, Russia and South Asia. The 'Belt' encompasses overland routes that connect China with Europe via Russia and Central Asia, with the centrepiece being the China-Pakistan Economic Corridor (*Zhongguo-Bajisitan Jingji Zoulang* 中国-巴基斯坦经济走廊) or CPEC, and associated transportations and communication routes planned across the Central Asia/Caucasus region. It is very likely that Siberia will play an expanded part in the 'Belt' via new transportation and communication links, given the potential of expanding Chinese trade with Northern Europe and the greater Arctic.

The 'Road' is, more specifically, a set of sea routes connecting the Chinese coastal regions with economies in the Indian Ocean, the Mediterranean and the Pacific Ocean, all the way to Latin America. Connected to the development of these routes has been Chinese investment in ports throughout the Indian Ocean region, including in Pakistan, Sri Lanka and Myanmar as well as in Greece (Piraeus) (Kynge *et al*., 2017). At present, there are over sixty countries, including Finland, that are involved in some fashion with the building of the Belt and Road via regional and bilateral agreements.

In 2017, the Arctic was formally added to the Belt and Road as a result of a Chinese governmental report that designated the Arctic Ocean as a 'blue economic passage' (*lanse jingji tongdao* 蓝色经济通道) that could be used for enhanced Chinese trade between Asia and Northern Europe. Although it is unlikely that the Arctic will be a primary conduit for the BRI, especially compared to Eurasia and the Indian Ocean, the addition of the Arctic does

underscore Chinese interests in utilising the region for future economic projects in addition to scientific ones (see more later in Section x).

1.4. Aspects of continuity in Chinese foreign policy

Even if many changes have occurred, there are also stable aspects in current-day Chinese foreign policy. Many internal elements are still very much the same, such as the state-guided capitalism, nationalism and the ongoing economic growth that collectively serve as the drivers behind the wide acceptance of the country's political system, and, indeed, the acceptance of a communist one-party system. All of these internal dynamics still manifest in many areas of foreign policy as stable elements.

China has been consistent in its reliance on the fundamental principles of public international law ever since the start of the reform era in the 1980s, and this view has been exemplified in its first ever Arctic policy. Territorial sovereignty, the equality of states, non-interference in internal affairs of other states and non-use of force against other states have been constant features of China's foreign policy since as far back as the Mao era, notable in the ongoing status of the 'Five Principles of Peaceful Co-existence' (*Heping Gongchu Wuxiang Yuanze* 和平共处五项原则) left over from that period. However, in practice the approach to these features has been open to interpretation. For example, Beijing has become more accepting of humanitarian intervention in the case of civil conflicts, such as in the case of the East Timor conflict and more recently in the civil wars in Mali and South Sudan. Beijing has also been sensitive to any international policies that affect areas viewed by the Chinese government as strictly domestic affairs, including the status of Taiwan, the territories of Tibet and Xinjiang, as well as security in the East and South China Seas.

As one of the permanent members of the United Nations Security Council (UNSC), China has been generally against military interventions into sovereign states, especially if there is no clear Security Council authorisation, and especially if these interventions are conducted by military alliances. Two major examples are the American and NATO actions against Yugoslavia in 1999, and the Washington-led 'coalition of the willing' against Iraq in 2003. In the case of the Arctic, Beijing has also affirmed that it respects the sovereignty and sovereign rights of Arctic States, a requirement that all Observers needed to fulfill as part of the Council's 'Nuuk Criteria' (Graczyk and Koivurova, 2014).

Beijing has also been a fairly strong supporter of regulatory action in many other fields of international policy such as the law of the sea, international environmental law or indigenous people's rights (internationally) — all areas that are of importance from the viewpoint of the Arctic.

China is party to the United Nations Convention on the Law of the Sea (UNCLOS), unlike the United States. The US does accept most of UNCLOS to be legally binding as customary international law. Even if many accuse China of violating UNCLOS in the South China Sea, the country itself perceives that it is behaving on the basis of the law of the sea. China questioned the jurisdiction of the Permanent Court of Arbitration (PCA) that was established on the initiative of the Philippines (on the basis of UNCLOS) and dismissed the ruling of the PCA in 2016 that decided, to a large extent, against Chinese interests in the SCS (Panda, 2016). The Philippines challenged the historic rights of China in the South China Sea, as many other countries have

done, given that Beijing's alleged historic rights, as exemplified by the 'nine dashed line', overlapped with those sovereign rights of the Philippines. Chinese claims to the SCS have also overlapped claims made by Vietnam as well as Malaysia and Brunei (Hayton, 2014).

China did not participate in the proceedings of the PCA. The arbitral tribunal did not accept the historic rights claim of China. China sees that its historic rights over the South China Sea are firmly grounded in the customary law of the sea, and that the arbitral tribunal did not have jurisdiction to even examine the dispute. From a general point of view, China has placed a lot of emphasis on observing UNCLOS. Beijing has also been strident in its claims to the Diaoyu (also known as the Senkaku in Japanese) Islands in the East China Sea despite overlapping Japanese claims. In 2013, China implemented an 'air defence identification zone' (ADIZ) over the East China Sea, which further underscored the seriousness of its claim (Burke and Cevallos, 2017).

Beijing has also actively participated in international environmental policy and law-making. For example, after the Trump government decided to unilaterally withdraw the US from the Paris Climate Agreement in 2017, China found itself as one of the largest remaining supporters of the deal, and the Xi government has since reached out to the EU and specific European leaders in the hopes of perpetuating the agreement. China is also party to a large number of international environmental treaties, including many that are relevant in the Arctic (such as the 2001 Persistent Organic Pollutants Convention) and also the most recent fisheries agreement related to the Central Arctic Ocean (CAO).

1.5. China as an actor in regions outside of its immediate neighbourhood

During the early reformist period in China under Deng Xiaoping and during the 1990s under President Jiang Zemin, Beijing's foreign policy concerns were primarily limited to the surrounding Asia-Pacific region as well as great power relations with the United States and the Soviet Union and later the Russian Federation. Under Jiang, China was especially concerned about resolving, or at least calming, numerous border disputes remaining from the Cold War. During this period, Beijing opened diplomatic relations with former regional adversaries, including Singapore, South Korea and Vietnam, and sought to resolve border disputes including with Russia and Central Asia. China also sought to improve relations with many Southeast Asian governments that had previously been concerned about Beijing's previous support for communist movements. Jiang was primarily interested in *zhoubian* (peripheral) diplomacy in order to allow China to concentrate on delicate internal reforms, including economic reforms but also the restructuring of the Communist Party itself. After decades of poor regional relations and Cold War border conflicts with the USSR, India and Vietnam, China needed a period of calm with its neighbours.

Under Hu Jintao, China began the first steps of adaptation as a great power, although there was still some sensitivity towards being seen as potentially revisionist. The Hu government initially put forward a foreign policy based on the concept of 'peaceful rise' (*heping jueqi* 和平崛起). However, after some internal debates, the concept was changed to the more politically palatable 'peaceful development' (*heping fazhan* 和平发展). Nonetheless, the Hu government began to engage in extensive summit diplomacy in many parts of the world, including in Africa

and the Middle East, to demonstrate China's emerging role as a developmental and economic partner, especially given China's own history of being a developing state and a former victim of colonialism. These policies were greatly assisted by the growing unpopularity of US policy under then-President George W. Bush, which was seen as increasingly unilateralist and focused to an excessive degree on anti-terrorism policies and the conflict in Iraq after 2003.

At first, China's cross-regional diplomacy was focused on bilateral agreements, including with large and medium powers such as India, Pakistan and Russia. One exception, however, was the European Union, which Beijing recognised as a key economic partner and a potential alternative pole to the United States. However, China-Europe economic relations have been hampered by strong differences between European governments regarding how to engage Beijing, as well as the EU's unwillingness to recognise China as a market economy, which is a prerequisite for FTA talks. Nonetheless, the development of the Belt and Road has added another layer to Chinese diplomacy in the EU, in particular in Central and Eastern Europe (CEE) via the '16+1' talks, which have brought together China and sixteen CEE governments since 2012 to discuss BRI-based economic co-operation (Bachulska, 2018).

China's interests in being viewed as a developmental partner has been especially prevalent in Africa, where Beijing has invested in several economies on the continent, including in resource-rich states like Angola, the Republic of Congo (Congo-Brazzaville), the Democratic Republic of the Congo (DRC), Equatorial Guinea, Sudan, South Sudan and Zambia. Developmental diplomacy has also been active in Latin America, especially in countries that have run afoul of US policy, such as Venezuela, as well as countries experiencing economic trauma since the financial downturn of a decade ago, including Brazil and Argentina. More recently, the Pacific Islands region has also been a major beneficiary of Chinese aid, to the point where Beijing is widely seen as an alternative donor to the traditional powers in the region, namely Australia and New Zealand (Lanteigne, 2012).

Unlike Africa and other developing regions, China's cross-regional diplomacy in the Arctic is less overtly based on resource-based interests. Although the potential resources of the Arctic, including raw materials and fossil fuels, are of concern to Chinese Arctic diplomacy, Beijing is also seeking greater usage of the Arctic as a transit corridor. Notably, China has also put forward the idea of the Arctic as a *de facto* 'international space', whereby non-Arctic States can have a voice in regional governance while also avoiding being seen as a 'spoiler' in the region, going against the status quo. Therefore, understanding that the Arctic is a distinct region and that Beijing is at a disadvantage compared to the Arctic Eight, China seeks to take on the persona of a 'norm entrepreneur' (Lanteigne, 2017).

At present, the Arctic is not as high a priority for Beijing in comparison with other regions, and much of its Arctic policy is still in development. Additionally, of the two polar regions, Antarctica has been given more attention in terms of scientific projects and funding.

In 1983, China signed on to the primary Antarctic Treaty, and shortly afterwards it began to construct its own research stations on the continent, the first being the Great Wall Station (*Changcheng zhan* 长城站), on the Fildes Peninsula, completed in 1985. Also in 1985, China became a consultative party to the Antarctic Treaty and it was made a full member of the Scientific Committee on Antarctic Research (SCAR) in 1986. Four Chinese bases are currently in operation, with the latest, Taishan Station (*Taishan zhan* 泰山站) on Queen Elizabeth Land in Eastern Antarctica, opening in February 2014. A fifth base is to be situated on Inexpressible Island near the shore of the Ross Sea. Unlike Taishan, it will be built to stay operational through

the entire winter season, and is expected to be fully operational by 2022 (Liu, 2018). In October 2018, Beijing announced that it was also seeking to build an airstrip on the continent to assist with Chinese scientific missions as well as accommodating the *Snow Eagle 601* aircraft used for research purposes (Feng, 2018).

Since 2006, Beijing has been a member of the Convention for the Conservation of Antarctic Marine Living Resources (CCAMLR), which oversees the waters surrounding the Antarctic continent. China's first Antarctic expedition took place in 1984, and since then the country has conducted subsequent missions on the continent via the Chinese Arctic and Antarctic Administration (CAA *Guojia Haiyangju Jidi Kaocha Bangongshi* 国家海洋局极地考察办公室), which operates under the aegis of the government's State Oceanic Administration (SOA *Guojia Haiyangju* 国家海洋局) - an agency which, in turn, was incorporated into the newly-created Ministry of Natural Resources (*Reuters*, 19 March 2018).

In May 2017, Beijing hosted an Antarctic Treaty Consultative Meeting for the first time (*Straits Times*, 24 May 2017), and the Chinese government used that opportunity to outline its growing interests on the continent but also to demonstrate its status as an important contributor to multilateral Antarctica policy. Beijing also took that opportunity to publish its first Antarctic White Paper which outlined China's growing scientific capabilities in the region. As with its dealings with the Arctic, over the past decade China has been seeking to develop a distinct identity in the Circumpolar South, noting the possibility that both polar regions may encourage greater scientific, and potentially economic, activities in the coming decades.

Nomenclature is also important in the understanding of Chinese diplomacy at both poles. *Polar* is translated in Chinese as the compound word *jidi* (极地); the two characters in the word being *ji* ('extreme') and *di* ('earth'), or in other words, "the extremes of the earth". Thus, in Chinese, the Arctic is the "Northern Extreme" (*Beiji* 北极); the Antarctic is the "Southern Extreme" *(Nanji* 南极); while the Tibetan Plateau, which contains the world's highest mountains, is the "Third Extreme" (*Disanji* 第三极*)* or 'Third Pole', referring to the Himalaya region. According to Chinese international law specialist Zou Keyuan (邹克渊), China and Antarctica's close links were forged millions of years ago as a part of the history of the ancient supercontinent of Gondwana. These claims are not made lightly; the implication is that although the two continents are now far apart, China has as much right to make a claim on the territory as other nations that currently are physically closer. From the Chinese government's perspective, the geographical connection between China and "the poles" gives added cogency and legitimacy to its claim for rights and interests in the polar regions and China's "right to speak" on polar affairs (Brady, 2017).

However, China is also aware that it is a relative neophyte to Antarctic affairs as compared with veterans including the United States, Russia, Western Europe, Latin America, and of course Australia and New Zealand. Therefore, the Xi government has taken steps to present its Antarctic agenda as one that stresses partnerships and respect for regional laws and norms. At the same time, China is also underscoring its determination to be recognised as an Antarctic player, keeping in mind that the political situation on the continent may change considerably if the various treaty networks in the region either change or fall into abeyance.

While there are some similarities in China's policies at both poles, there are also significant differences, not least because the Arctic, unlike the Antarctic, has a permanent population and is a predominantly maritime region. Yet, there are also commonalities, as are reflected in the interest that China expresses in all three polar regions (including the 'Himalayan Pole') and its increasing presence and scientific expertise in all those regions. In addition, according to some

scholars, research activities provide China with more legitimacy and give cogency to its claim for rights and interests in the polar regions (Bertelsen, Li and Gregerson, 2017).

While scientific diplomacy will probably continue to be the vanguard of Chinese Arctic interests, economic concerns are starting to attain importance as well, given China's ongoing need for energy and raw materials as well as new shipping lanes. This has led to questions about whether China may develop stronger security interests in the Arctic as its investment in the region grows, along similar lines as in the Indian Ocean, where increased Chinese trade interests were a factor in the opening of a logistics centre in Djibouti in 2017.

Although there have been no open discussions as to whether China would seek to open military bases in the Arctic Ocean, some scholars view the increasing involvement of China in the Arctic in unfavourable and hostile terms, and they interpret Chinese actions in the region predominantly in security and military terms. They point to the potential of the 'dual-use' of Chinese facilities in the Arctic — the concern that was also expressed by Denmark regarding the establishment of Chinese research stations in Greenland — and warn against China's silently expanding its influence and dominance throughout the means of scientific and economic engagement. Other scholars, however, find this approach highly reductionist and limited in its nuanced analysis of Chinese Arctic policy. They note that such concerns have much to do with the fact that China is a great power and therefore is seen as having a strategic agenda in much of its activities in the Far North. Most of all, in light of very high international scrutiny that any actions of China in the Arctic receive in the media, among experts and state officials, it appears highly improbable that China could significantly extend its reach silently and thereby increase its power in the region.

1.6. Conclusion

China has now become a great power, via a process that has been moulded both by the country's internal politics and also through the actions of other states, including other great powers. At the same time, as China has risen in power, its foreign policy has not only affected the Asia-Pacific but also numerous other regions. The Arctic is but the latest part of the world to be affected by Beijing's increasingly confident cross-regional diplomacy (Lanteigne, 2018). However, there are noteworthy differences between China's Arctic engagement and its diplomacy in other parts of the world, given the Far North's distinct geography, demographics and economy.

China is not an Arctic State, but it seeks to become an Arctic player and partner, and so has had to adjust its cross-regional engagement policies accordingly. In becoming a great power, especially in the economic realm, and gradually challenging the United States in many areas of foreign policy (now evident in the 2018 trade war), it is apparent that China's great power status will only consolidate over time. This means that China's Arctic presence will also likely grow over time in various policy areas. Overall, it can be concluded that Beijing is no longer content to be a norm-*taker* in that region and is more comfortable with becoming a norm-*maker*, as is evident in the extension of the Belt and Road Initiative (BRI) as well as other forms of Chinese diplomacy into the Arctic Ocean. In its pursuit of expanding China's role in Arctic governance, Beijing continues to abide by public international law in its Arctic policy, including in the cases of the Arctic Council, UNCLOS, the Polar Code and the new fishing agreement in the Central Arctic Ocean. However, in the case of the South China Sea for example, there are

certainly issues of how international law, including UNCLOS can be interpreted. In regards to its Arctic activities, China's interest in abiding by international law and legal frameworks was made evident by the January 2018 White Paper, in which the definition of China's role in the region was heavily based on existing normative frameworks.

2. CHINA IN THE ARCTIC

That China is a global power can now be observed in most areas of our planet, including the Arctic. China's policies and actions towards the Arctic have grown in recent years. These have culminated with the acceptance of China as an Observer to the Arctic Council in 2013, but, even more importantly, with the adoption of the first ever Chinese Arctic government policy paper in 2018. In the following sections, we will examine Chinese policy objectives for the Arctic that were outlined in the 2018 White Paper as to how these have been realised in the region. It is useful to examine Chinese policies and actions in the Arctic by following the same categories that the White paper uses: deepening the exploration and understanding of the Arctic; protecting the eco-environment of the Arctic and addressing climate change; utilising Arctic resources in a lawful and rational manner; and, finally, participating actively in Arctic governance and international cooperation.

There has been much debate about what the emerging Chinese strategy in the Arctic will eventually consist of. Among them have recently been alarmist studies that suggest that Beijing is seeking to overturn the political and legal status quo in the region, both in the hopes of gaining access to emerging regional resources and establishing a strategic presence in a region that may grow in global importance in the coming decades. These studies also suggest a 'stealth' or 'sneaking' approach on China's part to the region, masking a longer-term hard security strategy in the region (Brady, 2017; Robinson, 2013).

However, such arguments ignore several factors that are discussed in this report. First, China has no Arctic geography; and therefore, before building its an Arctic policy, it must gain the acceptance of the Arctic States, including some, such as Russia, that have traditionally been very wary of safeguarding their sovereignty in the Arctic. An overt revisionist approach to the Arctic on China's part would invite a serious backlash that may result in higher costs for Chinese regional interests. Second, unlike other states, including in Europe but also some of China's neighbours such as Japan, Singapore and South Korea, China is a great power and is therefore under much more overt international scrutiny in the Arctic. While Beijing does not want to be left out of emerging trends in the Arctic region, it cannot afford to be seen as a gate-crasher or a spoiler, and so it must find a middle ground that both includes scientific diplomacy and also seeks Arctic partnerships on a bilateral and regional level.

Third, as China settles into its great power status, it is finding itself under greater challenge by the United States, as can be seen in security areas such as the South China Sea, but also in the economic realm as Washington begins to push back via an emerging trade war against what it sees as unfair Chinese trade practices as well as concerns about being leapfrogged by Chinese firms in areas of high technology. Thus, Beijing can ill-afford to see the Arctic become another potential area of great power competition. In short, while China may indeed become a 'polar great power' as one study argued (Brady, 2017), it does not follow that China is seeking to upset the status quo in the Arctic, especially since the economic, political and strategic atmosphere in the Arctic greatly favours co-operation over confrontation.

2.1. Deepening the exploration and understanding of the Arctic

Scientific presence and research are the prerequisites for any forms of engagement in the Polar Regions, and according to White Paper, exploring and understanding the Arctic "serves as the priority and focus for China in its Arctic activities" (PRC State Council, 2018). As in the case of the Antarctic, where participation in the decision making under the Antarctic Treaty is limited to only those countries (aside from the original signatories) that demonstrate their interest in Antarctica "by conducting substantial scientific research activity there" (Article IX.2), so the observer status with the Arctic Council is open to solely those institutions that "the Council determines can contribute to its work" and that have demonstrated their Arctic "expertise relevant to the work of the Arctic Council" (Arctic Council, 2013). That oftentimes in practice requires extensive scientific involvement for a country that intends to apply for observer status.

As previously mentioned, China's involvement in polar science first began first in the Antarctica and only later moved into the Arctic. The State Oceanic Administration (SOA) was established in 1964 to "engage in polar expeditions in the future" and in 1985 the SOA purchased the first ice-capable vessel from Finland to launch China's annual Antarctic expeditions. The ship *Jidi* (极地), or *Polar*, ferried supplies for China's Antarctic mission from 1986 to 1994 until it was replaced by an icebreaker research vessel *Xuelong* (雪龙), or *Snow Dragon* (Nong, 2014). *Xuelong* was dispatched for its first Arctic voyage to the Bering and Chukchi seas in 1999 and later in 2003, and since then has been regularly operating in the North as well as in the waters off Antarctica.

To date, *Xuelong* has completed nine Arctic expeditions (named CHINARE), the last one lasting from July until September 2018. Next to scientific studies carried during the expeditions, each departure and return of *Xuelong* has served to popularise China's polar activities and received some coverage in the Chinese media. In 2012 the *Xuelong* anchored in Iceland during its first visit to an Arctic country to help to enhance the cooperation of Chinese and Icelandic scientists on polar and marine sciences. It was also in 2012 that *Xuelong* became the first Chinese-flagged vessel to transit the Arctic Ocean, drawing attention to the possibilities of operating outside the exclusive economic zones of the Arctic littoral states in the conditions of the rapidly warming Arctic and decreasing Arctic sea ice. Finally, in 2018, during the 9th CHINARE, China also showed its increasing level of scientific and technological potential when, for the first time, on the Arctic drift ice floes it deployed two newfangled Atmosphere-Sea-Ice-Ocean (ASO) unmanned stations developed by the Polar Research Institute of China (*Zhongguo Jidi Yanjiu Zhongxin* 中国极地研究中心) (INTAROS, 2018).

A second icebreaker, *Xuelong 2* (雪龙2), was constructed in partnership with the Finnish shipbuilding firm Aker Arctic to commence operations in 2019, but the vessel was given a 'soft launch' in September 2018 (*Straits Times*/*Xinhua*, 11 September 2018). Moreover, Beijing has also expressed interest in constructing a nuclear powered icebreaker, using either domestic technology or in cooperation with Russia. Currently, Russia is the only country that operates nuclear-powered icebreakers, with other countries currently in the planning stages (Eiterjord, 2018).

In 1989, China established the Polar Research Institute of China (PRIC) in Shanghai. The institution marked the country's rising interest in polar affairs beyond Antarctica. In 1990, Chinese scientists visited the North Pole for the first time and planted a flag there, and in 1996 the National Antarctic Expedition Committee Office was renamed to the China Arctic and

Antarctic Administration (CAA). Also in 1996, China joined the International Arctic Science Committee (IASC), a leading non-governmental international organisation supporting scientific research and collaboration in the Arctic, and in 2005 it hosted the Arctic Science Summit Week (ASSW) in the city of Kunming. In 2004, China built its first Arctic research station, the Arctic Yellow River Station (*Huanghe zhan* 黄河站), in the Ny-Ålesund research village in the Spitsbergen Archipelago, and in 2007-2008 it participated in the fourth International Polar Year (IPY). There has been some discussion about a second Chinese research station in Greenland, but that project remains in the early planning stages.

