

Norwegian polar research, High North research and research in Svalbard

A mapping survey 2022

TALL

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Preface

This report presents statistics and indicators for research and development (R&D) from a mapping of Norwegian polar research, High North research and research in Svalbard. The mapping covers 2022 data for all performing sectors in Norway. The main indicators of R&D are full time equivalents (FTE) on R&D and R&D expenditures.

The main purpose of this report is to provide statistics on the R&D volume related to the High North, polar regions and Svalbard in 2022, and compare the results with the previous mappings of these polar regions. The study is a continuation of similar surveys carried out by NIFU, the latest for 2018. This study is conducted by Statistics Norway.

This report is commissioned by the Research Council of Norway (RCN) and produced in collaboration with the Nordic institute for Studies in innovation, research, and education (NIFU), by senior advisor Kristoffer Rørstad at Statistics Norway.

Statistics Norway, 13 September 2024

Per Morten Holt

Abstract

High North research

In 2022, R&D efforts dedicated to the High North amounted to 1 205 FTEs (full-time equivalents). About half of the FTEs (49 percent), approximately 600 were conducted in the higher education sector, nearly 520 FTEs (43 percent) from the institute sector, and 95 FTEs (8 percent) were conducted by the business enterprise sector. This data highlights a significant decline in R&D activities compared to 2018, where the total FTEs dropped from almost 1 600, an overall reduction of almost 25 percent. Based on reported FTEs, estimated current expenditure on R&D amounted to approximately 1.8 billion NOK in 2022.

The largest institution in the higher education sector is UIT The Arctic University of Norway with a total of approximately 360 FTEs, representing about 30 percent of the national total for High North research. The distribution of High North research in 2022 shows that approximately 20 percent focused on coast areas outside Norway, research dedicated to Svalbard comprised about 14 percent of the total, while research related to Troms, Nordland, and Finnmark, collectively making up 45 percent of the total FTEs.

Polar research

In 2022, Norway conducted nearly 800 FTEs in polar research. The institute sector was the largest with almost 60 percent, followed by the higher education sector with approximately about 40 percent, while the business enterprise sector contributed a minimal (less than 1 percent). Looking at the trend since 2002, polar research experienced steady growth until 2014, plateauing in 2018, and subsequently declining by about 160 FTEs (17 percent) in 2022. Despite the overall decrease in polar R&D activity since 2018, some of the most significant R&D units in both institute and the higher education sector have maintained or even increased their polar R&D efforts during this period. However, some large units have also reduced their activity compared to the previous mapping. While the overall reduction in R&D is partly driven by a few key units, it is primarily due to those where polar R&D is not a core focus.

Based on the reported FTEs and cost to infrastructure, it is estimated that almost 1.7 billion NOK were spent on polar research in 2022. Of these approximately 420 million NOK were spent to operate infrastructure used to conduct polar research. The current expenditure to polar research, increased by approximately 125 million NOK from 2018, but adjusted for inflation, this represented a decrease of 4.2 per cent.

Research related to Svalbard

Approximately, 175 FTEs of R&D related to Svalbard were conducted in 2022. Slightly more than half (55 percent) of the R&D efforts were conducted in the higher education sector, 45 percent in the institute sector, and only 1 percent were conducted by companies in the business enterprise sector. Compared to 2018, when approximately 290 FTEs were conducted, this represents a significant reduction of about 40 percent. The figures also indicate Svalbard's share of total polar R&D FTEs, which has declined from around 30 percent to 22 percent in 2022.

Based on the reported FTEs, we have calculated current R&D expenditures to be 262 million NOK. Additionally, the R&D performing units reported 72 million NOK for current infrastructure costs and 8 million NOK for infrastructure investments. In total, 343 million NOK was spent on R&D expenditures related to Svalbard in 2022.

Sammendrag

FoU i Nordområdene

I 2022 utgjorde FoU-aktiviteten dedikert til Nordområdene 1 205 FoU-årsverk. Omtrent halvparten av disse, om lag 600 FoU-årsverk, ble gjennomført i universitets- og høyskolesektoren, nesten 520 FoU-årsverk (ca. 43 prosent) i instituttsektoren, og 95 FoU-årsverk (under 10 prosent) i næringslivet. Sammenlignet med 2018, var dette en betydelig nedgang på om lag 25 prosent, da det ble utført ca. 1 600 FoU-årsverk i og om Nordområdene.

Den største institusjonen var UiT Norges arktiske universitet med totalt rundt 360 FoU-årsverk, som utgjør ca. 30 prosent av det totale FoU-omfanget i Nordområdene.

Om lag en femtedel av FoU-aktiviteten var fokusert om kystområder utenfor Norge, forskning dedikert til Svalbard utgjorde om lag 14 prosent, mens forskning relatert til Troms, Nordland og Finnmark samlet utgjorde 45 prosent av de totale årsverkene.

Polarforskning

I 2022 utførte norske institusjoner nesten 800 FoU-årsverk innen polarforskning. Instituttsektoren var den største med nesten 60 prosent, etterfulgt av universitets- og høyskolesektoren med omtrent 40 prosent, mens næringslivet bidro med minimale en prosent. Ser man på trenden siden 2002, har omfanget av polarforskningen hatt en jevn vekst fram til 2014, med en utflating i 2018, men deretter en betydelig nedgang i 2022, tilsvarende 160 FoU-årsverk eller 17 prosent.

Til tross for den generelle nedgangen i polar FoU-aktivitet siden 2018, har noen av de mest betydningsfulle FoU-enhetene i både institutt- og universitetssektoren opprettholdt eller til og med økt sine polar FoU-aktiviteter i denne perioden. Samtidig har enkelte større miljøer rapportert om lavere polarforskningsaktivitet sammenlignet med 2018. Nedgangen innenfor polarforskningen kan tilskrives både enkelte større enheter og flere mindre enheter som ikke har polar FoU som sin kjerneaktivitet.

Basert på rapporterte årsverk og infrastrukturkostnader, anslås det at nesten 1,7 milliarder NOK ble brukt på polarforskning i 2022. Av disse ble omtrent 420 millioner NOK brukt på å drifte infrastruktur til polarforskning. Fra 2018 økte utgiftene til polarforskning med omtrent 125 millioner NOK, men justert for prisstigning, var dette en nedgang på 4,2 prosent.

Forskning relatert til Svalbard

I 2022 ble det utført om lag 175 FoU-årsverk relatert til Svalbard. Litt over halvparten (55 prosent) av FoU-innsatsen ble utført i universitets- og høyskolesektoren, 45 prosent i instituttsektoren, og bare 1 prosent ble utført av næringslivet. Sammenlignet med 2018, da omtrent 290 FoU-årsverk ble utført, representerer dette en betydelig reduksjon på omtrent 40 prosent. Tallene viser også at Svalbards andel av den totale polarforskningen har falt fra rundt 30 prosent til 22 prosent i 2022.

Basert på rapporterte årsverk har vi beregnet de nåværende FoU-utgiftene til å være 262 millioner NOK. I tillegg rapporterte FoU-enhetene 72 millioner NOK for drift av infrastruktur og 8 millioner NOK for investeringer i infrastruktur. Totalt ble 343 millioner NOK brukt på FoU relatert til Svalbard i 2022.

Coahkkaigeassu

FoU davvi guovlluide 2022

ledje Davviriikkain namahuvvon FoU-aktivitehta 1 205 FoU-jahkeguoibmi. Lahka beali daid, nubbingiilas 600 jahkeguoibmi, ledje geavahan universitehta- ja allaskuvllaservodagas, ferten bohtet 520 jahkeguoibmi (ca. 43 proseantta) lede geavahan instituvdnasektoras, ja 95 jahkeguoibmi (eanas go 10 proseantta) ledje ealáhusservodagas. 2018 ledje dán stuorpmut unnimusat 25 proseantta, go geavahan ferten 1 600 FoU jahkeguoibmi Davviriikkain.

Stuorámus institušuvdna ledje UiT Norgga ártalaš universitehta mas ledje garrasit 360 FoU-jahkeguoibmi, mii ledje ca. 30 proseantta buot FoU-suorggis Davviriikkain.

Nubbingiilas okta vihttis ovddastá FoU-aktivitehta fuomášuvai mearraguovlluin Norgga olggobealde, Svalbárddui dohkálaš dutkan bohtet nubbingiilas 14 proseantta, ja Tromssa, Nordlánda ja Finnmárkku guovlluide searvame bohtet 45 proseantta buot jahkeguoibmiid.

Polárdutkan 2022

geavahii Norgga institušuvnnat lahka 800 FoU-jahkeguoibmi polárdutkamis. Instituvdnasektor ledje stuorámus mas ledje lahka 60 proseantta, ja universitehta- ja allaskuvllaservodat lahka 40 proseantta, go ealáhusservodat addii unnimusat okta proseantta. Jus geahččat trenda 2002 rájes, polárdutkama johtilat ledje nuppiiváldin gitta 2014, go guohtun 2018, ja dasto stuorra unnimusat 2022, go dat ledje báhcán 160 jahkeguoimmiin, dahje 17 proseanttain.

Vaikko dat ledje vejolašvuhtii unnimusat polár FoU-aktivitehtas 2018 rájes, mis lea maid beassat fuobmeme ahte mánga dehálaš FoU-ohcangottit sihke institušuvdna- ja universitehtasektoris leat almmuhan dahje nannet su polár FoU-aktivitehtaid dán áigodagas. Dasto ledje maid muhtin stuorra fitnodagat givdnat unnimusa polárdutkanaktivitehta 2018 gárvvuheapmái. Dán guovllu unnimusat sáhttet leat vuodđuduvvon sihke stuorra fitnodagaide ja mánga servodagain mat eai lea geatnegasat polár FoU dainna kártenavuodain.

Vuorbáduvvon jahkeguoimmiid ja infrastruktuvrakostnaid vuodul, lávet sihkkarastit ahte lahka 1,7 miljárdda NOK ledje geavahan polárdutkamis 2022. Dainna lahka 420 miljon NOK ledje geavahan polárdutkama infrastruktuvrra birrasiid vuodul. 2018 rájes ledje polárdutkama kávdnogin biján 125 miljon NOK, muhto ávkkástuvvon árvostusvuodain dat ledje unnimusat 4,2 proseantta.

Dutkan Svalbárdda birra 2022

geavahii lahka 175 FoU-jahkeguoibmi mat ledje dohkálaččat Svalbárdda. Nuppi beali (55 proseantta) FoU-fitnodagaid ledje geavahan universitehta- ja allaskuvllaservodagas, 45 proseantta ledje instituvdnasektoris, ja dušše okta proseantta ledje geavahan ealáhusservodat. Jus lohkat 2018, go lahka 290 FoU-jahkeguoibmi ledje geavahan, dán sihke čuvvot stuorpmut unnimusa mat ledje lahka 40 proseantta. Logut čájehit maid ahte Svalbárdda oassi buot polárdutkama sávdde lahka 30 proseanttas 22 proseanttain 2022.

