

FINAL DRAFT REPORT

Road Map for a North Calotte (Cap of the North) Mineral Strategy

”Genomförbarhetsanalys (”Veikarte”) för en Mineralstrategi för Nordkalotten ”

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Executive Summary

The North Calotte includes some of the most promising areas for sourcing the metals and minerals needed to support the green and digital transitions in Europe. The North Calotte Council therefore commissioned this Road Map to support the careful and wise development and management of the region's mineral and natural resources. The Road Map's geographical focus is the North Calotte region, but the neighbouring and mineral rich counties of West Bothnia (Västerbotten) and Northern Ostrobothnia (Pohjois-Pohjanmaa) are also considered.

The North Calotte is a unique and sparsely populated area. The impacts of climate change are already marked, in turn threatening the ecological stability of extensive and sensitive wilderness areas. These landscapes are since long supporting the indigenous Sami whose livelihood, culture, and traditional land uses cross national borders. There are also other minorities whose cultures and livelihoods should be supported and sustained.

The development of the mining sector presents possibilities for economic and social development. However, there are challenges, including environmental impacts, the need to ensure that existing livelihoods and cultures are not threatened, and that the wellbeing of the people living in the North Calotte is safeguarded. And, already today, mineral projects in the North Calotte are viewed with suspicion by some, and there is significant public resistance and concern.

This Road Map is based on the understanding that many of the challenges and opportunities are best managed if there is substantial regional cooperation. The fundamental aim is therefore to consider what the format and nature of such cooperation should be, and to overall evaluate the possibilities of developing a Mineral Strategy for the North Calotte. Underlying this aim are several objectives, including:

- To increase the understanding of the similarities and differences that exist between the mineral sectors in the different jurisdictions of the North Calotte.
- To identify focus areas where increased cooperation and/or streamlining of policies may be useful and possible, and where joint strategic approaches can be developed.
- To initiate a process of broad stakeholder involvement where issues related to the mineral sector are discussed, and where solutions and initiatives are developed.

Nine focus areas were identified and analysed in an iterative and consultative process, comprising the following: (i) description of the present situation; (ii) evaluation of the possibilities for a North Calotte policy for each focus area, and the identification of key components of such a policy; (iii) identification of possibilities for cooperation and/or streamlining of policies and initiatives; and (iv) identification of strategic activities to implement the policy. The table below provides a summary of the nine focus areas.

Focus area	Types of issues	Outcomes of Strategic Activities
Legal & Institutional frameworks for metals and minerals	<ul style="list-style-type: none">- Mineral law, mineral ownership & control- Public interest & land use planning- Institutional frameworks	<ul style="list-style-type: none">- Mineral Policy- Increased awareness & improved consensus of challenges & opportunities
Fiscal regimes for mining	<ul style="list-style-type: none">- Royalties, mineral & license fees- Local and state taxes- Different tax instruments – property & natural resources	<ul style="list-style-type: none">- Policy streamlining- Mechanisms for local/regional benefits

		<ul style="list-style-type: none"> - Balanced sharing of risk between investors & states - Improved awareness of fiscal issues & mining
Geodata management & mineral investment promotion	<ul style="list-style-type: none"> - Ownership & availability of geodata - Coverage & quality of geodata - Cooperation between geological surveys - International marketing & investments 	<ul style="list-style-type: none"> - Geodata policy - Effective marketing - new & responsible investments - Improved data on secondary deposits – improved circularity
Environmental management and climate change	<ul style="list-style-type: none"> - Sourcing of transition minerals - GHG emission from mining - Environmental impacts: discharges, emissions & waste - Protected areas - Frameworks for permitting supervision & control - Legacies & design for closure 	<ul style="list-style-type: none"> - Environmental Policy - Environmental Baseline - Prioritised list for rehabilitation of mining areas - Pro-nature initiatives
Local Communities	<ul style="list-style-type: none"> - Responsibilities for local welfare - Social Impact Assessments - Corporate Social Responsibility - Social license to Operate 	<ul style="list-style-type: none"> - Community Policy - Baseline of social issues - Relevant and suitable CSR activities by companies
Sami & reindeer herding	<ul style="list-style-type: none"> - International law & agreements - Participation, representation & FPIC - Impacts on reindeer herding - Social & cultural issues & impacts 	<ul style="list-style-type: none"> - Shared Policy - Baseline and proposals for actions - FPIC & Good Practice - Competence Centre
Minorities	<ul style="list-style-type: none"> - International law & agreements - Participation & representation - Impacts on traditional livelihoods - Social & cultural issues 	<ul style="list-style-type: none"> - Shared Policy - Baseline and proposals for actions - Good Practice & Competence Centre
Gender	<ul style="list-style-type: none"> - Gender equality - Equality of opportunities - Stereotypical ideals & expectations 	<ul style="list-style-type: none"> - Gender Policy - Increased attractiveness of mining sector employment - Recruitment activities
Reporting, transparency & accountability	<ul style="list-style-type: none"> - Company reporting frameworks - Transparency & availability of data - Data sharing 	<ul style="list-style-type: none"> - Improved reporting, transparency & accountability - Databases and GIS tools

There is strong interest and support for developing a North Calotte Mineral Strategy that is in line with this Road Map. The North Calotte Council is an appropriate champion, but the development and implementation of a strategy will require wide cooperation and associated funding. Given the urgency of the issues at hand in the European perspective, it is recommended that funding is sought through EU's regional programmes, and that cooperation is sought with suitable networks such as the Northern Sparsely Populated Areas (NSPA) network, as well as other relevant agencies, institutions, and organisations.

Tiivistelmä

Pohjoiskalotilla sijaitsee lupaavimpia metallien ja mineraalien hyödyntämisen alueita tukemaan vihreää ja digitaalista siirtymää. Tästä syystä Pohjoiskalotin neuvosto antoi toimeksi käsillä olevan tiekartan, jolla pyritään tukemaan alueen mineraali- ja luonnonvarojen huolellista ja viisasta kehittämistä sekä hallintaa. Tiekartan maantieteellinen rajaus kohdistuu Pohjoiskalotin alueeseen, mutta mineraalirikkaat naapurimaakunnat Länsipohja (Västerbotten) ja Pohjois-Pohjanmaa ovat myös huomioitu.

Pohjoiskalotti on ainutlaatuinen ja harvaan asuttu alue. Ilmastonmuutoksen vaikutukset ovat jo näkyvissä ja ne uhkaavat alueen ekologista tasapainoa ja herkkää luontoa. Pohjoiskalotin alue on pitkään toiminut lähtökohtana alkuperäiskansa saamelaisten elinkeinoille, kulttuurille ja perinteiselle maankäytölle yli valtionrajojen. Alueella on myös muita vähemmistöjä, joiden kulttuuria ja elinkeinoja tulisi ylläpitää.

Kaivannaissektorin kehittäminen antaa mahdollisuuksia taloudelliselle ja sosiaaliselle kehitykselle. Alaan liittyy kuitenkin haasteita, kuten ympäristövaikutukset, olemassa olevien elinkeinojen ja kulttuurien ylläpito sekä Pohjoiskalotilla asuvien ihmisten hyvinvoinnin turvaaminen. Jo nykyisin kaivannaisalaan saatetaan suhtautua epäilevästi ja alaa kohtaan on merkittävää julkista vastustusta ja huolta.

Tiekartta perustuu ymmärrykselle, jonka mukaan useimmat haasteet ja mahdollisuudet ovat parhaiten hallittavissa toimivalla alueyhteistyöllä. Tiekartan keskeinen tarkoitus on näin ollen tarkastella mikä olisi yhteistyön luonne ja muoto. Lisäksi tarkoituksena on kokonaisvaltaisesti arvioida mahdollisuuksia Pohjoiskalotin mineraalistrategian laatimiselle. Näitä päämääriä varten tiekartalla on useita tavoitteita:

- Lisätä ymmärrystä kaivannaisalan samankaltaisuuksista ja eroavaisuuksista Pohjoiskalotin eri hallintoalueilla.
- Tunnistaa painopistealueet, joilla lisääntynyt yhteistyö ja/tai yhdenmukaistetut toimintaperiaatteet (policies) voivat olla hyödyllisiä ja mahdollisia. Tavoitteena on myös tunnistaa painopistealueet, joille yhteisiä strategisia lähestymistapoja voidaan kehittää.
- Käynnistää laaja sidosryhmien osallistumisprosessi, jossa käsitellään kaivannaisalaan liittyviä kysymyksiä sekä kehitetään ratkaisuja ja aloitteita.

Vuorovaikutteisessa prosessissa tunnistettiin ja analysoitiin yhdeksän painopistealuetta, jotka koostuvat seuraavista osista: (i) nykytilanteen kuvaus; (ii) arvio Pohjoiskalotin toimintaperiaatteiden mahdollisuuksista painopistealueille ja niiden tärkeimpien osatekijöiden tunnistaminen (iii) yhteistyömahdollisuuksien tunnistaminen ja/tai toimintatapojen sekä aloitteiden yhdenmukaistaminen (iv) strategisten toimintojen tunnistaminen toimintatapojen toteuttamiseksi. Alla olevassa taulukossa on esitetty yhteenveto yhdeksästä painopistealueesta.

Painopistealue	Aiheet	Ehdotettujen strategisten toimintojen lopputulokset
Oikeudelliset ja institutionaaliset viitekehykset metalleille ja mineraaleille	- Kaivoslaki, mineraalien omistus & hallinta - Yleinen etu & maankäytön suunnittelu - Institutionaaliset viitekehykset	- Mineraalipolitiikka (policy) - Lisääntynyt tietoisuus sekä yhteisymmärrys haasteista ja mahdollisuuksista
Kaivannaisalan verojärjestelmät	- Rojaltit, louhintakorvaukset ja lupamaksut - Paikalliset ja valtiolliset verot	- Toimintatapojen tehostaminen

	<ul style="list-style-type: none"> - Eri verojärjestelmät – kiinteistö & luonnonvarat 	<ul style="list-style-type: none"> - Mekanismit paikallisille/alueellisille hyödyille - Tasapainotettu riskinjako sijoittajien ja valtioiden välillä - Lisääntynyt tietoisuus kaivostoiminnan talouskysymyksistä
Geotiedon hallinta & kaivosinvestointien edistäminen	<ul style="list-style-type: none"> - Geotiedon omistus ja saatavuus - Geotiedon kattavuus ja laatu - Geologisen tutkimuksen yhteistyö - Kansainvälinen markkinointi & investoinnit 	<ul style="list-style-type: none"> - Geotietopolitiikka (policy) - Tehokas markkinointi – uudet & vastuulliset investoinnit - Parannettu tieto sekundäärisistä esiintymistä – parannettu kiertotalous
Ympäristöhallinta ja ilmastonmuutos	<ul style="list-style-type: none"> - Transitiomineraalien löytäminen - Kaivannaisalan kasvihuonepäästöt - Ympäristövaikutukset: purkuvedet, päästöt & jäte - Luonnonsuojelualueet - Tarkkailun ja hallinnan lupajärjestelmät - Lopetussuunnitelmat 	<ul style="list-style-type: none"> - Ympäristöpolitiikka (policy) - Ympäristön perustaso - Priorisoitu lista kaivosalueiden kunnostamiseen - Luonnon turvaamisen aloitteet
Paikallisyhteisöt	<ul style="list-style-type: none"> - Vastuu paikallisesta hyvinvoinnista - Sosiaalisten vaikutusten arviointi - Yritysten sosiaalinen vastuu - Sosiaalinen lupa toimia 	<ul style="list-style-type: none"> - Yhteisöpolitiikka - Sosiaalinen perustaso - Asiaankuuluvat ja sopivat yritysten sosiaaliset vastuutoiminnot
Saamelaiset ja poronhoito	<ul style="list-style-type: none"> - Kansainvälinen laki ja sopimukset - Osallistuminen, edustus ja FPIC-periaate - Vaikutukset poronhoitoon - Sosiaaliset & kulttuuriset ongelmat & vaikutukset 	<ul style="list-style-type: none"> - Jaettu toimintatapa - Perustaso ja ehdotukset toimenpiteille - FPIC-periaate & hyvät käytännöt - Osaamiskeskus
Vähemmistöt	<ul style="list-style-type: none"> - Kansainvälinen laki ja sopimukset - Osallistuminen ja edustus - Vaikutukset perinteisiin elinkeinoihin - Sosiaaliset ja kulttuuriset ongelmat 	<ul style="list-style-type: none"> - Jaettu toimintatapa - Perustaso ja ehdotukset toimenpiteille
Sukupuoli	<ul style="list-style-type: none"> - Sukupuolten välinen tasa-arvo - Mahdollisuuksien tasa-arvo - Stereotyyppiset aatteet ja odotukset 	<ul style="list-style-type: none"> - Sukupuolipolitiikka (policy) - Kaivannaisalan työmahdollisuuksien lisääntynyt houkuttelevuus
Raportointi, läpinäkyvyys & vastuullisuus	<ul style="list-style-type: none"> - Yritysten raportointiviitekehykset - Danan läpinäkyvyys ja saatavuus - Danan jakaminen 	<ul style="list-style-type: none"> - Parantunut raportointi, läpinäkyvyys & vastuullisuus - Tietokannat ja paikkatietotyökalut

Tiekartan tavoitteiden mukaiselle Pohjoiskalotin mineraalistrategialle on vahva kysyntä ja tuki. Pohjoiskalotin neuvosto on sopiva toteuttaja, mutta strategian kehittäminen ja toteuttaminen tulee vaatimaan laajaa yhteistyötä ja rahoittamista. Ottaen huomioon asian kiireellisyyden Euroopan

näkökulmasta, on suositeltavaa etsiä rahoitusta EU:n alueohjelmista sekä yhteistyömuotoja sopivista verkostoista, kuten Pohjoisen harvaan asuttujen alueiden verkostosta (NSPA) sekä muista keskeisistä tahoista, instituutioista ja organisaatioista.