In 2012, Iceland and China signed a comprehensive Framework Agreement on Arctic Cooperation and in 2013 the Polar Research Institute of China and the Icelandic Centre for Research (RANNIS) agreed to build a joint aurora observatory (CIAO) at Kárhóll in northern Iceland (Karholl.is). In 2017, the PRIC and RANNIS decided to expand the scope of cooperation, which would consequently enable observations of not only auroras but also research on atmosphere, oceanography, glaciers, geophysics, remote sensing and biology. This new mandate was confirmed when the facility was officially renamed the China-Iceland Arctic Science Observatory during its official opening in October 2018 (*Xinhua*, 19 October 2018). The CIAO is now the second science station, after Ny-Ålesund, administered by China in the Arctic. As outlined in the White Paper, "the availability of technical equipment is essential to understanding, utilising and protecting the Arctic" (PRC State Council, 2018).

Consequently, China not only "actively participates in the building of infrastructure for Arctic development" while encouraging the development of environment-friendly polar technical equipment. As listed in the White Paper, it also "pushes for the upgrade of equipment in the fields of deep sea exploration, ice zone prospecting, (...) atmosphere and biology observation, (...) promotes technology innovation in Arctic oil and gas drilling and exploitation, renewable energy development, navigation and monitoring in ice zones, and construction of new-type icebreakers" (*Ibid*.). All these areas of interest should be read — next to their scientific relevance — within the broader setting of China's policies and in conjunction with the prioritised aspects of China's Arctic policy, which include protecting the eco-environment and utilising Arctic resources (see Sections 2.2 and 2.3).

As described below in greater detail (see the section on Arctic governance), China participated for the first time in the meetings of the Arctic Council in 2007 and it was officially admitted as a formal Observer to the Council in 2013. As the Arctic Council Rules of Procedure stipulate, the Observers' primary role is to observe the work of the Arctic Council and to contribute to it primarily at the level of working groups. Whereas the six working groups of the Council vary in their areas of focus, most of them have a strong science focus and serve to inform decision-making with the best available scientific knowledge. Up to now, it appears fair to say that Chinese involvement with the AC working groups has been fairly limited, while most attention has concentrated on the political level of Senior Arctic Officials (SAO). Part of the reason behind this situation might be the learning curve that all new Observers to the Council face with a novel organisational environment, norms and procedures. As most of the WGs are attended by experts in their respective fields, the identification of the appropriate representatives — both on the side of Member States as well as Observers — is critical to the provision of meaningful input to the working group projects and discussions.

After the initial period of little visibility, inconsistent attendance and a high rotation among its representatives, China has begun to slowly mark its areas of interest and engage in selected activities of the AC working groups. The projects that is has been most invested in have

included the Arctic Migratory Birds Initiative (AMBI) of the Conservation of Arctic Flora and Fauna (CAFF) working group of the AC. The project aims at improving the status and securing the long-term sustainability of declining Arctic migratory bird populations and, since many species of Arctic birds move from Arctic breeding grounds to overwintering or stopover sites at lower latitudes, the cooperation between countries along their flyways is vital to any conservation efforts.

AMBI has been very successful in terms of bringing together the Observers and Member States of the Council. Whereas two previous workshops were held in the Netherlands (April 2016) and in Singapore (January 2017), the third took place in Hainan, China, in December 2018 (CAFF, 2018a). China is a critical partner when it comes to the East Asian-Australasian Flyway, where much of the cause for concern lies in the migration bottleneck of the Yellow Sea region, where birds rest and feed in this densely populated region on the coasts of China, North Korea and South Korea. Over the past fifty years, half of those vital intertidal areas have disappeared and today they are shrinking faster than tropical forests due to the pursued land reclamation policy. To address this issue, in early 2018 the Chinese government announced dramatic changes to their land reclamation policy, stating much enhanced conservation measures in relation to its coastal development and co-operation with the Arctic Council CAFF on that matter (CAFF, 2018b).

Regarding other working groups, at the meeting of the Protection of Arctic Marine Environment in Spring 2019, China will hold its presentation about its areas of interest in the work of PAME as well as its capacities and potential contributions to them. The presentation is a part of efforts undertaken by all the AC working groups to engage more closely with the Council's Observers. Apart from those, China has previously attended some meetings of the other working groups too: Emergency Preparation, Preparedness and Response (EPPR); the Arctic Contaminants Action Program (ACAP); and the Arctic Monitoring and Assessment Program (AMAP) but so far has not been actively engaged in their projects. It has also not engaged up to now with the Sustainable Development Working Group (SDWG).

From a broader perspective, Chinese engagement with the Arctic Council working groups reflects a more general pattern of the gradual development of Chinese scientific presence in the polar regions (Lasserre, Alexeeva and Huang, 2017). Both in the Antarctic and the Arctic, it has been marked first by a strong focus on the foundational construction and set-up of infrastructure and only in the second phase, by shifting priorities to formulating a meaningful polar scientific research program. This situation is not surprising seeing that China, as a developing country that went through long periods of international isolation, needed time to build its capacities and expertise in those areas, also through international collaborations and partnerships. At the same time, it is worth looking at Chinese polar science as part of the bigger picture of the Chinese approach to research and development.

In keeping with Chinese President Xi Jinping's motto of the 'Chinese Dream', China has set a goal of becoming a world-class innovator by 2050, further confirmed by the Minister of Science and Technology Wan Gang in 2017 (Han and Appelbaum, 2018; Reuters, 2018, February 27). Toward that goal over the past decades, China's spending on research and development has been steadily growing, with annual increases of three or more times the rest of the world, including the United States (Global R&D Funding Forecast, 2018). To compare, even if in the 2017 spending on science in China amounted to around 2.1 percent of total gross domestic product (compared with around 2.8 percent in the United States, 2.9 percent in Germany and 3.3 percent in Japan), between 2000 and 2015, R&D investments in China have soared

annually by an average of 18%, whereas U.S. spending rose in the same period by about 4% annually. China's annual R&D spending has risen 70.9 percent from 2012 and, based on data from 2015, China's R&D investments have now surpassed those of the European Union with its US$386 billion expenditure on research and development and remain second only to the United States (Showstack, 2018; "China spends $279 bln on R&D in 2017: science minister," 2018).

Chinese science is conducted in five main institutional sectors. The first comprises around 120 institutes overseen by the Chinese Academy of Sciences (*Zhongguo Kexueyuan* 中国科学院), or CAS. They include "big science" facilities, and today many of their labs engage in word-class research across a wide range of disciplines, including quantum physics, mathematics and neuroscience. The second is universities, which have emerged as important centers of basic and applied research, and which also serve to support high-tech entrepreneurship. Government research institutes under civilian ministries – among them public health, environmental protection and natural resources – are the third system, whereas R&D dedicated for military needs is the fourth one.

Finally, China's industrial enterprises constitute the last system. It is in this sector that the most significant changes have taken place over the past two decades, with an emergence of market-owned, non-state-owned high-tech firms and a surge of company-based research and development, especially in fields of information and communication technology. For instance, Alibaba, China's leading e-commerce company, has recently announced plans to invest US$15 billion in new R&D projects, including the opening of seven new research labs in such locations as Moscow and Silicon Valley, amongst others. The research in those labs will be focused on foundational and disruptive technologies such as the Internet of Things, data analysis, artificial intelligence, and quantum computing. In general, expenditures for research and development in the enterprise sector now amount to approximately 80% of the nation's total (Suttmeier, 2018).

China's continued emphasis on and investments in research and development have brought outstanding results and have placed China among the world's leading science powers. China has completed numerous big science projects (Bloomberg, 2018, June 19), has improved its scholarly rating impact, has more scientists and engineers than any other country, has a dynamic space program, and also has an increasing share of the world's research articles (even if their quality, judged by the number of citations, still remains below average) (Global R&D Funding Forecast, 2018). Whereas some of the Chinese accomplishments and progress in the fields of research and technology have been disputed as results of violation of intellectual property rights and forced technology transfers (Office of the United States Trade Representative, 2018), of misconduct in research publishing (Cyranoski, 2018), and there still remain structural challenges in the country's education and research environment that might interfere with its aim of successfully transforming into a knowledge-based economy (Han and Appelbaum, 2018), the country's improvement in its science and innovation capacities have been dramatic and unprecedented.

This emphasis has also been reflected in Chinese investments into and development of its polar capacities. Since 2006, China has been building new infrastructure and refurbishing older assets (among others, it has twice refitted *Xuelong* and constructed a dedicated berth and warehouse space in Shanghai) and also increasing its budget for polar research. While the economic crisis in 2008 forced other countries to cut or suspend their spending on R&D, and institutions in the United States and in the European Union saw decreasing budgets to support

their research infrastructure, China has been advancing its polar capacities, even if at a lower pace because of its own economic slowdown. Chinese Arctic research funders include: the Ministry of Science and Technology (*Kexue Jishubu* 科学技术部), or MOST; the Ministry of Natural Resources (*Ziran Ziyuanbu* 自然资源部), or MNR, and its subordinate agency, the State Oceanic Administration (SOA); the National Natural Science Foundation of China (*Guojia Ziran Kexue Jijin Weiyuanhui* 国家自然科学基金委员会); the Ministry of Education (*Jiaoyubu* 教育部); and the China Meteorological Administration (*Zhongguo Qixiangju* 中国气象局) (2nd Arctic Science Ministerial, 2018).

Whereas providing exact numbers for China's spending on polar research is very difficult because spending is allocated via those various ministries and agencies, it can be assessed that most of the budget is spent on investments in the infrastructure and on annual expeditions to the Antarctic and the Arctic; much less, however, is spent on scientific research itself. According to a statement provided by China to the second Arctic Science Ministerial Meeting in Berlin in October 2018, "NSF funds about 40 Arctic research projects per year, at a level of up to 18 million RMB (~$2.7 million US) in 2015)" (2nd Arctic Science Ministerial, 2018). Together with Russia, China will also provide fuel and key logistical support to R/V Polarstern during MOSAiC (The International Multidisciplinary drifting Observatory for the study of the Arctic Climate), the largest international Arctic cooperation project ever funded and the first year-around expedition in the central Arctic Ocean planned from September 2019 until September 2020 (*Ibid*.).

In light of the costs of operating and conducting scientific research in the North – a recent study found them eight times more expensive than similar studies in southern locations, and with Svalbard and Nunavut in Canada being on the top of the list (Hoag, 2018) – the interest for scientific partnerships with China has been increasing, even if Arctic countries take a varied stance on this co-operation. Moreover, polar scientific collaborations can be seen as part of broader and more strategic bilateral relationships between China and the Arctic countries.

Among them, Iceland has been the most proactive and has been consequently developing its closer relations with China for around a decade, including a bilateral Arctic science exchange that commenced in 2011. In the case of Norway, following the restoration of relations between the two countries in December 2016, in April 2018 Norway's Minister of Research and Education led a delegation of 250 of the country's heads of universities and scientists to strengthen the Chinese-Norwegian research collaboration (Myklebust, 2018). The program of a visit hosted by China's Minister of Science and Technology was organised by the Norwegian Centre for International Cooperation in Education (SIU) and the Research Council of Norway on behalf of the Ministry of Education and Research, and included such topics for co-operation as digitalisation, climate, environmental and polar research. It was also accompanied by a roadmap for co-operation on research and education with China 2018-2020, drawing attention to the fact that at present China has the world's largest education system with a stated goal to increase both incoming and outgoing student mobility (Forskningsrådet, 2018).

In the case of the United States, science and technology have been a primary vehicle for growing the bilateral relationship with China since the opening of relations between the two countries in the late 1970s. Currently, though, the U.S expresses more wariness of China's rise to the position of global research power, as reported in January 2018 by the U.S. National Science Board to Congress, where it announced the possibility that Chinese R&D investments might soon catch up with those of the U.S. (Showstack, 2018). Moreover, in 2011 Congress prohibited the White House Office of Science and Technology Policy (OSTP) and the National

Aeronautics and Space Administration (NASA) from co-ordinating any joint scientific activity with China. There is, however, some cooperation between the two countries in areas such as aeronautics and Earth science (Foust, 2018). The scientists from the U.S. were also invited to join the 9th expedition of the *Xuelong* into the Arctic in 2018.

2.2. Protecting the environment of the Arctic and addressing climate change

China's White paper on the Arctic identifies several policies and positions on participating in Arctic affairs, including protecting the environment of the Arctic and addressing climate change. China expresses its full commitment to protecting the Arctic environment via global environmental agreements, with particular emphasis on the marine environment. China also commits itself to respecting the "environmental protection laws and regulations of the Arctic States" and even calls for stronger environmental management and co-operation from the Arctic States. China places specific importance on studying and taking measures over concerns of biodiversity loss, in particular those of endangered Arctic species and migratory birds. The country also commits itself to raising the environmental responsibility awareness of its citizens and enterprises. In terms of climate change, China expresses its strong commitment to the Paris agreement but also to studying the impacts of climate change in the Arctic and promoting international co-operation in "addressing climate change in the Arctic". Of importance is that through the White Paper, China acknowledges how Arctic climate change will impact its own environment and people, and hence commits itself to strengthening "publicity and education on addressing climate change to raise the public's awareness of the issue". We will now examine China's climate policies, which have a vast impact on the Arctic, in more detail.

In 2006, China's carbon emissions surpassed those of the United States and it is now the biggest carbon dioxide emitter in the world, accounting for approximately 30 percent of global carbon emissions. Energy production (especially coal) and heavy manufacturing industries (especially cement production) are key sources of Chinese carbon emissions. At present, coal accounts for over 60 percent of China's energy mix, causing huge carbon emissions and severe air pollution around the country. There is no dispute about climate change in China. In contrast, the government acknowledges that climate change threatens the country's national security. In the future, climate change is expected to cause floods, drought and extreme weather events in China. Adaptation to those impacts is a key concern of the party-state. Since changes in the Arctic caused by climate change contribute to haze over China and decreased agricultural output in China, scientific research on climate change is one of the key drivers of China's Arctic policy. Moreover, the Chinese government has learned that a low-carbon economy supports its ongoing structural economic reforms.

China has taken part in a variety of international negotiations and partnerships on climate change, and it is a party to the United Nations Framework Convention on Climate Change (UNFCCC), the Kyoto Protocol as well as the Paris Agreement. In 2007, China published its first national climate change program, which highlighted the historic responsibility of developed countries to reduce emissions as well as to aid developing countries to handle the adverse effects of climate change. In contrast to China's harshly criticised role in the UN Climate conference in Copenhagen in 2009, the state now plays a rather constructive role in

international climate politics. Between 2013 and 2016, China and the United States deepened their cooperation on climate change. The two countries issued several joint statements, the most important being China's pledge to halt carbon emissions growth around 2030. This commitment was incorporated into China's Nationally Determined Contribution (NDC) to the UNFCCC, which promises by 2030:

a) To achieve the peaking of carbon dioxide emissions around 2030 and making best efforts to peak early;

b) To lower carbon dioxide emissions per unit of GDP by 60% to 65% from the 2005 level;

c) To increase the share of non-fossil fuels in primary energy consumption to around 20%; and

d) To increase the forest stock volume by around 4.5 billion cubic meters on the 2005 level

(China's National Development and Reform Commission, 2015).

China's NDC is not very ambitious and the state is likely to meet or exceed it, which allows the party-state to 'gain face' both home and abroad. China is not likely to commit itself to a very ambitious emissions reductions target in the future either; such a commitment would cause a high risk of 'losing face' in the case of failing to reach the target. According to Climate Action Tracker (2018), an independent scientific analysis organisation, however, China's NDC is "highly insufficient" in order to reach the Paris Agreement's goal to limit the global temperature rise to 2°C unless other states do not implement much more ambitious emissions reductions measures. In particular, China has not indicated how much its emissions will grow before they peak. Between 2014 and 2016, it seemed that the peak had already been reached. In 2017, however, China's greenhouse gas emissions again increased due to the growing demand of coal, oil and gas (Climate Tracker, 2018).

Furthermore, the reduction of Short-lived Climate Pollutants (SLCPs) – especially black carbon and methane – has proved an important way to mitigate climate change, as their lifetime is much shorter than that of carbon dioxide. In particular, black carbon stays in the atmosphere about a week. In the Arctic, black carbon is a significant contributor to climate change: about 20 percent of warming and snow-ice cover loss is attributed to the reduction of the albedo effect (the ability to reflect sunlight) caused by black carbon (Koch et al., 2011). Approximately 30 percent of Arctic warming is caused by black carbon emissions of the Arctic States while SLCPs emitted outside of the region play an important role in Arctic climate change (AMAP 2015, 12-13). On the global level, Asia – especially China and India – is the biggest source of black carbon, accounting for more than half of the global emissions. While the UNFCCC addresses carbon dioxide, methane and four other greenhouse gases, the international legal and governance regime for the reduction of SLCPs in the Arctic is complex and fragmented (Yamineva and Kulovesi, 2018).

The key international instrument is the Convention on Long-Range Transboundary Air Pollution, and especially the Protocol to Abate Acidification, Eutrophication and Ground-level Ozone (Gothenburg Protocol), while the Arctic Council has also sought to increase co-operation in the field. Although the Climate and Clean Air Coalition (CCAC), a voluntary partnership of governments and private sector actors launched in 2011, has not addressed SLCPs in the Arctic per se, it has undertaken considerable initiatives in various relevant sectors such as agriculture, and the oil and gas industry (Yamineva and Kulovesi, 2018). As of October 2018, all Arctic States apart from Iceland had joined the coalition. China takes part in the CCAC as an Observer, but it has been rather reluctant to formalise its partnership in the CCAC. China

has not taken an active role within the Arctic Council's Framework for Action on Black Carbon and Methane established in 2015 either, probably because of the limited policy attention to black carbon and the lack of knowledge on black carbon emissions and their sources at the domestic level (personal communication, Yulia Yamineva, 6.10.2018).

In 2015, a number of Arctic Council observer states submitted — on a voluntary basis — their national reports on enhanced black carbon and methane emissions reductions, including France, Japan, Poland, Spain, Korea, India, Italy and the EU (Arctic Council, 2015). As of October 2018, China has not submitted its national report. The improvement of scientific knowledge on black carbon — and especially the development of emissions inventories — is an important precondition for China's stronger involvement in international co-operation on such emissions (Zheng et al., 2018; Yamineva and Zhe, n.d.).

Although air pollution and climate change policies have been developed rather autonomously by different ministries in China, they are deeply interlinked in practice (Yamineva and Zhe, n.d). Numerous scientific studies have shown that fine particulate matters (PM2.5), to which black carbon also belongs, cause adverse environmental and health impacts in China. In 2010, a million premature deaths were attributed to air pollution annually (Gu et al., 2018). Unsurprisingly, Chinese citizens are increasingly discontent with environmental pollution. Due to major air pollution events, 'Airpocalypses', the ruling party has taken the issue seriously. It declared a 'war against pollution' in 2014. Thus, there are strong domestic incentives for China to decrease the use of coal in order to improve air quality and public health, and such reductions undoubtedly decrease carbon dioxide and black carbon emissions as well.

While China's air quality policies do not address black carbon per se, they decrease it by setting quantified targets for reduction of PM2.5 (Yamineva and Zhe, n.d.). For instance, the Air Pollution Action Plan (2013-2017) forced key regions to significantly decrease PM2.5 levels, resulting in dramatic improvements of air quality in Beijing (Zheng et al., 2018). Moreover, the 13th Five-Year Plan (2016-2020) (*Shisanwu Guihua* "十三五"规划) pledges to "ensure that the concentration of fine particulate matter is reduced by at least 25%" and sets key indicators for air quality: the percentage of days experiencing "good" or "excellent" air quality in cities at and above the prefectural level, with the target being 80 percent. The cities that fail to meet the target percentage should reduce PM2.5 intensity by 18 percent. These targets were reiterated by the Three-Year Action Plan (*Sannian Xingdong Jihua* 三年行动计划) for Winning the Blue Sky War (2018-2020) (*Daying Lantian Baoweizhan* 打赢蓝天保卫战), published in July 2018.

To decrease reliance on coal and other (imported) fossil fuels, China's 13th Five-Year Plan orders an increase in the proportion of non-fossil fuel energy to 15 per cent and a decrease in the consumption of coal to below 55 percent. In efforts to promote the production of non-fossil fuel energy, hydropower and nuclear energy play the most important role in China. China is the biggest source of hydropower in the world, and the installed capacity of hydropower exceeded 100,000 megawatts in 2004, 200 000 megawatts in 2010 and 300 000 megawatts in 2015 (Li et al., 2018). Still, China's huge hydropower projects, such as the Three Gorges Dam (*Sanxia Daba* 三峡大坝), have caused severe social and environmental harms locally. In September 2018, there were 40 nuclear plants in operation, about 20 under construction plus more about to start construction on mainland China, meaning that the number of nuclear power plants has increased more than tenfold since 2000 (World Nuclear Association, 2018).

Furthermore, China has invested heavily in renewable energy. It is the world leader in solar energy by manufacturing about 60 percent of global solar cell capacity and by using about half

of the global solar power per year. In 2017 alone, China installed at least 50 gigawatts of solar power capacity, which means that it already exceeded the 13th Five-Year Plan's target of 105 gigawatts (Buckley, Nicholas and Brown, 2018). Moreover, China has abundant wind energy resources and it is able to develop wind power on a large scale (Sahu, 2018). In 2016, China represented 35 percent of global cumulative wind power installations. The objective of the 13th Five-Year Plan for wind power is at least 210 gigawatts, and China is expected to achieve the target in 2019 (International Energy Agency 2017).

The government has also made serious efforts to decrease energy demand by promoting energy conservation and energy efficiency. It has closed ineffective power plants and small or outdated industrial factories, promoted the development of modern, energy-saving technology and products as well as established national standards to improve automotive fuel economy, for instance. The number of cars is expected to more than triple by the end of the next decade in China, which could cause severe air pollution locally and inhibit the states from reaching peak emissions by 2030 (Zheng *et al.*, 2015). In order to boost the development of electric vehicles, the government has launched many plans and policies, the most influential being the announcement to ban the production and sale of fossil fuel cars in the near future. In 2018, China also issued *China VI Emission Standard* (*Guoliu Paifang Biaozhun* 国六排放标准) that orders all new diesel heavy-duty vehicles introduced to the market after July 2021 to have diesel particulate filters. If efficiently implemented, this means that all new heavy duty vehicles in China will be soot-free after 2021. (Cui and Minjares, 2018.)

Furthermore, China is the world's biggest investor in carbon dioxide capture and storage technology and it has a large research programme on geoengineering. The development of green technologies play an important role in China's efforts towards the "greenisation" of its society as well as developing the country as a "knowledge power". When it comes to Arctic energy projects, China's participation in Arctic LNG projects supports these goals by increasing (technical) knowhow as well as the government's efforts to replace coal and oil by natural gas, a less environmentally-harmful fossil fuel.