Vuorbáduvvon jahkeguoimmiid vuodul, mii lahka beregai ahte dálá FoU-kostnat ledje 262 miljon NOK. Lassin, FoU-fitnodagat dieđihan 72 miljon NOK mas ledje infrastruktuvrra birrasiid geavahus, ja 8 miljon NOK mat ledje infrastruktuvrra investemea birra. Buot geavahuvvon ledje 343 miljon NOK FoU-s dohkálaš Svalbárdda 2022.

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1. Introduction

This report is based on a mapping survey of indicators of Norwegian polar research, High North research and research in Svalbard. The focus is on the volume of research in terms of R&D efforts, i.e. R&D full time equivalents (FTEs) and R&D expenditures in 2022.

1.1. Purpose and content of the mapping survey

Polar regions, including the High North, are gaining significance in international research. This is primarily due to the understanding that these areas play a crucial role in comprehending global climate change. There is a rising international interest in activities such as resource extraction, business ventures, and social development in polar regions. Norway, with its deep-rooted history as a polar nation, has been actively involved in research within polar and northern regions. The importance of a Norwegian presence on Svalbard and the pursuit of R&D is also emphasized in the latest white paper for Svalbard - ([Meld. St. 26 \(2023-2024\)](#)).

In light of this, activity in Norwegian polar research have been systematically assessed, initiated by the Research Council of Norway. The first assessment was conducted in 2003, focusing on the year 2002 (Aksnes & Maus 2003). Subsequent assessments were carried out every four years (Aksnes & Rørstad 2008; Aksnes, Rørstad & Røsdal 2012; Aksnes & Rørstad 2015; Aksnes and Rørstad, 2019), with the current report being the fifth in the series, covering the year 2022 (Rørstad, 2024). The previous reports were written by NIFU – Nordic Institute for studies of Innovation, research and education and did also contain bibliometric analysis. The present report was conducted and written by Statistics Norway and includes indicators on R&D statistics (FTEs and R&D expenditures).

In terms of content, indicators presented, analyses and structure, the present report has large similarities with the previous reports, especially the last report based on data from 2018. The present report also encompasses a mapping of the Norwegian High North research, as it did in 2018. These results are presented in a separate chapter for Polar research, High North research and research in Svalbard, and we are able to compare the results over time.

Norwegian research in the High North has been mapped twice in 2009 (Aksnes et al. 2010), and in 2018 (Aksnes & Rørstad, 2019). However, the geographical delimitation of the High North in the first survey (2010), differs significantly from the one used in the 2018-report and in this report. Results from this mapping are therefore only comparable with the results of the mapping from 2018.

The survey provides key indicators that can be used in future evaluations of Norwegian polar research and High North research. Core indicators encompass aspects such as R&D full-time equivalents, funding sources, and the distribution of research efforts across sectors and institutions. It should also be noted that the Institute of Marine Research was previously classified together with primary research institutes in previous reports. However, according to official R&D statistics, its correct classification is under “Other research institutes.”

2. Data and methods

This chapter describes the data and methods applied in the survey and the definition used to delineate polar and High North research.

2.1. Definition of polar and High North research

Polar and High North research are not traditional scientific disciplines and include a range of disciplines from the humanities to engineering, although the largest proportion of research is carried out within the natural sciences. Rather than being defined according to thematic focus, the distinctions are geographically delimited.

A main purpose of this project has been to investigate and map the resources spent on research in the polar and northern areas. These are partly overlapping categories. Polar research encompasses research carried out in the Arctic and Antarctic. Northern research encompasses part of the Arctic research, in addition to research carried out in the High North, subarctic areas.

The definition of polar research used in this mapping is based on the definition which has been adopted by the Norwegian government and the Research Council of Norway (cf. St.meld.nr 42 1992/1993) as well as the previous mappings conducted by NIFU. The definition of the High North research originates from the Norwegian strategy for northern areas which was launched in 2017 (Departementene, 2017). Below, the definitions applied in the survey are further described:

Definition of polar research and development (R&D)

(R&D carried out on the basis of material from the polar areas (Arctic and Antarctic), concerning phenomena localized in the polar areas or aiming at application in the polar areas. All disciplines are included.

Arctic: The polar part of the Arctic, including Svalbard, Jan Mayen, the northern part of the Norwegian Sea, the Barents Sea, the Greenland Sea and the Arctic Ocean.

Antarctic: The area south of the Antarctic Convergence. This encircles Antarctica, and is where cold, northward-flowing Antarctic waters meet and mix with the warmer waters of the sub-Antarctic. Its position varies, but it normally lies between 50°S and 60°S. Also the sub-Antarctic islands such as Bouvet Island and South Georgia, which may at times be north of the Antarctic Convergence are included.

Definition of research and development (R&D) in the High North

(R&D carried out on the basis of material from the High North, concerning phenomena localized in the northern areas, having thematic relevance for the northern areas or aiming at application in the northern areas. All disciplines are included (including medical research based on biological/clinical/health material or data collected in the northern areas). The research may be carried out at units that have their address in the northern areas or outside.

High North areas: Covers the three northernmost Norwegian counties including the fjords and coastal regions, northern parts of the Norwegian Sea, the Barents Sea and Svalbard as well as northern Sweden, northern Finland and the northwest of Russia.

Figure 2.1 Map of Arctic areas as delineated in the mapping

Source: Norwegian Polar institute

Figure 2.2 Map of Antarctica as delineated in the mapping

Source: Norwegian Polar institute

Figure 2.3 Map of the High North areas as delineated in the mapping

Source: Norwegian Polar institute

2.2. Definition of R&D

In this, and similar surveys we have used the OECD's definition of R&D: Research and experimental development (R&D) comprise creative and systematic work undertaken in order to increase the stock of knowledge – including knowledge of humankind, culture and society – and to devise new applications of available knowledge.

R&D activities are further divided into the following R&D types:

- Basic research: is experimental or theoretical work undertaken primarily to acquire new knowledge of the underlying foundations of phenomena and observable facts, without any particular application or use in view.
- Applied research is original investigation undertaken in order to acquire new knowledge. It is, however, directed primarily towards a specific, practical aim or objective.
- Development work: is systematic work, drawing on knowledge gained from research and practical experience and producing additional knowledge, which is directed to producing new products or processes or to improving existing products or processes.

2.3. The survey used in the mapping

The mapping of both High North research, Polar research and research in Svalbard was conducted by using a single web questionnaire. Since the mapping aimed to provide a complete coverage of the national research within the areas, all three R&D performing sectors are included, i.e. the higher education sector, the institute sector and the business enterprise sector. The questionnaire was developed by the Statistics Norway in collaboration with NIFU and the Research Council of Norway. The questionnaires (in Norwegian) for all three sectors are available at the webpage (<https://www.ssb.no/innrapportering/kartlegging-av-polar-og-nordomraade-fou>) and in appendix A.

The questionnaire

The questionnaire was designed in three versions, one for each sector. These versions had the same structure and main questions, although with some differences. This mainly relates to the questions about expenditures and funding sources.

Full-time equivalents as a main indicator

As key indicator of the R&D effort, we have used the number of full-time equivalents, FTEs conducted in 2022. This is an adequate and relevant indicator of the scope of research, which also allows comparisons across disciplines, institutions and sectors. When we use the term “FTEs” in this report, we more specifically refer to FTEs of R&D.

New method to calculate type of cost

However, we have also estimated R&D expenditures based on reported FTEs by calculating the cost per FTE. For the institute sector, we used the cost of an FTE in 2022, while in the higher education sector, we used the FTE cost from 2021 adjusted for price growth for research and development from 2021 to 2022 (6.04 percent). The costs of FTEs used in the mapping of both the higher education sector and the institute sector are presented in Table 2.1. We chose to calculate the average cost of FTEs by major fields of R&D and research institute groups to get robust figures for these costs, rather than using the cost of FTEs for each individual department and research institute.

To get a more detailed picture of the costs, we included a question about infrastructure costs (both current and investment costs) related to polar research and research in Svalbard. By adding the current R&D costs for infrastructure to the estimated current R&D expenditures based on the FTEs (Table 2.1), we measured the total current expenditures for polar and Svalbard R&D. We chose this method, assuming that salaries and other current expenditures are measured by the cost of FTEs, while current costs to operate research infrastructure, such as research vessels and laboratories, especially used in polar research, are included in the question about infrastructure.

The method differs from the one used in previous surveys. In 2018 we used the average cost of an FTE within natural sciences for all departments in the higher education sector (for robustness and because the majority of departments and R&D are assigned to natural sciences). For the institute sector, we used the cost of FTE for each individual institute. We did not include a question about infrastructure costs. By using that method, we assumed that all costs related to the polar research were embedded in the calculated cost of FTEs for each institute.

Comparing these methods on the data from 2018, the measured R&D expenditures would have been 2 percent (i.e., approximately 10 million NOK) less for the higher education sector and 6 percent (i.e., approximately 50 million NOK) more for the institute sector if we had used the method applied in the present mapping. To compensate for lower estimated current expenditures, it makes sense to add the cost of infrastructure as we have done in the present mapping, while these costs assumingly were included in estimated current expenditures in 2018. Based on this comparison, it does not seem like we have overestimated the costs in the present mapping.

Units included in the survey

Companies in the business enterprise sector were asked to state the amount used on R&D within these areas. Questions regarding infrastructure costs were also sent to the companies.

Table 2.1 Cost of FTEs in the higher education sector and institute sector by major fields and research institute group in 2022. Mill. NOK

Major Fields in Higher education sector	FTE cost, MNOK	Research institute group	FTE cost, MNOK
Humanities and the arts	1.389	Social science institute	1.402
Social sciences	1.415	Environmental institute	1.503
Natural sciences	1.563	Technical industrial institue	1.807
Engineering and technology	1.444	Health trusts without university functions	1.545
Medical and health sciences	1.386	Primary industry institute	1.510
Agricultural sciences	1.543	Other research instituttions	1.539
Total/average cost	1.433		1.579

Source: Statistics Norway

The questionnaire was sent to university departments, research institutes and companies that were considered as relevant candidates for having carried out polar and High North research. All institutes and departments in institutions located in Nordland, Troms and Finnmark were included. For the remaining higher education sector, the questionnaire was sent to all departments within the natural sciences, in addition to selected units in other fields. In the institute sector, we selected the institutes that had reported polar research in the previous survey. For the business enterprise sector, we received a list of relevant companies prepared by the Research Council of Norway. As a quality assurance, we checked our mailing lists against the one from the previous surveys we conducted, as well. In addition, we included all companies located in the northern counties which reported R&D in 2021.

The survey period was from November 21st 2023 to February 1st, 2024, and several reminders were sent during the period. The survey was sent to 120 institutes/departments in the higher education sector, 48 research institutes, and 477 companies, all together. The number of respondents, and response rates by sector of performance are shown Table 2.2.