Čoahkkáigeassu

Davvikalohtas leat olu potentiála metállaid ja minerálaid ávkkástallama guovllut ruoná ja digitála sirdašuvvama doarjjan. Danin Davvikalohta ráđđi lea gohčon dahkat dán geaidnokártá, mainna viggat doarjut guovllu minerála- ja luondduriggodagaid fuolalaš ja viissis ovdánahttima sihke hálddašeami. Geaidnokártá eatnandieđalaš ráddjen čuočá Davvikalohta guvlui, muhto ránnjéanangottit main leat riggámus minerálagávdnoštumit, Västerbotten ja Davvi-Bađaeanan, leat maiddá fuomášuvvon.

Davvikalohtta lea áidnalunddot ja hárvvit ásojuvvon guovlu. dálkkádatnuppástusa váikkuhusat dihttojit juo ja dat áitet guovllu ekologalaš dásseattu ja rašes luonddu. Davvikalohta guovlu lea guhká leamaš eamiálbmot sápmelaččaid ealáhusaid, kultuvrra ja árbevirolaš eanangeavaheami vuolggasadji riikkarájáid rastá. Guovllus lea maiddá eará unnitlogut, geaid kultuvrra ja ealáhusaid galggašii bajásdoallat.

Ruvkesektora ovdánahttin addá vejolašvuođaid ekonomalaš ja sosiálalaš ovdáneapmái. Suorgái laktásit goittotge hástalusat, dego birasváikkuhusat, jo leahkki ealáhusaid ja kultuvrraid bajásdoallan dihke Davvikalohtas ássi olbmuid buresbirgema dorvasteapmi. Jo dál ruvkesuorggi ektui sáhttet leat vávjjaskasat ja suorgái čuočá mearkkašahtti vuosttildeapmi ja fuolla.

Geaidnokártá vuodđuduvvá dan ipmárdussii, ahte eanáš oassi hástalusain ja vejolašvuođain leat buoremusat hálddašeamis doaibmi guovloovttasbargguin. Geaidnokártá guovddáš ulbmil lea dānu seassat vejolaš ovttasbarggu luonddu ja hámi. Lassin ulbmilin lea árvoštallat oppalaččat vejolašvuođaid Davvikalohta minerálastrategiija ráhkadeapmái. Geaidnokártás leat mángga mihttomeari dáid ulbmiliid várás:

- Lasihit ipmárdusa ruvkesuorggi seammaláganvuođain ja earálaganvuođain sierra hálddahusguovlluin.
- Dovdát deaddočuoggáid, main lasi ovttasbargu ja/dahje ovttaláganin dahkkojuvvon doaibmanprinsihpat (policies) sáhttet leat ávkkálaččat ja vejolaččat. Mihttomearrin lea maiddá dovdat deaddočuokkessurggiid, maida sáhtta ovdánahttit oktasaš strategalaš lahkonaivugiid.
- Álggahit viiddes čanusjoavkkuid oassálastinproseassa, mas gieđahallat ruvkesuorgái laktáseaddji gažaldagaid sihke ovddidit čovdosiid ja álgagiid.

Vuorrováikkuheaddji proseassas dovđájedje ja analyserejedje ovcci deaddočuokkessuorggi, mat hápmašuvvet čuovvovaš osiin: (i) dálá dili válddahallan; (ii) árvoštallan Davvikalohta doaibmanprinsihpaid vejolašvuođain deaddočuokkessurggiid ektui ja daid dehálamos oassedahkkiid dovđán (iii) ovttasbargovejolašvuođaid dovđán ja/dahje doaibmanvugiid sihke álgagiid dahkan ovttaláganin (iv) strategalaš doaimmaid dovđán doaibmanvugiid ollašuttima várás. Vulobeale dávvalis ovdanbuktojuvvo čoahkkáigeassu ovcci deaddočuokkessuorggis.

Deaddočuokkessu orgi	Fáttát	Evttohuvvon strategalaš doaimmaid bohtosat
Metállaid ja minerálaid rievttálaš ja institušuvnnalaš rámmat	<ul style="list-style-type: none">- Ruvkeláhka, minerálaid oamasteapmi & hálddašeapmi- Almmolaš oavdu ja eanangeavaheami plánen- Institušuvnnalaš rámmat	<ul style="list-style-type: none">- Minerálapolitihkka (policy)- Lassánan diđolašvuohta sihke oktasaš áddejupmi hástalusain ja vejolašvuođain
Ruvkesuorggi vearrovuogádagat	<ul style="list-style-type: none">- Rojáltat, rogganbuhtadusat ja lohpeávssut- Báikkálaš ja stáhtalaš vearut	<ul style="list-style-type: none">- Doaibmanvugiid beavttálmahttin- Mekanismmat

	<ul style="list-style-type: none"> - Sierra vearovuogádagat – giddodat & luondduriggodagat 	<ul style="list-style-type: none"> báikkálaš/guvllolaš ovdduide - Dássejuvvon riskajuohku investerejeddjiid ja stáhtaid gaskkas - Lassánan diđolašvuohtra ruvkedoaimmaid ekonomalaš gažaldagain
Geodieđu hálddašeapmi & ruvkeinvesteremiid ovddideapmi	<ul style="list-style-type: none"> - Geodieđu oamasteapmi ja fidnehahttivuohtra - Geodieđu viiddisvuohtra ja kvalitehta - Geologalaš dutkamuša ovttasbargu - Riikkaidgaskasaš márkanastin & investeremat 	<ul style="list-style-type: none"> - Geodiehtopolitihkka (policy) - Beaktilis márkanastin – ođđa & vásttolaš investeremat - Buoriduvvon diehtu sekundára gávdnoštumiin – buoriduvvon birrajohtti ekonomiiija
Birashálddašeapmi ja dálkkádatnuppástus	<ul style="list-style-type: none"> - Transišuvdnaminerálaid gávdnan - Ruvkesuorggi šaddovistegássaluoittut - Birasváikkuhusat: luoitočázit, luoittut & bázahusat - Luonddusuodjalanguovllut - Dárkuma ja hálddašeami lohpevuogádagat - Heaittihanplánat 	<ul style="list-style-type: none"> - Biraspolitihkka (policy) - Birrasa vuodđodássi - Prioriterejuvvon listu ruvkeguovlluid ođadeapmái - Luonddu dorvvasteami álgagat
Báikkálašservošat	<ul style="list-style-type: none"> - Ovddasvástádus báikkálaš buresbirgemis - Sosiála váikkuhusaid árvoštallan - Fitnodagaid sosiála ovddasvástádus - Sosiálalaš lohpi doaimmat 	<ul style="list-style-type: none"> - Searvvušpolitihkka - Sosiála vuodđodássi - Áššáigullelaš ja heivvolaš fitnodagaid sosiála ovddasvástádusdoaimmat
Sápmelaččat ja boazodoallu	<ul style="list-style-type: none"> - Riikkaidgaskasaš riekti ja soahpamušat - Oassálastin, ovddastus ja FPIC-prinsihppa - Váikkuhusat boazodollui - Sosiálalaš ja kultuvrralaš čuolmmat & váikkuhusat 	<ul style="list-style-type: none"> - Oktasaš doaimmanvuohki - Vuodđodássi ja doaimmaevttohusat - FPIC-prinsihppa & buorit geavadagat - Máhttogoovddáš
Unnitlogut	<ul style="list-style-type: none"> - Riikkaidgaskasaš riekti ja soahpamušat - Oassálastin ja ovddastus - Váikkuhusat árbevirolaš ealáhusaide - Sosiálalaš ja kultuvrralaš 	<ul style="list-style-type: none"> - Juhkkojuvvon doaimmandáhpí - Vuodđodássi ja doaimmaevttohusat

	čuolmmat	
Sohkabealli	<ul style="list-style-type: none"> - Sohkabeliid gaskasaš dásseárvu - Vejolašvuodaid dásseárvu - Stereotiippalaš jurdagat ja vuordámušat 	<ul style="list-style-type: none"> - Sohkabeallepolitihkka (policy) - Ruvkesuorggi bargovejolašvuodaid lassánan geasuheapmi
Raporteren, čađačuovgivohta & vásttolašvuoha	<ul style="list-style-type: none"> - Fitnodagaid raporterenrámmat - Data čađačuovgivohta ja fidnehahttivuohta - Data juohkin 	<ul style="list-style-type: none"> - Buoriduvvon raporteren, čađačuovgivohta & vásttolašvuoha - Diehtovuodut ja báikediahtobargoneavvut

Geaidnokártta mihttomeriid mieldásaš Davvikalohta minerálastrategiijai lea nana jearru ja doarjja. Davvikalohta ráđđi lea vuogas ollašutti, muhto strategiija ovddideapmi ja ollašuttin šaddet gáibidit viiddes ovttasbarggu ja ruhtadeami. Go váldit vuhtii dan man hohpolaš ášši lea Eurohpá geahčanguovllus, lea duosttáš ohat ruhtadeami EU:a guovloprográmmain sihke ovttasbargohámiid heivvolaš fierpmádagain, dego Davviguovllu hárvvit ásojuvvon guovlluid fierpmádagas (NSPA) sihke eará guovddáš oassebeliin, institušuvnnain ja organisašuvnnain.

Sammendrag

Nordkalotten har noen av de mest lovende områdene for å finne metaller og mineraler som trengs for å gjennomføre det grønne skiftet i Europa. Nordkalottrådet tok derfor initiativ til dette Veikartet for å bidra til en felles utvikling og forvaltning av regionens mineral- og naturressurser. Veikartet geografiske fokus er Nordkalotten, men de nærliggende og mineralrike fylkene Vest-Botnia (Västerbotten) og Nord-Österbotten (Pohjois-Pohjanmaa) er også en del av prosjektet.

Nordkalotten er et unikt og tynt befolket område. Konsekvensene av klimaendringer er synlige, og kan true den økologiske stabiliteten til de store og følsomme villmarksområdene. Dette landskapet har i lang tid vært grunnlag for samenes levebrød, kultur og tradisjonelle arealbruk over landegrensene. Dette gjelder også for andre minoriteter på Nordkalotten.

Gruvesektoren gir muligheter for økonomisk vekst og utvikling av samfunnet. Det er samtidig viktig at utfordringer som miljøpåvirkning, bevaring av eksisterende livsgrunnlag og kulturer, og trivselen til folk som bor på Nordkalotten blir ivaretas. Også i dag blir mineralprosjekter på Nordkalotten sett på med mistenksomhet av enkelte, og det er betydelig motstand og bekymring i deler av befolkningen.