Since climate change mitigation and adaptation are in China's domestic interest, it is not likely that it will withdraw from the Paris Agreement as the United States decided to withdraw in June 2017 (effective in 2020). Conversely, President Xi has announced that China will take a "driving seat" in international climate negotiations. At present, however, it remains unclear whether this announcement means that China is willing to enhance its NDC under the Paris Agreement in an ambitious manner or that it will more determinately emphasise the historic responsibility of developed countries – as it and other BRICS (Brazil, South Africa, India and China) countries did in the UN climate negotiations in Bonn in 2017. On one hand, many projects under China's Belt and Road Initiative invest in fossil fuels, especially by building new coal plants in developing countries; on the other hand, the reluctance of the United States to shoulder its responsibility in international climate politics provides China with an opportunity to represent itself as a responsible major power and thereby strengthen its leadership role in the international community. In that sense, the agreement between China and the EU in July 2018 to intensify their cooperation on climate change and clean energy is a positive sign: there are many opportunities for collaboration in the fields of emissions trading systems, energy efficiency, clean energy and technology, low-emission transportation, low-carbon cities, etc. A good example of linkages between Chinese and Arctic partners in the area of renewable energy is a large-scale joint geothermal project between Sinopec (*Zhongguo Shihua* 中国石化) and the Arctic Green Energy Corporation, with the latter partner being focused on utilising Icelandic geothermal energy expertise internationally (Arctic Green Energy Corporation).

China has also made efforts to make the BRI initiative "green" by issuing *Guidance on Promoting Green Belt and Road* in 2017 (*Guanyu Tuijin Lüse Yidaiyilu Jianshe de Zhidao Yijian* 《关于推进绿色"一带一路"建设的指导意见》), for instance. The official launch of the *International Coalition for Green Development on Belt and Road* is scheduled for early 2019 (*Yidaiyilu Lüse Fazhan Guoji Lianmeng* "一带一路"绿色发展国际联盟). Finland is one of the eight states that had joined the coalition by November 2018 (UN Environment, 2018). Moreover, China's willingness to play out its leadership role could be encouraged by putting more emphasis on the interconnections between air quality, public health and climate policies. In this regard, improving interdisciplinary knowledge on black carbon inventories, strengthening science-policy relationship as well as recognising political, legal and institutional connections between air pollution and climate change are important steps to be taken by the international community and Chinese policymakers (Yamineva and Zhe, *n.d*).

China's role as an emitter of greenhouse gases, including short-lived climate forcers, is part of the country's broader environmental footprint in the Arctic. Persistent organic pollutants (POPs) and other long-range pollutants such as mercury can be transported by wind or ocean currents into the Arctic. POPs are deposited in the tissue of animals and humans and have noticeable health implications, especially in utilising traditional sources of food (AMAP 2009a; 2009b). While the global emissions of some POPs have decreased significantly, partly due to the adoption of the Stockholm POPs Convention — ratified by China in 2004 — other pollutants are still of major concern. It is very difficult to assess the amount of pollution coming to the Arctic from China specifically.

However, a few examples referring to East Asia or Asia (with China being clearly the largest contributor) can be given (data for 2000-2014). South-Eastern Asia is responsible for 12% of HCB (hexachlorobenzene) depositions over the Arctic (compared to a contribution of 35% by the European continent), and East Asia is a source region for 11% of sulphur dioxide (SO2) and 21% of nitrogen oxides (NOx) depositions. Lindane (y-HCH) pollution reaching the Arctic from outside of the region comes mainly from China, which is responsible for 59% of global emissions. Brominated flame retardants (BFRs) come to the Arctic primarily from Asia (69% of depositions in the Arctic) (Cavalieri et al., 2010). Moreover, "about half the mercury deposition to the Arctic is due to the atmospheric transport from anthropogenic emission sources, of which the greatest contribution is made by Asian (33%) and European sources (22%)" (Travnikov, 2005). The recently adopted Minamata Mercury Convention — ratified by China in 2016 — gives hope for the gradual decrease in the presence of mercury in the environment, but only from a long-term perspective.

Chinese actors may affect Arctic habitats more directly through the investments of Chinese companies in places such as Greenland, northern Canada or Siberia. Chinese demand for resources is the key contributor to the extractive industries investment potential in the Arctic. For instance, in 2013, China imported more than 60% within the international iron ore trade. The country accounted for 44% of global nickel demand in 2011. China is a major and growing market for pulp derived from boreal forests. Moreover, Chinese shipping activities have marine and air environmental impacts in the Arctic, impacts that are bound to increase with growing traffic.

In contrast to the European Union, which has attempted to assess its environmental footprint on the Arctic region (Cavalieri *et al.*, 2010), China has thus far not undertaken such an evaluation.

2.3. Utilising Arctic resources in a lawful and rational manner

In the White Paper on China's Arctic Policy from January 2018, Beijing sought to further explain the role of economic interests in Chinese engagement in the Arctic, including in the areas of energy, resources and shipping, as well as bilateral cooperation with the 'Arctic Eight' through various routes. With the Arctic officially part of the Belt and Road Initiative as confirmed in the White Paper, there is much anticipation as to how the Arctic economies could benefit from Chinese investments and other forms of economic partnerships. The Arctic is in the process of being incorporated into both the land-based 'Belt', including via a proposed railway and other transportation links via Siberia and the Russian Far East (RFE) and possibly as far as the Nordic region, and the maritime 'Road' via proposed port projects as well as the possibility of greater Chinese shipping through the Northern Sea Route (NSR). What is not apparent, however, is how far the 'Ice Silk Road' will stretch (Economist 14 April 2018), since there is the possibility of transit routes reaching as far as Iceland and Greenland, especially if mining in the latter country begins to take off in the coming years, and perhaps even as far as the North American Arctic, considering Chinese interests in eventually making use of the Northwest Passage (NWP) in Canada for expedited shipping between the Atlantic and Pacific Oceans (Fife and Chase, 2017).

Rosen and Thuringen (2017: pp. 53-54) assess that Chinese investments and investment plans in the Arctic are significant compared to the size of Arctic economies (and the national economies of Arctic States – in particular Russia and Canada) but relatively small in light of Chinese global investments, especially in Africa, Asia and South America. The trend of Chinese foreign direct investment (FDI) in the Arctic is, nonetheless, an upward one. Rosen and Thuringen (2017, pp. 61) define the purpose of most Chinese investments in the regions:

"As one of the last remaining sources of unexploited resources, the Arctic is an attractive source of the raw materials that China needs to fuel its development. Beyond resources, the Arctic is the potential launching pad for Chinese state owned enterprises (SOEs) seeking profit and market dominance. The Arctic is also a location where many Chinese laborers could find employment and possibly residence. For China, the Arctic is a vast landscape of opportunity."

After trying unsuccessfully to commence formal free trade talks with the European Union over the past decade, China sought to instead engage non-EU European economies in bilateral free trade talks in order to better tap into what was seen as a key region for Chinese exports and access to high technology. The best candidates were the countries of the European Free Trade Area (EFTA), and since China at the time was unsure about negotiating with all four members (Iceland, Liechtenstein, Norway, Switzerland) all at once, Beijing decided to commence talks with one state at a time, starting with Iceland (Lanteigne, 2010). There was a pause in the talks due to Iceland's application to join the EU (within which the country would not be able to negotiate a separate FTA), and at the same time Iceland was attempting to recover from the post-2008 banking crisis (*kreppa*). By the time the FTA meetings resumed in 2012, Iceland was seen by China as an essential partner in Beijing's developing Arctic policy. The free trade agreement was finalised in 2013, with Sino-Icelandic relations remaining strong and further augmented by tourism and other services. China is now Iceland's largest trading partner in the Asia-Pacific, and there has been discussion about possible Chinese investment in Icelandic ports, including Akureyri and Finnafjörður (Kynge 2017).

Switzerland, and by extension Liechtenstein, given that the latter state has a customs agreement with Bern, also signed their FTA with China in 2013 (Lanteigne, 2014; Switzerland Federal Department of Foreign Affairs, 2018). The situation proved more complicated for Norway, since although the initial round of talks proved successful, further negotiations were abruptly severed by Beijing in the wake of the decision by the Norwegian Nobel Prize Committee to award the 2010 Peace Prize to dissident Liu Xiaobo (刘晓波). Anger at this perceived 'insult to the Chinese nation' resulted in a severing of high-level ties, including any further economic talks, until an agreement to restore relations was struck in December 2016. In December 2016, both governments released a document that confirmed the 'normalisation' of relations, including a promise by the Norwegian government to 'do its best to avoid any future damage to bilateral relations'.

Even during the six-year diplomatic freeze, however, there were still contacts between the two states in multilateral forums, including via Track II conferences such as the Arctic Frontiers conference in Tromsø and the China-Nordic Arctic Research Centre, or CNARC (*Zhongguo Beiou Beiji Yanjiu Zhongxin* 中国-北欧北极研究中心), based in Shanghai. Norway also did not exercise its veto power when China sought Arctic Council observer status in 2013, further affirming that Arctic cooperation would be, to a degree, shielded from the poor bilateral relations in other areas. In addition, in March 2015 Norway was permitted to apply for membership into the Asian Infrastructure Investment Bank, or AIIB (*Yazhou Jichu Sheshi Touzi Yinhang* 亚洲基础设施投资银行), which China oversees. At present, all Arctic governments, with the exception of the United States, are members of the AIIB.

The most recent round of Sino-Norwegian relations took place in Oslo in April 2018, and the outlook for a belated final agreement appeared promising. At a conference in Singapore in August 2018, Chinese Foreign Minister Wang Yi (王毅) suggested to his counterpart, Ine Eriksen Søreide, that the final stages of the talks should be sped up in order to promote the health of the global free trade system (Reuters, 2 August 2018). Several Norwegian sectors, especially the fishing and shipping industries, are especially interested in a deepened trade relationship with Beijing. With a Norwegian FTA in place, Beijing hopes to have free trade pacts in place with the whole of the European Free Trade Association membership (China and Switzerland completed a free trade agreement, which partially included Liechtenstein, in 2013), as well as to convince the European Union to re-commence their own long-stalled FTA negotiations with Beijing.

Even during the six-year diplomatic freeze, however, Sino-Norwegian relations continued in multilateral organisations. For example, Norway was permitted to be a founding member of the China-backed AIIB in March 2015 without interference from Beijing (Government of Norway 2015). Additionally, Chinese and Norwegian representatives would continue to meet via Track II Arctic organisations including Arctic Frontiers in Tromsø and the CNARC conferences. Norway also chose not to block Beijing's application to become a formal Observer in the Arctic Council in 2013 (Brende, 2017). Overall trade between the two countries actually grew during this period, although there were some issues such as periodic stoppages of Norwegian salmon imports to China on dubious health grounds, and Norwegian energy and shipping interests also found it difficult to discuss new partnerships with their Chinese counterparts. With full diplomatic relations restored, Norwegian companies are anxious to make up for lost time, especially given the growing interest in China to develop Arctic shipping. It is possible that the Norwegian city of Kirkenes may be the recipient of Chinese investment in both port facilities and a potential Northern European railway system that might link up with Russia and East Asia (Breum, 2018).

Beyond free trade, China has also begun to develop specific economic initiatives with Arctic States, with Russia clearly in the lead. The Putin government began a policy of 'turning to the East' after the Asia-Pacific Economic Cooperation, more commonly known as APEC (*Yatai Jingji Hezuo Zuzhi* 亚太经济合作组织) Summit in Vladivostok in 2012. This process was accelerated in the wake of the 2014 Crimea/Donbas crisis and subsequent US and Western European sanctions, which left China as the primary partner for numerous Russian energy and infrastructure initiatives that involved the Siberian and Russian Far Eastern regions. For China, these regions were not an economic priority, except for bordering Chinese provinces such as Heilongjiang, until a few years ago. In April 2014, then-Vice-Premier Wang Yang (汪洋) suggested during a meeting in Vladivostok that the RFE was becoming increasingly attractive to Chinese business interests. Wang was also a keynote attendee at the fourth annual Arctic forum at Arkhangelsk in March 2017, where he discussed various potential Sino-Russian co-operation projects involving the Arctic.

Energy co-operation has dominated Beijing's interests in the Russian Arctic, including a July 2013 agreement between the China National Petroleum Corporation (*Zhongguo Shiyou Tianranqi Jituan Gongsi* 中国石油天然气集团公司), or CNPC, and Rosneft, worth approximately US$270 billion, to supply Russian petroleum for a twenty-five year period, and an even more ambitious natural gas partnership, worth an estimated US$400 billion, struck between CNPC and Gazprom. Finally, the CNPC as well as China's Silk Road Fund are major stakeholders in the Yamal LNG project in Siberia, overseen by Russia's Novatek, which officially came online in December 2017, with the second phase operational as of August 2018. Novatek delivered the first shipment of LNG to China via the Northern Sea Route, with CNPC seeking to commence movement of three million tonnes of gas out of Yamal from 2019.

Thus far, China's energy interests in the Arctic are largely confined to Russia, but that may not be the case for much longer. For example, an MoU was struck between China and the US state of Alaska in 2017 to potentially construct an LNG pipeline, a project worth an estimated US$43 billion. Yet the simmering 'trade war' between China and the United States since the beginning of 2018 may complicate the timeline for that endeavour. In 2013, it was announced that the China National Offshore Oil Corporation, or CNOOC (*Zhongguo Haiyang Shiyou Zonggongsi* 中国海洋石油总公司) would be partnering with Eykon Energy of Iceland to survey for fossil fuels the Jan Mayen region of the North Atlantic, but in January 2018, CNOOC withdrew from the project, citing poor initial findings. Greenland may be the target for Chinese energy interests however, since in October 2018 it was announced that both the CNOOC and CNPC were interested in placing bids on onshore blocks when they become available for bids in 2021 (Daly, 2018).

After BRI was formalised by the Xi Jinping government in 2013, there was much speculation as to whether the Arctic would form a part of the growing economic links that China was seeking to create between itself and key markets in Africa, Europe and Eurasia. Although the initial stance by Beijing was that although the Arctic, and especially the NSR, was of interest to China for trade in the coming decades, it was not a priority for the Belt and Road. Nonetheless, signs began to appear in 2017 that the official linkage between the Arctic and the BRI would be confirmed sooner rather than later. For example, one prominent Beijing academic noted in a report by the *South China Morning Post* in May 2017 that the time had come to add a 'Circle' to the Belt and Road idea (Huang, 2017), and also in the same year, talk began to take shape about potential China-supported port projects in Russia (such as Arkhangelsk) as well as in Iceland and Norway.

The first official government confirmation that the Arctic would be incorporated into the BRI appeared within a paper co-published by China's National Development and Reform Commission or NDRC (*Guojia Fazhan he Gaige Weiyuanhui* 国家发展和改革委员会) and the then-State Oceanic Administration. Entitled 'Vision for Maritime Cooperation under the Belt and Road Initiative' (*Yidaiyilu Jianshe Haishang Hezuo Shexiang* 《"一带一路"建设海上合作设想》), the report cited the Arctic, along with the Indian Ocean/Mediterranean and the Pacific Ocean as 'blue economic passages' essential for Chinese maritime trade under the auspices of the BRI. This document set the stage for the release of the White Paper in January the following year, which brought together many strands of scientific, economic and political policies into a single document, including re-affirming China's identity as a 'near-Arctic State' and its interest in developing the Arctic Ocean as an 'Ice Silk Road' as part of the 'Maritime Silk Road' within the BRI.

What remains unclear, however, is what sort of new projects beyond existing ones such as Yamal might form a part of this new wing of the BRI, and which Arctic countries will be the beneficiaries of Chinese BRI investment. The Ice Silk Road is confirmed to include Russia and the East Nordic region, but this trail may continue onward to West Nordic states including the Faroe Islands, Greenland and Iceland, and perhaps all the way to the North American Arctic. In April 2016, China's Maritime Safety Administration released a navigation guide to the Northwest Passage (NWP) in the Canadian Arctic. China has thus far not sent a cargo vessel through the NWP, but the icebreaker *Xuelong* has traversed the passage with Canadian consent. It is unlikely that the Arctic will be a primary trade route for Chinese goods in the near future, given the still hazardous conditions in the region and the limited number of months during which passage is possible. However, as ice levels continue to drop even in the Central Arctic, it is also clear that Beijing is looking ahead to a time when Arctic transits can cut shipping times between East Asia, Europe and North America.

2.3.1. Oil and gas

The accelerating pace of polar ice erosion has resulted in an increase in the level of international attention regarding potential fossil fuel (oil and gas) extraction in the Arctic Ocean region. A 2008 survey report by the United States Geological Survey (USGS) suggested that the area within the Arctic Circle, representing six percent of the world's surface, may hold thirteen percent of the globe's unrecovered petroleum supplies (ninety billion barrels), and as much as thirty percent of its natural gas or approximately 47.3 billion cubic metres. A large majority of these fossil fuels, eighty-four percent, would be found offshore, most notably in the Arctic Ocean north of Siberia, in the waters north of Alaska and also between Baffin Island in Nunavut, Canada and Greenland (Bird *et al.*, 2008; Gautier et al., 2009). However, various obstacles have hampered a previously-predicted 'energy scramble' in the Arctic. These include concerns about the environmental safety of oil and gas drilling in Arctic waters, especially in light of the 'Deepwater Horizon' oil spill disaster off of the Gulf of Mexico in 2010, as well as the logistical problems of large scale drilling in that part of the world. Additionally, the rapid drop in oil prices after late 2014 made Arctic fossil fuels less attractive from a cost/benefit ratio.

For China, however, the Arctic remains a long-term area of interest considering the country's ongoing need for external energy supplies. Despite the costs of Arctic drilling, the region is attractive to Beijing given its political stability and predictability. A report on the development for China's domestic and overseas (or 'international') oil and gas supplies (《2017年国内外油气

行业发展报告》) published in 2017, predicted that China's high dependence on overseas oil would be at around 70 percent in 2018. Meanwhile, the report indicated that China has been the second largest gas importer as global and gas consumption in 2017 hit a new high record. China has been seeking to diversify its sources of oil and gas commodities, with a similar situation facing neighbours Japan and South Korea. The East China Sea (ECS), which has a contested maritime border between China and Japan, also contains a gas field, known in China as the *Chunxiao* (春晓油气田) and in Japanese as the *Shirakaba*, which both governments claim (Kim, 2012).

So far, Russia has been the focus of China's Arctic energy interests. China has been viewed by the Putin government as an emerging energy partner, especially as a result of Moscow's 'Look East' policies and due to Western sanctions. In May 2014, a Sino-Russian natural gas deal, worth approximately US$400 billion, was completed between the Russian energy firm Gazprom and the CNPC, which would lead to regular gas shipments to China via the Russian Far East for approximately thirty years. This was followed by a Sino-Russian natural gas project on the Yamal Peninsula in Siberia, valued at US$27 billion, which officially became operational in December 2017, and is financially supported by the CNPC and the Chinese Silk Road Fund. Further energy initiatives may be possible in light of a June 2018 announcement that a US$10 billion development initiative, jointly overseen by the China Development Bank and Russia's Vnesheconombank, would include projects involving the Russian Arctic.

China has been less successful in other Arctic energy projects. In 2013, Eykon Energy in Iceland concluded a partnership with the CNOOC and Petoro of Norway to seek out oil and gas in the Jan Mayen/Dreki region of the North Atlantic. However, poor survey results prompted both the Chinese and the Norwegian firms to withdraw from the project in January 2018 (Over the Circle, 2018). However, this does not mean that Beijing has lost interest in the Atlantic Arctic in regards to its energy potential. In October 2018, it was announced that Chinese firms, including the China National Petroleum Corp. and CNOOC, were expressing interest in bidding for exploration contracts in maritime blocks off the coast of Greenland when they become available in 2021 (Daly, 2018).

Sinopec (China Petrochemical Corporation), the Bank of China (*Zhongguo Yinhang* 中国银行) and China Investment Corporation (*Zhongguo Touzi Youxian Zeren Gongsi* 中国投资有限责任公司) are negotiating a joint development project with the Alaska Gasline Development Corporation in regards to gas extraction, refining it into LNG and transportation in Alaska. The project, which includes a 1250km pipeline, will cost US$43bln (press estimates) with 75% of funding coming from the Bank of China and 75% of total capacity being directed to the Chinese market. The final EIA statement is expected to be issued by the end of 2019 and the project could go online in 2025 (Graeber, 2018, March 28; Lim, 2018).

Climate change has opened up the possibility of expanding oil and gas projects in the Arctic region. However, China's dependence on Africa and the Middle East for oil and gas imports will continue in the next few years.

2.3.2. Mining

So far, the involvement of Chinese companies in Arctic mining projects has been limited, especially when it is contrasted to the Chinese presence in Africa or Australia (Lajeunesse and Lackenbauer, 2016).

China is the world's largest consumer and producer of so-called rare earth elements (REEs). REEs are seventeen chemical elements on the periodic table that play vital roles in modern industries, green technology and national defense. Although many countries have REE deposits, China has taken the lead in their mining and production. Developing the utilisation of REEs is an indispensable part of China's 13th Five-Year Plan, which encourages China's corporations to co-operate internationally (Ministry of Industry and Information Technology of the People's Republic of China, 2016). As the Arctic opens up, China has also been interested in developing other REE mines, starting with Greenland.

One of the most significant REE projects to be operated in the Arctic is at Kvanefjeld, located in Southern Greenland. The project is estimated to have an after-tax net present value of US$1.4 billion (Greenland Minerals, 2015). The company that operates the possible mining is Australia-based Greenland Minerals (formerly Greenland Minerals and Energy), in partnership with Shenghe Resources (*Shenghe Ziyuan* 盛和资源), a Chinese company as a major stakeholder and partner. The two companies signed a memorandum of understanding (MoU) in August 2018 for further cooperation on the Kvanefjeld project (Birney, 2018), which is expected to commence operations in the coming years. In addition to Kvanefjeld, another mining project is planned in Greenland's far north, specifically a zinc mine at Citronen Fjord, which would be overseen by Perth-based Ironbark in cooperation with China Nonferrous Metal. Finally, General Nice, a Hong Kong-based company, currently holds the rights to a potential iron mine at Isua in western Greenland (McCrae, 2017; Shi and Lanteigne, 2018). General Nice was the same corporation that fell afoul of the Danish government when it attempted to purchase an abandoned American-built naval facility at Grønnedal. That sale was blocked by Copenhagen with American backing (Matzen, 2017).

The Canadian mining industry and mining sector are among the most critical elements of the country's economy, and Canada is one of the biggest mining nations globally. Across Canada, many Canadian mining companies established relationships with Chinese companies, including SOEs, ranging from sources of capital to long-term buyers or active operators. Between 2010 and 2016, there was an elevated interest by Chinese mining companies and investors in Canadian mining industry and resources (Lajeunesse and Lackenbauer, 2016). Most projects took place south of 60ºN. For instance, China's CGN Mining Co Ltd bought a nearly 20-percent share in Fission Uranium Corporation (Canada does not allow foreign investors to have majority shareholding in operating uranium mines). In 2011, Baosteel Resources International Inc, a Chinese state-owned company, invested USD 17.7 million in Noront in Northern Ontario's James Bay lowlands, considered one of the largest mineral discoveries in Canada in recent decades. Many Canadian companies received significant Chinese investment, including Teck Resources Ltd, Barrick, Ivanhoe Mines Ltd and Pretium Resources Inc. Moreover, Canadian mining companies partner with Chinese investors in financing and operating projects overseas (see e.g., Friedman, *Financial Post*, 2018, July 27).