Table 2.2 Number of invitees, responding units and response rates by sector of performance for the survey

Sector of performance	Number of units invited to respond	Number of units responding	Response rate	Number of units included in the analysis
Higher education sector	120	98	82 %	49
Research institutes	48	43	90 %	30
Business enterprise sector	477	268	56 %	29
Total	645	409	63 %	105

Source: Statistics Norway

Response rate

The response rate for both the higher education sector and the institute sector is very high with 82 and 90 percent respectively. A high response rate is important as most of the research volume is carried out by these sectors. In the business enterprise sector, the response rate is a bit lower with 56 percent. In this type of survey, the respond rates are considered to be acceptable. In total, the survey was sent to 645 units, 409 responded, and 105 of these reported to have conducted R&D activities according to the definition of either polar research or High North research. This means that 304 units had neither polar nor High North research. Overall, most of the units that did not perform relevant research (a total of 304) were companies. In the business enterprise sector, 29 of 268 (11 percent) of the responding companies reported to have conducted R&D. The corresponding numbers for the HE-sector was 49 of 98 departments (50 percent) and for the institute sector 30 of 43 institutes (70 percent). These numbers indicate that the survey was sent to a large number of

companies that were not really relevant for this mapping. However, we did receive response from most of the large companies we consider as central to this mapping.

Type of institutions in the research system in Norway

The Norwegian research system is divided in three sectors of performance. These are the higher education sector, the institute sector, and the business enterprise sector.

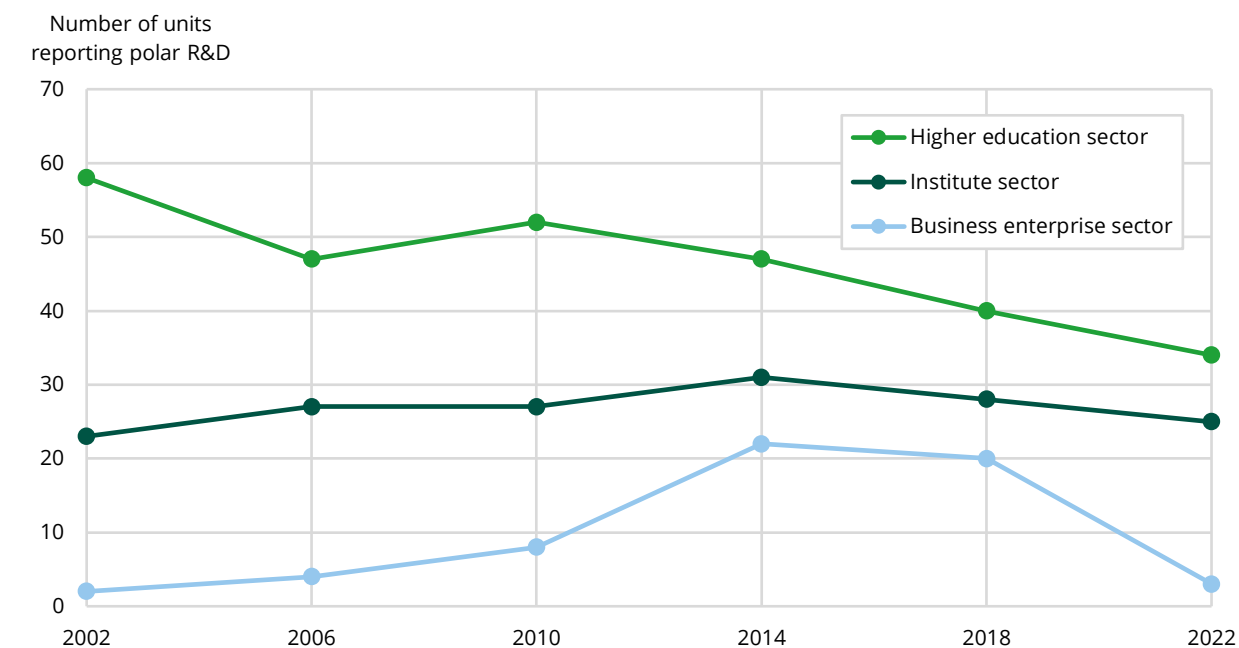
- The higher education sector consists of universities, specialized university institutions, university colleges and health trust with university hospital functions.
- The business enterprise sector consists of all companies (i.e. a technical organizational unit for productive business with economical purpose to provide return on invested capital).
- The institute sector consists of research institutes, public institutions with R&D (which do not offer education), museums and health trust without university hospital functions. The institute sector is often divided into two groups: pure research institutes (that spend more than half of their resources on R&D) and other institutions with less than 50 percent of their resources on R&D. The latter group consists of public institutions that do not have R&D as their primary purpose. The research institutes are again divided into areas of research according to The Research Council of Norway's funding arenas: These are: Social science research institutes, Environmental research institutes, Technical industrial research institutes and Primary research institutes. Some institutes are not classified according to this system, these are termed 'Other institutions'. In this mapping we have renamed this group of institutes to Other research institutes. This is done to simplify the naming of the various types of institutes in the institute sector.

2.4. Data quality

It should be noted that in these types of mappings, respondents may find it challenging to provide precise answers regarding the extent of their activity that qualify as R&D and fall within the relevant fields. The distinction between R&D and related activities is not always clear. Therefore, it is important to emphasize that the results are subject to uncertainty. The reported figures are based on estimates, which despite the provided guidance material, involve subjective elements. This is generally true when reporting these kinds of statistical data. Overall, the uncertainty increases at more detailed level and in cases where the numbers are based on responses from a small number of units.

In this mapping we have relatively high response rates for all sectors, which is considered high quality. However, the number of units that reported polar research have declined during the period, and especially since 2014, especially for the higher education sector, and for the business enterprise sector. For the institute sector, the number of institutes which reported polar research, have remained at the same level over the years. However, there was a slow decline starting in 2018, which continued in 2022. In these kinds of mappings, there is always a question whether all relevant units have replied and are included in the data. Based on our knowledge of the research systems, especially in the higher education sector and the institute sector, we are reasonably certain that most of the relevant units are included in the data. For the business enterprise sector, we reached out to all relevant companies and achieved an acceptable response rate but cannot rule out that a few relevant companies with R&D choose not to participate in this survey.

As a quality control, we reviewed the data from 2018 to ensure that the largest reporting units, also reported R&D in the current mapping. We compared the reported FTEs for both years and found that most of the units from the mapping in 2018, were also included in the 2022-mapping, but some reported fewer FTEs now.

Figure 2.4 Number of units reporting polar research by sector of performance in 2002, 2006, 2010, 2018 and 2022

Source: NIFU and Statistics Norway

The figure above/Figure 2.4 shows the number of units reporting polar research by sector of performance in all mappings which have been conducted (2002-2018, by NIFU/Rørstad and Aksnes) and the present in 2022 by Statistics Norway (Rørstad, 2024), and as already discussed, the numbers have been falling during the period.

Based on our knowledge of the topic and the reporting units, our conclusion is that the reduction in R&D volume is real and only to a lesser extent due to the quality of the data.

In chapter 6 we have included the results of the questionnaire, where the reported if their R&D activity related to High North or polar areas increased, decreased or remained at the same level, compared to 2018. We also followed up with questions about the reasons for any change in the R&D activity in these areas.

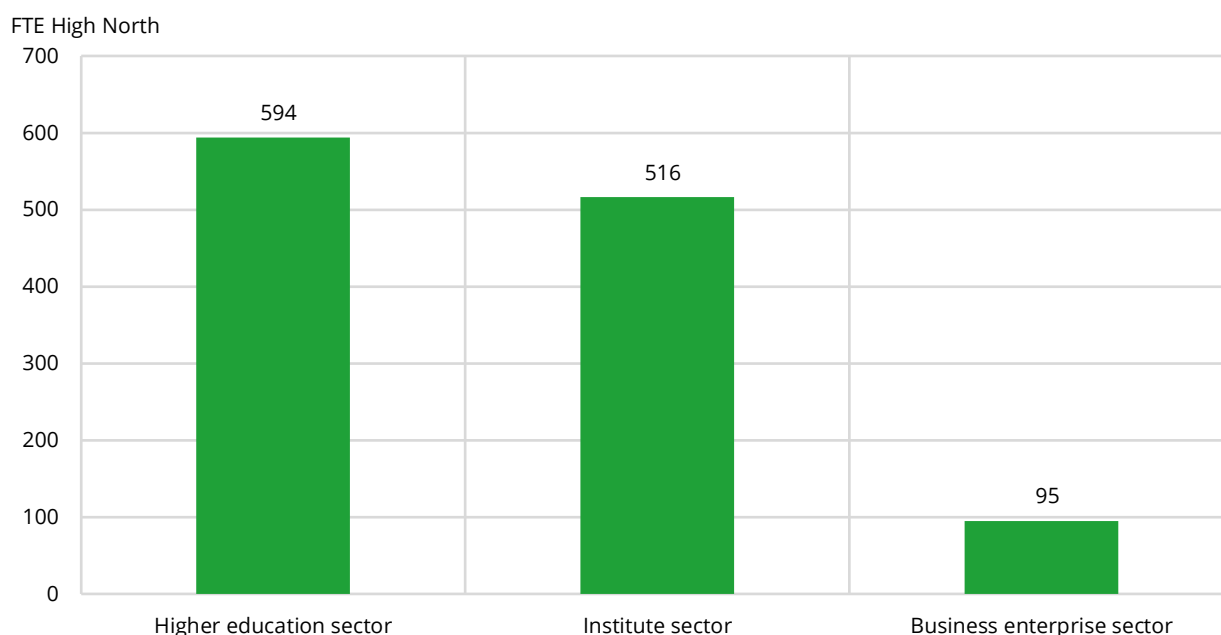
3. Norwegian High North research

This chapter gives an overview of Norwegian R&D related to the High North in 2022.