Dette Veikartet har som utgangspunkt at mange av utfordringene og mulighetene håndteres best hvis utviklingen skjer i form av et godt regionalt samarbeid. Hovedmålet med dette prosjektet er å vurdere hvordan et slikt samarbeid kan organiseres, og se på mulighetene for å utvikle en felles Mineralstrategi for Nordkalotten. Under dette hovedmålet ligger flere delmål, inkludert:

- Å øke forståelsen for likheter og forskjeller innen mineralsektoren i de ulike geografiske områdene på Nordkalotten.
- Å identifisere fokusområder hvor økt samarbeid og/eller felles politikk kan være nyttig og mulig, og hvor man kan utvikle felles strategier.
- Å sette i gang en prosess med bred involvering fra sentrale parter der utfordringer knyttet til mineralsektoren diskuteres, og hvor man kommer med forslag til løsninger og tiltak.

Ni fokusområder ble identifisert og analysert på følgende måte: (i) beskrivelse av nåsituasjonen; (ii) evaluere mulighetene for en felles politikk for Nordkalotten for hvert satsingsområde, og identifisere sentrale elementer i en slik politikk; (iii) identifisere muligheter for samarbeid og en aktiv mineralpolitikk; og (iv) identifisere strategiske tiltak for realisering av politikken. Tabellen nedenfor gir en oppsummering av de ni fokusområdene.

Fokusområder	Problemstilling	Forslag til strategiske tiltak
Juridisk og institusjonelt rammeverk for metaller og mineraler	- Minerallov, rettigheter og kontroll - Offentlig fokus og arealplanlegging - Institusjonelt rammeverk	- Mineralpolitikk - Økt bevissthet og enighet om utfordringer og muligheter
Skatteregimet for gruvedrift	- Royalties, mineral- og lisensavgifter - Lokale og statlige skatter - Ulike skatteregler for eiendom og naturressurser	- Aktiv mineralpolitikk - Tiltak som gir lokale og regionale fordeler - Balansert risikodeling mellom investorer og stat - Økt bevissthet om skattemessige ulemper for gruvedrift

Forvaltning av geologiske data og promotering av mineralpotensialet	<ul style="list-style-type: none"> - Eierskap og tilgjengelighet til geologiske data - God geografisk dekning og kvalitet på geodata - Samarbeid mellom geologiske undersøkelser i de tre land - Internasjonal markedsføring og investeringer 	<ul style="list-style-type: none"> - Geodata politikk - Effektiv markedsføring - nye og ansvarlige investeringer - Gode geologiske data om sekundære forekomster
Miljøforvaltning og klimaendringer	<ul style="list-style-type: none"> - Kontroll av kritiske mineraler - Utslipp av drivhusgasser fra gruvedrift - Miljøpåvirkninger: avgang, utslipp og avfall - Verneområder - Regler for tilsyn og kontroll - Krav og oppfølging ved nedleggelse av driften 	<ul style="list-style-type: none"> - Miljøpolitikk - Miljøgrunnlag - Prioriteringsliste for rehabilitering av gruveområder - Bærekraftige tiltak
Lokalsamfunn	<ul style="list-style-type: none"> - Ansvar for lokal utvikling av lokalsamfunn - Samfunnsmessige konsekvensutredninger - Samfunnsansvar 	<ul style="list-style-type: none"> - Samfunnspolitikk - Bedriftenes ansvar ovenfor lokalsamfunnet
Samiske interesser og reindrift	<ul style="list-style-type: none"> - Folkerettslige avtaler - Deltakelse, representasjon og samtykke - Virkninger på reindriften - Sosiale og kulturelle spørsmål og konsekvenser 	<ul style="list-style-type: none"> - Felles politikk - Grunnlag og forslag til tiltak - Samtykke og «good practice» - Kompetansesenter
Minoriteter	<ul style="list-style-type: none"> - Folkerettslige avtaler - Medvirkning og representasjon - Påvirkning av tradisjonell levemåte - Sosiale og kulturelle spørsmål 	<ul style="list-style-type: none"> - Felles politikk - Grunnlag og forslag til tiltak
Kjønn	<ul style="list-style-type: none"> - Likestilling - Like muligheter - Tradisjonelle idealer og forventninger 	<ul style="list-style-type: none"> - Kjønnspolitikk - Økt attraktivitet for arbeidsmuligheter i gruvesektoren - aktiv rekruttering
Rapportering, tilgjengelighet og ansvarlighet	<ul style="list-style-type: none"> - Rammeverk for rapportering fra bedriftene - Åpenhet og tilgjengelighet av data - Deling av data 	<ul style="list-style-type: none"> - Bedre rapportering, åpenhet og ansvarlighet - Databaser og GIS-verktøy

Det er stor interesse og støtte for å utvikle en mineralstrategi for Nordkalotten som er i tråd med dette Veikartet. Nordkalottrådet har tatt initiativet til dette arbeidet, men utvikling og implementering av en strategi vil kreve bredt samarbeid og tilfredsstillende finansiering. Sett i lys av hvor store utfordringene innen denne sektoren er i et europeisk perspektiv, anbefales det å søke finansiering gjennom EUs regionale programmer. Videre anbefales det å søke samarbeid med egnede nettverk som Northern Sparsely Populated Areas (NSPA) nettverket, samt andre relevante byråer, institusjoner og organisasjoner.

Sammanfattning

Nordkalotten innefattar vissa av Europas mest lovande områdena för att finna de metaller och mineraler som krävs för att genomföra det gröna och digitala skiftet. Nordkalottrådet har därför tagit initiativet till denna färdplan med avsikt att stödja en framtida förnuftig och väl avvägd utveckling och förvaltning av regionens mineral- och naturresurser. Färdplanen avser Nordkalotten, men även de närliggande och mineralrika länen Västerbotten och Österbotten (Pohjois-Pohjanmaa) beaktas.

Nordkalotten är en unik och glest befolkad region. Effekterna av klimatförändringarna är redan markanta, vilket i sin tur hotar den ekologiska stabiliteten över vidsträckta och känsliga vildmarksområden. Området har sedan länge utgjort grunden för samernas kultur, markanvändning och tillhörande renskötsel som i sin tur korsat de nationella gränserna. Det finns även andra minoriteter med unik kultur och lång historia i regionen.

Gruvsektorn kan ge möjligheter till ekonomisk och social utveckling. Det finns dock utmaningar, bland annat miljöpåverkan, behovet av att se till att existerande försörjningsmöjligheter och kulturer inte hotas och att välfärden för de boende på Nordkalotten kan bibehållas. Och redan idag betraktas nya mineralprojekt ofta med misstänksamhet och det finns en betydande och allmän oro rörande gruvor.

Färdplanen har som utgångspunkt att många av de utmaningar och möjligheter som finns kan hanteras bättre om det existerar ett starkt regionalt samarbete. Huvudmålet är därför att utvärdera möjligheterna till att etablera ett sådant samarbete, samt att identifiera och definiera hur samarbetet bör organiseras och, följaktligen, undersöka behovet och möjligheterna för en mineralstrategi för Nordkalotten. Under detta huvudmål finns ett antal delmål, som följer:

- Att öka förståelsen för de likheter och skillnader som existerar mellan mineralsektorerna i de olika delarna av Nordkalotten.
- Att identifiera fokusområden där ökat samarbete, samordning och/eller effektivisering av politisk styrningen är önskvärd och möjlig och där gemensamma strategier kan utarbetas.
- Att initiera en process där olika intressenter involveras i frågor som rör mineralsektorn och där lämpliga lösningar och initiativ kan identifieras.

Nio fokusområden har analyserats och beskrivits i en iterativ och konsultativ process, som följer: (i) Beskrivning av nuläget; (ii) utvärdering av möjligheterna för en gemensam Nordkalottstrategi för varje fokusområde; (iii) identifiering av möjligheter till samarbete, samordning och/eller effektivisering av politik och initiativ; samt (iv) identifiering av de aktiviteter som krävs för att genomföra en gemensam strategi. Tabellen nedan sammanfattar de nio fokusområdena

Fokusområde	Problemställningar	Resultat av strategiska initiativ
Juridisk och institutionellt ramverk för metaller och mineraler	<ul style="list-style-type: none">- Minerallag, ägande, rättigheter & kontroll- Expropriering, publikt intresse & markplanering- Institutionellt ramverk	<ul style="list-style-type: none">- Mineralpolitik- Ökad förståelse och samsyn om utmaningar och möjligheter
Skattesystem för gruvverksamhet	<ul style="list-style-type: none">- Royalties (kronodel), mineral & licensavgifter- Lokala & centrala skatter- Skatteregler för egendom och naturresurser	<ul style="list-style-type: none">- Aktiv mineralpolitik- Mekanismer för att skapa lokala och regionala fördelar- Balanserad riskdelning mellan investerare, stat & andra intressenter

		<ul style="list-style-type: none"> - Ökad förståelse och samsyn om skattefrågor i mineralsektorn
Förvaltning av geologiska data & marknadsföring av mineralsektorn	<ul style="list-style-type: none"> - Ägande & tillgänglighet av geologiska data - Geografisk täckning & kvalitet av geologiska data - Samarbete mellan de nationella geologiska undersökningarna - Internationell marknadsföring & investeringar 	<ul style="list-style-type: none"> - Politik för geologiska data - Effektiv marknadsföring & ansvarsfulla investeringar - Bättre tillgång till data om sekundära mineralförekomster
Miljöstyrning och klimatförändringar	<ul style="list-style-type: none"> - Tillgång till kritiska mineraler - Växthusgasemissioner från gruvsektorn - Miljöpåverkan: utsläpp, emissioner och avfall - Nationalparker/skyddade områden - Regler för tillsyn & kontroll - Nedlagda gruvor & miljösynder 	<ul style="list-style-type: none"> - Miljöpolitik - Data på bakgrundvärden & miljötillstånd - Prioriterad lista för rehabiliteringsprojekt - Naturpositiva förslag/initiativ
Lokalsamhällen	<ul style="list-style-type: none"> - Ansvarsfördelning för lokal välfärd - Sociala konsekvensbedömningar - Företags frivilliga åtgärder (CSR) - Social acceptans 	<ul style="list-style-type: none"> - Välfärdspolitik för gruvsamhällen - Kunskap om sociala konsekvenser & indikatorer - Relevanta CSR initiativ
Samer & renskötsel	<ul style="list-style-type: none"> - Internationell rätt & avtal - Deltagande, representation och samtycke i tillståndsprocesser - Påverkan på renskötsel - Sociala och kulturella konsekvenser 	<ul style="list-style-type: none"> - Samordnad politik - Data & förslag på aktiviteter/initiativ - Metoder för samtycke & allmänna råd - Kompetenscentrum
Minoriteter	<ul style="list-style-type: none"> - Internationell rätt & avtal - Deltagande, representation och samtycke i tillståndsprocesser - Sociala och kulturella konsekvenser 	<ul style="list-style-type: none"> - Samordnad politik - Data & förslag på aktiviteter/initiativ - Kompetenscentrum
Genus/jämlikhet	<ul style="list-style-type: none"> - Jämlikhet - Lika möjligheter - Stereotypiska ideal, fördomar och förväntningar 	<ul style="list-style-type: none"> - Genus & jämlikhetspolitik - Ökad attraktivitet för arbete i gruvsektorn - Aktiv rekrytering
Rapportering, transparens & ansvar	<ul style="list-style-type: none"> - Ramverk för företags rapportering - Öppenhet och tillgänglighet - Delning av data 	<ul style="list-style-type: none"> - Förbättrad rapportering och transparens - Databaser and GIS-verktyg

Det finns ett betydande stöd för att utveckla en mineralstrategi för Nordkalotten som är i linje med denna färdplan. Nordkalottrådet är en lämplig organisation för att leda ett sådant initiativ, men arbetet kräver brett samarbete och en substantiell finansiering. Sett till hur brådskande och viktiga mineral- och gruvrelaterade frågor är i det europeiska perspektivet bör finansiering sökas genom EU:s regionala program. Ett brett samarbete bör eftersträvas som innefattar Northern Sparsely Populated Areas (NSPA), samt andra relevanta myndigheter, institutioner och organisationer.