Despite Canada's strong promotion of investments in its mining sector, the Chinese interest appeared to diminish after 2016. According to media reports (see e.g., Beeby, CBC News, 2016, June 7), Chinese companies found it challenging to meet complex legal requirements and to manage community relations as well as carry out impact mitigation and benefit-sharing arrangements. Also, the investment and decision-making processes in Canada turned out to

be slower than Chinese actors had expected. For instance, in Nunavut, MMG Ltd (associated with China Minmetals Corp) had long tried to start a zinc project, without success. In British Columbia, Chinese company HD Mining International Ltd's plan to recruit Chinese labour was met with strong opposition from local communities. Some Chinese investments did not proceed due to restrictions placed by the Canadian government on foreign investments in resources considered highly strategic (e.g. oil sands, uranium).

In Russia, the Nornickel company has sought Chinese investment in exploitation of rare-earth metals, vanadium, molybdenum, and wolframite in the Kola Peninsula, the Taimyr Peninsula, and in the Sakha Republic of Sakha (Ivanov 2016, as quoted in Erokhin et al., 2018).

There appear to be no Chinese companies or investors actively engaged in mining projects in Northern Fennoscandia beyond initial market surveys.

2.3.3. Tourism

The GDP growth of China is one of the primary motivations for Chinese tourists to engage in polar tourism, as well as the growing Chinese interest in both green tourism and polar tourism. The number of Chinese tourists to the Arctic and Antarctica has increased steadily in recent years, and the country is now one of the largest sources of polar tourists (CGTN, 2017). In 2012, one year before China's Observership in the Arctic Council, China Economic Weekly (*Zhongguo Jingji Zhoukan*《中国经济周刊》), an economic journal under the People's Daily Press (*Renmin Ribao She* 人民日报社) published a brief article on Arctic tourism, suggesting the possible ways for Chinese tourists to visit the region far away from home. Additionally, on Chinese online tourism forums, there are various discussions on costs and different kinds of tours in Arctic tourism. Iceland is a distinguished example of becoming a new favourite for Chinese visitors. With intensifying media exposure in China, along with a smooth bilateral relationship with the country, Iceland has been welcoming a growing number of Chinese tourists via Keflavik airport from 9500 passengers in 2007 to 86,000 in 2017 (Icelandic Tourist Board).

Arctic tourism charms Chinese tourists with activities including Northern Lights hunting, Arctic and circumpolar fauna and flora watching, experiencing the spectacular Arctic landscape and outdoor activities, especially in winter, amongst others activities. Other parts of the Arctic, such as northern Canada, have also sought to attract more tourists, including from China and elsewhere in East Asia (Rosen, 2018). Greenland has also been hoping to develop a stronger tourism base with the help of Chinese tourists, and one initiative has been to expand Greenland's airports to better attract greater tourist traffic. However, the airport expansion project ran into some political headwind when it was revealed that a Chinese firm, the China Communications Construction Company (*Zhongguo Jiaotong Jianshe Youxiangongsi* 中国交通建设有限公司) or CCCC, was interested in bidding on the contract to overhaul the airports at Nuuk, the capital, as well as Ilulissat and Qaqortoq, causing concerns in Copenhagen about economic sovereignty, excessive Chinese influence, and the possibility of Greenland being caught in a debt trap (McGwin, 2018). In September 2018, The Danish government offered to underwrite the airport project, and the US government also offered, during the same month, to offer financial support for Greenland infrastructure (McPherson, 2018; Danish Foreign Ministry, 2018; Lim, 2018). These moves appeared to be designed to prevent the CCCC bid from going forward, a prospect that was worrisome to both Denmark and the United States.

Russia is also seeking to cooperate more closely with China to develop Arctic tourism in Siberia, including potentially in the Arkhangelsk region (RT, 27 July 2018). Similarly, Canadahas been taking steps to boost Arctic tourism, including in China, but the sharp downturn in diplomatic relations between Beijing and Ottawa at the beginning of 2019 over the arrest of a senior executive of the Chinese firm Huawei resulted in both governments placing travel warnings regarding each of the countries respectively in January (CBC News, 15 January 2018).

The dynamic growth of Chinese tourism in Finnish Lapland and Chinese investments in the Finnish tourism sector are discussed in Section 3.2.2.

2.4. Participating actively in Arctic governance and international co-operation

China's participation in Arctic international co-operation is fairly recent, even if the country became a party to the Spitsbergen Treaty in 1925. The country became a member to the International Arctic Science Committee in 1996 but only in 2007 did it start to send delegations to the meetings of the Arctic Council, the predominant inter-governmental forum for the discussion on Arctic issues (Koivurova et al., 2017). China has no territory north of the Arctic Circle, a prerequisite for membership, so the country's only option was to become a formal Observer. For this, the country needed to demonstrate an understanding of Arctic affairs, including economics, history, and peoples to a degree that would be acceptable to the eight members of the Arctic Council, some of which, including Canada, Russia and the United States, were suspicious of Beijing's motives. China was also at a disadvantage, as the country did not have a long history of engagement and exploration compared with other Observer governments. Beijing also had to address its still-tentative approaches to regional institutions, especially those which were outside of the Asia-Pacific. In short, Beijing had to quickly and effectively build an Arctic identity in the face of internal and external constraints.

There was also a perceived timing issue in Beijing's engagement of the Arctic Council. Until energy and commodity prices fell after 2014, there was much discussion about an 'Arctic scramble' for resources that would place the eight Council members at a distinct advantage (Borgerson, 2008). On one hand, China wanted to avoid the impression that it was seeking to 'gate-crash' the region and challenge Arctic governance, including the Arctic Council. However, Chinese policymakers were also wary of what could be called the 'blueberry pie' scenario, whereby the Arctic is cut up amongst the Arctic Eight, with all other countries being sidelined (Rainwater, 2013; Lanteigne, 2018). Thus, China had to find a middle ground, and a great deal of that process involved presenting itself as an Arctic partner, a process that resulted in a great deal of Arctic diplomacy on a bilateral level. In some cases, the process was extremely successful (Iceland, Russia), producing good returns (Finland, Sweden), but less so in others (Canada, Denmark, United States). Norway was the odd one out in this process until late 2016, when diplomatic relations were more fully restored. Also, Norway did not veto China's 2013 bid to become an Arctic Council observer, despite worsened bilateral relations and speculation that Oslo would seek to curtail China's bid (Watts, 2012).

The country was accepted as an Observer to the Arctic Council at the Kiruna ministerial meeting in 2013, together with other Asian applicants (Japan, South-Korea, India and

Singapore) and Italy. China's interest in becoming a Council Observer, along with a potential growing 'line by the front door', as many Asian states now have that status, forced greater attention to be paid to how future Observers should be chosen. Previous applications which so far have not been successful include Greece, Mongolia, Turkey and the European Union. However, the EU, while it lack formal Observer status remains an Observer-in-principle, and is a common participant in Council proceedings.

During the years immediately preceding Beijing's acceptance as a formal Observer in the Arctic Council, there was a noticeable uptick of media reports and academic studies regarding the country's emerging policies in the Arctic, including references to China as both a 'near-Arctic State' (*jin beiji guojia* 近北极国家) and an 'Arctic stakeholder' (*beiji lihai guanxiguo* 北极利害关系国), despite the fact that China does not have an Arctic border (Jakobsen and Peng, 2012). The shortest distance between the Arctic Circle and China's northernmost point, in Mohe County (漠河县), Heilongjiang province at 53°33′ N, is more than 1400 kilometres.

Nonetheless, there were arguments expressed in the country that China's proximity to the Arctic region, as well as the effects of regional climate change on Chinese weather patterns, justified greater Chinese engagement in Arctic governance. It was also suggested in studies published in March 2017 that changing weather patterns in the Arctic, specifically ice erosion in the Arctic Ocean coupled with increased snowfall in regions of Siberia, were contributing to reduced wind frequency, which in turn allowed for air pollution to linger over parts of coastal China in winter months (Hernández, 2017). Since then, air pollution well above safety levels have been recorded in coastal Chinese cities during the winter, a phenomenon commonly known as the 'airpocalypse' or *morikongqi* (末日空气) in Chinese (Yang, 2016).

However, the concept of 'near-Arctic State' was received poorly by some Western Observers and at times interpreted as an attempt by China to directly challenge political norms in the region and to act as a 'gate-crasher' in the Arctic. There were also attempts by some Western commentators to draw comparisons between China's claims to the South China Sea and the country's supposed 'assertiveness' in the Arctic Ocean, despite the fact that Beijing is not claiming any sovereignty in the latter region (Houck, 2017, August 1; Martin, 2018, May 5). A quotation by then-PLA Rear Admiral Yin Zhuo (尹卓), namely that 'the Arctic belongs to all the people around the world, as no nation has sovereignty over it […] China must play an indispensable role in Arctic exploration as we have one-fifth of the world's population,' was used as further evidence of an emerging revisionist policy in the Arctic on China's part, despite the fact that other reports suggested that the quotation was either mistranslated or taken out of context. The complete statement was also cited as 'according to UNCLOS, the North Pole and its surrounding areas do not belong to any single country, and the common riches in the area belong to all the people in the world.'

Despite the fact that Beijing had taken great care to stress both scientific diplomacy and its ongoing interest to act as a partner to Arctic States, since 2013 Chinese officials have also tacitly put forward the idea that despite not being an Arctic State, non-Arctic States such as China should nonetheless play a role to a certain degree in Arctic affairs given the effects of the region in parts of the world further south.

One vivid sign of this was a speech given by then-Chinese Vice-Foreign Minister Zhang Ming (张明) at the annual Arctic Circle conference in Reykjavík in October 2015. His speech included a brief, six-point plan for China's emerging Arctic policies, namely the need for future

exploration and knowledge about the region, the protection and 'rational use' of the Arctic, respect for the inherent rights of Arctic States and indigenous peoples, respect for the rights of non-Arctic States and the international community, creation of a 'multi-tiered co-operation framework for win-win results' in the region, and the need for continued observance of relevant international law and institutions, including UNCLOS and the Spitsbergen Treaty (China MoFA, 2015). The first three points were hardly groundbreaking, and were assumed to be a normal stance by an Arctic Council Observer seeking to build an Arctic identity. However, the fourth, fifth and sixth points were a tacit statement that China wished to play a more central role in future Arctic affairs. China was seeking to walk a fine line between being seen as revisionist in the Arctic, but also avoiding what has been called a 'blueberry pie' scenario, whereby the Arctic is split up, politically and economically, between the 'Arctic Eight' with all other governments being shut out (Lanteigne, 2018).

By the time of adoption of the country's first Arctic policy document in 2018, China's policy stance towards the Arctic Council and Arctic governance has become clearer. Beijing clearly perceives that it will continue as an Observer in the Arctic Council, but defines its general role in Arctic governance in more expansive and ambitious terms. China legitimately sees Arctic governance to be partly a global enterprise. Since the country belongs to most multilateral conventions and organisations that are also relevant in the Arctic (a permanent member of the UN Security Council, UNCLOS, climate regime, Persistent organic pollutant regime, International Maritime Organization (IMO) etc.), it also perceives that its role in Arctic governance is not limited to being an Observer in the Arctic Council.

Apart from its involvement in the work of the Arctic Council, Beijing has also been engaged in other areas of Arctic governance and regime-building. Two processes that both commenced around 2010 have provided needed regulations for enhancing safe and environmentally sound shipping and responsible fisheries in the Arctic Ocean. The 2009 Arctic Marine Shipping Assessment (AMSA) of the Arctic Council recommended that the Arctic States take action for a mandatory Polar Code, which establishes legally binding obligations for states and their vessels when they enter the Arctic Ocean or Southern Ocean surrounding Antarctica. As early as 2002, an Arctic shipping Code had been adopted by IMO as a recommendatory instrument for navigating in the Arctic Ocean, which was then expanded to cover the Southern Ocean via the IMO-adopted non-legally binding 2009 Polar Code (see Jensen, 2007 and Polar Code, 2009).

The Polar Code was negotiated to contain both recommendatory and legally binding sections (as amendments to the existing IMO treaties, such as the International Convention for the Safety of Life at Sea — SOLAS and the International Convention for the Prevention of Pollution from Ships — MARPOL) and it came into force in 2017. One of the key objectives of states in adopting law of the sea measures is to facilitate smooth traffic and navigation. Therefore, the coastal states are generally discouraged from setting construction, design, equipment and manning (CDEM) standards beyond those accepted internationally. As a result, in order to be effective, CDEM standards specific for Arctic shipping needed to be regulated in the legally binding part of the Polar Code. As a Member State to the IMO, China states in its Arctic policy that it will abide by these standards and also that it is willing to further develop these rules, as it "supports the International Maritime Organization in playing an active role in formulating navigational rules for the Arctic".

The Arctic Council's Arctic Climate Impact Assessment of 2004/2005 (ACIA, 2005) projected that with warming waters, the fish stocks are likely to move northwards. The United States took

initiative in 2007 by presenting the proposal to the Senior Arctic Officials (SAO) of the Arctic Council that a precautionary regulatory action might be needed, but the SAOs did not see that the Council would have competence in fisheries management. For this reason, in 2010 the Arctic Ocean coastal states commenced diplomatic and scientific negotiations to explore whether regulatory action was needed for the possible emergence of high seas fish stocks in the Central Arctic Ocean, an area of about 2.8 million square kilometres. The coastal states issued a declaration in 2015 not to allow their own fishing vessels to enter this area, and then invited four other states (China, Japan, South-Korea and Iceland) and the European Union for further negotiations on a legally binding agreement. The text of the agreement was approved by the parties in November 2017, and the agreement itself was signed in October 2018. With the agreement, these nine states and the EU agree to abstain from commercial fishing, which can be lifted if specified procedural and substantive criteria are met. Given that there is no commercial fishing in this high seas area, the agreement is a good example of precautionary approach to fisheries, as nowadays about 40% of the high seas area is already open during the summer months (Arctic Fisheries Agreement, 2018). China also played an important role in these negotiations (Liu, 2018).

2.4.1. China and Arctic Indigenous Peoples

Indigenous Peoples are important actors in the avenues of Arctic governance. There is a broad consensus among Arctic States and other actors in the region — at least at a declaratory level —- that indigenous concerns and rights need to be taken seriously into account and that Indigenous Peoples should participate in decision-making and in any Arctic-relevant discussion. China is no exception. In the 2018 White Paper, its government commits to “respect [the Arctic region’s] diverse social culture and historical traditions of the indigenous peoples” (and “interests and concerns of indigenous peoples”), reiterating several times the phrasing found in the Arctic Council’s Nuuk Observer rules (see Graczyk and Koivurova, 2014).

Between 2011 and 2013, when China obtained formal observer status in the Arctic Council, Chinese officials approached indigenous representatives, but China did not reach out to Permanent Participant organisations the way that Singapore did, for instance, by inviting Arctic indigenous activists to visit the city-state (Stepien, 2017). Conversely, the 2018 White Paper states that business cooperation “should accommodate the interests of local residents including the indigenous peoples” in line with the “win-win result” principle. In the same vein, Chinese operators should respect “the efforts made by the Arctic States to empower the local citizens, foster their social and economic progress, and improve education and medical services, so that the Arctic residents, including the indigenous peoples, will truly benefit from the development of Arctic resources”.

There is no indication that any particular attention was given to indigenous interests in the decisions on investments in Arctic Russia. Chinese mining operators in Canada expressed views that the processes of negotiating agreements with local communities is too long and burdensome, contributing to their limited interest in the investments in Canada.

Markedly, the statements by China in regards to Arctic Indigenous Peoples primarily reflect the approach of the respect for local/national rules and regulations. In that light, Chinese actors are to take appropriate account of indigenous rights and interests because they operate within the framework established by Arctic States. China does not state at any point that it would promote in its activities indigenous rights beyond what is required by the legal systems of Arctic

States. This is in contrast to the way many western states approach indigenous rights within, for instance, development aid.

As no actual instances of Chinese activities in the Arctic allow for the proper testing the declarations made in the 2018 White Paper, it is useful to look at China's stances towards indigenous rights globally. China perceives that there are no indigenous peoples in China, as for Beijing indigeneity arises exclusively from the context of colonisation and conquest.[2] Thus, in the view of the Chinese government, the issue of indigenous rights does not apply to China itself, which means that any of China's international statements on indigenous issues are seen in Beijing as having no implications for China's internal affairs, including in relation to international criticism of the Chinese government regarding its policies towards minority ethnic groups, in particular Uighurs and Tibetans. In the UN system, China has therefore proven to be a fairly strong proponent of indigenous rights. China not only voted in favour of the 2007 UN Declaration on the Rights of Indigenous Peoples but attempted in the past to be an active and supportive actor in the area of indigenous rights, for instance by organising a pre-sessional meeting of the UN Permanent Forum on Indigenous Issues (UNPFII) in Beijing in 2007 (Stepien, 2017). This notwithstanding, the 2018 White Paper does not mention "indigenous rights", preferring phrases such as indigenous interests, concerns, culture and traditions.

China declares that it takes into account that "[c]ommercial activities in the region [...] exert important influence on the way of work and life of Arctic residents including the indigenous peoples" (PRC State Council, 2018). Admitting that Chinese activities may also have impacts on Arctic livelihoods is of high importance as in principle it should translate to the notion of Chinese operators' responsibility. Chinese investors and financial institutions have been accused in the past of neglecting indigenous interests in places such as Africa or South America, in particular in cases of hydropower, mining and agricultural projects. Partly in response to this criticism, the Chinese government adopted a variety of guidelines with strong emphasis on the proper management of local social and environmental impacts. These guidelines are directed mainly at the SOEs and public financial institutions. It is difficult to evaluate whether such documents have a tangible influence on the actions of these actors in particular projects (Stepien, 2017).

[2] In international law, there is no official definition specifying which groups constitute "Indigenous Peoples". However, elements characterising Indigenous Peoples can be found for instance in the International Labour Organization Convention no. 169 on the Rights of Indigenous and Tribal Peoples. These elements include traditional lifestyles, distinctiveness compared with majority societies, continuity of institutions and cultures from the times before colonisation, invasion or settlement. Representatives of Indigenous Peoples are often critical to any attempts of defining which groups are indigenous and underline the importance of self-definition as indigenous. While indigenous status is generally accepted in states where colonisation led to the establishment of majority white settlers societies (Americas, Australia, New Zealand, the Arctic), it is often rejected by states in Africa and Asia, where indigenous status under international law is considered to be not applicable to societies where the majority population originates from within the region. In these parts of the world, certain groups nonetheless claim indigeneity based on their current situation (so-called 'functional indigenousness') — partly arising from the process of European colonisation — or the fact of settlement and conquest of their territories by non-European groups. This leads to cases such as at the Chinese-Russian borderlands, where reindeer-herding Evenki people on the Russian side enjoy indigenous status, while Evenki inhabiting the Chinese province of Inner Mongolia are listed among officially recognised ethnic groups, without any special indigenous status.

2.5. Chinese interests in the Arctic as compared to other Asian states

As noted above, there are five Asian states that have developed their distinct Arctic policies in the past decade, including China as well as India, Japan, Singapore and South Korea. The Republic of Korea was an early starter in developing its Arctic policies, publishing a White Paper in 2013 and stressing the need for greater education and scientific cooperation in the region. However, being a major player in shipbuilding, Seoul is also watching the emergence of shipping in the Arctic Ocean. The 2013 paper, referred to as the 'Master Plan', was written via consultation with several governmental ministries including Foreign Affairs, Trade, Fisheries and and Future Planning, as well as affiliated research institutes including the Korea Maritime Institute (KMI) and the Korea Polar Research Institute (KOPRI). The paper described three major policy goals: the building of a 'co-operative Arctic partnership', the enhancement of scientific research in the region and the exploration of new business opportunities. For example, a Korean shipping firm agreed to sign on to the Tromsø-based Arctic Economic Council (AEC) in 2017.

Korea also hosts a number of Track II initiatives, including the annual Korean Arctic Academy conference in Busan for students in the region, a Korea Centre at the University of Greenland in Nuuk, and an Arctic Circle Forum conference in Seoul in December 2018. At present, North Korea's Arctic interests have been limited to some shipping ventures with Russia, and also the Kim Jong-un government did announce its interest in signing the Svalbard Treaty in 2016.

Japan issued its Arctic White Paper at the Arctic Circle conference in October 2016, and although Japan has also sought to push for scientific partnerships, there was also a stress on Arctic shipping as a strategic priority, given the high dependency Japan has for imports of resources and energy. Tokyo wishes to expand its use of the Northern Sea Route for European trade, and it is concerned both about the potential militarisation of the Arctic as well as the possibility of China's seeking a dominant role in the Arctic Ocean. Nonetheless, Japanese representatives have met with their counterparts in China and South Korea for trilateral Arctic summits. While there have been agreements between the three governments to pursue joint Arctic research programmes, specifics have so far been limited.

India and Singapore have so far been more outliers in the Arctic given their geography. India is active in polar research in a variety of areas, but does not benefit from the opening of Arctic shipping due to its location, and so far has not published a specific Arctic policy. Singapore's situation is also distinct, since although the country has pledged support for research initiatives in the Arctic, its primary concern is the possibility of expanded Arctic shipping which may compete in the future with the Malacca Straits. As a shipping power, Singapore wishes to be front and centre for the opening of the Arctic Ocean to expanded maritime traffic. However, the country is also active in Track II organisations including the Arctic Circle (including a breakout forum), and has also held Arctic conferences dedicated to information-sharing.

2.6. Conclusion

China has by now established itself very clearly as an Arctic actor, the final touch being the adoption of the country's first ever Arctic policy in 2018. Our study confirms that its manifold presence in the region has grown significantly in the last ten years and especially since the country received observer status in the Arctic Council in 2013. First, China has become a formidable scientific power in the Arctic, having its research station in Svalbard Archipelago, being active in the International Arctic Science Committee (IASC), and conducting marine scientific research via its (soon) two icebreakers dedicated to marine research. The country has become increasingly interested in how climate change in the Arctic affects not only the region itself but China as well.

China contributes to the environmental problems of the Arctic, most conspicuously through the impacts of climate change, but also other pollutants that end up in the Arctic. China appears to be willing to even assume the role of a leader (together with the European Union) in terms of the global climate change fight under the auspices of the 2015 Paris Agreement, now when the US has given the notice of withdrawal. On the other hand, it can be expected that the country will not raise its nationally determined contribution (NDC) since it faces the dilemma of needing to satisfy the energy needs of a country with an economy that continues to rapidly grow (and with much of its own energy consumption based on coal). China unfortunately does not currently participate in the Arctic Council Working Group's work on black carbon and methane, which could present an important contribution to addressing the impacts of climate change in the North, where part of the black carbon that is deposited there has its origins in China. China faces the same dilemma in terms of other pollutants, too. It does participate in global cooperation, but it also emits many substances that then end up in the food chains of Arctic ecosystems.