3.1. Research in the High North in 2022

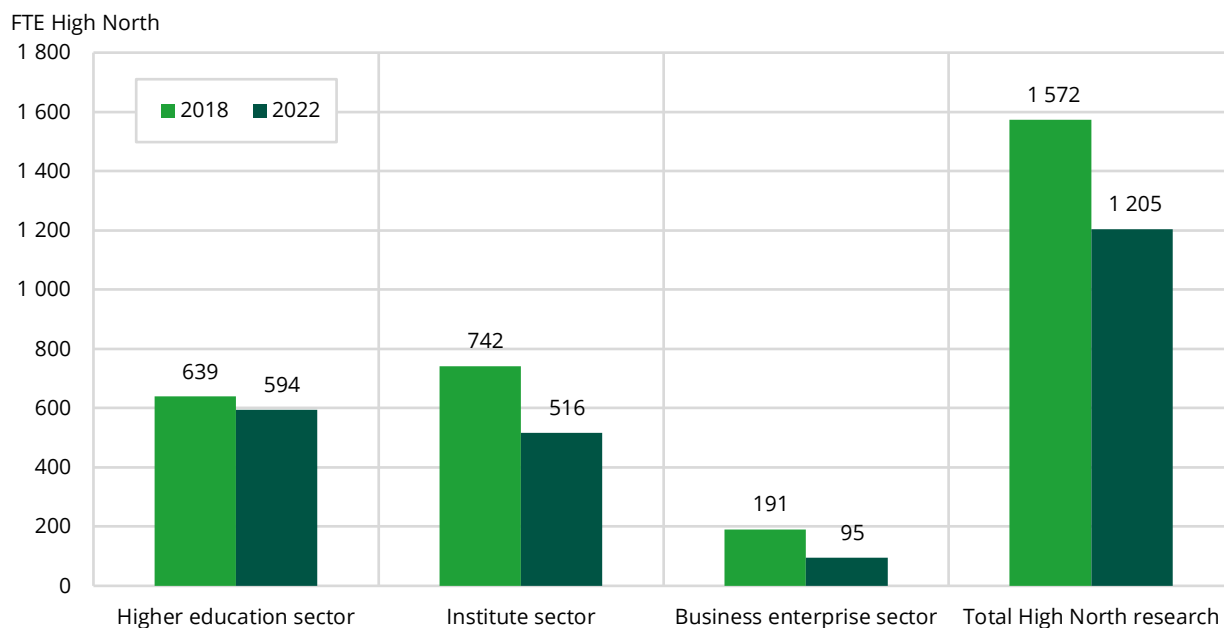
The mapping indicates that in 2022, a total of 1 205 R&D work years (FTEs) were dedicated to the High North. The higher education sector accounted for approximately 600 FTEs (49 percent), the institute sector contributed nearly 520 FTEs, representing slightly less than half (43 percent) of the total research, while companies in the business enterprise sector conducted the remaining 95 FTEs, or 8 percent of the total, as illustrated in Figure 3.1.

Figure 3.1 Number of FTE R&D related to the High North by sector of performance in 2022



Source: Statistics Norway

Compared to the 2018 figures, the R&D activities in the High North in 2022, dropped for all sectors in terms of FTEs. In 2018, the higher education sector contributed with about 640 FTEs as shown in Figure 3.2. By 2022, this number had decreased to slightly less than 600 FTEs, making a 7 percent decline over the four years. The institute sector contributed with approximately 740 FTEs in 2018, which dropped to about 515 FTEs by 2022, representing a significant reduction of 30 percent. The business enterprise sector's contribution was approximately 190 FTEs in 2018, but this fell to 95 FTEs in 2022, indicating a steep decline of 50 percent. Overall, total R&D FTEs decreased from 1 572 to 1 205 from 2018 to 2022, representing an overall reduction of 23 percent.

Figure 3.2 Number of FTE R&D related to High North in 2018 and 2022

Source: NIFU and Statistics Norway

In Table 3.1 we have calculated the share of High North FTEs of total R&D FTEs in Norway in 2018 and 2022, broken down by sector of performance. There has been a noticeable decline in the share of High North R&D FTEs across all sectors from 2018 to 2022. The institute sector experienced the largest drop, indicating a significant shift in R&D focus or resource allocation away from the High North. The higher education and business enterprise sectors also saw reductions, though to a lesser extent compared to the institute sector. Overall, the total share of High North R&D FTEs in Norway decreased by 1.2 percentage points over the four years.

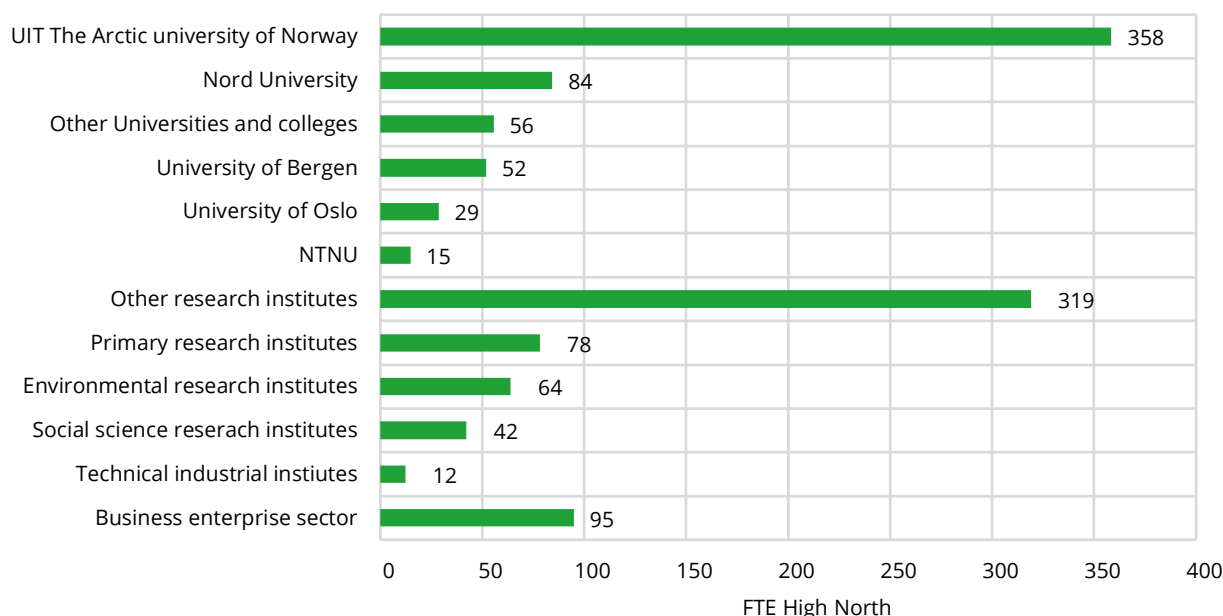
Table 3.1 Share of High North FTE of total R&D FTEs in Norway, by sector of performance in 2018 and 2022

Sector of performance	2018	2022
Higher education sector	3.9 %	3.3 %
Institute sector	7.9 %	5.0 %
Business enterprise sector	0.9 %	0.4 %
Total High North	3.4 %	2.2 %

Source: NIFU and Statistics Norway

3.2. High North research by sectors and institutions

The total volume of High North R&D is distributed across sectors, institutions and group of institutes in figure 3.3. The figures are showing both numbers of FTEs and how much it makes up of the total High North R&D. Figures of individual institutes are not shown separately due to confidentiality of the reported figures and the regulations in the Act of statistics. Instead, the research institutes have been divided into groups according to the classification system of the Research Council of Norway. In this system, the institutes are divided into four areas: primary research institutes, environmental research institutes, technical industrial research institutes, social science research institutes and other research institutes. Institutions in the higher education sector are shown separately, if at least three institutes are represented in the figures.

Figure 3.3 Number of FTE in High North R&D by institutions, groups and sector of performance in 2022

Source: Statistics Norway

The largest institution in the higher education sector is UIT The Arctic University of Norway with a total of 358 FTEs, representing about 30 percent of the national total for High North research. The second largest institution in this sector is Nord University with 84 FTEs, while the University of Bergen follows as the third largest with 52 FTEs, about 4 percent of the total. The University of Oslo and the Norwegian University of Science and Technology (NTNU) follow with 29 and 15 FTEs respectively, together accounting for about 3 percent of the national total for High North research. The rest of the institutions are relatively small and consist of seven institutions, contributing a total of 56 FTEs, or about 5 percent of the total Norwegian High North research effort.

Figure 3.3 also shows the distribution of High North research within the institute sector by groups of institutes. Within the institute sector, the largest group is represented by 'Other Institutions,' which includes about 319 FTEs, accounting for 26 percent of the national total of High North research. This group consists of nine institutions, including the Norwegian Polar Institute, the Meteorological Institute, and the Institute of Marine Research, among others. It should be noted that the Institute of Marine Research was in previous reports classified together with primary research institutes. However, in the official R&D statistics, it correctly belongs to the category "Other research institutes".

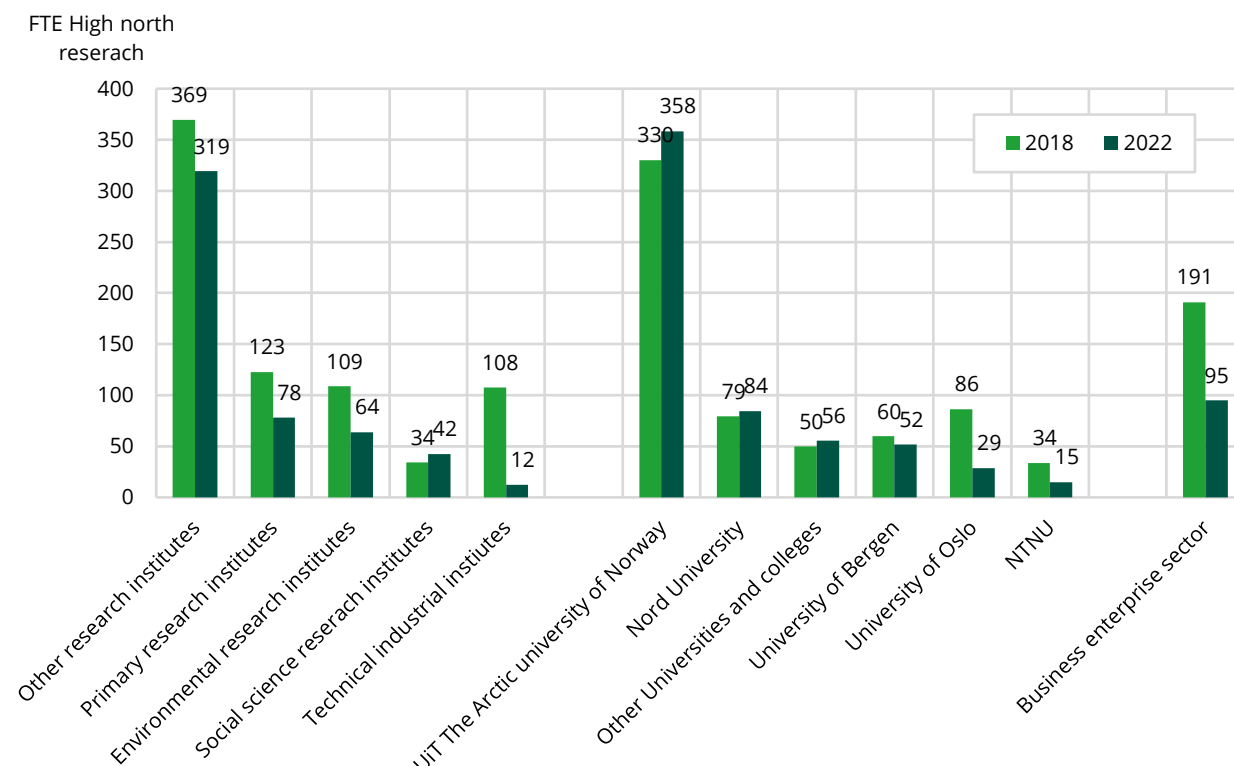
The second largest group is the environmental research institutes, comprising 6 institutes and contributing with 64 FTEs to High North research, representing about 5 percent of the total. Some notable institutes in this group are the Norwegian Institute for Air Research (NILU), the Norwegian Institute for Water Research (NIVA), and NORCE (Climate and Environment).