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Abbreviations

Au – Gold
CAB – The Swedish County Administrative Boards
Cr – Chromium
CSR – Corporate Social Responsibility
EIA – Environmental Impact Assessment
ELY – The Finnish Centres for Economic Development, Transport and the Environment
EUR – Euro
Fe – Iron
GDP – Gross Domestic Product
GRP - Gross Regional Product
GTK – Geological Survey of Finland
ICMM – International Council on Mining and Metals
LKAB – Lousavaara Kirunavaara Aktie Bolag
NEA - Norwegian Environment Agency
NGO – Non-Governmental Organisation
Ni – Nickel
NOK – Norwegian krona
Pb - Lead
Pt - Platinum
R&D – Research and development
SCB – Statistics Sweden
SEK – Swedish Krona
SIA – Social Impact Assessment
SEPA – Swedish Environmental Protection Agency
SGU – Swedish Geological Survey
SLO – Social License to Operate
TSM – Towards Sustainable Mining
TUKES – Finnish Safety and Chemicals Agency
t – Tonnes

1. Introduction

The development of this Road Map was commissioned by the North Calotte Council and was prompted by an urgent need to ensure that the future development of the mineral sector in the North Calotte be carefully managed. The Road Map is the result of work performed during the period March – December 2021, combined with a process of broad stakeholder consultation that took place in October-November of the same year. The intention is that the Road Map will form the basis for the funding and implementation of larger and longer-term initiative where a North Calotte Mineral Strategy is developed and implemented.

The world is facing multiple challenges, which requires urgent action. The main challenges include combatting and adapting to climate change, and to halt the loss of biodiversity, as well as several other challenges identified in Agenda 2030. In terms of halting climate change, it is widely believed that the shift to non-fossil-based energy resources combined with the digital transition require that more metals and minerals be supplied. The geopolitical challenge in this regard is severe for the European Union, as it is highly dependent on the import of raw materials to support its industry and economy. And EU's ability to transform and modernise its economy now depends on securing the primary and secondary raw materials that are needed. This in turn has prompted the development of several initiatives and policies which address this challenge (see text box).

The North Calotte includes some of the most promising areas for sourcing the metals and minerals needed within the EU, and this suggests that the pressures and incentives for further developing the mining sector in the North Calotte is set to grow significantly.

Minerals, the European Union and the North Calotte

Several initiatives are under way that relate to the European Union's vulnerability and dependence on mineral imports, and the realisation that further and sustainable extractive activities within Europe will need to be developed:

- *The European green deal* to ensure climate neutrality by 2050, necessitates securing access to the critical minerals needed for digitisation, and the transition away from fossil-based energy sources.
- *EU's Raw Materials Initiative* to secure the minerals, including critical raw materials, needed to support the union's industry and economy.
- *European Raw Materials Alliance* which aims to increase EU resilience, specifically in the rare earths and magnets value chain.

The North Calotte include geological terrains that are among Europe's most promising in terms of hosting deposits of the minerals and metals that are necessary to support the green and digital transitions. The development of these resources can significantly contribute to addressing EU's needs for raw materials and provide for the development of the economy and the societies of the North Calotte.

The development of the mining sector presents significant possibilities for economic development in the North Calotte. However, there are also significant challenges, including those related to managing environmental impacts, the need to ensure that existing livelihoods and cultures are not threatened, and that the wellbeing of the people of the North Calotte is safe guarded. And, already

today – similar to many other regions – mining in the North Calotte is viewed with suspicion by many, and there is significant public resistance to new mineral developments.

The North Calotte is a unique and sparsely populated area. The impacts of climate change are already marked and are projected to worsen, in turn threatening the ecological stability of extensive and sensitive wilderness areas. These landscapes have since long supported the indigenous Sami whose livelihood, culture, and traditional land use cross existing national borders. There are also other national minorities whose cultures and livelihoods need to be supported and sustained.



Figure 1.1 Map showing the area of concern for the project, including existing mining operations as well as mature projects that are concerned with metals, precious minerals, and the minerals needed for the green and digital transitions (Sources: Norway: Geological Survey of Norway (ngu.no), The Directorate of Mining (dirmin.no); Sweden: Geological Survey of Sweden (sgu.se); Finland: Geological Survey of Finland (gtk.fi), Lapland beyond the ordinary (lapland.fi)).

This road map is based on the understanding that many of these challenges and opportunities may be better managed if there is substantial cooperation within the North Calotte, and between the three countries concerned. The fundamental aim of this road map initiative is therefore to consider and assess what the format and nature of such cooperation should be, and to overall evaluate the

possibilities of developing a mineral strategy for the North Calotte¹. Underlying this overall aim are four main objectives, as follows:

- To increase the understanding of the similarities and differences that exist between the mineral sectors in the different jurisdictions of the North Calotte.
- To identify focus areas that are intimately tied to the mineral sector, and where increased cooperation and/or streamlining of policies may be useful and possible, and where joint strategic approaches can be developed.
- To initiate a process of broad stakeholder involvement where issues related to the mineral sector in the North Calotte may be discussed, and where appropriate solutions and initiatives may be developed.
- To secure funding for appropriate and relevant activities and initiatives that are in line with, and would support, the implementation of the North Calotte Mineral Strategy.

Geographically, the Road Map focuses on the regions that form part of the North Calotte Council, as well as the counties of West Bothnia (Västerbotten) and Northern Ostrobothnia (Pohjois-Pohjanmaa) in Sweden and Finland, respectively (Figure 1.1). Table 1.1 provide key data for the region considered.

Table 1.1 Key data of the North Calotte, the three countries and the project area.

	Norway	Sweden	Finland
Area (km²):	112,985	98,245 (55,168 W Bothnia)	100,366 (37,149 N.O-Bothnia)
Population:	485,553	251,080 (268,067 in W. Bothnia)	177,161 (412,830 in N.O-Bothnia)
Gross Regional Product/capita:	NOK470k	SEK494k (SEK412k in W. Bothnia)	EUR34,290 (EUR 31,050 in N.O-Bothnia)
Approximate Gross National Product for mining (2019):	2,700MNOK	33,000MSEK	1,500MEuro
Number municipalities (project area):	80	15 (14 in W.Bothnia)	21 (30 in N O-bothnia)

The Road Map has been developed with due cognisance of a range of regional, national, and sub-national initiatives and projects that in one way or another relate to the mineral sector. The more important of these activities are listed below (Text Box). The area considered also coincides and/or overlaps with other international areas for cooperation, that have wider objectives such as the Barents region (the Euroarctic region), and programmes and initiatives within the EU (e.g. Interreg North-West Europe).

¹ The Road Map's focus is on metals, precious minerals, and the industrial minerals needed for the green and digital transitions.

Text Box - Important strategic initiatives and strategies on minerals in the Nordic countries

Norway	Sweden	Finland
<ul style="list-style-type: none">- Strategy for the Mineral Industry (2013)- Mineral Strategy for north Norway (2019)	<ul style="list-style-type: none">- National mineral strategy (2013)- Regional mineral strategy for West Bothnia and North Bothnia (2014)	<ul style="list-style-type: none">- National mining strategy (2010)- Towards Sustainable Mining (2014)

The Road Map is structured as follows. Chapter 2 presents the methodology used, and Chapter 3 introduces mining in the North Calotte, both ongoing and its outlook. Chapters 4 presents and analyses 10 focus areas, whereas Chapter 5 summarises and provides overall conclusions and recommendations.

2. Methods of implementation

The approaches and methods used to develop the Road Map are outlined below.

2.1 Project management and workplan

The champion and main funder of the project is the North Calotte Council, which in turn consists of four formal members: the County Councils (fylke) of Troms & Finnmark and Nordland in Norway, the North Bothnia County in Sweden, and The Regional Council of Lapland in Finland. In addition, the County of West Bothnia in Sweden, and the Northern Ostrobothnia region in Finland also took part in the project. The County of West Bothnia provided supplementary funding for the initiative.

The implementation of the project was led by the Swedish NGO Georange. A Working Group consisting of representatives of Georange, and the project participants oversaw and led the work. This Working Group was in turn led by Terje Stabæk from Nordland County Council, and it included Carl Rova (North Bothnia), Hilde Skjerven Bersvendsen & Gunnar Davidsson (Troms & Finnmark), Olli Rönkä (Lapland), Ola Torstenson (Nordland), Pirkko Taskinen (Northern Ostrobothnia) and Håkan Tarras-Wahlberg & Anna Kostet (Georange).

The Working Group met on numerous occasions during the period March – December 2021. Figure 2.1 provides an overview of the work conducted, and the main project events. The Final Road Map is meant to be presented formally to the North Calotte Council in April 2022.

A project Reference Group was further assembled that included selected experts and/or stakeholders with good knowledge of mineral and mining related issues in the region. The Reference Group's main inputs were in the form of commenting on drafts of the Road Map. The reference group include 2-4 person from each country. A full list of the participants is found in Annex 1.

Figure 2.1 General workplan for the development of the Road Map.

2021										
	Mar	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec
Funding decision	X									
Road Map preparation										
Working Group Meetings	X	X		X		X	X	X	X	
Ref. Group Consultations										
Road Map submitted										X

2.2 Identification and analysis of Focus Areas

Nine focus areas (main issues) were identified and analysed, and these include major aspects of importance for the management and development of the minerals sector. The identification of focus areas was, in turn, an iterative process whereby the Working Group first identified a preliminary list, which was then commented upon and revised through the process of consultation within the Working Group, and finally with the Reference Group (see below).

Each focus area is analysed and described in a succinct way (<1,000 words for each area) using a four-stage process, as follows:

- **Introducing the topic**
Each focus area is described in general terms with a focus on its relevance for the mineral sector, and with examples of good international practice provided where possible/relevant.

- ***The Present Situation***

The current situation in each of the three countries (and where applicable also on the regional and sub regional levels) is presented.

- ***Evaluation and proposal for policy statement***

Evaluation and identification of possibilities for:

- a North Calotte policy for the focus area, and the identification of key components of such a policy.
- cooperation and/or streamlining of policies and initiatives.

- ***Proposals for strategic activities***

Identification of suitable strategic activities which would serve to implement policy.

3. Mining in the North Calotte

3.1 Geology and mineral prospectivity

The occurrence of mines and mineable mineral resources is governed by geology. Mineral resources cannot be moved, and mining must take place where nature has concentrated metals and minerals to an extent that they can be extracted at profit. Where competing land use or social acceptance is an issue, or where mining conflicts with traditional culture or nature preservation, such challenges must be resolved in the immediate vicinity of the mineral deposit in question. If left unsolved, potential mining project may need to be abandoned.

In terms of geology, the North Calotte is an integral part of the Fennoscandian Shield. The North Calotte region is therefore dominated by rocks of Archean and Early Proterozoic origin (i.e., older than 1600 million years) which comprise granites and mafic intrusions, gneisses, and greenstone belts of intrusive, volcanic, and sedimentary origin. Younger, ca 510 million years old sedimentary rocks, are exposed on the Varanger peninsula (northeasternmost part of Norway). The Caledonides comprise younger rocks that were added to the shield some 400 million years ago, and today caledonide rocks make up the western part of the shield. Archean and Early Proterozoic rocks are generally flat, deeply eroded, and often overlain by loose rocks and sediments left behind by oscillating ice sheets during the last two million years. Conversely, the Caledonides are largely mountainous.

Significant parts of the Fennoscandian Shield are prospective, and well mineralised. In northern Finland and Norway, the so called greenstone belts are prospective for nickel, copper, cobalt, platinum group metals and gold. In northern Sweden, large areas are prospective for iron and base metals, such as copper and zinc, but also for gold and a range of metals that are important for the digital and energy transitions. Northernmost Norway is prospective for iron ore, base metals and gold, also outside the greenstone belts, and the Caledonian area in Sweden and Norway includes numerous copper-zinc deposits. The Caledonian region remains prospective also for nickel and other metals.

The southern part of the North Calotte (in West Bothnia and Northern Ostrobothnia) also include important mineralised areas. In Sweden, the 1900 million years old Skellefte field contains numerous base metal deposits, as well as a more recently identified area, that is referred to as “the gold line”, is highly prospective for gold. In Finland, a range of ultramafic intrusions are prospective for chromium and platinum.

The mining of industrial minerals is important in the region, and the contribution to European and World production is significant for some commodities. Most notable is the production of, and potential for, natural graphite, nepheline syenite, ultra-pure quartz, carbonates, and phosphates (apatite). Several of these are considered critical by the EU commission, and some are essential to green technologies.

3.2 Ongoing exploration and mining

In terms of operating mines, there are world-class iron mines in Sweden (Kiirunavaara and Malmberget) which have been operating for more than 100 years, run by the state owned mining company LKAB. Boliden’s Aitik copper mine is Europe’s largest open pit copper mine and has been operating for some 50 years. The Skellefte field has been known for over a century and is host to several gold and base metal mines, most of which are operated by Boliden. In Finland, the large Kittilä gold mine is operated by Agnico Eagle, the Kevitsa mine (nickel and copper) by Boliden, and the Kemi mine (chromium) by Outokumpu. In Norway, there is one iron ore mine in production in the North Calott; the Ørtfjell mine in Nordland, operated by Rana Gruber. In Troms and Finnmark the

Sydvaranger deposit is scheduled to reopen in 2022, and it is controlled by Tacora Resources Ltd. The Nussir copper deposit close to Hammerfest is also scheduled to start production in 2022. The mining project is owned by several Norwegian and international investors. In addition, all three countries have many prospects, projects and abandoned and/or old mines.