China's economic role is growing, and it seems clear that the country is prepared to utilise the opening navigational opportunities and to invest in the Arctic's energy resources in particular. However, at present, Chinese actors focus mostly on Russia in terms of oil and gas investments, Greenland with respect to mining, bioeconomy in Finland, as well as Iceland, and to a degree Finland, in terms of tourism co-operation. In general, China's presence in international co-operation in the Arctic has grown significantly from 2007 onwards, when it started to send delegations to the Arctic Council SAO meetings. As China's recent White Paper demonstrates, Beijing sees the Arctic as being governed at global and regional levels. Thus, China perceives the Arctic Council as only one segment of broader Arctic governance, and that its own expanded role in international affairs well demonstrates that it is already one of the relevant parties in Arctic governance (Koivurova, 2018).

China's approach to Indigenous Peoples' questions is complex. China does not consider any of the ethnic or minority groups inhabiting its territory to have the status of an indigenous people. However, China is a fairly consistent supporter of indigenous rights internationally. In the Arctic context, China, as an Observer to the Arctic Council, has accepted the Nuuk Observer criteria, which call upon Observers to "respect the values, interests, culture and traditions of Arctic indigenous peoples and other Arctic inhabitants [...] [as well as] [h]ave demonstrated a political willingness as well as financial ability to contribute to the work of the Permanent Participants and other Arctic indigenous peoples." However, so far Beijing has not spoken of indigenous issues in terms of indigenous rights. Nor has Beijing organised any

practical co-operation with the Arctic Council's Permanent Participants organisations, in contrast to, for instance, Singapore or the European Union.

3. CHINA AND FINLAND — POTENTIAL AVENUES FOR ARCTIC CO-OPERATION

3.1. Introduction

Finland has established a broad range of ties with China, varying from trade and investment relations to scientific co-operation and tourism. Historically, Finland was one of the first Western countries (with Sweden and Denmark) to recognise the People's Republic of China (January 13, 1950) and to establish diplomatic relations (October 28, 1950). The Finnish embassy was established in Beijing in 1952. In the following year, Finland and China signed an economic co-operation agreement – the first of its kind between a Western (capitalist) state and the newly established People's Republic. In practice, however, bilateral co-operation did not increase before the late 1970s because of domestic turmoil caused by cultural revolution in China. Moreover, Finland's foreign policy was heavily directed by the *Agreement of Friendship, Cooperation, and Mutual Assistance* (1948-1992) with the Soviet Union, which had ideological tensions with China since the Sino-Soviet split in the late 1950s. A crucial step in bilateral relations between China and Finland was taken in 1979, when China entered its opening and reform period, with the Chinese Premier Geng Biao's official visit to Finland. In the same year, an agreement on economic, industrial, scientific and technological co-operation was signed. Numerous state visits took place in the 1980s and the 1990s[3] (Embassy of Finland, Beijing, 2014).

In the 2013 Arctic Strategy (2013, p. 15), the Finnish government stated that there is great value in bilateral Arctic partnerships with various actors. Chinese actors could be, in principle, interesting partners for Finland.

The specific objective of this chapter is to identify concrete areas of current and potential Chinese-Finnish co-operation, with focus on economic relations and partnerships. The chapter builds the insights presented in Chapters 1 and 2.

As there is little data available, the Chinese-Finnish cooperation potential is discussed on an indicative, qualitative basis. In most of the identified potential areas for business cooperation, there have been so far few or even no examples of implemented Arctic-specific co-operation. Therefore, rather than providing uncertain and indicative monetary calculations of Chinese investment potential, the authors draw a broad overview of sectors in which activities have already been implemented or in which cooperation potential can be identified. Rare implemented or announced investment and cooperation activities or plans are described in greater detail. The chapter brings together existing information rather than presenting new data or facts.

[3] For instance, Finnish Foreign Minister Paavo Väyrynen visited Beijing in 1984, Prime Minister Kalevi Sorsa in 1986, and President Mauno Koivisto in 1988. Chinese President Jiang Zemin visited Finland in 1995, and after that, several official meetings have taken place between the two countries (Embassy of Finland, Beijing, 2014).

The potential for Chinese-Finnish co-operation was considered by taking into account:

a) the sectors of Finnish Arctic expertise,[4]

b) the developmental trajectories in northern Finland,

c) Chinese main interest and areas of focus in the Arctic,[5] as well as

d) recent investments and current plans of Chinese public and private actors.

Particular attention is given to the meeting points between Chinese Arctic activities and ambitions and the areas of Finnish Arctic expertise and the developments taking place in Lapland/Northern Finland development.

The work on this chapter was carried out as a desk study supported by personal communication with experts and stakeholders dealing with or engaged in any instances of Chinese-Finnish co-operation, persons promoting Finnish Arctic expertise, as well as relevant public and private actors in Lapland. The interviews had a semi-structured format and they were carried out in person, by phone or by email. All interviews are anonymised with the exception of interviewees who explicitly wished to be mentioned by name.

This chapter opens with the general background for Chinese-Finnish economic and research co-operation. This is followed by overview of developments in Lapland that can be of interest for Chinese investors and companies. Bioeconomy, tourism and Arctic railway project are given particular attention. Further, the chapter considers several areas of Finnish Arctic joint engagement that are or could be commercialised towards Chinese Arctic activities. Finnish Arctic shipping expertise is highlighted. Finally, the authors outline concerns and risks related to Chinese investments and co-operation with Chinese partners.

3.1.1. Overview of the Chinese-Finnish economic co-operation

Today, there are about 400 Finnish companies engaged in various operations in China (Finnish Business Council Beijing website), in a broad variety of activities. For instance, Finnish Valmet supplies a waste-fired boiler to Shanying Huazhong Paper's paper mill in Jingzhou in the Hubei province. Nokia will deploy a cloud-native core network in seven Chinese provinces, laying the foundation for future 5G connectivity (Business Finland 2018, February 5). Wärtsilä in 2017 won a contract for construction of a gas-fuelled power plant (30 MW combined heat and power plant) in Guangzhou.

Business Finland and Team Finland – which support Finnish businesses in China – have offices in Beijing, Shanghai, Hong Kong and Guangzhou, but the activities are conducted all across the country. Since 2005, the Finland-China Innovation Centre (FinChi) has been operating in Shanghai (FinChi website), offering support for Finnish high tech companies when entering the Chinese market and finding collaboration partners. Interviewees from Finnish

[4] Based on Finland's official Arctic documents: 2013 Strategy and 2017 Action plan (Prime Minister's Office 2013; 2017). These areas encompass Arctic research, developments in northern Finland and Finnish Arctic expertise.

[5] Chinese interests in the Arctic; and thus, potential activities of Chinese public and private actors - are those identified by the Chinese government in its Arctic Policy White Paper from January 2018 (State Council Information Office, 2018).

companies based in Lapland and active in China described the support of these institutions as very helpful. In 2016, state-owned Beijing Capital Investment announced plans to start a €400mil fund aimed at finding Nordic companies with growth potential in China, with a focus on high-tech, cleantech, health care, renewables and production technology (YLE Uutiset, 2016, September 6).

Recently, the Finnish-Chinese trade has been generally growing from year to year, both in terms of imports and exports (however, service imports from China went down by 16 percent and exports to China fell by four percent from 2016). In 2017, import of goods from China reached €4.560bln (€4.995bln when services are included), constituting 7.3% of all Finnish imports and representing 12% year-to-year growth. Export of goods was at €3.392bln, representing 5.7% of all Finland's exports and the year-to-year growth at 27% (€4.242bln when services are included) (Statistics Finland – Finnish Customs, 2017).

Within these international trade numbers, Finnish high technology imports from China reached €1.573bln (representing 22.1% of all high technology imports and the annual growth by 23%) and high technology exports to China stood at €517m (representing 12.9% of all exports and the annual growth by 25%) (Customs Finland, 2018).

Compared both to the total level of foreign investment in Finland and to overall Chinese overseas investment, only a small number of Chinese investments have been located in Finland.[6] Majority of Chinese investments in Finland focus on high tech.[7] This may be a sign of "structural upgrade to knowledge intensive industries" in China. Considering the structure of Finnish economy, such a shift may be beneficial for Chinese-Finnish economic relations. Stronger focus on innovation in China (and in particular the Chinese "Double Innovation" initiative – innovative product/process supported by innovative market strategy) makes Finland an attractive partner for Chinese companies. Finland can also become a testbed for Chinese products and solutions due to developed business-research clusters, the Finnish startup landscape, the culture of innovation, and the stable and predictable business environment. Good transport connections between Helsinki and China may also play a role in encouraging Chinese investors to look at opportunities in Finland. A synergy of particular value could be the combination of Finnish innovation and Chinese scaling-up capabilities (Zhu Bin at Business Finland, 2017, April 11). At present, Finland remains among the European countries perceived in China as most open and welcoming to Chinese investments. In some countries, Chinese companies may receive special treatment, which is not necessarily an advantage if there is a possibility of such a special status being revoked for political or other reasons, adding to business risk level. In Finland, Chinese investors are generally treated on par with European and Finnish business actors, which encourages those who value long-term certainty over higher profits in the short term (personal communication, Interviewee 10, 20.08.2018).

[6] However, Finland in 2016 statistically became one of the largest recipients of Chinese Foreign Direct Investment in the EU, primarily due to a single transaction, namely, Tancent's acquisition of the shares of Finnish game maker company Supercell.

[7] These include the Supercell purchase, as well as Finnish Okmetic acquisition by China-based National Semiconductor Industry Group, Rightware being bought by Thundersoft, and the acquisition of the Finnish company Okmetic. Huawei operates two R&D units in Finland.

On the other hand, among aspects discouraging Chinese investors are: the small size of the Finnish market, high operation costs and high taxation, as well as lack of familiarity with Finland among Chinese companies. In addition, slow and complex zoning and permitting procedures may be discouraging for Chinese firms. Of concern are also lengthy and (perceived by some as) "unfriendly" visa procedures, partly related to the limited capacities of Finnish consular services in China (personal communication, Interviewee 10, 20.08.2018).

The interest in and political support for Chinese-Finnish economic relations has been strengthened following the visit of President Xi Jinping to Helsinki in April 2017. On the occasion of the visit, a number of business and co-operation agreements were signed, including: the MoU between China's Ministry of Science and Technology and Tekes; a co-operation programme between Finpro and China Development Bank; an agreement between Finpro and China Council for Promotion of International Trade; as well as agreements related to two bioeconomy projects in Lapland, described later in this chapter. A committee for innovative business co-operation was also established. The Joint Declaration, signed upon Xi's visit, lists among sectors in which cooperation is to be encouraged energy, ICT, tourism and winter sports. The commentators' expectation following Xi's visit has been that it raised interest in and awareness of Finland among Chinese companies and investors.

Several companies from Finnish Lapland are present in China. For instance, the Rovaniemi-based playground and outdoor sport equipment producer Lappset has gained a significant position in the Chinese market in its area of business (including via the so-called "Happy Sport China Plan"). Rovaniemi LogHouses — producing log buildings for winter sports facilities, among other uses — is present in Chinese skiing resorts and golf courses (personal communication, Esko Lotvonen, Rovaniemi, 20.06.2018; Interviewee 11, 03.09.2018). Furthermore, the company operating the Santa Park theme park in Rovaniemi has been developing a project to establish a Santa Claus theme park in the northern Chinese province of Heilongjiang.

Just as other investors, Lappish companies face problems related to differences between Finnish and Chinese business culture or to intellectual property rights issues (personal communication, Interviewee 4, 12.06.2018). Lappish companies underline the importance of strong personal relationships in order to develop their activities in China. Moreover, political support not only at the intergovernmental level but also at the level of region-to-region co-operation and city-to-city contacts may be needed for smooth investment processes. The Regional Council of Lapland, for instance, approaches the cooperation with Chinese provinces strategically, co-operating with the Heilongjiang, Hubei and Sichuan provinces where there is the presence of Lappish businesses and where Lappish towns have cooperation with Chinese cities (Rovaniemi with Harbin and Chengdu, Kemi with Wuhan, where the biofuels company Kaidi has its headquarters) (personal communication, Mika Riipi, Rovaniemi, 27.06.2018).

3.1.2. Chinese-Finnish scientific co-operation

China's 2018 White Paper declares that "to explore and understand the Arctic serves as the priority and focus for China in its Arctic activities". Climate change is clearly on the top of Chinese research agenda. The document also highlights the need for China to "improve the capacity and capability in scientific research on the Arctic", to be achieved partly via strengthening participation in Arctic scientific cooperation, although the Chinese government clearly underlines that research cooperation should be most of all pragmatic, which could be

understood that the Chinese government wants Chinese research institutions to focus on those projects and linkages that have a clear added value for Chinese research institutions and national research priorities.

This focus is reflected in the commitment to the strengthening of the construction, maintenance and functions of Chinese research stations, vessels and other supporting platforms in the Arctic. Part of this effort is the commissioning of an icebreaker for scientific purposes —- an area of indisputable Finnish excellence. Moreover, in order to improve the quality of research on the Arctic, to strengthen personnel training and to increase public awareness of issues related to the North, China supports the development of training and education programs for individuals willing to pursue Arctic research careers. Science popularisation and education centres are being developed. Furthermore, cultural and educational materials — both in print and video — are being published in order to enhance the level of knowledge on the Arctic among the Chinese public.

China emphasises co-operation through platforms such as the International Arctic Science Committee (IASC).[8] Chinese scientists are encouraged to conduct international academic exchanges and promotes involvement with the University of the Arctic among Chinese higher education and research institutions[9] (PRC State Council, 2018).

To facilitate and provide a platform for academic cooperation on the Arctic, the China-Nordic Arctic Research Centre (CNARC) was established in Shanghai in December 2013 by four Chinese and six Nordic institutions dedicated to Arctic research. The Arctic Centre of the University of Lapland is a Finnish member of the network. CNARC convenes the annual China-Nordic Arctic Cooperation Symposia that rotate between Chinese and Nordic members of the network. Finland was the second Nordic country, after Iceland, to organise the symposium that took place in Rovaniemi in June 2016. The conference was a result of collaboration between the Arctic Centre, the University of Lapland and the Polar Research Institute of China (PRIC). The theme was “The Sustainable Arctic — Opportunities and Challenges of Globalization”. In accordance with the adopted formula, CNARC symposia consist of two parts — an academic conference and a business roundtable, which is open only to invited participants and brings together relevant partners from China and Nordic countries (in the case of conferences held in the Nordics, invited guests come from China and the organising country). The theme of the business roundtable in Rovaniemi was “Sustainable Arctic Tourism” and discussed interests in and prospects for the development of sustainable tourism in Finnish Lapland.

In light of the scale of Chinese commitment to and investments in Arctic research infrastructure and capacities on one hand, and Finland’s Arctic scientific expertise on the other hand, it appears well justified to explore the means and pathways for intensified collaboration between the two countries. In addition to scientific expertise located in institutions traditionally involved in Arctic research, such as the Finnish Environment Institute, the Finnish Meteorological Institute (FMI), the Arctic Centre, and the University of Lapland, there is an increasing breadth of Arctic-related research and education in Finnish universities, among them, in Rovaniemi,

[8] At present, both Finnish and Chinese representatives serve as IASC’s Vice-Presidents and members of IASC 6-person Executive Committee.

[9] The University of the Arctic (UArctic) has its international secretariat at the University of Lapland in Rovaniemi.

Oulu and in Helsinki. Whereas there are individuals and projects that foster scientific cooperative efforts between Finland and China (among others, FMI has closely partnered with the PRIC and National Monitoring Environmental Forecasting Centre on the monitoring of sea ice mass balance), a more systematic approach could help to advance and upscale them.

The Academy of Finland has signed collaboration agreements with the Chinese Academy of Sciences, the National Natural Science Foundation of China and the Chinese Academy of Social Sciences (*Zhongguo Shehui Kexueyuan* 中国社会科学院 covering humanities, culture, law, economics and social sciences in general). Since 2001, joint calls have been organised on topics ranging from forestry, climate change, and immunology to computer sciences or cross-cultural communication (Academy of Finland website). A new series of agreements were signed during President Xi's visit to Finland in April 2017, including the MOU between Universities Finland (UNIFI) and the Chinese Academy of Social Sciences.

Areas and specific examples of Finnish-Chinese research collaboration are numerous, including the construction of the Station for Measuring Ecosystem Atmosphere Relations by the University of Helsinki in cooperation with Beijing University of Chemical Technology (*Beijing Huagong Daxue* 北京化工大学) and also the Sino-Finnish Medical AI Research Centre in Chengdu, established in January 2018 (Business Finland, 2018, January 18). The Finnish Meteorological Institute's Finnish Space Centre in Sodankylä co-operates with Chinese partners dealing with meteorological data. As with other Arctic locations, the satellite centre in Lapland offers advantages when compared with similar installations in more southern locations.

Another example of a Finnish-Chinese project funded by the Finnish Academy was implemented in the field of law research. In 2014, the Arctic Centre of the University of Lapland carried out — in partnership with Wuhan University (*Wuhan Daxue* 武汉大学) and with the involvement of some of the authors of the present report — a project on the comparison of legal positions and stances by Finland, China and the EU with regards to different Arctic topics such as fisheries, shipping, activities in the Arctic Council and Indigenous Peoples' rights. The project was funded by the Academy of Finland based on a 2012 joint call on comparative law by the Academy of Finland (Arctic Centre website, 2014).

The Finnish Arctic Strategy (2013, p. 53) urges Finnish research and education institutions to strengthen international networking in order to build up their Arctic expertise. As a result, Finnish institutions could "take an active part in and contribute to research and evaluation of changes in the Arctic region being carried out by the Arctic Council and other expert bodies." (Ibid.) Cooperation with Chinese institutions can play a role in achieving these objectives.

3.2. Developments in Lapland and Northern Finland: potential for Chinese involvement?

Finland's 2013 Arctic Strategy (p. 20) expresses a conviction that "Lapland has every chance of providing an attractive living environment in the future" based on infrastructure, expertise, existing networks and Arctic/Barents economic developments. In principle, Chinese companies and investors, for the last two decades increasingly active internationally, could contribute to and influence the region's economic growth and job creation. The activity of Chinese

companies in Arctic regions constitutes part of China's Arctic policy. "To develop the Arctic" is one of the objectives highlighted in the 2018 White Paper (PRC State Council, 2018). This goal is to be achieved in part by contributing to the "economic and social development of the Arctic" and improving the "living conditions of the local people". Consequently, the activities of Chinese companies should have strategic and political support and should be seen as beneficial for Chinese aims in Arctic regions.

At a declaratory level, "common development" and the win-win principles mean that China's presence in the Arctic should benefit both the Arctic regions and be profitable for Chinese actors. The 2018 White Paper states that "all stakeholders in this area should pursue mutual benefit and common progress in all fields of activities" and "cooperation should ensure that the benefits are shared by both Arctic and non-Arctic States as well as by non-state entities, and should accommodate the interests of local residents including the indigenous peoples" (PRC State Council, 2018).

Sectors of Lapland's economy that are characterised by different actors as having high long-term development potential, and are possibly interesting also for Chinese economic actors, include: bioeconomy, tourism, transport and mining. Some experts in Lapland believe that the Chinese presence can be economically important for Lapland — a part of the country that appears to be somewhat overlooked by domestic investors (Jaakko Ylinampa from Lapland ELY-Keskus at News Now Finland, 2017, November 6).

Chinese companies may be able to offer competitive prices for construction work and other services needed for the implementation of development projects in Northern Lapland. This may be, however, problematic for Finnish companies and may affect the labour market in some sparsely-populated regions of Finland.

The three most prominent areas in which Chinese actors are already involved or where there is potential for future involvement are:

- bioeconomy in northern Finland,
- tourism in Lapland,
- the plan to establish a Rovaniemi-Arctic Ocean railway corridor for Lapland, Finland and Europe towards the Northern Sea Route.

These sectors are discussed below in greater detail, followed by other areas of regional economy such as mining and renewable energy.

3.2.1. Biorefinery and biofuels projects

The forestry sector remains one of the key industries in northern Finland, constituting 8-17% of economic activity in Lapland. Currently, a number of investment plans across Lapland, Northern Ostrobothnia and Kainuu are expected to add to the existing wood refining capacities. Among its many objectives, the Finnish Arctic Strategy (2013, p. 54) sets the goal to increase the use of wood as a local renewable energy resource, as well as increase the diversity of business and entrepreneurship based on northern forests. Currently, the revision of the EU's Renewable Energy Directive (COM/2016/0767 final/2 - 2016/0382 (COD)) is in advanced

legislative process and its criteria will likely contribute to the feasibility of bioenergy investments in Lapland.

Bio-refining, bioenergy and biofuels constitute an important area for prospective Chinese investment. Many actors in Lapland believe that the region has significant potential in terms of underutilised annual forest growth and side-streams originating from the forestry industry (e.g. wood chips). Chinese companies have acquired a technological edge and expertise in bioenergy and biofuels. Currently, two bioeconomy projects in Lapland involve Chinese investors: the Kemi biofuel project (by the Chinese firm Kaidi) and the Kemijärvi Boreal Bioref Ltd. bio-refinery project.

The Kaidi biofuels project in Kemi is a €900m investment plan for the construction of a refinery producing biodiesel (75%) and biopetrol (25%). Annual production is estimated at 225,000 tonnes of biofuel, utilising 2.8mil cubic metres of raw material originating from within a radius of up to 200km from Kemi (Kaidi website). The company – following the National Forest Inventory (VMI) assessment – claims that the planned annual wood use is within the sustainable harvesting limits in the region. Technology developed by the Chinese parent company, Kaidi Sunshine, would be utilised. Kaidi Finland estimates that 4000 work-years would be needed for the construction phase, and the operational phase would generate 150 jobs in Kemi. Annual tax output is projected at €200m.

Since early 2016, Kaidi Finland has been searching for investors. The share of the Chinese Kaidi Sunshine (parent company) would be below 50% of project costs. In April 2018, the project received an environmental and water management decision, although there is likely still a long way for the company to acquire a construction permit. At the moment, it appears that the project is likely to experience difficulties as the Kaidi parent company is facing challenges in China, and some experts have doubts about the efficiency of the proposed biorefining technology (personal communication, Interviewee 3, 12.06.2018; Interviewee 10, 20.08.2018).