The primary research institutes group contributed with 78 FTEs, or 6 percent of the total. The social science research institutes contributed 42 FTEs, making up 4 percent of the total. The technical-industrial research institutes contributed with a smaller portion of 12 FTEs, or 1 percent of the total High North research in 2022.

To see where the changes from 2018 have occurred, we have provided Figure 3.4 showing FTEs in the High North by institutions for both 2018 and 2022, for comparison.

The overall trend from 2018 to 2022 presents a mixed picture, with significant reductions in several research areas and institutions. Some institutions and groups have experienced significant decreases. The most substantial reductions are seen in Technical industrial institutes (96 FTEs), the Business enterprise sector (96 FTEs), the University of Oslo (58 FTEs), Other research institutes (50 FTEs), Primary research institutes (45 FTEs), and Environmental research institutes (45 FTEs). However, there are increases in Social science research institutes, and key institutions like UiT The Arctic University of Norway have expanded their High North research capacity by about 28 FTEs.

Figure 3.4 Number of FTE in High North R&D by institutions, groups and sector of performance in 2018 and 2022



Source: NIFU and Statistics Norway

3.3. High North research, geographically distribution

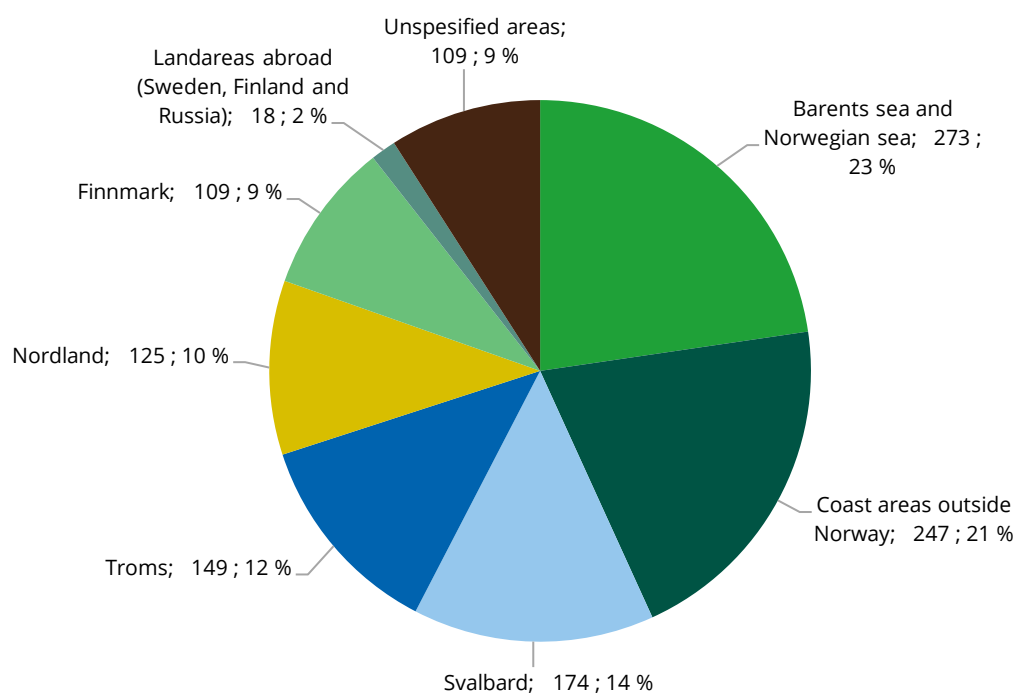
Figure 3.5 is showing the High North R&D FTEs by geographical distribution. The main picture is that The Barents Sea and Norwegian Sea and Coast Areas Outside Norway are the primary focus areas, together accounting for 44 percent of the total FTEs. A total of 273 FTE High North research was conducted in the Barents Sea and Norwegian Sea, or by data from these sea areas. In total this R&D made up 23 percent of the total volume.

About 20 percent of the research was related to the coast areas outside Norway, corresponding to a total of 247 FTE. Research relating to Svalbard accounted for about 14 percent of the total, or around 150 FTEs.

Troms, Nordland, and Finnmark did also receive substantial research attention, making up 45 percent of the total FTEs.

Unspecified Areas and research in Land Areas Abroad (Sweden, Finland and Russia) constitute smaller portions of the total, with 9 percent and 2 percent respectively.

The total FTEs for High North research was 1 206, reflecting the diverse geographical focus areas of the research efforts.

Figure 3.5 FTE High North R&D by geographical distribution in 2022

Source: Statistics Norway

The table below (Table 3.2), gives a detailed overview of the distribution of FTEs of research related to the High North by geographical areas and by sector of performance. R&D related in Svalbard and Barents Sea and Norwegian Sea were mainly carried out by the higher education sector and institute sector, while the business enterprise sector mainly focused on R&D in the land areas in Norway, Nordland, Troms and Finnmark.

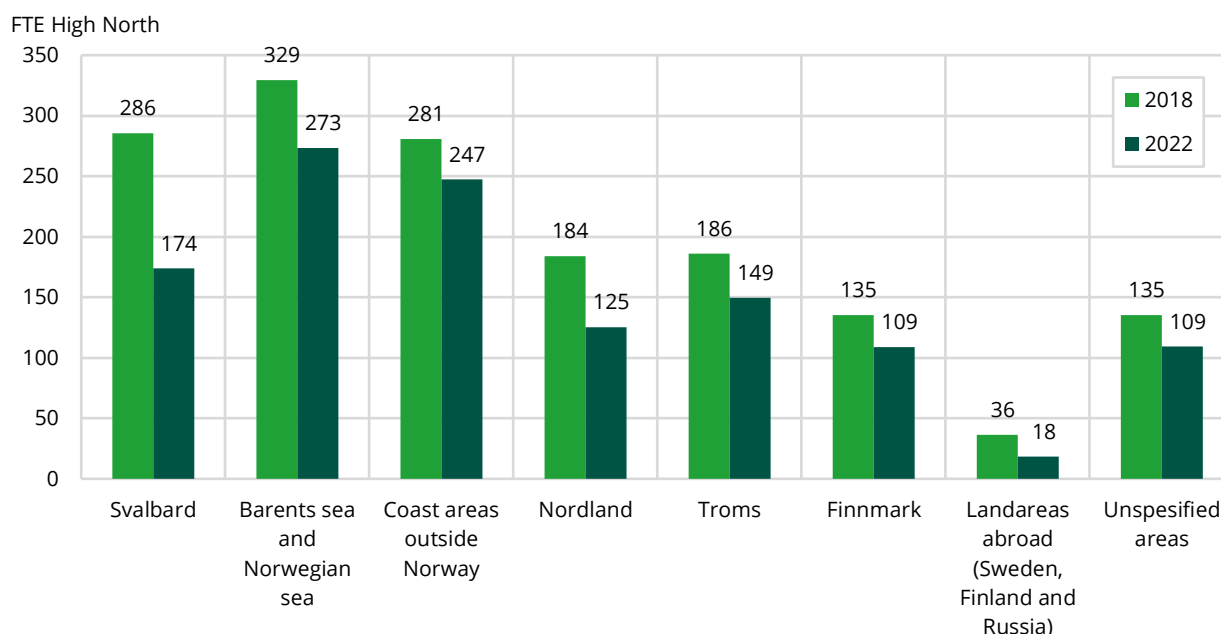
Table 3.2 Number of FTE of High North Research by sector of performance and geographically distribution in 2022

Geographical areas	Higher education sector	Institute sector	Business enterprise sector	Total
Svalbard	95	77	..	174
Barents Sea and Norwegian sea	107	165	..	273
Coast areas outside Norway	158	78	11	247
Nordland	26	55	45	125
Troms	83	42	24	149
Finnmark	54	44	11	109
Land areas abroad (Sweden, Finland and Russia)	12	6	..	18
Unspecified areas	60	48	..	109
Total High North	595	516	95	1 206

Source: Statistics Norway

Figure 3.6 presents the distribution of FTEs to High North research across various geographic areas in 2018 and 2022. The Barents Sea and Norwegian Sea and Coast Areas Outside Norway are the primary focus areas, together accounting for 44 percent of the total FTEs. Svalbard, Troms, Nordland, and Finnmark also receive substantial research attention, making up a combined 45 percent of the total FTEs. Unspecified areas and research in Land areas abroad constitute smaller portions of the total, with 9 percent and 2 percent respectively.

Figure 3.6 Number of FTE of High North R&D geographical distribution in 2022



Source: NIFU and Statistics Norway

3.4. High North research by fields of R&D

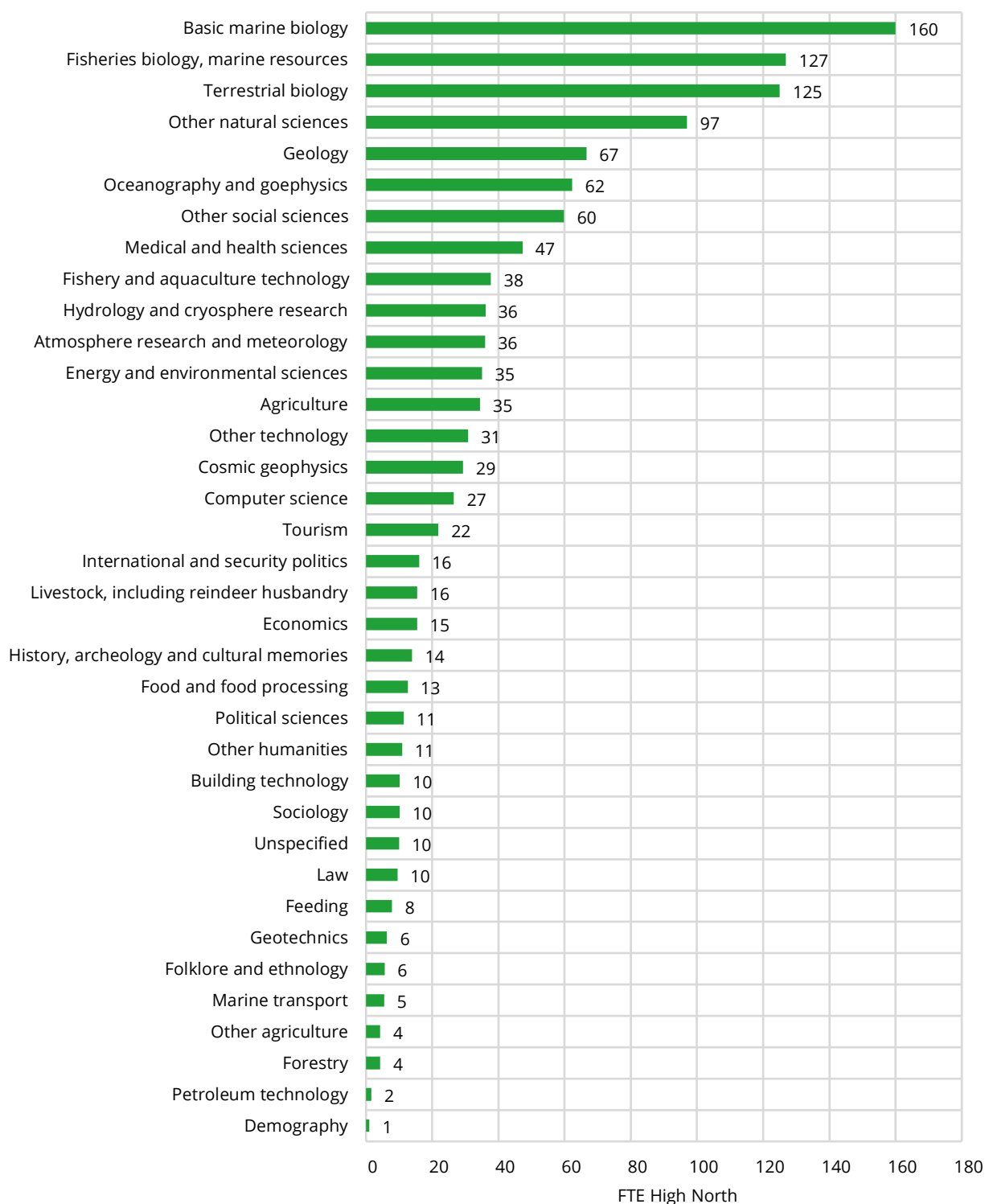
The field distribution of the High North research measured by FTEs is shown in Figure 3.7. The research covers all the major fields of R&D. The distribution highlights the diverse areas of study and their relative focus within the research community. However, natural sciences accounted for the majority of the research, in total about 740 FTEs, or about 60 percent of the total research volume.