In terms of exploration, northern Finland is attracting significant interest for a range of metals, especially gold, base metals, chromium, and platinum group metals. In northern Sweden, there is also significant exploration, especially near Malmfälten and in the Skellefte field, whereas the level of exploration activities in northern Norway is more modest. Exploration in Northern Norway is mainly focused on base metals, such as copper, zinc, and nickel, as well as gold.

Norway	Sweden	Finland
<ul style="list-style-type: none"> - Highly prospective geology in Norwegian greenstone belts Prospective also in other Paleo-Proterozoic areas as well as the Caledonides. - Modest level of exploration. - 1 ongoing metal mine (Fe). - Nussir (Cu) and Sydvaranger (Fe) scheduled to initiate production in 2022. - Significant mining of industrial minerals. 	<ul style="list-style-type: none"> - Highly prospective geology in Malmfälten, and the Skellefte field, but also elsewhere. - Well established and large mining operations mostly domestically owned. - ~10 metal mines (Au, base metals and Fe). - Significant interest in exploration. 	<ul style="list-style-type: none"> - Highly prospective geology, in the Finnish greenstone belt. - High interest in exploration. - 3 metal mines (Au, Cr). - Significant foreign ownership of mines and projects.

3.3 Future outlook and possibilities

The three countries have similarly prospective geology, but have differing capabilities and expertise within their respective mining sectors. The geological similarities – the Fennoscandian shield – forms a fundamental basis and opportunity for further and increased cooperation.

Together the three countries include some of the most promising areas for sourcing the metals and minerals needed for the digital and energy transitions within the EU, and in the recent years the interest in exploration for such minerals – in addition to the more traditional metals and minerals – has grown significantly.

4. Focus areas

This chapter is concerned with describing the main focus areas of importance for the minerals sector of the North Calotte. Each focus area is treated using a four-stage process (c.f. Section 2.2), including an introduction to the topic; a description of the present situation; an evaluation of the possibility for developing a North Calotte policy; and proposals for relevant activities that should be undertaken to support the implementation of such a policy.

4.1 Legal & Institutional frameworks for metals and minerals

Introducing the topic

Mineral resources are commonly managed at the national level. Initiatives and/or policies that include two or several countries are rare, and international cooperation is limited².

Mineral resources can be owned by the state or by the landowner. The higher value minerals and metals are nearly always controlled by the state, whereas lesser valuable minerals (gravel, aggregates etc.) are usually owned by the landowner. And whilst EU legislation is relevant to a host of aspects that relate to minerals and mineral development, the management and control of the more valuable minerals is still to a large extent, regulated within the realm of the national states.

Mineral ownership is the legal foundation upon which much of the state's regulatory control and taxing rights are based. Also, as the control of minerals is separated from land ownership, this leads to the mining higher value minerals and metals being associated with special and different requirements for land use planning. The ownership of metals and minerals must also be distinguished from ownership of mines. Mines are in most cases privately owned, but they may also be owned – partially or wholly – by the state. The role of state is overall important and needs to be clearly defined. The state has important roles as resource owner, policy maker and regulator. The state may also act as an investor promoter or as an investor through state-owned enterprises.

Mining – at least with regards to metals and higher value minerals – is often defined as a national or public interest. This follows from the importance of the supply of minerals to society, and to the often-large incomes that can be generated through mining and associated value adding activities. If mining is defined as a national interest in this way, it often follows that it is also a prioritised land use, where processes of expropriation may become relevant. The overall conditions under which the mineral sector is governed is usually laid out in a national mining law. In terms of implementing such a law, there are three essential core functions:

- A **geological survey** function, which ensures geological mapping and the collection and maintenance of geodata.
- A **mining titles management** function which ensures that the processes of licensing for exploration and mining (the mineral permitting process) is administered effectively.
- A **mine inspectorate** which ensures compliance of exploration and mining companies with regulations, as well as recording of production volumes and activities. The Inspectorate may also be fully or partly responsible for environmental supervision, control and permitting.

The regulation and management of the mineral sector is included in a wider regulatory framework, comprising – among others – those that pertain to local government, land use planning, building and construction and environmental control. Thus, it is of utmost importance to take due cognisance of

² exceptions include minerals on the international seafloor which are managed by the International Seabed Authority (ISA); and a few non-binding declarations (e.g. the African Mining Vision)

these – and others, including relevant EU related legislation – when assessing the efficiency of control and management of the minerals sector.

The present situation

In Finland, the state participates in both exploration and project development. In Sweden, the most important role of the state is as owner of LKAB. In Norway, the state is not actively involved in mining (except for in Spitsbergen) or exploration. That some metals and high value minerals are owned by the state is clear in law in Norway and Finland but not Sweden. In all three countries, the mining cadastre is managed at the central state level, whereas land use planning is to a large extent performed at the regional or local levels. In both Norway and Finland, local land use planning process are, for example, especially important in the permitting process for mines. In all three countries there are ongoing processes where mineral and other related laws are being reviewed. Thus, the situation at present must be regarded as somewhat fluid.

Norway	Sweden	Finland
<ul style="list-style-type: none"> - Minerals Act (2010) - Minerals with density > 5gcm⁻³ state owned; others controlled by landowners. - Minerals Act includes land- and state owned minerals. - NGU performs geological survey roles. - Permitting of mining by the Directorate of Mining - Municipalities have important role in permitting. - Special provisions for Finnmark 	<ul style="list-style-type: none"> - Mineral Act (1991) for “concession minerals”, controlled (not owned) by the state. - The Mineral Act is expropriatory, but mining excluded from being of “national importance”. - The state controls LKAB but has no equity/role in other projects/ventures. - Administrative core functions all under SGU. - Permitting processes are complex and often long - Sign. negative perception of mining regulatory framework. 	<ul style="list-style-type: none"> - Mining Act (2011) for “Mining minerals”, controlled by the state. - Gold panning on state-owned land regulated. - Mining can be defined as a “public need”. - The state has a role in exploration and as equity owner in projects. - Permitting by TUKES. - Geological Survey function, and limited exploration and associated equity claims controlled by GTK.

Evaluation and proposal for policy statement

There is some commonality in the legal and institutional structures, which provides a good basis for a North Calotte policy, which may include that:

- Metals and higher value minerals are the property of the respective states, and if exploited it should be for the benefit of the population at large, and whilst also ensuring local benefits and supporting economic development.
- Mining and processing should be undertaken in accordance with the principles of sustainable development, without causing undue harm to human health or damaging biological diversity and ecological stability. The focus on sustainable development also leads to a need to work for improved conditions for the reuse and recycling of materials that have been extracted, that is the mining sector should contribute to an increased circularity of materials flow within society overall.

Existing similarities provide fruitful conditions for exchanges of experiences and knowledge which indirectly – in a longer perspective – can lead to streamlining of laws and institutional structures.

Strategic activities

Policy Action	Responsible agencies and other participants	Expected Outcomes
Thematic workshops on: - Laws & institutions - Permitting processes	The North Calotte Council, the mining directorates/inspectorates Geological Surveys and other relevant agencies / organisations, including EU representatives.	Agreement of the overarching Mineral Policy for the North Calotte.
Public consultations and awareness campaigns.	The national Geological Surveys in cooperation with other relevant organisations.	Improved awareness of the issues at hand, and some level of consensus of the challenges and opportunities that lie ahead, among key institutions and the public at large.

4.2 Fiscal regimes for mining

Introducing the topic

The fiscal regime refers to the legal, regulatory, and contractual instruments by which the state and other stakeholders share in the revenues generated by mining. A fundamental objective of a fiscal regime is to ensure maximization of economic returns to the state. Achieving this requires a balancing of interests: a fiscal regime that taxes too much deters investment, whereas one that taxes too little may leave a country worse off after mining.

Fiscal regimes in the mining sector take several forms, but they often include a few key elements: (1) a charge on production (e.g., royalties); (2) a charge on profits (e.g., income taxes and various excess profits taxes); (3) charges on select inputs (e.g., import duties and VAT); and (4) other fees and bonuses. States may also participate in the ownership of mining ventures in various ways.

Internationally, most mining jurisdictions use what is referred to as a “tax-royalty” regime, where the central elements are: (1) a royalty, which assures a minimum payment to government for the mineral resources extracted, and (2) an income tax, which gives the state a share of profits from mining. It is also becoming increasingly common that so called “non fiscal” requirements are introduced, where mining companies are obliged to fund some form of obligatory Corporate Social Responsibility (CSR) initiatives and projects.

The present situation

In all three countries, the fiscal regime rests on statutory law, with little or no scope for negotiation or “contract based” and/or bespoke arrangements. Furthermore, the fiscal system applied in the mining sector is in the main like other sectors of the economy, and that there is no royalty instrument. The fact that mining is not treated as a special case has caused some suspicion and misunderstanding among the public at large regarding how the sector is taxed.

In the Nordic countries, the main way to fund local communities and development, is through tax on salaries – although Norway also has a municipal property tax and in Finland, part of the income tax flows back to the relevant municipality. The main characteristics of the fiscal regimes are shown below:

Norway	Sweden	Finland
<p>Direct revenues to the state:</p> <ul style="list-style-type: none"> - Tax on profit – 22 %. - Municipal Property tax (0.2 - 0.7% of the property's defined value). <p>Indirect and other revenues:</p> <ul style="list-style-type: none"> - Mineral fee – 0.5% of value of sales to landowner (0.75% in Finnmark). - Income taxes from employees collected by relevant municipality. - Mining permit holders pays a small fee to the state (EUR 5 per hectar/year). 	<p>Direct revenues to the state:</p> <ul style="list-style-type: none"> - Tax on profit – 20.6 %. - Mineral fee – 0.05% of sales to state. - Equity (100 % in LKAB). - Licensing fees. - Land designation fee. <p>Indirect and other revenues:</p> <ul style="list-style-type: none"> - Income taxes from employees collected by relevant municipality. - Voluntary CSR related activities. - Mineral fee – 0.15% of the value of sales to landowner. 	<p>Direct revenues to the state:</p> <ul style="list-style-type: none"> - Tax on profit – 20% (part apportioned to the relevant municipality). - Mineral fee - - Equity. - Licensing fees. <p>Indirect and other revenues:</p> <ul style="list-style-type: none"> - Exploration permit holders pay fees directly to landowners (per hectare/yr). - Mining permit holders pay landowners EUR 50 per hectare/yr. - Mineral fee – 0.15% of the value of sales to landowner.

Evaluation and proposal for policy statement

Streamlining on fiscal issues specifically is difficult to achieve, but there is sufficient commonality between the three countries to allow for a North Calotte policy, which provide that:

- The fiscal system for mining should be like that of other sectors of the economy, but should also include a natural resource use fee (a royalty) to ensure that the state derives some income to compensate for the use of a finite resource.
- Significant local (and/or regional) financial benefits associated with mining must be ensured.
- The sharing of risk (financial and other) between investors and the state should be well balanced, to support longer term sustainability of projects.

As opportunities for streamlining are limited, the most appropriate initiatives include those that compare and learn from each other's experiences.

Strategic activities

Policy Action	Responsible agencies and other participants	Expected Outcomes
Benchmarking of mining fiscal system in the three countries	Academic institutions	Proposals for alignment and revisions of the fiscal policies for the mining sector in the three countries
Thematic workshops and consultations on fiscal issues	The North Calotte Council, in cooperation with relevant organisations, including EU representatives.	Improved awareness of fiscal issues and systems in the mining sector, among key institutions and the public at large. The aim should be to achieve sufficient consensus upon which a joint fiscal

		policy for the North Calotte may be based
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4.3 Geodata management and mineral investment promotion

Introducing the topic

Geodata are collected and used by governments and companies to understand and evaluate the potential for developing mineral resources. The collection, maintenance, and publication of good quality geodata can significantly assist in attracting new investments to the mining sector, and such data can also support sustainable development more generally. Data that relate to the potential for recycling and /or reuse are not traditionally regarded as geodata. However, with the growing importance of striving for increased cyclicality in material flows overall, such data/information should also be considered.