Boreal Bioref Ltd. plans a single-line bio-refinery project in Kemijärvi. The refinery will produce bleached kraft softwood pulp, dissolving pulp and microcrystalline cellulose (MCC) – three kinds of cellulose utilised for different products and purposes in the industry. The refinery would utilise Lapland's timber production (2.8mil cubic metres including the local sawmill and glulam plant's leftover wood chips). In addition, biogas will be produced from waste products (Arctic Business Forum Yearbook, 2018). In 2017, Chinese economic actors decided to invest in the Kemijärvi project. CAMC Engineering Ltd. (CAMCE *Zhonggong Guoji Gongcheng Gufen Youxiangongsi* 中工国际工程股份有限公司) has become a shareholder in Boreal Bioref Oy, and the engineering, procurement and construction contract was signed (also including CAMCE Swedish partner, Silvi Industries AB). The financing agreement for the construction of the bio-refinery was signed with the Chinese Development Bank (*Guojia Kaifa Yinhang* 国家开发银行). Shenyang Investment Management Ltd. and Shanying International Holding (*Shanying Guoji Konggu Gufen Gongsi* 山鹰国际控股股份公司) are to become the majority shareholders as well as product buyers and operational partners. Shanying is a Chinese paper and wood company with a presence in Japan, the USA and Europe, including Sweden. China is Finland's largest single export market for pulp, so the interest of Chinese investors in Finnish bioenergy projects should not come as a surprise (Arctic Business Yearbook, 2018, pp. 29-42). So far, no specific contracts have been signed for the purchase of the Boreal Bioref production, and while it is expected that the majority of production will be exported to China, the market for pulp is diverse and broad enough at the moment to prevent dependence on

single buyer or exclusively on Chinese demand (personal communication, Interviewee 8, 28.06.2018).

The Boreal Bioref Oy project is fairly advanced, awaiting a formal environmental permit (at the time of finalising this report). The main construction operations are planned to commence in late Spring 2019. In contrast to Kaidi, the Kemijärvi project is to operate based on Finnish technology.

Chinese companies are currently particularly interested in biorefinery investments. This is due to the expectation among Chinese producers that shortages of raw materials may occur in connection to newly introduced limits on the imports of cardboard and paper waste into China. At the same time, the opportunities for biorefining in China are limited. In the Arctic context, Finland appears more attractive than, for instance, Russia, owing to its political stability and strong forestry and biorefining traditions, EU market access, as well as the availability of technological solutions provided by companies such as Valmet or Andritz (personal communication, Interviewee 8, 28.06.2018).

It is possible that investments such as the Kemijärvi biorefinery would be followed up by other Chinese activities. For instance, as most of the produced pulp is planned to reach Chinese clients, the improvement of transport connectivity could be among interesting areas of engagement, including the Arctic Railway project discussed further in this chapter (personal communication, Interviewee 3, Rovaniemi, 12.06.2018).

An emerging challenge related to biorefinery investments in northern Finland is the availability of raw material. National assessments indicate that economically-used forests in the region are underutilised. This situation may change if all projects currently in the pipeline are implemented. Recently, Metsä Group announced its own investment plans for the Kemi biorefinery, with estimated raw material needs reaching 6.7mil cubic metres. It could be the case in the future that wood for Finnish refineries would need to be imported from Russia, Sweden and the Baltic states (Kallio, 2018, September 25). However, project developers believe that the amount of wood in Lapland is sufficient to allow sustainable use by all planned biorefineries (personal communication, Interviewee 8, 28.06.2018). There are, however, environmental concerns related to biodiversity in the areas of increased wood production (old-growth forests are biodiversity hotspots, forests provide other ecosystem services than wood, and forestry may also adversely affect the forest bedding and the multiple species dependent on it (see e.g. WWF, 2016).

3.2.2. Tourism

The Finnish Arctic tourist attractions include Lappish nature, winter conditions, skiing resorts, cultural heritage, as well as Christmas-related sights and activities. The whole Arctic region has recently become an object of public interest owing to media attention related to climate change impacts, among others. Good transport connections make Finnish Lapland one of the easiest circumpolar locations to access. Due to the emergence of Helsinki as a hub for Europe-Asia flights, northern Finland is already easily accessible for Asian tourists. In 2016, the StopOver Finland offers were launched (potentially leading to increased numbers of Chinese tourists also in the North). There is a possibility for direct Beijing-Rovaniemi flights in the near future, making it an even more attractive destination. Among the goals of Finland's Arctic

Strategy is to improve tourists' access to Finnish Lapland. Policymakers declare the aim towards the "sustainable concentration of tourist services" (Arctic Strategy, 2013, p. 55).

In general, "sustainable tourism" is one of the central themes of Finland's Arctic Strategy with regard to Lapland's regional development. Moreover, the connections between the Arctic bioeconomy and tourism are sought, for instance, via the focus on endemic food production in the North and integrating it into tourism offers (Action Plan, 2017, p. 5).

The tourism industry in Lapland has been growing dynamically in recent years, with the number of Chinese visitors reaching over 22 000 (with almost 35 000 registered hotel nights) in 2016 (Regional Council of Lapland, 2017). These were small numbers when compared to the total 1 105 988 visits (501 851 by foreigners) and 2 665 623 hotel nights in Lapland. However, the numbers for Chinese tourists have roughly doubled compared to 2015 and the rapid growth continued through 2017 and 2018. Markedly, in 2017, Chinese tourists constituted already 12% of foreign visitors in Rovaniemi alone (a higher percentage than for the whole of Lapland). The length of stay for Chinese tourists is quite short – 1.58 nights per stay as compared to an average of 2.41 nights for all tourists. There is, therefore, a major growth trend and major growth potential for Chinese tourism in Lapland.

In the 2018 White Paper, the Chinese government places a special focus on Arctic tourism, mainly due to China's being an increasingly important source of visitors in the region. Chinese companies are encouraged "to cooperate with Arctic States in developing tourism in the region". China – according to the White Paper – is to contribute to environmentally conscious, sustainable, and respectful Chinese tourism in the Arctic regions, and commitments are made for the Chinese government to take some actions towards achieving that aim:

> "China conducts training for and regulates Chinese tourism agencies and professionals involved in Arctic tourism, and endeavors to raise the environmental awareness of Chinese tourists. China advocates low-carbon tourism, ecotourism and responsible tourism, and hopes to contribute to the sustainable development of Arctic tourism." (PRC State Council, 2018)

The aforementioned commitments are important, as the growing number of Chinese tourists in Lapland has already been followed by an increased interest of Chinese investors in Lapland's tourism sector. One hotel is being built at the Arctic Circle in Rovaniemi (so far, this is the only major Chinese investment in Lapland to have been implemented) and another hotel is planned for Saariselkä (Inari) with the involvement of Alitrip, a major Chinese player in the tourism industry. In the vicinity of Rovaniemi, several small cabin areas have also been recently developed by Chinese companies and there are initial plans for further investments (personal communication, Esko Lotvonen, Rovaniemi, 20.06.2018). The Chinese interest in Lapland's tourism industry has also been demonstrated in an announcement that a Chinese businessman plans to fund a professorship in tourism at the University of Lapland.

Importantly, investments in the tourism sector are often followed by real estate investments. While Chinese companies require approval from the government to invest their domestic resources in real estate abroad, which may slow down such processes, many Chinese business actors have assets abroad. Using such assets does not require Chinese governmental consent (personal communication, Interviewee 10, 20.8.2018).

A potential barrier for Chinese tourism in Lapland could be the lengthy visa procedures in China. While Visit Finland has had major success in promoting Finland in China, the service experience in the process of acquiring a visa appears to be a roadblock (personal communication, Interviewee 10, 20.8.2018). However, 13 new visa application centres were opened in China in 2016. By the end of 2019, the Finnish Arctic tourism communication and marketing strategy is to be drafted, likely including some focus on Chinese visitors and their expectations.

Many tourists, especially from outside Europe, perceive Northern Fennoscandia as a single tourism destination. Therefore, increased integration/complementarity of tourism services and improved transport connections between tourism locations may be beneficial for encouraging Chinese tourism in the region in different seasons (e.g. Husebekk, Andersson and Penttilä, 2015; Stepien, 2016; personal communication, Interviewee 1, Rovaniemi, June 2016, interview conducted for another study within the current VN-TEAS project).

The Chinese 2018 White Paper also emphasises the question of safety and security in tourism (to a great extent referring to cruise tourism), areas in which Finland claims to have special expertise. Finnish Lapland has a “safety cluster” (with a tourism focus, amongst others) as one of the key components of its Smart Specialization Strategy. Finnish operators highlight their excellence in maritime safety issues, which is potentially relevant to Arctic cruise tourism.

The growing number of Chinese tourists, while generally seen as a positive development, comes with its own set of challenges. There is an ongoing debate in Lapland regarding the problems related to mass tourism, potentially lowering both the quality and the value generated for the regional economy per visitor. Rising numbers of Asian visitors contribute to the transformation of some of Lapland’s tourism activities towards mass tourism. Moreover, while welcoming Chinese tourists and Chinese investors, the actors in Lappish tourism wish to avoid labelling Lapland or Rovaniemi as “Chinese tourism destinations”, so that the perception of the region remains multifaceted.

3.2.3. The Arctic railway: a connection to China but would there be Chinese involvement?

Physical and digital infrastructure are considered the bases for the investment attractiveness of Finland and Lapland (Action Plan, 2017, p. 6). Likely the most ambitious Arctic project in Finland is the proposal for connecting Lapland and Finland by railway to the Arctic Ocean and thus repositioning northern Finland from the European periphery to one of the central nodes of the envisaged new northern transport route linking Europe and Asia via the Northern Sea Route (NSR)/Northeast Passage (NWP)[10]. China’s 2018 White Paper highlights the importance for China of the northern transport route to Europe. The alignment of Chinese and Finnish objectives can lead to the potential for involvement of Chinese companies and investors in

[10] The Northeast Passage (NEP) is a sea route between the Barents Sea and the Bering Sea through Arctic waters north of the Eurasian continent. The Northern Sea Route (NSR) refers to the part of the NEP through Russia's seasonally ice-covered Exclusive Economic Zone (EEZ). The NSR is subject to special rules under Russian legislation (Federal Law 132-FZ, 2012). In this section, both terms are used interchangeably (unless specifically referring to Russian regulations for the NSR), as both are accurate with regards to the Arctic Railway project.

project implementation. The project is also currently being discussed in the context of the NSR not becoming a major global shipping route, e.g. in terms of Finland's own security of supply (there is no agreement as to whether the project will actually improve Finland's overall supply security) and the transportation of the outputs of industries in Lapland and wider Barents region to Central Europe via the Baltic or Barents seas. However, it is clear that the commercial viability of the railway would significantly increase if it is part of global transport networks.

At the time of writing of this report, the project for a new "Arctic corridor" is under debate in Finland regarding its economic feasibility and possible impacts on Sámi livelihoods and on the environment. The discussion has gained pace significantly in the past two-to-three years. A number of studies analysed the potential of the Arctic railway project (Finnish Transport Agency, 2018; Kirkenes Nearingshage, 2018; Norconsult, 2018). The Finnish and Norwegian ministries of transport have recently chosen the route between Rovaniemi and Kirkenes for further analysis (Finnish Transport Agency, 2018). At the time of finalising the current report, a working group is finishing work to study the conditions for the Rovaniemi-Kirkenes railway development. The report containing the results is scheduled be published in the beginning of 2019. The ambitious goal is to open the Arctic corridor connection by 2030; however, that would require clear political will and very focused planning efforts, neither of which is present at the moment.

Various studies (see e.g., SADA, 2014, Huebert and Raspotnik, 2013) highlight the potential advantages of Arctic shipping routes and in particular the NSR:

- the expected gradual lengthening of the Arctic shipping season over the coming decades;
- decreased shipping distance and lower carbon emissions;
- creating a transport alternative to politically fragile southern sea lanes, etc.

In that light, studies dedicated to the Arctic railway concept (Finnish Transport Agency, 2018; Kirkenes Nearingshage, 2018; Norconsult, 2018) and actors promoting such an investment (e.g. personal communication, Interviewee 6, 20.6.2018) enumerate the possible advantages of the new transport corridor:

- the possibility to avoid — by using the NSR — higher shipping costs due to stricter vessel emission limits in the North Sea and Baltic Sea, arising from the particular vulnerability of these ecosystems;[11]
- high costs related to polar class vessels sailing directly to Central-European ports through non-Arctic waters, where more fuel-efficient and cost-effective vessels can operate, justifying transshipment or offloading in Barents Sea ports;
- potential for decreasing lorry transport in Northern Fennoscandia;
- lower costs for exports of Lapland's extractive industries outputs;

[11] However, parts of the Arctic may also be designated in the future as particularly sensitive sea areas (PSSAs) by the IMO or as emission control areas under the Convention on Marine Pollution from Ships (MARPOL 73/78).

- repositioning of Lapland and Finnmark from peripheries to transport hubs, resulting in regional development and employment opportunities.

However, the above-mentioned reports provide an equally long list of constraints for shipping Northern Sea Routes conducive to transit via the Arctic Railway:

- difficult ice conditions, even during navigable months and in the light of future climate change
- Polar Code requirements for construction, equipment, the environmental performance of vessels and crew training, increasing initial costs for polar shipping;
- seasonality of shipping, also in the foreseeable future;
- year-to-year variability of shipping season;
- safety and environmental risks related to Arctic shipping;
- lack of SAR infrastructure;
- lack of ports of call for container vessels (exclusively point-to-point shipping);
- Russia's unclear attitude towards shipping in the NSR in the future;
- the need to use smaller container vessels;
- higher daily costs of navigating via NSR as compared to southern sea lanes.

Challenges for the Arctic Railway project specifically are also highlighted:

- the need to transport empty containers back to China from Central Europe via the Port of Kirkenes if the Arctic railway is utilised;
- so far, very limited regional cargo basis for the transport hub, as for instance various mining and biofuel projects in Northern Finland are still in the planning stage;
- concerns regarding the environmental, social and cultural impacts of the new rail route.

The 2009 Arctic Marine Shipping Assessment (AMSA) stated that Arctic shipping is likely to be dominated by destinational shipping[12] for many decades to come rather than by transit voyages between Europe and Asia. Currently, transit voyages are few and many of them involve vessels without cargo (Kirkenes Nearingshage, 2018, pp. 21-22). The first container vessel carrying Korean electronics and Russian fish products crossed the NSR in the Summer of 2018 (Jacobsen, 2018, August 24). Lack of ports of call for container ships between the Asian and European ports — due to sparse population and still-limited economic activity in these regions in sectors other than resource extraction — means that container transport would be limited to point-to-point operations. At the same time, container shipping flows to and from China may be actually expected to shift further southwards with China's increasing economic relations with Africa and South-East Asia and economic growth in these regions (Erokhin et al., 2018). Rail transport between Central Europe and China via Russia and Central Asia constitutes another

[12] Destinational comprises means primarily the exports of Arctic resources, cruise tourism, and voyages related to the development of Arctic construction projects.

alternative to the Suez Canal route and competition to Arctic container transport. These rail connections, while growing, involve small volumes compared to sea transport.

However, a recent report by a Kirkenes-based consultancy (Kirkenes Nearingshage, 2018) claims that "even a share of 3-4% of the combined container imports from China, Taiwan, South Korea and Japan to Northern Europe [*that is, Nordic countries, Baltic states, Germany and Poland, as well as the St. Petersburg region (explanation by authors of the current report)*] would generate comprehensive activity at the Port of Kirkenes and on an Arctic railway to Rovaniemi". Such assessment is based on the assumption that there is a 70% increase in overall container cargo shipping between Asia and Europe by 2040. For China, the Northeast Passage would be a shipping route outside of the control of the United States Navy (Gavrilov and Kripakova, 2017; as quoted in Lim, 2018).

The potential of the Arctic railway — as a part of the Arctic transit corridor — depends to a great extent on China (alongside other Asian actors), namely, choices made by Chinese shipping companies, Russian and Chinese political focus on the NSR, and trade volumes between China and Northern Europe. Equally, the feasibility of an Arctic railway for container shipping depends on appropriate connections to Germany, as Chinese imports to Germany would need to constitute a vast majority of container shipping transported by rail (Kirkenes Nearingshage, 2018, p. 29). Therefore, the completion of Rail Baltica and the highly challenging Helsinki-Tallinn tunnel (currently in the early conceptual stage, envisaged – ambitiously – to be built by 2035) might prove crucial for the Arctic railway to become economically feasible in terms of East Asia-Europe transit.

Moreover, the potential export of raw materials and products from northern Finland to China and other East-Asian countries could become an important element of rationale for developing the railway project. For instance, the outputs of the planned Sakatti mine[13] would likely be partly exported to China. However, some actors in the mining industry emphasise that the new railway connection may not be competitive at the present levels of mineral production, and, even if the Arctic Railway is built, road transport may remain more feasible than the rail transport at least for some Finnish mines (Sorjanen, 2018, November 16).

Chinese investments in biorefineries in Lapland — where the majority of production is to be exported to Chinese clients — could, in principle, serve as an incentive for the biorefinery owners or other Chinese investors to engage in transport infrastructure projects that provide supply for the Chinese market (personal communication, Interviewee 3, Rovaniemi, 12.06.2018). The export of Kemijärvi biorefinery pulp products via Kirkenes (in the summer via the NSR and possibly in winter via the Suez Canal) might lower the costs compared to the currently planned transport via Kemi or Oulu ports with transshipment in major hubs in Central Europe (personal communication, Interviewee 6, 20.06.2018; Interviewee 8, 28.06.2018).

Greater Chinese involvement in the Arctic railway project could include Chinese companies entering into private-public partnerships (PPP), and thus, the construction and long-term operation of the railway. Stakeholders supporting the railway project believe that investment loans or PPP, despite low return, could be attractive for international investment banks and

[13] Currently, the copper-nickel-platinum deposit is still in the exploration phase.

companies, including Chinese actors, as Nordic countries are considered safe locations to invest. It is thus believed that such an investment would generate secure revenue (e.g. personal communication, Interviewee 6, 20.06.2018). As Chinese construction companies are in constant search for international contracts, if the Arctic Railway project enters into the implementation phase, interest by Chinese firms can be expected (personal communication, Interviewee 10, 20.8.2018).

There appears to be political interest in China to promote the above-mentioned forms of engagement in Arctic infrastructure projects. In the 2018 White Paper, the Chinese government "encourages [Chinese] enterprises to participate in the infrastructure construction for [Arctic] routes". The NSR is considered in China as a security alternative in the case that disturbances along the Indian Ocean shipping lanes occur. This security-perspective could further fuel the interest of Chinese state and state-owned actors in the NSR-related infrastructure projects such as the Arctic Ocean railway.

The development of the infrastructure within the Belt and Road Initiative is to be carried out through cooperation between China and other states. The 2018 White Paper emphasises that "[c]oncrete cooperation steps include coordinating development strategies with the Arctic States, encouraging joint efforts to build a blue economic passage linking China and Europe via the Arctic Ocean [...] and building a global infrastructure network". Chinese involvement in Russian projects, mainly focused on resource extraction and exports, can be seen as contributing to the development of the NSR as a part of the BRI. These include the Belkomur Railway between Siberia and Arkhangelsk, a deep-water port in Arkhangelsk, as well as Yamal LNG, Arctic LNG and associated shipping infrastructure.

Chinese interest in the NEP as part of the BRI network could extend to the European access points, including the Port of Kirkenes and Arctic railway project. So far, there has been no open expression of interest from Chinese investment banks or companies. This is not surprising, as the project is at an early stage of planning. However, there has been interest from Chinese media and informal initial expressions of interest from business actors (personal communication, Interviewee 6, 20.06.2018; Esko Lotvonen, Rovaniemi, 20.06.2018).

China's BRI initiative is to bring direct economic benefits to Chinese economic actors. BRI projects can translate to the profits for Chinese financial institutions from loans related to infrastructural developments, to the contracts for Chinese construction companies and operators of infrastructure, as well as the benefits for Chinese shipping companies if the new BRI infrastructure results in lower shipping costs (Rana, 2017). Chinese involvement in projects like the Arctic railway, even if being of strategic nature, will therefore depend not only on strategic calculations but also on the potential of this particular investment to bring returns and provide new contracts for Chinese companies.

If the Chinese involvement in infrastructure projects such as the Arctic railway become significant, concerns related to control over what can be considered a strategic transport corridor may arise. This could be the case, for instance, if a Chinese company acts as the main constructor and operator of the railway in the format of public-private partnership (see Section 3.4. for a broader discussion on the risks and concerns related to Chinese investments in strategic infrastructures). Recent controversy related to Greenland airports is a good example of such concerns. The Danish government stopped the procurement procedure for the upgrading of three Greenlandic airports — a procedure in which Chinese state-owned enterprise was likely to acquire the contract. The Danish concerns were related to the possibility

of Chinese actors gaining partial control over important infrastructure (and even specific construction elements of that infrastructure) at a strategically important location[14] (Breum, 2018, June 30; Lim, 2018).

China's overall interest in the NSR is also demonstrated in research activities. Chinese institutes are currently engaged in a number of studies dedicated to the feasibility of the NSR (in particular comparing the NSR to the Suez Canal) and the technological solutions needed for operating therein, in particular regarding smaller conventional container vessels (Kirkenes Nearingshage, 2018, p. 8). Furthermore, China is advocating for the financing and construction of meteorological stations in the European Arctic as the availability of accurate ice forecasts for the NSR is a basis for the feasibility of NSR shipping (Kirkenes Nearingshage, 2018, p. 24). The aforementioned co-operation with the Finnish Space Centre in Sodankylä can be seen in that context.

3.2.4. Other sectors: mining, renewables, cold climate testing, data centres, fibre-optic cables.

There are a number of sectors that are already important or have growth potential in northern Finland, including mining, renewable energy, cold climate testing and fibre-based broadband infrastructure. While in principle there is some potential for Chinese presence in these sectors as clients, manufacturers or investors, so far no activity of Chinese actors has been noted.

Finland's objective is to attract further foreign investments in its growing mining industry (2013 Strategy, p. 9). Challenges for mining projects are numerous, including financing, fluctuating global resource markets, or high costs of mitigating and responding to environmental risks. The Finnish regulatory environment is perceived as favourable to mining activities, including good availability of geophysical data. However, many actors in Lapland have concerns regarding extractive industries, considering their impacts on the environment, livelihoods and culture. While many mining developments have been cancelled or postponed in recent years, several projects are in advanced planning stages, including the expansion of production in Kemi (chromite concentrate), Kittilä (gold) and Kevitsa (copper-nickel) mines.

In the 2018 White Paper, the Chinese government "encourages [Chinese] enterprises to engage in international cooperation on the exploration for and utilization of Arctic resources by making the best use of their advantages in capital, technology and domestic market". This is in line with the overall policy promoting Chinese economic expansion abroad (see Chapters 1 and 2). Chinese investors have been interested in Arctic raw materials (see Section 2.3.1.3.), but the Northern Fennoscandian mining sector has so far been overlooked by Chinese players. In principle, there might be potential for Chinese involvement in the Finnish mining sector, considering the global activities of Chinese investors and companies (for example, construction companies) and the fact that China will be among the main markets for most new mining projects. International players such as Anglo American, Agnico Eagle and Boliden are already active in Lapland. However, despite strategic focus on Arctic minerals in China's Arctic

[14] For instance, the US military operates the Thule base in northern Greenland.

strategy, the potential for Chinese involvement in the Finnish mining sector depends primarily on the situation in the resource markets and the profitability of particular projects.