The primary focus areas are marine and terrestrial biology, fisheries, and natural sciences, reflecting the environmental and ecological priorities of High North research.

There is also a wide range of fields with moderate levels of research activity, including social sciences, health, and various technological disciplines.

Some areas, such as livestock, tourism, and political sciences, receive targeted but smaller research efforts.

Fields like petroleum technology, demography, and languages have minimal or no dedicated research FTEs, indicating lower priority or limited resources in these areas.

Figure 3.7 Number of FTE of High North R&D by fields of R&D in 2022

Source: Statistics Norway

Table 3.3 shows the fields of R&D in High North for both 2018 and 2022, for comparison.

Table 3.3 Number of FTE of High North by fields of R&D in 2018 and 2022

Fields	2018	2022	Change from 2018 (FTE)
Basic marine biology	232	160	-72
Fishery biology, marine resources	168	127	-42
Terrestrial biology	119	125	6
Other natural sciences	80	97	17
Geology	133	67	-66
Oceanography	80	62	-18
Other social sciences	52	60	8
Medical and health sciences	38	47	9
Agriculture and veterinary medicine	10	39	29
Fishery and aquaculture technology	76	38	-38
Hydrology and cryosphere research	45	36	-9
Atmosphere research, meteorology	59	36	-23
Energy and environment technology	45	35	-10
Other technology	30	31	1
Cosmic geophysics	45	29	-16
IT technology	30	27	-3
Tourism	8	22	14
Food and food processing	40	21	-20
International, geo and security politics	4	16	12
Livestock, including reindeer husbandry	4	16	12
Economics	24	15	-9
History, archeology, cultural heritage, art and theology	33	14	-19
Political sciences	13	11	-2
Other humanities	5	11	6
Building technology	6	10	4
Sociology	15	10	-5
Unspecified	82	10	-72
Law	11	10	-1
Geotechnics	4	6	2
Folklore and ethnology	1	6	5
Marine transport	16	5	-11
Forestry	1	4	3
Petroleum technology	61	2	-60
Demography	1	1	0
Languages	0	0	0
Total	1 572	1 206	-367

Source: NIFU and Statistics Norway

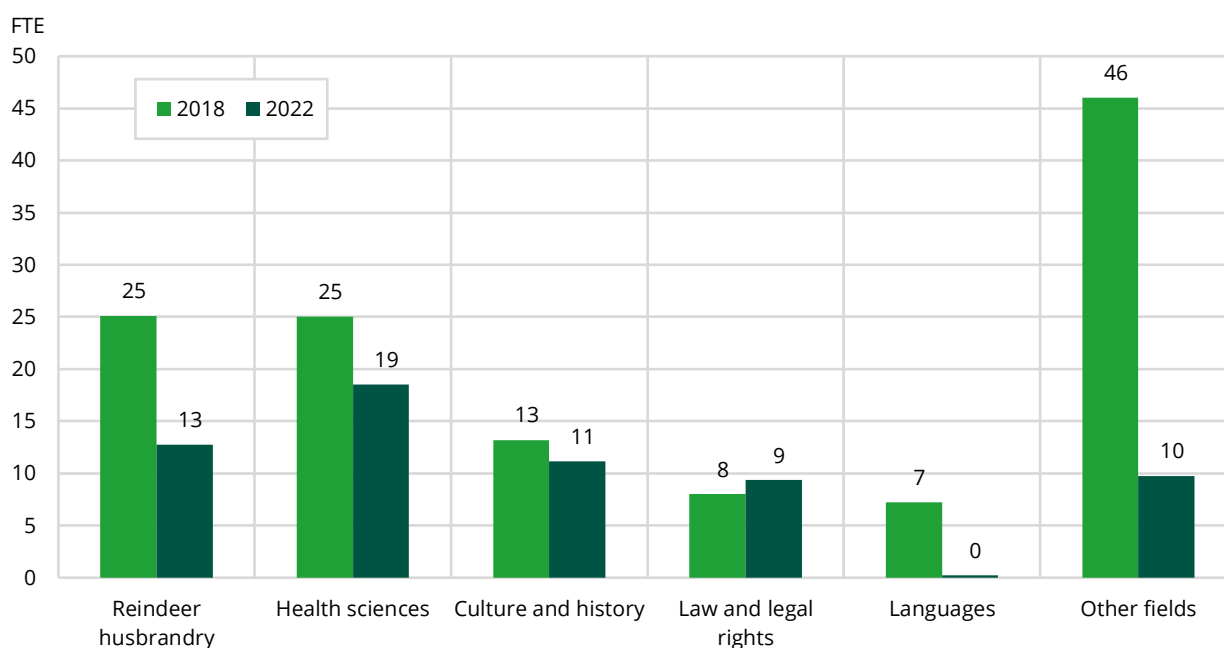
The survey also included a question on research relating to indigenous people, where the respondents were asked to report the research volume by FTEs according to specific themes. The results are summarized in Table 3.4. A total of 62 FTEs were related to research on indigenous people, with Health sciences being the largest field, accounting for 19 FTEs. The other fields followed, with FTEs ranging from 9 to 13, with Reindeer Husbandry being the second largest. The higher education institutions conducted most of the research, accounting for about 45 percent of the total, the institute sector for one third, and the business enterprise sector for the remaining 25 percent of the total research volume.

Table 3.4 Number of FTE of High North R&D related to indigenous people by topic and sector of performance in 2022

Topic	Higher education sector	Institute sector	Business enterprise sector	Total
Reindeer husbrandry	4	9	.	13
Languages
Law and legal rights	9	.	.	9
Culture and history	8	3	.	11
Health sciences	3	3	13	19
Other fields	4	4	2	10
Total	28	19	15	62

Source: Statistics Norway

To be able to compare the research volume by topic, the FTEs for both 2018 and 2022 are shown in figure 3.8. As there have been a reduction overall, the reduction can be seen for most topics, except Law and legal rights which remained at the same level. However, it's crucial to take into consideration that these findings are based on a limited number of units and the R&D volume on these topics are small.

Figure 3.8 Number of FTE of High North related to indigenous people by topic in 2018 and 2022

Source: NIFU and Statistics Norway

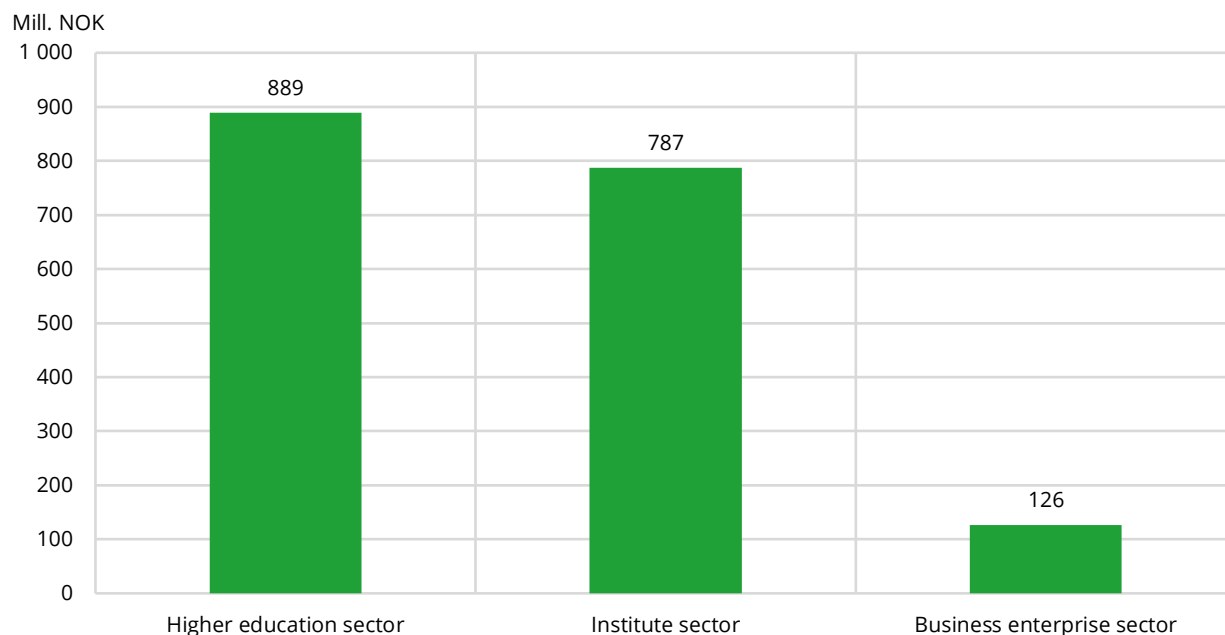
3.5. Funding of the High North research

The research volume in terms of FTE related to High North has been used as an indicator to measure the research volume also for R&D expenditures. Based on the number of FTEs reported and average costs of R&D FTE in the higher education for each major fields of R&D sector and institute sector for each research groups, we have calculated the R&D expenditure in these sectors for each unit included in the mapping. For average cost of FTE in 2022 for both sectors, see Table 2.1.

The current expenditure on R&D related to High North amounted to 1 802 million NOK in 2022. The higher education sector was the largest with about 890 million NOK, or about half of the R&D volume, followed by the institute sector with a contribution of about 790 million NOK (about 45 percent of the volume), while the business enterprise sector contributed the remaining

125 million NOK, around 7 percent of the volume. The distribution of the R&D expenditure was, as expected, very similar to the distribution of FTEs among the performing sector (Figure 3.1).