Geodata are mainly collected by Geological Surveys (or institutions with similar mandates). However, exploration and mining companies also collect data and there is often a system in place by which companies are required to hand over the data (including drill cores) to the state after activities have ceased. Academic institutions will also be involved in the collection of more specific types of geodata.

The present situation

All three countries have extensive resources in terms of high quality geodata, and systems for making them available. The policies applied are similar, and the geodata are to a great extent made available at low or no cost. All three countries count on a system whereby companies involved in exploration and mining are required to hand over data (including drill cores) to the state after their respective activity has ceased.

In the past, the focus of the Geological Surveys has been on collecting and evaluating data related to finding primary ore deposits. However, increasing interests is now being placed on collecting data that relates to the possibilities of recycling/reusing waste that have been left behind by previous mining related activities.

Among the three countries. Finland is highly rated in terms of geodata collection and management. In Sweden, the Geological Survey's Mineral Information Office is in Malå, a small city in the inner region of West Bothnia – with the purpose to both stimulate local development, and to ensure that the services provided are made available in close vicinity to the important mining areas. Norway and Finland have established similar offices.

The Nordic geological surveys have a long history of cooperation, and have jointly produced several maps (e.g. bedrock geology) and databases (e.g. soil geochemistry) covering the North Calotte area. The three countries also cooperate in terms of providing information to stakeholders and attracting international investors. Such activities joint efforts are made at the biannual Fennoscandian Exploration and Mining Conference in Levi, and there is a Nordic Mining Day at the yearly PDAC conference in Toronto, Canada.

Norway	Sweden	Finland
<ul style="list-style-type: none"> - Nearly the whole country geological and thematically mapped - Limited coverage in the form of geophysical surveys - Extensive and high-quality geodata available on-line - Permanently staffed core storage facility at Løkken 	<ul style="list-style-type: none"> - Nearly the whole country geological and thematically mapped - Near complete coverage of geophysical surveys - Extensive geodata available on-line - Mineral Information Office in Malå, with extensive core storage 	<ul style="list-style-type: none"> - The whole country geological and thematically mapped - Near complete coverage of high-quality geophysical surveys - Extensive and high quality geodata available on-line - Mineral Information Office in Loppi and Rovaniemi, with extensive core storage

Evaluation and proposal for policy statement

Overall, the similarities that exist in terms of geology, and associated mineral perspective that exist across the North Calotte implies that there are substantial benefits in sharing information, building joint capacities and pooling resources for the collection and management of geodata. A policy for the North Calotte that relates to geodata should ensure that:

- Access to geodata should be free, and be used to attract responsible investments in exploration and mining.
- Collection of new high quality geodata should be pursued by all three countries and this activity should be further strengthened in line with technical and academic developments and advances.
- Geodata collected by the Private Sector should be made public once relevant licenses and projects have been relinquished.
- The concept of geodata should be expanded, to also includes data that relates to potential of reuse/recycling of previously mined/processed materials.
- Enhanced collaboration between the geological surveys should be stimulated to ensure stronger synergies in technology development and application, as well as cross-border geological understanding

Strategic activities

At present, there are some discrepancies / differences in how geological mapping has been performed – and it shows most clearly close to the national borders (geological units that stop at a frontier are likely not related to actual circumstances, rather differing interpretations made by the respective geological survey staff). Workshops and/or initiatives to focus on areas close to borders would be beneficial to obtain a better and uniform idea of the geology and mineral prospectivity of the North Calotte. Further, activities aimed at attracting new and responsible investments should be conducted, based on the existence of high quality geodata. Further initiatives to attract responsible and high-quality investments in explorations are needed, and requirements for the data thus collected to be made publicly available and shared will be an important basis for attracting further investment and interest.

Policy Action	Responsible agencies and other participants	Expected Outcomes
Thematic workshops and interchanges on geodata collection and management and investment promotion.	The North Calotte Council, in cooperation with relevant organisations, and including EU representatives.	- Agreement of the overarching Geodata policy for the North Calotte
Production of geological/thematic maps and databases that cover the North Calotte	The Geological Surveys	- Production of tools/materials that may attract investments and interest in the North Calotte
Collection / interpretation of data related to possibilities for reuse & recycling	Universities and research institutions, in cooperation with the Geological Surveys.	- Increased circularity of materials flows, and identification of new business opportunities
Development and strengthening of Strategy to attract responsible mining investments.	The Geological Surveys in cooperation with other relevant institutions, including business organisations.	- New investments, increased interest from new and responsible investors in the North Calotte region

4.4 Environmental management and climate change

Introducing the topic

The stakes for environmental protection are especially high in the mining sector as it is based on extracting finite resources. It is therefore especially important that the benefits of mining are maximised, and that risks for negative impacts on the environment are minimised.

In terms of climate change, the challenges are acute, and encompasses essentially all parts of society. There are two main direct links to the mineral sector in the North Calotte, namely: (i) that some of the minerals needed for the green transition may be found in this area (c.f. Section 4.1); and (ii) that mining and associated activities themselves are significant emitters of greenhouse gases.

Environmental supervision and control of mining is achieved through a regulatory and institutional framework which in turn comprises policies and laws, institutions, and enforcement procedures. The environmental legislation typically include: definitions of the polluter pays principle; requirements for Environmental Impact Assessments (EIAs); environmental standards to control discharges and emissions; protected areas; provisions that ensure public participation in EIAs and other decision making; and opportunities for grievances to be lodged and addressed. The policy for ensuring environmental performance include both forcing legislation, and price based and incentive-based approaches, and/or measures to improve awareness and understanding among stakeholders. There is also scope for voluntary initiatives, whereby companies or organisation are pro-active in their approach to environmental challenges. Furthermore, so called pro-nature initiatives are becoming more important, whereby one attempts not only to manage and minimise environmental impacts, but to ensure that mining is associated with activities that either compensate for impacts caused, or even aim at achieving net positive effects (e.g. in terms of impacts on biodiversity).

Land use planning, and protected areas management are both also vitally important in this regard. The land use planning process may have a strong influence on where and if a proposed mining project may go ahead. Indeed, some areas – such as close to cities or larger concentrations of people and / or other activities are usually excluded from the areas where exploration and/or mining licenses can be issued. Similarly, areas that are defined for the purpose of nature protection are usually to some extent protected from mineral related development projects, and National Parks usually represent no go areas in this regard.

The mineral sector is not a major user of land, although rather extensive areas may be covered by exploration licenses. In Sweden, the land licensed in this way have during the last decade varied between 1.5 – 3 % of the total land area. In countries or regions where there is more substantial exploration undertaken more significant land areas may be licensed in this way (e.g. South Australia where close to 25% of the territory was under exploration licenses in mid 2019). When it comes to actual mining, the areas used are nearly always small in a landscape perspective. In Sweden for example the total area covered by mining concessions and additional land used for mining related activities was 197 km² in 2019 (about 0.04% of the total land area).

Responsible waste management is especially important in mining as no other industry creates such large waste streams. Apart from the large amounts created, such waste presents two other main challenges: (i) it may be a source of contamination; and (ii) due to the large amounts, ensuring its safe storage requires that risk for accidents and/or collapses of waste facilities are minimised.

Mining at any one place is an activity with a limited (although it can be long) lifetime, it is important to include provisions to ensure rehabilitation, the responsible closure of operations and the associated lodging of environmental guarantees. Such provisions did not exist in the past, and there are in many parts of the world significant environmental legacies left by past mining.

Most of the issues presented above will be treated in the EIA, which is why this process is key and often attracts much interest. The EIA is produced by the proponent – that is the company – and it needs to be accepted by the agency that typically issues an environmental permit which in turns includes forcing conditions for the project in question.

The present situation

The environmental legislative frameworks differ, from several different laws in Finland to a consolidated Environmental Code in Sweden and the Pollution Control Act in Norway. There are differences in the institutional framework. However, the overall provisions are similar, and this is in large part due to the harmonising effect of EU legislation. The environmental permitting processes have increasingly become the target of rather intense debate and criticism in all three countries. Proponents from industry are increasingly critical towards what are perceived to be long and unpredictable processes. And the debate has also more recently moved to the need to balance the need for avoiding local environmental impacts, with the benefits of mineral extraction may have to addressing wider societal goals, including the need to accessing the minerals needed for the green and digital transitions.

Norway	Sweden	Finland
<ul style="list-style-type: none"> - Ministry of Climate and Environment implements the Pollution Control Act. - Permitting managed and performed by NEA. - Local Municipalities are key decision makers – 	<ul style="list-style-type: none"> - Environmental Code is Framework legislation. - Multiple central and regional agencies as well as the environmental courts have environmental mandates and roles. 	<ul style="list-style-type: none"> - Ministry of Environment implements Environmental Protection Act and the Water Act - Environmental permitting managed and performed by ELYs.

<p>through the land use planning process</p> <ul style="list-style-type: none"> - Submarine tailings disposal represents an issue of contention and debate. 	<ul style="list-style-type: none"> - A permitting process which includes two EIAs – on in the mineral concession application, handled by the Mineral Inspectorate, and one during environmental permitting, handled by the Environmental Court. - Extensive reliance on self-reporting by companies. - Sign. environmental legacies in West Bothnia. 	<ul style="list-style-type: none"> - Land use planning processes include regional land use planning, local master planning and local detailed planning. The Land Survey controls the land designation process. - Some environmental legacies in Northern Ostrobothnia
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Evaluation and proposal for policy statement

Environmental policy is regulated through EU legislation, which means there is already a high degree of communality. A policy statement for the North Calotte should therefore be readily agreed and it may simply state – in line with an overall mineral policy – that:

“Mining must be undertaken in accordance with the principles of sustainable development, without causing harm to human health, damaging biological diversity and ecological stability or contributing to climate change”.

Further refinements and/or detail may be added to such an overarching policy, such as that

- The permitting process should allow for an adequate weighing of environmental and other interests versus the societal benefits that may be accrued from mining.
- The mitigation hierarchy should be applied in the permitting process for mining.
- Areas of high cultural and/pr environmental value should have a significant level of protection from exploration and mining related activities.

Strategic activities

Policy Action	Responsible agencies and other participants	Expected Outcomes
Exchange of experience, consideration of streamlining of policies and methods, implementing EU legislation.	North Calotte Council, in cooperation with the relevant national and regional agencies, relevant NGOs and including EU representatives.	<ul style="list-style-type: none"> - Agreement of overarching policy for the North Calotte.
Strategic Environmental Assessment - the impacts of increased mining in the North Calotte, including inventory of environmental liabilities and needs for remediation.	Universities / consultancies in coop with relevant national and regional agencies.	<ul style="list-style-type: none"> - Baseline of environmental issues and proposals for actions to be taken. - Prioritised and costed list for rehabilitation of old/relevant mining areas.
Promotion of pro-nature initiatives.	Universities / consultancies in cooperation with mining companies and relevant NGOs.	<ul style="list-style-type: none"> - Proposals for what mining companies should/could do to

		protect environment and benefit biodiversity
Initiatives for fossil fuel free mining – technical developments and regulatory and reform.	Mining companies, as incentivised by applicable authorities and regulatory reform.	- Transition to fossil free mining.

4.5 Local communities

Introducing the topic

This topic relates mainly to two interlinked aspects, namely: (i) how to best apportion responsibility for social welfare between mining companies, the state and other relevant stakeholders; (ii) how to ensure that new investments in mining and minerals may be best managed to create positive socio economic development, avoid social conflict, and/or unacceptable social/economic/cultural impacts. Addressing these aspects is becoming ever more important and urgent, as the need for more minerals to be supplied is increasingly coming up against the equally important concerns that relate to protecting the rights of local communities, and overall to provide the basis for a just and harmonious society. The issues are complex, and there is a tendency for increased polarisation between those that focus on the needs initiatives/activities that are needed for the green and digital transition, and those that are more concerned with protecting the environment, and/or the rights and/or interests of local communities.

Mining companies are often the locally dominant economic actor. This is a consequence of the often-large values created, coupled by the fact that new mining projects tend to either be developed in rural and/or remote settings, or alternatively nearby an already existing mine. In the past, mining companies often supplied a whole host of social services to the local (mining) community, and this is still the case in many parts of the world. In contrast, in modern and more developed countries such as the Nordics, the responsibility for local welfare has increasingly been assumed by local government (e.g. the municipality).