Some minerals for which there is high demand in China are either produced or have high discovery potential in Finland, including in Lapland. China imports 95 percent of chrome used in its production, 90 percent of its cobalt, 79 percent of its gold, 73 percent of its copper, 73 percent of its iron ore (data for 2017, Zhang Hui, 2018). In 2016, China was responsible for 26.4% of global copper imports, 25.6% of global nickel imports, and 9.1% of zinc imports (UN Department of Economic and Social Affairs, 2017). All these metals are produced (for iron ore there are advanced projects) and have further moderate-to-good discovery potential in Finland (Geological Survey of Finland, 2010; Kaiva.fi website for the current situation). Finnish metals exported to China stood at US$193m (2016 statistics, WITS website, World Bank). Globally, Chinese demand is one of the key factors shaping raw materials prices.

Wind power has seen a period of significant expansion in northern Finland. In the mid-term perspective, an overall maximum investment potential is assessed at over €4b (Rautajoki and Lakkapää, 2018). China is a major global player in terms of wind and solar power. However, so far there has been no Chinese investment interest in projects in northern Finland.

A vibrant cold climate testing industry has emerged in Finnish Lapland. A number of companies provide testing services in particular for cars and tyres. In recent years, this has generated high turnover and employment. So far, there have been no Chinese manufacturers using Lapland's testing facilities. Also, the potential for Chinese clients to use Lappish testing facilities is currently low, but the situation may change within the next two or three decades as Chinese manufacturers expand their activities and portfolios. For instance, Korean Hankook is already testing its winter tyres in Lapland and the facilities could be used by Chinese manufacturers if they decide to gain a stronger presence in the winter tyres market (personal communication, Interviewee 3, Rovaniemi, 11.06.2018).

Northern regions are attractive as locations of data centres and cloud services not only due to colder climate, which decreases the costs for server cooling. Also of importance is the availability of relatively cheap renewable energy, as many IT companies aim at using exclusively renewable energy sources. Up to 80% of energy consumption when using online applications occurs in data centres (Nilsen, 2016; Warrenstein *et al.*, 2016). The overall potential of Northern Fennoscandia also depends on the availability of low-latency broadband connectivity. The forerunner in terms of data centres investments in Northern Fennoscandia has been the Luleå-Boden area in the Swedish Norrbotten region (Facebook, Bitcoin and other data centres). Several Chinese companies have already joined the boom of data centres in Sweden or are considering investments. For instance, Alibaba is considering central Sweden for its second European data centre location (Invest in Dalarna website, 2017, September 29). From 2017, Chinese blockchain company Canaan Creative is using data storage capacities in Boden (Smolaks, 2017, February 9). Swedish Vattenfall has been negotiating further deals with Chinese companies interested in Sweden-based data centres (Karagiannopoulos 2018, May 9).

So far, there have been no major data or cloud centre investments in Northern Finland, although this sector's investment potential in Oulu is assessed as up to €400m (Rautajoki and Lakkapää, 2018). If the Finnish policymakers decide to more strongly pursue the opportunities related to data centres, Chinese companies could be among the possible investors and users of the data storage space. However, security and regulatory considerations could play a role

in future developments, limiting the interest of Chinese clients. This would be the case, for instance, if China forces companies to store more Chinese data on servers located in China; from 1 June 2017, “critical information” has had to be stored domestically in China.

A prospective avenue for Chinese investors or for involvement of Chinese companies could become a marine fibre-optic cable project linking Asia and Europe via the NSR, linked to European networks via Lapland and Finland. The project would decrease the latency (delay in data transfer) as compared to the Europe-Asia connections via the USA and Indian Ocean. Such latency decrease would benefit financial markets, data centres and major internet companies. In Russia, the development company PolarNet (since 2011) has been studying the potential of the connection, making plans for a UK-to-Tokyo connector. Finnish policy-makers place much emphasis on this project (Action Plan, 2017, p.7; Lipponen and Svento, 2016). There were informal expressions of initial interest by Chinese investors in the project (personal communication, Interviewee 2, 04.05.2018). Moreover, China's 2018 Arctic policy White Paper clearly states that among “[c]oncrete cooperation steps” in the Arctic is “enhancing Arctic digital connectivity” (PRC State Council, 2018).

At present, the Finnish company Cinia is bringing together investors towards realising the fibre broadband project, including a search for suitable Russian partners. Chinese companies are likely to be involved in the fibre optic cables projects as key clients rather than investors. Chinese investment banks could be potential sources of funding. However, at the moment financial institutions across the globe are eager to invest in prospective infrastructure projects. Therefore, Cinia does not expect acquiring funding to be a challenge as long as agreements with potential clients are in place. While the Chinese financing is thus not crucial for the project, the agreements with Chinese companies may be of key importance for its success. China Telecom (*Zhongguo Dianxin* 中国电信) has already declared its interest. Baidu or Alibaba may be other potential clients. At present, Cinia has a network of cables stretching from Frankfurt via the Baltic Sea to Lapland (3,000km of the 13,000km needed between Frankfurt and Tokyo). The Northern Sea Route project is expected to be implemented within three years from the commencement of seabed surveying (personal communication, Interviewee 7, 26.06.2018). However, the project may yet prove to be challenging due to Russia’s security concerns (personal communication, Interviewee 2, 04.05.2018).

3.3. Finnish Arctic expertise: Finnish solutions for Chinese Arctic activities

3.3.1. What comprises Finnish Arctic expertise?

Among China’s goals in the Arctic is to “improve the capacity and capability in using applied Arctic technology, strengthen technological innovation, environmental protection, resource utilization, and development of shipping routes in the Arctic” (PRC State Council, 2018). The development of technical Arctic equipment is seen as particularly important:

> “upgrade of equipment in the fields of deep sea exploration, ice zone prospecting, and atmosphere and biology observation, and […] technology innovation in Arctic oil and gas drilling and exploitation, renewable energy development, navigation

and monitoring in ice zones, and construction of new-type icebreakers" (PRC State Council, 2018)

Finnish political and economic actors believe that Finland has much to offer with regards to practical Arctic technological solutions, Arctic shipping safety and services, and environmental technology. In principle, acquiring technologies developed in Finland and co-operating with Finnish partners towards further innovative solutions should be seen as contributing to China's goals in the Arctic.

The Finnish government and businesses have long highlighted Finland's "Arctic expertise", meaning the set of products and skills developed in the country due to its geographical location (in the North and at the seasonally ice-covered Baltic Sea), resulting from the need for all actors to adjust their products, design, materials and services to cold temperature, challenging weather conditions, sparse population, and remoteness. The very long list of areas identified as constituting Finland's Arctic expertise includes:

- Icebreaking;
- Polar shipping technology;Shipping safety (Search and Rescue, communication and construction technologies, weather and information services);
- Mechanical oil recovery in ice conditions;
- Energy resources expertise (structural and materials engineering in Arctic conditions, risk assessment and risk prevention, icebreaking assistance, contingency planning, prevention of oil spills and oil cleanup);
- Arctic cleantech (water processing technologies, efficiency of production facilities and low level of emissions);
- Renewable energy and energy efficiency solutions (including district heating systems/solutions);
- Digital infrastructure and e-services in peripheral areas;
- Arctic construction (e.g. wood construction);
- Cold climate civil engineering ;
- Arctic circular economy;
- Blue bioeconomy;
- Climate resilience;
- Arctic-relevant space technologies;
- Wellbeing technologies;
- Environmental technologies;
- "Green mining" and "Arctic mining" technologies;
- Arctic research (both natural and social sciences);
- Environmental monitoring;
- Cold climate expertise of security forces;
- Arctic design.

According to Finland's 2013 Arctic Strategy (Arctic Strategy, 2013, p. 28), the competitive edge of Finnish companies "lies in environment-friendly solutions and the ability to carry out business operations with due regard to the limitations imposed by the natural environment". In order to commercially utilise their expertise, "Finnish companies need to be able to form alliances and offer a broad range of solution-type products and services". Experts (Paavola et al., 2017) advised that long-term development of commercialisable Arctic expertise in Finland requires regional and sector-specific clusters to emerge, suggesting that ecosystem funding and performance-based funding instruments are needed. Activities of Team Finland and Business Finland are seen as an important component in the effort to promote Finnish Arctic expertise.

A recent report (Paavola et al., 2017) highlights challenges for commercialising Finnish Arctic expertise. Only few everyday cold climate competences are labelled by companies as "Arctic expertise" and often businesses see little value in branding their services and products as "Arctic". Partly this is due to the limited size of markets that are considered specifically "Arctic". Therefore, the "Arctic" label may be not only a "new name for old things" (a common criticism of the "Arctic expertise" concept), but one having limited commercial utility. This notwithstanding, the branding of products, solutions and services as "Arctic", while not necessarily attractive for operators already present in the Arctic, may prove important in gaining the attention of actors taking their first steps in the northern regions of the globe, such as Chinese companies looking for partners in their new Arctic endeavours. In China, Finland's brand is strongly associated with expertise in cold conditions. The experience of some Lappish companies shows that being located in Northern Finland and being able to present their products in Arctic conditions is of advantage in relations with Chinese customers (e.g., personal communication, Interviewee 11, 03.09.2018). However, "Arctic" or northern labelling of technologies and products coming from Finland may also be a barrier for Finnish companies that offer products not related to cold conditions (personal communication, Interviewee 4, 13.06.2018).

In addition to commercial activities, a number of institutions in Finland identified as having significant Arctic research expertise can become interesting partners for Chinese researchers as the Chinese Arctic scientific engagement expands. The 2013 Arctic Strategy specifies the following institutions:

- University of Lapland and Lapland University of Applied Sciences (forming the Lapland University Consortium), including the Arctic Centre and the Multidimensional Tourism Institute;
- University of Oulu;
- Technical Research Centre of Finland (VTT);
- Finnish Meteorological Institute;
- Natural Resource Institute Finland;
- Finnish Environment Institute (SYKE);
- University of Helsinki (geology, geography and physics);
- Aalto University (esp. Department of Engineering, technical operation in the cryosphere);
- Sámi Education Institute;
- Finnish Institute for Occupational Health.

The Arctic Centre of the University of Lapland is a member of the China-Nordic Arctic Research Centre. Many other institutions listed above have a variety of relations with Chinese partners.

3.3.2. Areas of Finnish Arctic expertise with potential for generating Chinese-Finnish co-operation

Finnish Arctic expertise can be an object of Chinese-Finnish co-operation in various ways, including sales of Finnish technologies or designs, employment of Finnish experts or collaboration between institutions. From the perspective of Chineses Arctic activities, there may be interest in sectors such as mining, cleantech, winter sports, occupational health and safety, renewables and cold-climate construction and in particular icebreaking services, shipbuilding and polar maritime design.

Taking into account the breadth of Finnish Arctic expertise, only some areas may be of direct interest for Chinese operators that are considering engaging in Arctic projects or activities. Currently, few Chinese companies are present in the Arctic and therefore the demand is limited.

The 2013 Arctic Strategy underlines that further development of Finnish Arctic expertise is dependent on "international networks, contacts and mobility", among other factors (Arctic Strategy, 2013, p. 13). Instances of research and training collaborations with China may therefore contribute to strengthening Finnish Arctic Expertise. In turn, the 2018 White Paper states that China "has spared no efforts to contribute its wisdom to the development of the Arctic region" (PRC State Council, 2018). In principle, Chinese companies and institutions should have a strong political incentive to be involved in activities, the aim of which is to provide technological solutions for Arctic developments.

Finland promotes mobility of labour in the Arctic region (Arctic Strategy, 2013, p. 23), not only to fill labour market demands within Finland's Arctic but also for Finnish Arctic experts and Finnish companies to find work and contracts across the region. Chinese Arctic activities can potentially contribute to the expansion of such a market for Finnish expertise-holders.

As discussed above, while there has been little interest among Chinese investors in northern Finland's mining projects thus far, Finnish companies can offer not only investment opportunities but also technological solutions for carrying out operations in northern conditions (e.g. in Greenland or Canada) in a responsible manner. The delivery of technologies and services for Chinese projects in Russia may be challenging.[15] The situation may, however, change in the future.

Similarly to mining technologies, Finnish cleantech (including mechanical oil recovery in ice conditions) could be offered to Chinese businesses operating in the Arctic. A report by Azure International and Cleantech Scandinavia (supported by Tekes) suggests that Nordic cleantech could be of particular interest for Chinese investors, due to increased focus on clean energy,

[15] Among others, due to the ongoing EU sanctions targeting Russian Arctic hydrocarbon projects or Russian political considerations.

renewables, and a general shift in China's outbound investment towards technology (Azure International and Cleantech Scandinavia, n.d.).

Finnish Arctic policy statements highlight the experience and Finnish technological solutions in the field of renewable energy and low-carbon development, both in terms of business co-operation and the sharing of best practices. China's 2018 White Paper clearly emphasises the value of such expertise for China and Chinese operators:

> "The Arctic region boasts an abundance of geothermal, wind, and other clean energy resources. China will work with the Arctic States to strengthen clean energy cooperation, increase exchanges in respect of technology, personnel and experience in this field, explore the supply of clean energy and energy substitution, and pursue low-carbon development." (PRC State Council 2018)

Recently, Finnish-Chinese cooperation in winter sports has commenced. This is related to the preparations for the Beijing 2022 Winter Olympic Games and the increasing interest in winter sports in China. Finland has high levels of expertise in winter sports technologies and facilities. In 2015, the Chinese vice-premier visited Rovaniemi with sport co-operation being among the focal points. An agreement between the Rovaniemi Santa Sport sport institute with the Sport University of Beijing, in effect since 2017, is one of the elements of this collaboration. A major cooperation programme has been carried out by the Vuokatti-Ruka Sport Academy. For instance, 150 Chinese young sportsmen visited the school in the Summer of 2018. In 2019, China and Finland will organise a joint thematic winter sports year.

The co-operation in the field of sports could also facilitate further exports of Finnish products for the construction of Chinese skiing resorts, e.g., by Rovaniemi-based companies Lappset and Hirsitalot (personal communication, Esko Lotvonen, Rovaniemi, 20.06.2018).

Finland's 2013 Arctic Strategy also highlights Finnish expertise and research in occupational health in Arctic conditions and in creating a safe working environment. This may be of particular interest for new operators entering the Arctic region.

Cooperation between institutions from northern Finland and Chinese partners in the area of education is also an important aspect of Chinese presence in the north of Finland and Finland's presence in China. For instance, Rovaniemi is engaged in a number of school exchanges and experience-sharing programmes This is partly related to the reputation of the Finnish education system (personal communication, Esko Lotvonen, Rovaniemi, 20.06.2018). Markedly, sub-university education is among Finland's Arctic Council chairmanship programme priorities (Finnish Ministry of Foreign Affairs, 2017).

An area of particular interest for cooperation with Chinese institutions is Finnish Arctic shipping technology (construction and design, services) and Finnish icebreaking services, discussed in greater detail in Section 3.3.3.

3.3.3. Finnish Arctic maritime technology and services

Finland's Arctic Strategy (2013) identifies shipping and maritime technology as one of Finland's most important commercialisable Arctic export sectors. Finnish strengths include: national Arctic shipbuilding, offshore and winter navigation operations, shipping safety solutions, as well

as the overall low-temperature, winter, ice and weather research and expertise. Products include vessel traffic, reporting, monitoring, identification and communications systems (including satellite services), as well as weather and ice information services (Arctic Strategy, 2013, pp. 30, 53; Action Plan, 2017). One of the strategy's objectives is maintaining "Finland's position as a leading expert in the Arctic maritime industry", which to a great extent arises from the tradition of operating in the Baltic Sea. The Strategy stresses that "the best practices developed in the Baltic Sea region offer highly suitable export products for the Arctic market".

China is identified as one of the main markets for the export of Finnish Arctic shipping technology (Arctic Strategy, 2013, pp. 9, 29). This is, in fact, the only context in which cooperation with China is mentioned specifically in Finland's 2013 strategic Arctic statement. It is believed that countries such as China will "need new equipment and fleets capable of operating offshore oil and gas fields as well as mining under Arctic conditions" (Arctic Strategy, 2013, p. 29). Moreover, Chinese operators new to Arctic areas may find Finnish experience with international rescue operations and the management of maritime accidents a useful theme for cooperation. In turn, China's 2018 White Paper clearly states that China will strive "for the upgrade of equipment in the fields of deep sea exploration, ice zone prospecting, and atmosphere and biology observation, and promotes technology innovation in Arctic oil and gas drilling and exploitation, renewable energy development, navigation and monitoring in ice zones, and construction of new-type icebreakers". Currently, construction of a nuclear-powered icebreaker is being considered (Sun, 2018). Moreover, the White Paper states that "[i]n order to effectively protect the marine environment of the Arctic, China works with other States to enhance control of the sources of marine pollution such as ship discharge, offshore dumping, and air pollution" (PRC State Council, 2018). Such statements can be seen as political openings for utilising and commercialising Finnish Arctic shipping technology and shipping services.

In terms of providing icebreaking services for Chinese Arctic operations, there has been no concrete co-operation thus far. However, some discussions on future joint projects have taken place, in particular regarding the support for Chinese research operations in the Arctic Ocean. For Arctia, the latter area appears the most prospective at the moment (personal communication, Interviewee 9, 01.08.2018).

On the other hand, it is not predicted that in the near future, enhanced Chinese icebreaking capacities would create competition for Finnish service providers (personal communication, Interviewee 9, 01.08.2018). Nonetheless, acquiring increased icebreaking capacities may limit the Chinese demand for icebreaking services, depending on the number of Chinese vessels operating in Arctic waters in the future.

There seems to be little interest among Finnish shipbuilding and shipping companies in acquiring Chinese investors. Finnish companies at the moment see East Asia as a prospective market for their products and technologies rather than a source of investment capital. There may be a more general concern related to foreign investment in this sector in Finland (personal communication, Interviewee 10, Zhu Bin, 20.08.2018).

At this stage, Aker Arctic and Wärtsilä have had the most visible presence of all Finnish shipping and shipbuilding actors in the Chinese market.

In 2012, Aker Arctic was contracted by the PRIC to provide the concept and basic design for a polar research vessel. The construction commenced in the Jiangnan Shipyard (*Jiangnan*

Zaochuan (Jituan) Youxian Zeren Gongsi 江南造船 (集团) 有限责任公司) in Shanghai and completion of the 122m-long Polar Class 3 icebreaker is scheduled for 2019. Aker Arctic advertises the icebreaker it designed as "the world's most advanced polar research vessel" (Aker Arctic website, n.d.). In 2014, Aker Arctic produced the concept and basic design for two Arctic module carriers, *Audax* and *Pugnax* (Polar Class 3, length of 206.3m with an icebreaking capability of 3 knots in 1.5m level ice), which were built at Guangzhou Shipyard (*Guangchuan Guoji Youxiangongsi* 广船国际有限公司) in 2016. In 2016, Aker Arctic delivered the concept and basic design for an Arctic condensate tanker to the same Guangzhou Shipyard. The Arc7 ice class vessel with deadweight of 43,400 tons with an icebreaking capability of 2 knots in 1.8m level ice is scheduled for delivery in 2018 (Aker Arctic website, n.d.). Aker Arctic evaluates its engagement with Chinese partners as a positive experience. Arctic maritime design is a highly specialised area of the shipping industry, with technological edge and purpose-built vessels dominating the landscape. Compared to general shipbuilding, where cost-cutting and serial production model dominate, polar shipbuilding constitutes a market niche, where Finnish and European actors have a competitive advantage. Nevertheless, China is a major player in global shipbuilding, and thus, it will likely be able to develop its own polar shipping design capabilities in the future (personal communication, Interviewee 13, 13.11.2018).[16]

The current Aker Arctic portfolio is very broad, including the design of port icebreakers operating in Siberia or the LNG *Polaris* icebreaker delivered to Arctia. The company has a clear competitive edge and future Chinese contracts depend on the demand of Chinese shipyards and companies for polar class vessels. However, considering COSCO's (*Zhongyuan Haiyun Jizhuangxiang Yunshu Youxiangongsi* 中远海运集装箱运输有限公司) emphasis on engaging in Arctic shipping and overall Chinese interest in utilising the NSR, at least a modest level of demand can be expected.

There is space for joint ventures between Finnish and Chinese companies regarding particular Arctic shipbuilding projects. However, the general approach in Finland is to keep technological development in Finland itself; therefore, there is little space for Chinese direct investment in the Finnish Arctic shipping design industry (personal communication, Interviewee 13, 13.11.2018).

In addition to design, Finnish manufacturers have broad experience with Arctic maritime construction. Wärtsilä formed a joint venture with China State Shipbuilding Corporation (CSSC *Zhongguo Chuanbo Gongye Jituan Youxiangongsi* 中国船舶工业集团有限公司) — CSSC Wärtsilä Engine Co Ltd (CWEC). The CWEC built a production facility at Lingang, Shanghai. The company — producing medium-sized and large engines — had over 70 orders for various types of engines at the time of the opening of the production facility in January 2017. Wärtsilä has another production facility in China — WQDC — for small engines. Engines manufactured in both factories are fully suitable for polar waters and some are used in these environments.

[16] Recently, Finnish companies have developed increasing interest in future-oriented developments in Arctic shipping and shipping in general, including autonomous vessels (Action Plan, 2017, p. 4). Such developments take place at the Meyer Turku shipyard, where autonomous ship technology using artificial intelligence is being developed (Business Finland, 2017, December 6). Technological advancement could generally allow Finnish actors to maintain a competitive edge. However, the companies attempt to strike an economic balance between the use of the most advanced technologies and the minimum needed by operators to conduct their activities in polar waters. Not every technological application necessarily translates to a market advantage if expensive advancements go beyond the needs of clients.

The company also promotes its products as suitable for operations in polar waters (personal communication, Interviewee 12, 22.10.2018). Wärtsilä itself has a significant portfolio of engine design and construction for polar class vessels, especially for Russian clients. These include icebreakers (e.g. engines as well as integrated power and automation systems) and platform supply vessels. The company provided power generating sets for power plants operating in the Russian Arctic. Wärtsilä also builds engines for port icebreakers used at the Sabetta LNG terminal.

3.4. Concerns related to Chinese-Finnish Arctic co-operation

Finland and Lapland are seen as generally welcoming to foreign (including Chinese) investments. However, risks related to all foreign investments and Chinese investments in particular can be identified. Three dimensions, or layers, of such risks can be distinguished:

First, there are anxieties related to the perception of Chinese investment and economic, scientific and other forms of co-operation as constituting (sharp power) instruments of increasing Chinese influence. Similarly, high levels of Chinese investments and economic co-operation could increase the exposure of a small country like Finland to any future fluctuations in the Chinese economy.

Second are concerns related to the performance of Chinese actors as investors or business partners. This refers to respecting environmental rules and affecting local socio-economic development (social impacts, competition with local businesses, or an adverse influence on the labour market). Moreover, issues related to intellectual property rights or industrial espionage are problematic.