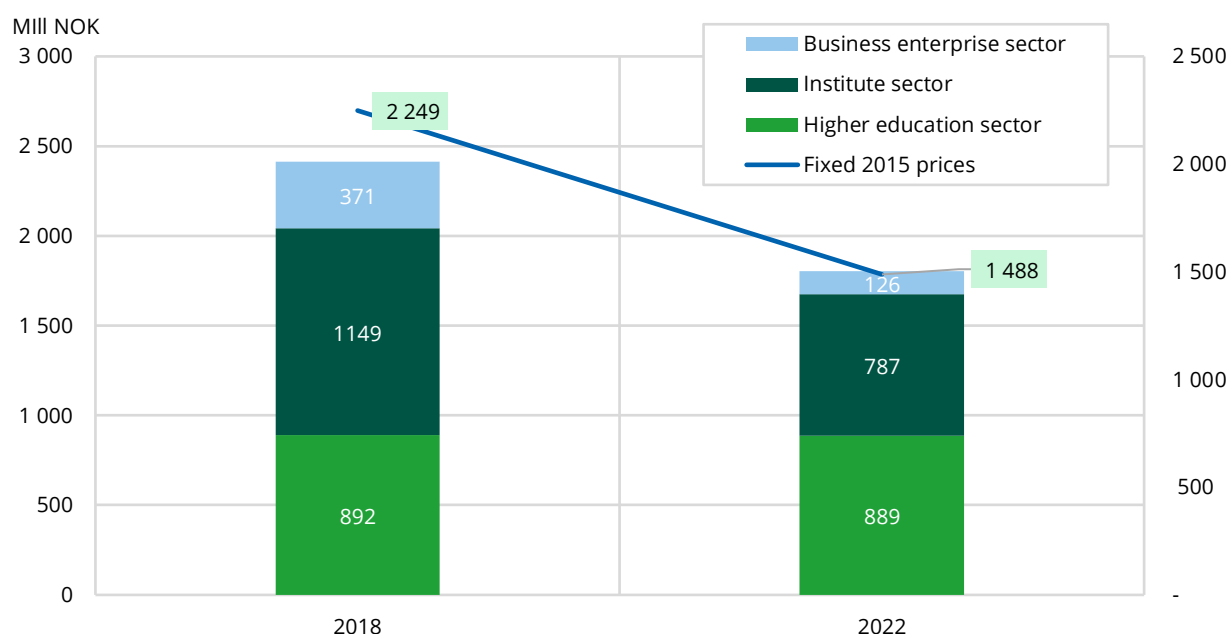
Figure 3.9 Current expenditures to R&D related to the High North, by sector of performance in 2022. Mill. NOK



Source: Statistics Norway

Comparing these figures with the previous mapping from 2018, there has been a reduction in the total R&D volume, especially in the institute and business enterprise sectors, while the R&D expenditure in the higher education sector remained at the same level, at least when we look at nominal prices.

Figure 3.10 Current expenditures to R&D related to the High North, by sector of performance in 2018 and 2022. Mill. NOK and fixed 2015-prices



Source: NIFU and Statistics Norway

In Table 3.5 we have provided a detailed overview of the current expenditures by sector of performance and source of funding. In total, about 508 million NOK, or 28 percent of the total were funded by general university funds (GUF), from the Ministry of Education and Research. The funding from the Research Council of Norway, accounted for 395 million NOK, or 22 percent. This includes projects, program funding as well as core grant funding to the research institutes. Ministries and directorates funded in total 520 million NOK, or almost 30 percent of the total. This funding includes the core funding to the research institutes such as The Norwegian Polar institute and Institute of Marine Research. Adding these sources of funds together, almost 80 percent of the High North research was funded by public sources.

Table 3.5 Current expenditures to R&D related to the High North by source of funds and sector of performance in 2022. Mill. NOK

Source of funds	Higher education sector	Institute sector	Business enterprise sector	Total	Share of total (%)
General university funds	508			508	28 %
Research Council of Norway	201	169	25	395	22 %
Ministries and directorates	21	494	5	520	29 %
Industry	33	38	82	153	8 %
EU commission	43	44	0	87	5 %
Abroad	6	11	-	17	1 %
Other National Sources	77	32	14	123	7 %
Total	889	787	126	1 802	100 %

Source: Statistics Norway

As the business enterprise sector is quite small in High North research, funding from the industry accounted for about 150 million NOK, or about 8 percent of the total. Funding from the EU commission accounted for a little less than 90 million NOK, or about 5 percent of the total.

The relative importance of the various funding sources varies across sectors, but public funding is very important for the higher education sector and the institute sector, while funding of their own R&D activities is important for the business enterprise sector.

If we compare the source of funding with the figures from 2018, the picture is quite similar, as public funding accounted for about 80 percent, but industry share was significantly larger at 21 percent while sources from abroad accounted for 4 percent of the total cost of High North R&D. For detailed information, see Table 3.1, page 35 (Aksnes and Rørstad, 2019).

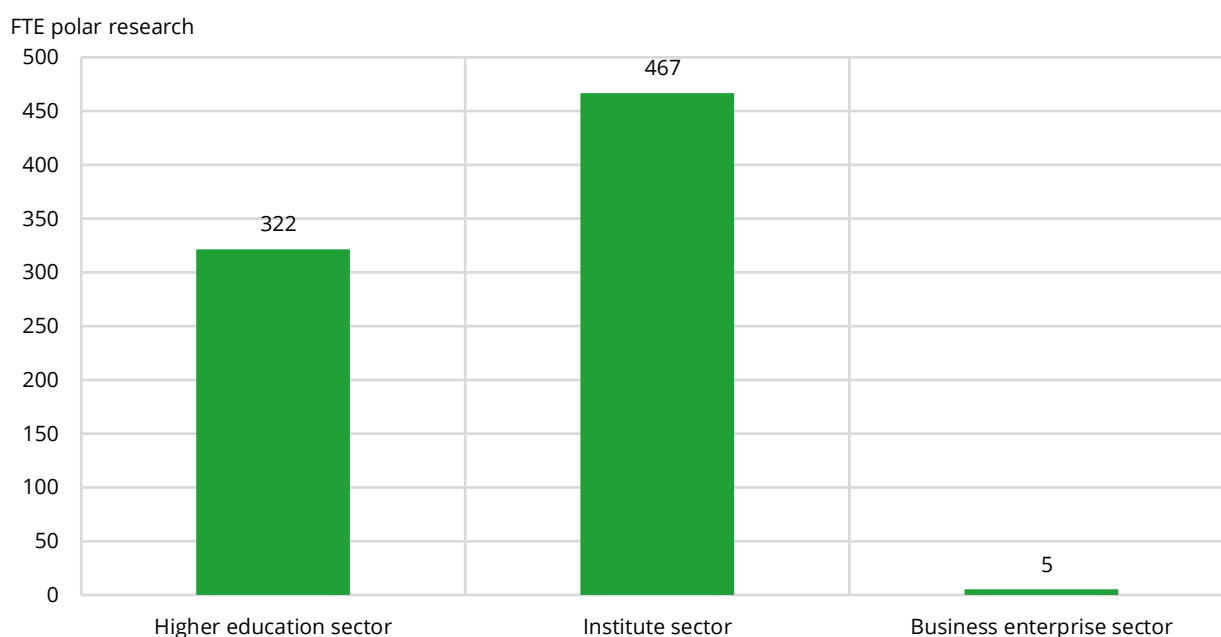
4. Norwegian polar research

This chapter presents an overview of the Norwegian research efforts in polar research for 2022, using full-time equivalents (FTEs) and R&D expenditures as key indicators. As outlined in Chapter 2, previous mappings of Norwegian polar research were conducted in 2002, 2006, 2010, 2014 and 2018. This allows us to present time series data in four-year intervals. Although the definition of polar research has remained consistent across all surveys, the methods for measuring R&D expenditures have varied, lacking uniformity across the mappings. Consequently, most of the indicators presented here are based on R&D work years and full-time equivalents (FTEs). In this mapping we have also asked the units to report infrastructure cost, both operational costs (i.e. current cost) and investments to new infrastructures (capital costs) related to polar research. Infrastructure costs are typically cost to research vessels, installations, or laboratories, either operational costs or investments. We are therefore able to present both current and total costs to polar R&D.

4.1. Polar research in 2022

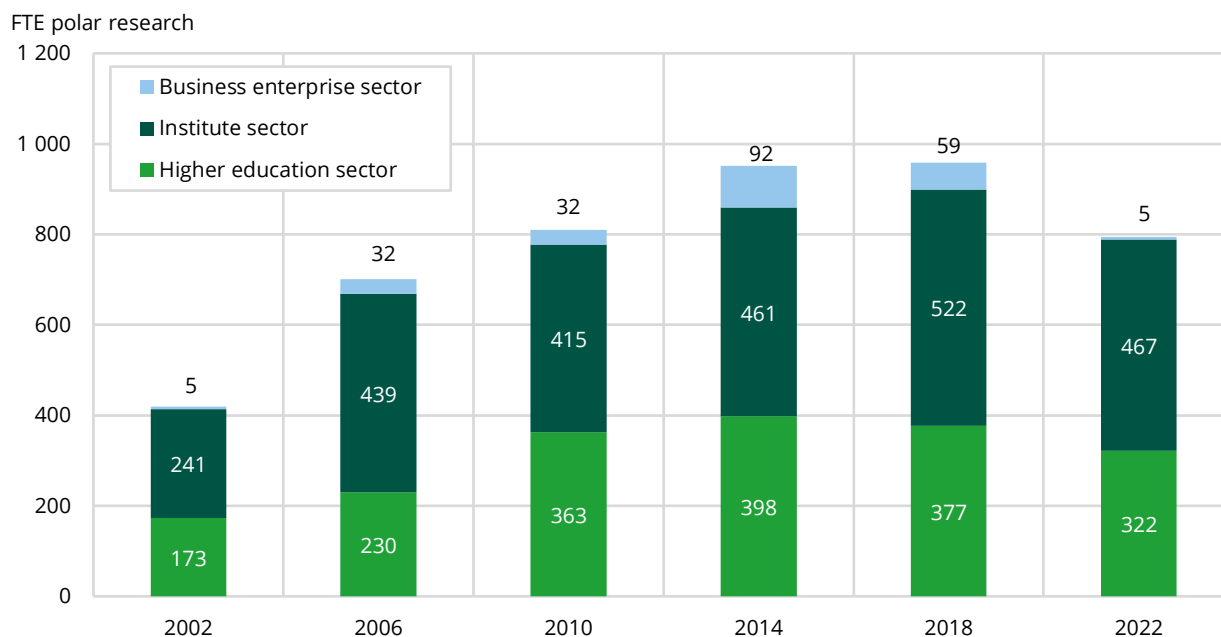
In total 794 FTE polar research were conducted in Norway in 2022. The institute sector was the largest, and constituted almost 470 FTEs, or almost 60 percent, while the higher education sector conducted around 320 FTEs, about 40 percent, while companies in the business enterprise sector conducted the remaining 5 FTEs, less than one percent.