However, the division of responsibility for ensuring local welfare in mining communities is often contentious. And, in many countries, mining companies are required - or expected - to take on considerable social responsibilities, over and above what is required from other types of companies. Thus, mining companies may become involved in processes where they assist local government with issues such as land use planning, resettlement and compensation, as well as a host of other duties and responsibilities.

Further, in many jurisdictions a new mining projects are legally required to go through a process of Social Impact Assessment (SIA) which – in a simile to the EIA – predicts social impacts, and proposes ways in which these should be managed. And there are often requirements that mining companies ensure that they preferentially employ people that live locally, and that they wherever possible source the services and goods they need from local suppliers.

Mining companies may also – through voluntary initiatives – contribute to pursuing the social and economic aspect of sustainability. The matter of how the responsibilities for local welfare are distributed is tightly connected to the concepts of Corporate Social Responsibility (CSR), and Social License to Operate (SLO). By CSR is meant voluntary action taken by corporations to contribute to community welfare, whereas SLO refers to the acceptance and approval of mining, usually by local community members but in some cases, other stakeholders. There is a trend towards arguing for increasing agency and responsibility of mining companies also in welfare state societies with

recommendations made for such countries to adopt more company focused approaches (c.f. Tarras-Wahlberg et al., 2017). A recent EU funded projects points to the fact that work that relates to SLO necessarily must include a large range of stakeholders, and a relevant toolkit solution for how this may be best achieved is provided (c.f. Lesser et al., 2021).

The current situation

Mining companies in the North Calotte are neither obliged nor expected to take on more social responsibilities than other companies of comparable size. This in turn implies a general challenge for “mining municipalities” in that they must ensure the existence of local welfare services, irrespective of the fortunes of mining operations, and while they have little power over or insight into company planning. Further, the existence of a mining operation does not necessarily mean that the resources needed to supply local social services and infrastructure are necessarily sufficient and/or readily available locally.

In the last couple of decades, there has been an influx of foreign companies in the sector, although only one (Agnico Eagle in Finland) is running a sizeable mine. However, these new investors have introduced some new practices which include a comparatively greater component of CSR related activities that differ from the existing nordic model. Although many foreign investors have in places encounter considerable local resistance, some of these new approaches have began to take root.

Norway	Sweden	Finland
<ul style="list-style-type: none"> - A new Mineral Strategy under development – sign. support for mining developments from central state, and regional authorities. - Significant resistance to new mining development and foreign investors. - The Towards Sustainable Mining program under implementation by Norsk Bergindustri. 	<ul style="list-style-type: none"> - Often strong local support for existing mining operations. - Significant resistance to new mining development and foreign investors. - Limited CSR by mining companies. - Tendency for increased cooperation betw. companies and municipalities. - SIA not required in permitting. 	<ul style="list-style-type: none"> - Often strong local support for mining – including foreign investors. - Considerable mistrust towards mining sector regionally and nationally. - The Towards Sustainable Mining program implemented by FinMin.

Evaluation and proposal for policy statement

The policies of how to apportion responsibilities and mandates for local community development in the three countries are similar. Thus, it should be possible to agree on a general policy statement for the North Calotte. Streamlining of policies may also be possible, and strategic initiatives may include the following:

- Mining development should where appropriate be used as a tool for economic development, and should be pursued with a focus on achieving harmonious societal development.
- Local inputs and economic development should be ensured – focusing on “local content” to the extent possible, with the goal of generating permanent jobs and value creation.
- Fly/drive in and out operations should be avoided - if not special reasons exist (e.g. environmental reasons) for pursuing such a model.

Strategic activities

Policy Action	Responsible agencies and other participants	Expected Outcomes
Thematic workshops and public consultations on: <ul style="list-style-type: none"> - Mining municipalities - CSR & SLO in mining. - Resettlement & compensation. 	North Calotte Council, in cooperation with the relevant agencies and Municipalities, relevant NGOs, and including EU representatives.	- Agreement of overarching policy for the North Calotte.
Strategic Social Assessment: The social impacts of increased mining in the North Calotte.	Universities / consultancies in coop with relevant national and regional agencies.	- Baseline of social issues and proposals for actions to be taken.
Promotion and/or implementation of voluntary measures.	Finmin, Swemin & Norsk Bergindustri	- Relevant and suitable CSR related activities undertaken.

4.6 Sami & reindeer herding

Introducing the topic

Conflicts between mining and indigenous peoples is a subject of considerable general interest and importance, including in the Nordic countries and concerning the indigenous Sami.

The most important guiding documents that refer to states' responsibilities and indigenous rights include the Indigenous and Tribal Peoples Convention (ILO 169), and the 2007 United Nations Declaration on the Rights of Indigenous Peoples (UNDRIP). The scope of indigenous rights as defined in ILO169 and UNDRIP are further considered in the UN Guiding Principles on Business and Human Rights, which by inference extends the responsibility for safeguarding indigenous rights to companies and businesses. Further, as the Sami comprise a minority in all three countries, there are also other aspects of international law that are relevant (c.f. the section on minorities below).

Indigenous people's rights are collective rights, and as stated by the Danish Institute for Human Rights (DIHR 2019, 5) these are not "special rights that are exclusive to indigenous peoples. Rather, they are the articulation of universal human rights as they apply to indigenous peoples" with the aim to "ensuring equality between indigenous peoples and other sectors of society". In accordance the guidance in UNDRIP, indigenous rights include rights to self-determination, control of lands, and territories or resources that have been traditionally owned or occupied, and that no dispossession or relocation from these lands may occur without just and fair compensation and redress. In this regard, article 15 in ILO 169 is especially relevant to mining in that it stipulates that indigenous people's rights to natural resources shall be specially safeguarded, and that governments shall establish or maintain procedures for consultation to assess the degree to which indigenous people's interests are prejudiced, before permitting exploration or exploitation. Similarly, UNDRIP introduces the concept of 'free prior informed consent' (or FPIC). There is disagreement about FPIC's application, but the concept always includes a strong emphasis on the process (consultation and its objective) but not always on the outcome (consent). There is an expectation that consent should be sought before any measures which may impact indigenous people. But, if consent does not exist, an indigenous rights breach only arises where the measure significantly impacts the indigenous group's property or cultural rights. Failure to attempt to reach consent is similarly a rights breach, but only in cases where there also exists a significant impact.

The present situation

The North Calotte overlaps Sapmi, that is the traditional lands of the Sami. Over the last decade, conflicts and/or debates that concern mining (and other natural resource-based activities) and indigenous rights have become increasingly common. In latter years, there have been several landmark legal cases where the rights of the indigenous Sami were pitted against various natural resource-based projects and activities, and where the indigenous rights were judged to have priority.

It is estimated that there is a total of about 80,000 Sami, and most of these live in the North Calotte. A significant minority of these are involved in traditional livelihoods, of which reindeer herding is the most important. The history of the Sami in all three countries includes a range of negative aspects including examples of forced cultural assimilation, relocation, racism, and discrimination. Nowadays, all three countries recognise the Sami as an indigenous people, but how these rights and interests are included and reflected varies (c.f. Table below). All three countries have a Sami parliament, with limited powers. In Finland and Norway, Sami rights enjoy a greater level of protection in certain geographical areas (Finnmark in Norway and the “Sami native area” in Finland), whereas the rights for reindeer herding cover larger areas. In Sweden, the only Sami land rights that exist are held by those involved in reindeer herding, whereas the majority of Sami have no such rights.

Mining may have impacts on reindeer herding and may also have social and cultural impacts. Research on impacts on reindeer specifically has been conducted in various geographical settings (e.g. see Boulanger et al., 2012; Johnson et al., 2015; Polfus et al., 2011) with estimates of avoidance zones for reindeer caused by mining ranging from 1-2 km around smaller mines in forests, up to 11-14 km around large open pit mines on the Arctic tundra. In the North Calotte, only very limited research of this nature has been performed, although comparatively more has been done in Norway than in Finland and Sweden. Sami rights are the subject of several regional initiatives, including ongoing (albeit slow) negotiations on a Nordic Sami Convention, which may contribute to harmonising overall rules and conditions.

Norway	Sweden	Finland
<ul style="list-style-type: none"> - Sami Parliament (1989). - Voted for UNDRIP, signatory to ILO169 (validity in Finnmarka). - Reindeer herding protected & reserved for the Sami, with non-exclusive land rights. - Several conflicts between reindeer herding and mineral projects. 	<ul style="list-style-type: none"> - Sami parliament (1993). - Voted for UNDRIP, not signatory to ILO169. - Reindeer herding protected & reserved for the Sami, with non-exclusive land rights. - Sami Parliament and relevant sameby consulted in permitting processes, and impact assessments done; FPIC not required. - Several conflicts: reindeer herding vs mineral projects - Sami parliament has called for new mining moratorium. 	<ul style="list-style-type: none"> - Sami parliament (1995). - Voted for UNDRIP, not signatory to ILO169. - Reindeer herding protected, with non-exclusive land rights. - Mining Act refers to Sami rights. - Permitting authority (TUKES) must assess impacts on Sami rights prior to permit approvals; in special areas, TUKES should do this in cooperation with herders. - No mines in the Sami native region, but some gold panning.

Evaluation and proposal for policy statement

The cross-border nature of Sami society, and of reindeer herding requires a regional approach and a general policy statement for the North Calotte. A possible policy statement by the North Calotte Council may be, as follows:

- Mining sector development should be pursued with due cognisance of the Sami, their culture, and associated reindeer herding, and with the objectie that culturally important activities and livelihoods should be protected, and allowed to thrive.

Strategic activities

Concrete activities as well as exchange of experiences is recommended, including:

- Indigenous rights to “natural resources” are outlined in international agreements, although whether these rights include metals and precious minerals is not well articulated which contributes to conflict and uncertainty, and this should therefore be further assessed and discussed.
- Adequate research on impacts of mining on reindeer herding is lacking for the North Calotte area, especially in Sweden.
- The permitting process and consultative requirements – including FPIC and social and cultural impact assessments – and what this requires in a Nordic context needs to be evaluated and decided upon.

Policy Action	Responsible agencies and other participants	Expected Outcomes
Thematic workshops and public consultations on indigenous rights in relation mineral development.	North Calotte Council, in cooperation with the Sami Parliaments, relevant agencies, other Sami organisations, and including EU representatives.	- Agreement of overarching policy for the North Calotte.
Strategic Assessment: The impacts on indigenous rights of increased mining in the North Calotte.	Universities / consultancies in coop. with Sami Parliament relevant agencies and other Sami organisations.	- Baseline and proposals for actions to be taken.
Adaptation of FPIC for the Nordics.	Universities / consultancies in coop. with Sami Parliament relevant agencies and other Sami organisations.	- Process for FPIC, adapted to local conditions.
Development / refinement of principles and methods, for mitigation and/or compensation & Establishment of Competence Centre.	Universities / consultancies in coop. with Sami Parliament relevant agencies, other Sami organisations and mining companies.	- Guidelines for Good Practice - Competence Centre

4.7 Minorities

Introducing the topic

The protection of minority rights forms an important part of the international legal framework, and the most important guiding documents on states' responsibilities and minority rights include:

- Covenant on Civil and Political Rights (ICCPR 1976);
- Covenant on the Elimination of All Forms of Racial Discrimination (CERD, 1969); and
- Declaration on the Rights of Persons Belonging to National or Ethnic, Religious and Linguistic Minorities (1992).

Minority rights are also considered in the UN Guiding Principles on Business and Human Rights, which by inference extends the responsibility for safeguarding minorities' rights to also include companies and businesses.

In accordance with the 1992 declaration above, "states shall protect the existence and the national or ethnic, cultural, religious and linguistic identity of minorities" and "shall encourage conditions for the promotion of that identity." Further, "persons belonging to national or ethnic, religious and linguistic minorities have the right to enjoy their own culture, to profess and practice their own religion, and to use their own language" and "without interference or any form of discrimination". So, the rights of minorities are to a significant extent similar to indigenous rights, with the main difference being that indigenous people have stronger rights to land.

Mineral projects may have significant (both positive and negative) impacts on the rights of minorities, as outlined in the text box below. The main methods used to address such issues in the mining sector include social and cultural impact assessments, and voluntary activities (CSR) undertaken by mining companies.