Third — somewhat in contrast to the two earlier dimensions — local actors, who are often strongly in favour of Chinese investments, have misgivings that plans announced by Chinese investors, triggering hopes and early social impacts, may often remain unimplemented.

3.4.1. Chinese political and economic influence

Deepening Arctic interaction with Chinese actors creates new risks with implications for Finland's security policy calculus. These developments can be seen to follow from China's use of three kinds of powers: *hard*, *soft* and *sharp*. China's use of hard power refers to the adoption of either military or economic strategies to increase the country's influence in the Arctic countries. As for military strategies, the Chinese use of armed force in the Arctic region is an unlikely scenario. In the name of mapping all kinds of plausible futures, however, it is possible at least to imagine a situation in which the country's interest in Nordic harbour cities – e.g. Kirkenes and Akureyri – would make it easier for Chinese warships to enter the region and could eventually lead into a dual-use of these ports. However, it is more plausible to anticipate that the country's rapidly modernising armed military forces may indirectly shape regional dynamics, as no region is immune to the impacts caused by shifts in the balance of power on a global scale.

For the most part, China's growing leverage in the Arctic is based on its economic power, which inevitably increases its influence in the domestic affairs of small Nordic countries such as Finland. The emerging risks are therefore both political and economic. Transport systems in particular are likely to attract Chinese investments and thus represent a domain in which Finland's security of supply could be affected. So far, the Arctic Ocean railway connection between Kirkenes and Rovaniemi has drawn the most attention in both the media and informal talks. Investments in Northern Finland's mining or tourism sectors could potentially increase Chinese interest in railway and other transport developments such as airports. If strongly dependent on Chinese capital, the vulnerability of the Finnish economy to fluctuations in the Chinese economy may increase.

Although the Chinese economy has thus far continued to grow according to expectations, disruptions may arise from several sectors as the Chinese economy is undergoing a challenging stage of its structural transformation. Growing debt levels of local governments, households and companies, as well as increasing pressure to tackle pollution and inequality, are major risks that the Chinese government currently faces. In addition, external factors, such as a potential trade war with the US, may equally shake the boat. In the case of political conflicts, Chinese ownership or control of critical infrastructure would possibly grant them a position to decide how it is used and by whom. In a similar vein, Chinese economic investments may be used as political leverage in the case of policy disagreements, as was the case in Norway in the aftermath of the Nobel Peace Prize controversy.

While hard power is based, more or less, on direct coercion, sharp power is based on distraction and manipulation. According to C. Walker and J. Ludwig of the National Endowment for Democracy, who coined the term in 2017, sharp power is used by authoritarian states to shape public opinion and perceptions around the globe. The line between soft power and sharp power can also be very thin — while both seek to improve a state's international image, they utilise divergent tools to reach their goals. Soft power builds on the attractiveness of a state's culture and ideals; it seeks to attract other states to voluntarily follow its policies.

In contrast, sharp power spreads deceptive information, bribes politicians and civil servants, increases and widens socio-political cleavages, weakens the coherence of the targeted society, restricts liberty of speech, and interferes with elections, etc., in order to shape national politics and to silence displeasing views in other states, as they could prevent an authoritarian state from increasing its global outreach. In its most extreme form, the use of sharp power may even reduce the targeted state's sovereignty. Although these methods have always been used in politics, digitalisation and globalisation have increased their efficiency. In Australia, for example, Chinese have reportedly tried to interfere in the country's domestic politics (e.g. Hamilton, 2018). When it comes to Finland, the use of Russian sharp power is nothing new. As China's role in the Arctic increases, it may also attempt to use sharp power in Finland – or in other Nordic countries, which could possibly reduce coherence in the region.

Another arena of Chinese sharp power is academia. Researchers may be influenced both directly or indirectly to produce results that support China's Arctic plans and strategies. By offering generous grants and treating researchers with dinners and gifts, government-funded academic exchange programmes and conferences aim primarily to build trust and strengthen China's status as a legitimate Arctic stakeholder that is not only interested in the region's resources. However, in addition to the positive outcome of increasing Arctic researchers' understanding of the Chinese context, these forums may put academics under pressure to censor their words. Although the Arctic context is less sensitive than many other sectors, it is

a priority for the Chinese government to advance an image of China as a responsible Arctic stakeholder. For this reason, it is indeed within the realm of possibility that exceptional actions, such as refusing to grant a Chinese visa, could be taken to minimise the harm to country's international reputation.

A more recent controversy related to the activity of companies in China is the so-called 'social credit system' (*shehui xinyong tixi* 社会信用体系), currently under development. The system assesses individuals and companies regarding their behaviour against standards defined by the Chinese government (National Enterprise Credit Information Publicity System). Sanctions or blocking the possibility to operate further in the country may result in a low social credit score. The system (potentially) makes it more necessary for any private actors operating in China to comply with Chinese rules and triggers concerns that it may influence the behaviour of companies not only inside but also outside China (Hoffman, 2018, June 28; Munro, 2018, June 27). However, none of the Finnish business actors that were interviewed for the purpose of this report mentioned the social credit system as contributing to challenges related to co-operation with Chinese partners or working in China.

Chinese institutions have been presenting the decisions of Chinese investment banks and financial institutions as being based primarily on economic evaluation, without requirements related to good governance, human rights, economic restructuring or sustainable development indicators. Such requirements are, at least formally, part of the decision-making process in Western financial institutions such as the World Bank or the European Investment Bank. However, Mattlin and Nojonen (2015) believe that financing decisions cannot be disentangled from political motives, especially when state-controlled institutions are concerned (this view also expressed in personal communication, Interviewee 5, 13.06.2018). Therefore, as China wishes to have a gradually stronger presence in the Arctic, many instances of investment and co-operation can serve larger political aims, alongside project-specific, more openly pronounced business objectives.

Furthermore, Rosen and Thuringen (2017) claim that Chinese investments could constitute a security risk in smaller Arctic jurisdictions:

> "Unregulated FDI is a significant, multifaceted security issue. It must be addressed before the influx of unregulated investments, and the soft power politics that come from those investments […]" (Rosen and Thuringen, 2017, p. 2);
> [and further]
> "We believe that FDI should be tracked carefully, because the impact of large quantities of investment dollars flooding into some Arctic nations (Greenland) or tribally governed land can have an impact on political sovereignty." (Ibid., p. 53).

As a result of the aforementioned concerns, major Chinese investments may be subject to the currently debated new EU legislation, which would give the European Commission more power (perhaps even an obligation) to scrutinise foreign investments in areas of strategic importance such as infrastructure or energy (i.e., investments that are likely to affect projects or programs of Union interest on the grounds of security or public order). The legislation is broadly perceived as targeting Chinese investors primarily (keeping in mind the case of the Chinese acquisition of the Greek Port of Piraeus) and is hotly debated in several EU Member States that have benefited from Chinese investments in recent years. There is a question as to whether some modes of engaging with China could adversely affect the position of Finland in the EU or trigger concerns among EU decision-makers or other European governments.

3.4.2. Performance of Chinese investors and partners

Concerns related to Chinese projects in Finland and in the Arctic stem, to some extent, from experiences with some Chinese investors in other parts of the world. Articles published by notable English-language media outlets exacerbate these fears. Direct investments in Finnish companies have sparked speculations over the protection of intellectual property rights, industrial espionage and, in the long-term future, Finnish companies' losing their competitive advantage in certain Arctic-related industries such as ice management and ship design. In addition, Chinese companies' corporate social responsibility practices have been a source of unease in Finnish public debate. Being aware of and critically assessing these concerns creates a solid foundation for long-term Sino-Finnish collaborations in Arctic affairs.

Rosen and Thuringen (2017) highlight that "China's recent foreign direct investment (FDI) activities in the Arctic are significant in overall dollar value and could be larger than any other country's FDI". The authors, who discuss only the Arctic Ocean littoral states in their paper, not Finland or Sweden, suggest that high levels of the Chinese FDI in the Arctic could mean that there is a "potential that one state could, by enacting low standards, stimulate a race to the bottom in terms of the environmental or labor standards associated with resource extraction". However, the Chinese government always underlines the need to adjust to local regulatory frameworks. Therefore, in an operational environment in which regulations are stronger, such as in the Nordic countries, the above-mentioned risks are less likely to turn into actual problems than in states with weaker administrative, regulatory and political systems.

Foreign direct investment is likely to be the main way in which Chinese capital is present in Finland. While foreign investors' equal access to markets is part of the WTO framework, states limit access to strategic sectors, industries and infrastructure (Rosen and Thuringen, 2017, p. 32). Investments, including Chinese FDI, are always aimed at generating profit or other benefits for the investor, including national access to resources. The authors see many of the Chinese investments in Africa and South America as having as a goal to secure resources for the growing Chinese economy.

Various environmental and social impacts of Chinese investments are often highlighted. For instance, especially in the mid-2000s there were, allegedly, cases of Chinese mines in Africa having lower labour standards than those run by local or Western companies. Rosen and Thuringen (2017, p. 51) underline:

> "Widely publicized instances of environmental damage, labor abuse, and violence in South America and Africa have made countries in North America and Europe wary of Chinese direct investment. Had Chinese companies been more attentive to good corporate behavior and had the Chinese government been more effective at managing the behavior of Chinese SOEs, then perhaps China might have a better reputation abroad."

At the same time, the authors (Rosen and Thuringen, 2017, p. 52) note that there has been significant improvement in the past decade, both regarding the behaviour of Chinese companies and the standards imposed on the Chinese SOEs by the government.

At a general level, international standards and recommendations (e.g. by the UN or the Organization for Economic Cooperation and Development, OECD) referring generally to the FDI ask the recipient countries and regions to consider both the benefits and disadvantages of

particular investments. These include over-dependence on extractive industries, limiting exposure to market volatility, local employment, generation and transfer of technology, eliminating anticompetitive practices, and preventing crowding-out of local investments. Rosen and Thuringen (2017, pp. 36-37) believe that peripheral Arctic regions in particular should consider such risks.

Current Chinese investments in Finland can be seen as paving the way for other Chinese investments in the Nordic states, in the European Union and across the Circumpolar Arctic. For this reason it may be expected that Chinese companies — striving to strengthen their international reputation — are willing to apply high standards and benefit Finnish northern regions. Some Finnish private actors believe that Chinese investors are driven by long-term goals and strategies and long investment perspectives, which in principle makes Chinese companies attractive business partners (personal communication, Interviewee 8, 27.06.2018).

Perhaps being aware of the above concerns and reputational issues, the Chinese government states in its 2018 White Paper that all extractive activities in the Arctic should "proceed in a sustainable way on the condition of properly protecting the eco-environment of the Arctic and respecting the interests and concerns of the indigenous peoples in the region". In general, the Chinese government also advises Chinese companies to abide by local regulatory frameworks (Ministry of Commerce PRC 2013; 2014; China Banking Regulatory Commission, 2013). This commitment is reiterated in the 2018 White Paper:

> "[China] requires its enterprises to observe the laws of the relevant States and conduct risk assessments for resource exploration, and encourages them to participate in the exploitation of oil, gas and mineral resources in the Arctic, through cooperation in various forms and on the condition of properly protecting the eco-environment of the Arctic" .
> [and further]
> "respecting the efforts made by the Arctic States to empower the local citizens, foster their social and economic progress, and improve education and medical services, so that the Arctic residents, including the indigenous peoples, will truly benefit from the development of Arctic resources." (PRC State Council, 2018)

The latter can be also understood as encouragement for Chinese companies to engage in corporate social responsibility actions (e.g., community wellbeing support activities) in communities in which these developments take place.

Moreover, the Chinese government commits to respecting local and indigenous values and traditions. This is in line with the so-called 'Nuuk Observer rules' (Arctic Council, 2011, Graczyk and Koivurova, 2014, Stepien, 2017), to which China expressed its consent upon applying and taking up an observer status in the Arctic Council.

Such declaratory statements, while not without an intrinsic value, do not necessarily determine the actions of particular Chinese companies or may not be reflected in actual pressure by the Chinese government on Chinese companies and researchers. They can be, however, used by various Arctic actors in their dealings with Chinese economic operators or investors or in cases when intervention by Chinese authorities is sought with the aim to exert pressure on Chinese companies seen as not meeting declared standards in their Arctic activities.

Among the key challenges for northern sparsely populated areas is the (mis)match between the skills of the Northerners and the needs of new development projects (Arctic Strategy, 2013; Stepien and Koivurova, 2017; Nordregio, 2016). In some northern locations, the existing workforce is too small to meet the labour needs of major investments/developments, especially during the construction phase of projects. The short-term nature of construction activities deters locals from acquiring the skills that would be used for implementing a single project. Therefore, new and expanding businesses often rely on outside workforce. If Chinese construction companies win contracts for major investments in Northern Finland, there is a possibility for Chinese workers to fill part of the short-term demand during the construction phases. In other parts of the Arctic, plans to import Chinese workers turned out to be problematic for local communities. This was the case in Greenland and Canada, where Chinese mining companies planned to bring in Chinese workers. Anxieties related to Chinese subcontractors and Chinese workforce are related to unfair pricing, lack of local multiplier effects and undercutting national labour standards.

Regarding the currently planned investments in Lapland, such as the construction of biorefineries and hotels, no inflow of Chinese workers is planned with the exception of engineering and managerial staff. In principle, incoming highly skilled staff can contribute to mitigating skills mismatch in sparsely populated areas. One hotel that has been constructed by Chinese investors employs Finnish and international staff, similarly to any other accommodation venue in Lapland (personal communication, Jaakko Ylinampa, Lapin ELY-keskus, Rovaniemi, 12.06.2018). The calculation of the socio-economic benefits and risks may be different for each project, depending on location, scale and the characteristics of professionals who arrive in Lapland to support project implementation and operation. In other parts of the world, the tendency is for highly skilled Chinese professionals to leave after the completion of projects, while unskilled workers tend to remain (Rosen and Thuringen, 2017, p. 59). The nature of operations in the harsh Arctic climate may result in the dominance of high-skilled professionals among the Chinese workforce.

There are concerns regarding the possibility that Chinese tourists in Lapland are serviced primarily by Chinese tourism operators as well as Chinese accommodation or other businesses. For local companies in Lapland, this possibility could limit the benefits coming from the increased number of Chinese tourists. As mentioned above, the first Chinese hotel investments in Lapland are currently at the stage of construction or planning.

Major tourism investments, Chinese or not, may cause disturbances in the local tourism market. The recent growth in tourism implies that the market is big enough and expanding fast enough to accommodate any investment. However, there is a risk that one major investment, especially in small localities, will dominate the local tourism market and constrain the development of local tourism businesses, thereby preventing the emergence of diverse offer for tourists. A long-term strategic approach may be needed with consideration as to what sorts of tourism investments are the most beneficial for the region (personal communication, Mika Riipi, Rovaniemi, 27.06.2018).

Chinese investments related to tourism have proven controversial in some parts of the Arctic. In northeast Iceland, Svalbard and in the Lyngen area in Norway, Chinese billionaire and property tycoon Huang Nubo planned to purchase vast swaths of land to develop tourist services. However, local resistance and national environmental and security concerns prevented the finalisation of these transactions, and in the Lyngen case, the construction of the tourist resort itself (see, e.g., Higgins, 2014, September 27; Staalesen, 2014, October 21).

Whether justified or not, such concerns are likely to occur in Northern Finland should a similar major land acquisition occur. However, thus far no such proposal has been made, and considering the aforementioned past experiences from other Nordic countries, it appears not very likely that a major Chinese investment project of that sort would be proposed for northern Finland. Local officials in Lapland believe that such projects would actually be harmful to the overall long-term Chinese investment potential in Lapland, not limited to the tourism sector (personal communication, Mika Riipi, Rovaniemi, 27.06.2018; Esko Lotvonen, Rovaniemi, 20.06.2018).

A broadly discussed challenge related to co-operation with Chinese companies or the presence in China are questions related to intellectual property rights (IPRs). Both Finnish companies operating in China and those collaborating with Chinese partners and investors in Finland should be aware of such risks. However, the protection of IPRs in China has evolved over the last few decades. Most notably, the IPRs regime has undergone a significant improvement since the beginning of the reform era, when practically no regulatory mechanism protected intellectual property rights in China. At the moment, the country conforms to the most important international conventions on IPRs. Furthermore, it has developed a national legal framework that entails laws on trademark and copyright protection and patents. What is more, the issue has been handled on the level of the highest political leadership, as illustrated by President Xi Jinping's speech in 2017 (*Xinhua Agency*, 2017, July 17).

However, despite these advances, IPRs violations continue to constitute an unsolved challenge plaguing Sino-foreign business interactions both in China and abroad (see Global Innovation Policy Centre website, 2018). Tackling this challenge is a slow process, as the 'culture of copying' is a deep-rooted tradition in both the Chinese education system and the corporate world. For this reason, IPRs violations cannot be ruled out as a potential risk factor in Sino-Finnish Arctic business collaboration. In the case of Arctic ship design, for instance, in which the level of sensitivity to IPRs issues is high, there have been so far no known cases of IPRs violations (personal communication, Interviewee 13, 16.11.2018). However, Lapland-based companies exporting wooden constructions to China are seen as exposing to their designs being copied (personal communication, Interviewee 4, 12.06.2018).

3.4.3. Reliability of Chinese investors and partners

The risks discussed above are highlighted by those who have misgivings about the Chinese economic presence in Finland. However, many actors, especially in Lapland, look at Chinese investments with a hope for economic development and job creation. For these actors, the main concern is that planned investments and partnerships will not actually materialise. This is particularly important if we take into account that social impacts occur from the moment the plans are announced. Local hopes and anxieties are triggered. Conflicts between different interest groups and values may emerge. Local businesses start planning expansion or withhold new investments in line with expected changes in the local economy following Chinese investments.

So far, among some actors in Lapland, high expectations related to Chinese investments are mixed with the perception that little concrete developments actually take place (personal communication, Interviewee 2, 04.05.2018).

There is a perception that Chinese companies too often initially announce very ambitious plans but quit when more detailed business assessment is carried out. Also in the Arctic context, Lim (2018) asks whether ”China’s risk-taking approach in investing in mega Arctic projects that were previously deemed unrealistic raises questions on the sustainability and vulnerability of its investments”.

Presently, involvement in bioenergy and biofuel projects is the most significant Chinese investment presence in Lapland. However, in 2017, Chinese investors pulled out from two other biofuel projects in southern Finland, a decision supposedly related to the status of bioenergy within the EU regulatory framework. Such events increase the level of local uncertainty related to ongoing projects. Chinese investors and companies do not appear to stand out in that respect, but as they are new actors in northern regions (in contrast to other parts of Europe, Africa or South America), they seem to be subject to relatively greater public scrutiny.

The authors (Rosen and Thuringen, 2017, pp. 32-34, 52) highlight cases in which Chinese investments went bankrupt, leaving local communities and businesses in distress. These failures were often the result of lack of experience and understanding of local conditions and regulations. However, the same authors also underline that Chinese investments are much better planned nowadays, and investors more carefully consider local conditions and regulations. Investments are more strategic and long-term, with less willingness to engage in risky ventures. In cases of resource extraction in particular, Chinese operators nowadays tend to engage only in secure, promising projects, rather than taking up any opportunity and creating unrealistic expectations. Referring to the extraction of hydrocarbons, Rosen and Thuringen (2017, p. 52) point out that “Chinese firms are becoming more trustworthy to highly advanced operators”.

3.5. Conclusion

In general, co-operation between Finland and China is growing and received a political boost with the visit of President Xi in 2017. This report shows that there is also modest co-operation regarding Arctic questions, and there is notable potential for enhancing collaboration between Chinese and Finnish actors. Finnish companies are operating in China and Chinese investments are also starting to come to Finland, including the northern regions of the country. There are possibilities for Finnish Arctic expertise to bring commercial benefits for Finland by supporting China’s expanding Arctic activities. However, at present, there are only a few instances of realised investments and implemented contracts, one example being accommodation projects in Lapland. Most activities remain at the stage of planning or initial ideas, with high levels of uncertainty. The proposed infrastructure projects relevant for Finland are being continuously under debate. These include the project to extend the Finnish rail network to the Arctic Ocean as well as to install a marine fibre-optic cable connecting Asia (including China) to Finland (Europe). However, there are many question marks regarding their feasibility and there are also challenges related to financing. The role of Chinese partners in these endeavours is unclear and possibly limited. Other potential investments in Finnish Lapland have yet to be realised, in particular, two bio-refinery and biofuels projects in Kemijärvi and Kemi respectively, and further investments in tourist accommodation. In Lapland and northern Finland, there remains potential for further winter tourism and sports investments, cold climate testing, and data centres, etc., but such endeavours have yet to be realised.

There is, in theory, much potential in commercialising Finnish Arctic expertise in China. However, currently the most prospective area of business is the design and construction of polar class vessels and components. It is in this area that examples of implemented projects can be found, including the role of Aker Arctic in designing China's second polar icebreaker (*Xuelong* II) or the construction of engines capable of operation in polar conditions by Wärtsila and its China-based joint ventures. Interviewed experts note some potential in Finnish clean technology or the delivery of future icebreaking services. However, no concrete activities and plans have been tabled so far. Furthermore, while in some areas the "Arctic" labelling of Finnish products and expertise is of marketing advantage, that is not necessarily the case for all sectors.

While there is much hope among Finnish actors that Chinese investments can support economic development in northern Finland and that Chinese Arctic activities would emerge into an important market for Finnish products and services (linked to Finnish Arctic expertise), there are also concerns related to co-operation with Chinese partners. There are anxieties about Chinese investors and operators — and therefore the Chinese government — gaining too great a long-term influence on the regional economy in Lapland and the national economy in Finland. Major land purchases or partial control over strategic infrastructure such as the Arctic Ocean railroad would be met with anxiety from some social actors in Finland. There are concerns regarding the environmental and social performance of Chinese businesses operating in the North and the reliability and feasibility of many investments plans. These perceptions are based on the negative assessment of past Chinese activities in regions such as Africa or South America. On the other hand, experts underline that Chinese operators are capable of adjusting to local conditions and regulatory frameworks, and that the performance of Chinese investors has overall significantly improved over the last decade. For Finnish companies operating in China there are concerns related to intellectual property rights or politically-driven decision-making.

Some modes of Chinese presence in the North may adversely affect the current, generally positive attitude towards Chinese investors in Northern Finland. These include: major land purchases, especially in areas of high environmental, biodiversity or landscape value; bringing in Chinese workforce in significant numbers; and the involvement of Chinese construction companies on terms that would be perceived by local actors as unfair competition. Finnish decision-makers must apply particular scrutiny in the case of investments that would give Chinese companies influence over the construction and use of critical infrastructure such as railways or airports.

The prevalent approach to maintaining technological expertise and development in Finland appears appropriate, especially when it comes to the design of polar-class vessels and installations. There is clearly the lack of openness to foreign direct investment in maritime technology sector.

Finland should also consider dedicating resources to gain a better understanding of Chinese foreign influence, the modes of operation of Chinese business actors and generally improved knowledge of China, including facilitating Mandarin language skills in Finland.

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