Positive aspects	Negative aspects
<ul style="list-style-type: none">- Investments and job opportunities created can support social development, and local wealth creation and tempers out migration.- CSR related activities by proactive companies can strengthen minority culture.	<ul style="list-style-type: none">- Influx of other groups because of mining investments may weaken minority identity and culture- Land taken and/or impacted by mining can impact traditional livelihoods (e.g. fishing and hunting)

The present situation

Since a few decades, processes to ensure coherence and compliance with the international legal framework for minority rights are ongoing in the Nordic countries.

The Swedish and Norwegian parts of the North Calotte are inhabited by minorities where individuals have (or had) Finnish related languages as their native tongue. In Sweden, there are the Tornedalers (along the Torne river) and Lantalaïset (further west), and in Norway the Kvens. In a simile to that of the Sami (see above), these peoples' history has included a range of negative aspects such as forced cultural assimilation, racism, and discrimination. Historically, their livelihoods included agriculture, but they were also partly nomadic, and pursued livelihoods that included fishing, hunting and the keeping of reindeer. Except for agriculture, these traditional livelihoods are still extant and significant. Overall, there has been population decline, due in part to a lack of economic opportunities. With regards to mining specifically, many among the work force in the Swedish mines are of Tornedal or Lantalaïset origin, and the mining sector may in this way be seen to temper this tendency for out migration and an associated weakening of minority culture.

Norway	Sweden	Finland
<ul style="list-style-type: none"> - Minority rights encompassed in legislation. - North Calotte minority: the Kvens. - Significant out migration and weakened minority culture. 	<ul style="list-style-type: none"> - Minority rights encompassed in legislation. - North Calotte minorities: Tornedalers and Lantalaiset. - A Tornedalers' Truth and reconciliation process underway. - Significant minority participation in mining work force. - Significant out migration and weakened culture. - SIA (& minority rights issues) not required in permitting process. - Limited CSR by companies 	<ul style="list-style-type: none"> - Minority rights encompassed in legislation. - No minorities in the North Calotte (except for the Sami).

Evaluation and proposal for policy statement

As with indigenous rights, policies that relate to the rights of minorities are fundamentally influenced by international agreements. And given that the minorities of concern in the North Calotte have joint histories, and culture, a regional approach is needed, including a general policy statement for the North Calotte. It is proposed that such a policy should include the following provisions:

- Mining sector development should be pursued with due cognisance and respect of the rights and culture of the minorities that may be affected.

There may exist a danger that improving the recognition and awareness of minority rights in the North Calotte may be seen as being in some way contrary to work to improve the recognition and awareness of the rights of the Sami. This must be avoided, non the least since the minorities concerned and the Sami historically have enjoyed close cooperation and coexistence. There is thus an overall and important need to proceed cautiously and to consider such risks and issues seriously.

Strategic activities

Minorities' rights in the North Calotte have only quite recently been considered seriously. Therefore, there exist significant opportunities for improvements, and issues to be addressed include the need for assessing social and cultural impacts on minorities to be included in the permitting processes for mining, as well as a significant scope for voluntary and relevant initiatives to be taken by mining companies. In this regard, there also exist significant opportunity to exchange experiences between especially the Norwegian and Swedish parts of the North Calotte.

Policy Action	Responsible agencies and other participants	Expected Outcomes
Thematic workshops and interchanges.	North Calotte Council, in cooperation with relevant agencies, organisations that represent the Minorities, and including EU representatives.	- Agreement of overarching policy for the North Calotte.
Strategic Assessment: The impacts of increased mining in the North Calotte.	Universities / consultancies in coop. relevant agencies and organisations that represent the Minorities.	- Baseline and proposals for actions to be taken.
Development of principles and methods, for mitigation of social/cultural impacts & Establishment of Competence Centre.	Universities / consultancies in coop. with relevant minority representative organisations and mining companies.	- Guidelines for Good Practice - Competence Centre

4.8 Gender

Introducing the topic

Gender equality is reached when people of all genders have equal rights, responsibilities, and opportunities. Further, the promotion of gender equality and the empowering of women is one of the millennium goals. Gender equality, in turn is not only worth pursuing for the sake of fairness, but it also has a range of positive results and feedbacks: it supports economic prosperity, gender equal societies are safer and healthier, and it is essential part of efforts to prevent violence against women and girls.

Gender issues are especially relevant in the mining sector, as it is – and has always been – male dominated. Historically this was based, among other things, on a belief that women were unable to physically cope with the work. Although much has changed, both in the way mining is performed and the view of women, the industry is still dominated by men and the situation is changing only slowly. A result of this unbalance is that the employees in mining companies are mainly male, which in turn contributes to overall society and local communities in areas dominated by mining often have comparatively more men than women. This, in turn, may present a challenge for achieving a harmonious and well-functioning society overall. Further, in recent years, several studies on women in the mining industry have shown that gender-based discrimination in the workplace is too common as are experiences of sexual harassment, and that the views on gender are often based on stereotypes.

So, the work in pursuing gender equality in the mining sector must have several components, with some of the more important ones being: (i) ensuring good work environments and jobs, that attract persons of all genders; (ii) work to change stereotypical and outdated thinking among those working with mining; (iii) encouraging especially younger women to seek employment in the sector; (iv) improve awareness of the importance of gender equality.

The present situation

The mining sector in the North Calotte has been making progress towards becoming a more gender equal sector, albeit from a low base, and the proportion females engaged in mining related activities is increasing year to year, both with regards to “blue” and “white” collar positions.

Norway	Sweden	Finland
<ul style="list-style-type: none"> - Low participation of women in the work force for mining - Significant excess of males in rural populations. 	<ul style="list-style-type: none"> - Low participation of women in the work force: 18% (blue collar); 31% (white collar). - Significant excess of males in rural populations and mining districts. - Significant discrimination and / or outdated norms in mining sector. 	<ul style="list-style-type: none"> - Low participation of women in the work force for mining - Significant excess of males in rural populations and mining districts. - Significant discrimination and / or outdated norms in mining sector.

Evaluation and proposal for policy statement

Ambitious policies aimed at increased gender equality exist in all three countries. Thus, a policy statement for the North Calotte should not be difficult to agree upon, and it may include the following main provisions:

- The mining sector – in all its guises, components, and activities – should strive for gender equality, inclusivity, and the equal provision of opportunities for all.

Strategic activities

Policy Action	Responsible agencies and other participants	Expected Outcomes
Thematic workshops and interchanges:	North Calotte Council, in cooperation with relevant agencies, organisations and mining companies.	- Agreement of overarching policy for the North Calotte.
Targeted drives to employ women and/or attract females.	North Calotte Council, in cooperation with relevant agencies, especially the relevant Municipalities.	- Increased overall attractiveness and understanding of mining sector employment opportunities, especially among women.

4.9 Reporting, transparency & accountability

Introducing the topic

The evaluation of the social, economic, and environmental performance of the mining sector requires access to data and adequate reporting by both state and private entities. The mining sector has been associated with poor practices in this regard, that is poor transparency which in turn causes suspicion and distrust. In the last few decades there have been many international (and national) initiatives that are concerned with improving transparency, and better reporting.

For mining companies, reporting, such as through annual reports facilitates assessments and comparisons of performance on several dimensions - notably profitability for investors, but potentially also their contribution to sustainable development. Companies report according to the demands of legislation and regulations, but increasingly also according to voluntary standards. The most well-known and widespread of these is the Global Reporting Initiative (GRI). For governments (and companies) there is also the Extractive Industries Transparency initiative (EITI), which has been established to ensure transparency and accountability, as well as improved governance overall.

The present situation

The Nordic countries score highly for transparency and reporting overall, and an existing EU directive requires larger companies (>500 employees) to report extensively on sustainability issues. Norway is a member of the EITI but the reporting is focuses on the petroleum sector, and as the mineral sector is comparatively small, it is exempted.

Norway	Sweden	Finland
<ul style="list-style-type: none"> - Member of EITI (but minerals not targeted). - All companies report in accordance with national legislation. - National data on mining published by the Directorate of Mining in "Harde Fakta – Mineralstatistikk". - TSM – voluntary reporting initiative in use. 	<ul style="list-style-type: none"> - LKAB and Boliden reporting in accordance with GRI. - Smaller companies report in accordance with national legislation. - National data on mining published by SGU in "Bergverksstatistik". - Annual environmental reports submitted by companies to CABs. - Database on sustainability performance of mining sector exists (2013-2020). - Not member of EITI. 	<ul style="list-style-type: none"> - Agnico and Boliden reporting in accordance with GRI. - TSM – voluntary reporting initiative in use. - Tukes and GTK provide extensive reporting on mining and environmental aspects. - Not member of EITI.

Evaluation and proposal for policy statement

There is substantial commonality in terms of efforts to ensure transparency in the three countries, which means that a common policy in this regard for the North Calotte will be readily achieved. The policy may include the following provisions:

- Transparency of all data (financial, environmental, fiscal) except for such data that may be confidential from a business/technology perspective.
- Promotion of data sharing, and common and comparable reporting formats among companies as well as state institutions.

The existing similarities provide fruitful conditions for exchanges of experiences, knowledge and methods as well as the implementation of specific activities.

Strategic activities

Policy Action	Responsible agencies and other participants	Expected Outcomes
Thematic workshops and interchanges	North Calotte Council, in cooperation with relevant agencies, organisations, mining companies, and including EU representatives.	- Agreement of overarching policy for the North Calotte.
Development of a sustainability database for the North Calotte minerals sector	Georange, in cooperation with appropriate universities and institutions	- North Calotte wide database and interactive GIS tool.

5. Conclusions and recommendations

The world is facing multiple challenges, and these include combatting and adapting to climate change, and to halt the loss of biodiversity. These challenges are acutely relevant for the North Calotte region. Securing a future supply of minerals is a significant and related challenge, as more minerals are needed to support the ongoing digital and energy transitions. The needs for minerals are growing, but the time to develop new mineral supply are typically long, and there is considerable scepticism and/or resistance towards increased mining by some important stake and/or rights holders.

The North Calotte includes some of the most promising areas in Europe for sourcing the metals and minerals needed, and specifically so within the EU. But the area is itself vulnerable to environmental impacts, and climate change, and the indigenous Sami and other minorities, need to be adequately supported and protected. In this context, the need for – and the benefits of – having an overarching policy, with associated and underpinning strategic activities are likely to be substantial, and would include, but are not limited to:

- Ensuring that expectations, policies, and strategic activities undertaken by a variety of actors and stake- and rights holders (nations, EU institutions, etc) and which are concerned with the mineral sector may be harmonised and streamlined.
- A joint policy and strategy would contribute to the best and most suitable deposits, and locations being used for mineral extraction, thus increasing the possibility for successful projects.
- Increasing the possibilities of ensuring fair and transparent decision-making processes related to mineral developments.
- Improved possibilities for sourcing and securing the required competences, and technologies.
- Improved possibilities of safeguarding the rights of the indigenous Sami, and of minorities.
- Contribute to the protection of areas and sites of special environmental importance.
- Improved transparency and understanding of the minerals sector overall, which in turn may contribute to building a stronger SLO for the sector.

All the above, would in turn contribute to the economic development, and strengthening of the overall society in the North Calotte.

There is strong and evident interest and support for a mineral strategy among most stakeholders, and the present Road Map provides the blueprint for the work that needs to be done in this regard. But, such an undertaking would require substantial resources in terms of funding, and personnel, over and above what realistically can be sourced/supplied through the North Calotte Council. The Council is however regarded as being an appropriate host and programme manager for the implementation of such a mineral strategy.

Given that issues related to securing a sustainable mineral supply is an urgent and EU wide concern, it is proposed that the North Calotte Council considers sourcing funding through EU's regional programmes. The Interreg programme is appropriate, as it has the right focus to allow for wider, multidisciplinary activities to be undertaken. It is therefore recommended that the North Calotte Council prepares an application in the coming round for the Interreg Aurora programme, and that the application be based on the present Road Map. In preparing the application to the Interreg Aurora, it is recommended that cooperation is sought with suitable networks such as the Northern Sparsely Populated Areas (NSPA) network, as well as other relevant agencies, institutions, and organisations.

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Appendix 1 – The Reference Group

Comments and suggestion for the Road Map were received from the following persons that were included in the Reference Group:

Boliden – Henrik Grind

County Administrative Board for Norrbotten – Johan Antti

County Administrative Board for Västerbotten – Mikael Bergström

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Geological Survey of Norway - Henrik Schiellerup

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Norwegian Environmental Agency - Siri Anne Haugland Strand

LKAB – Pierre Heeroma

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Troms and Finnmark Youth county council - Lavrans Lockertsen