Figure 4.1 Number of FTE related to polar R&D by sector of performance in 2022



Source: Statistics Norway

If we look at the development of the polar research over time since 2002, the first year we conducted the mapping, the R&D volume had steady growth from the start to 2014 and flattened in 2018. However, now in 2022, the R&D volume has decreased significantly with about 160 FTEs, which correspond to a 17 percent reduction. In terms of numbers of FTEs, the reduction was the same in all sectors, at 55 FTEs. However, the relative reduction was 15 percent for the higher education sector, 11 percent for the institute sector and as much as 92 percent for the business enterprise sector.

Figure 4.2 Number of FTE related to polar R&D by sector of performance in 2002, 2006, 2010, 2014, 2018 and 2022

Source: NIFU and Statistics Norway

Due to the significant reduction in research volume, the share of polar R&D in the total R&D in Norway has also decreased. In 2018, polar R&D's share was 2.1 percent, while the share in 2022 was 1.5 percent. As already mentioned, the reduction was observed in all sectors, but in terms of the share of total R&D, it dropped from 2.3 to 1.8 in the higher education sector, from 5.6 to 4.5 in the institute sector, and from 0.3 to almost non-existent in the business enterprise sector.

Table 4.1 Share of FTE related to polar R&D of total FTE to R&D by sector of performance in 2002, 2006, 2010, 2014, 2018 and 2022

Sector of performance	2002	2006	2010	2014	2018	2022
Higher education sector	2.7 %	2.0 %	3.0 %	3.1 %	2.3 %	1.8 %
Institute sector	4.1 %	6.2 %	4.7 %	4.9 %	5.6 %	4.5 %
Business enterprise sector	0.0 %	0.9 %	0.2 %	0.5 %	0.3 %	0.0 %
Total	6.8 %	2.5 %	2.2 %	2.4 %	2.1 %	1.5 %

Source: NIFU and Statistics Norway

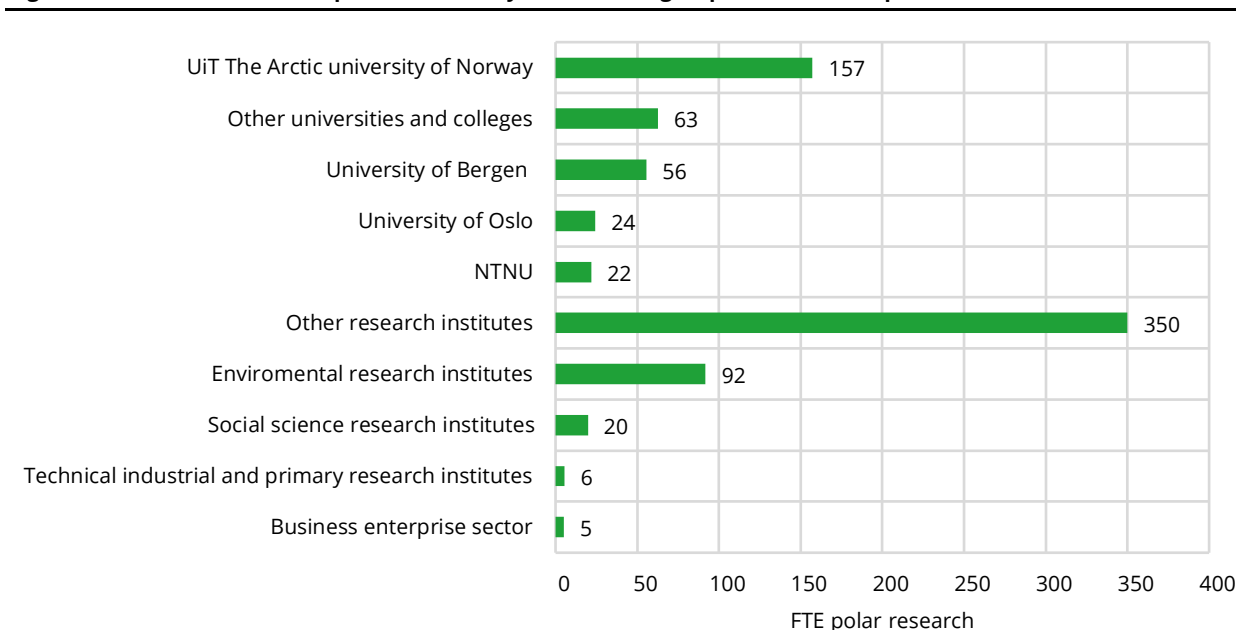
4.2. Polar research by sectors and institutions

In Figure 4.3, we present the distribution of FTEs devoted to polar research by sectors, institutions, and groups of research institutes, using absolute and relative measures. Figures for the largest universities are shown separately if at least three units/departments are included behind the numbers. Figures for individual institutes are not shown separately due to confidentiality of the reported figures and regulations in the Statistics Act.

The group 'Other research institutes', which consists of 12 institutes, conducted about 350 FTEs, accounting for 44 percent of the national total of polar research. This group includes institutions such as the Norwegian Polar Institute, the Meteorological Institute, and the Institute of Marine Research, among others. It should be noted that the Institute of Marine Research was previously classified together with primary research institutes in previous reports. However, according to official R&D statistics, its correct classification is under 'Other research institutes'. In figure 4.4, the institute is included under 'other research institutes' for both years.

UiT - The Arctic University of Norway followed with almost 160 FTEs (about 20 percent), reflecting a substantial volume of polar research expected due to its strategic location and mission. Environmental research institutes also seem to play a major role, with around 90 FTEs dedicated to polar research. The University of Bergen was the second largest university, with a contribution of 56 FTEs, or 7 percent. The University of Oslo and NTNU were substantially smaller but still represented by at least three departments, contributing a total of about 20 FTEs each. In the group 'other universities and colleges' which includes the University Centre of Svalbard (UNIS) and other institutions, a total of 63 FTEs were dedicated to polar R&D. Contributions from social science research institutes were limited, totaling 22 FTEs. In the 'other research institutes' category, which includes three technical industrial institutes and two primary research institutes, only 6 FTEs were dedicated to polar research.

Figure 4.3 Number of FTE in polar research by institutions, groups and sector of performance in 2022



Source: Statistics Norway

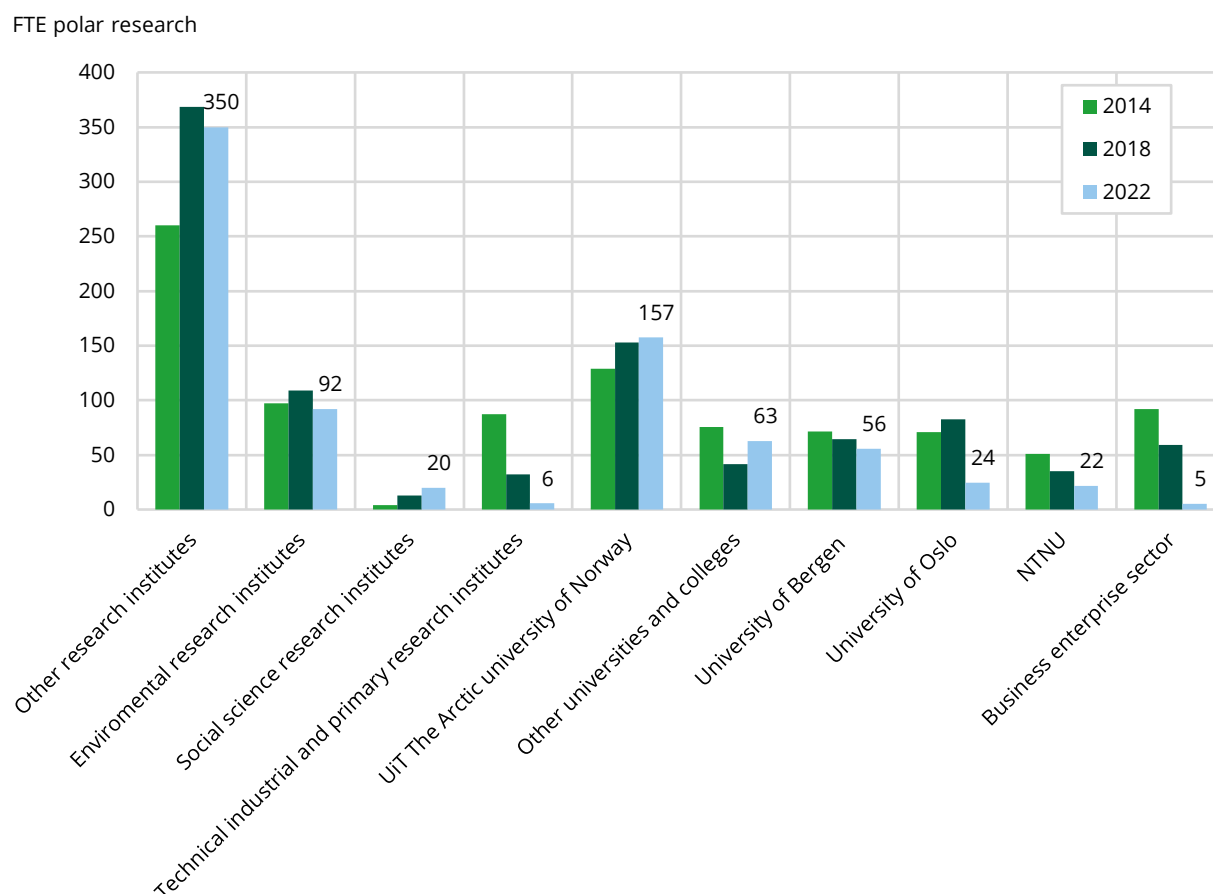
As mentioned earlier, we have observed a substantial decrease in the volume of polar research in terms of conducted FTEs. Therefore, it is interesting to examine closely which institutions experienced the largest decrease compared to 2018. This can be seen in Figure 4.4, which shows FTEs by sector or institution in 2014, 2018, and 2022. However, our focus will be on the changes from 2018 to 2022.

The group 'Other research institutes' experienced a slight decrease in FTEs, from 368 in 2018 to 350 in 2022, indicating a minor reduction in effort. Environmental research institutes also saw a modest decline, with FTEs dropping from 109 to 92 during the same period. In contrast, Social science research institutes showed growth, increased their FTEs from 13 in 2018 to 20 in 2022, which might reflect a growing interest in the social science aspects of polar research.

Technical industrial institutes experienced a sharp decline, with FTEs dropped from 32 in 2018 to just 6 in 2022. This significant reduction highlights a major decrease in contributions to polar research from these institutes. It should be noted that in 2014, this group conducted significantly more, but we must consider that the units included in this group may not have been the same in the current mapping.

Overall, the total institute sector saw a decrease in FTEs from 522 in 2018 to 467 in 2022, indicating a general reduction within the sector.

Figure 4.4 Number of FTE in polar research by institutions and sector of performance in 2022



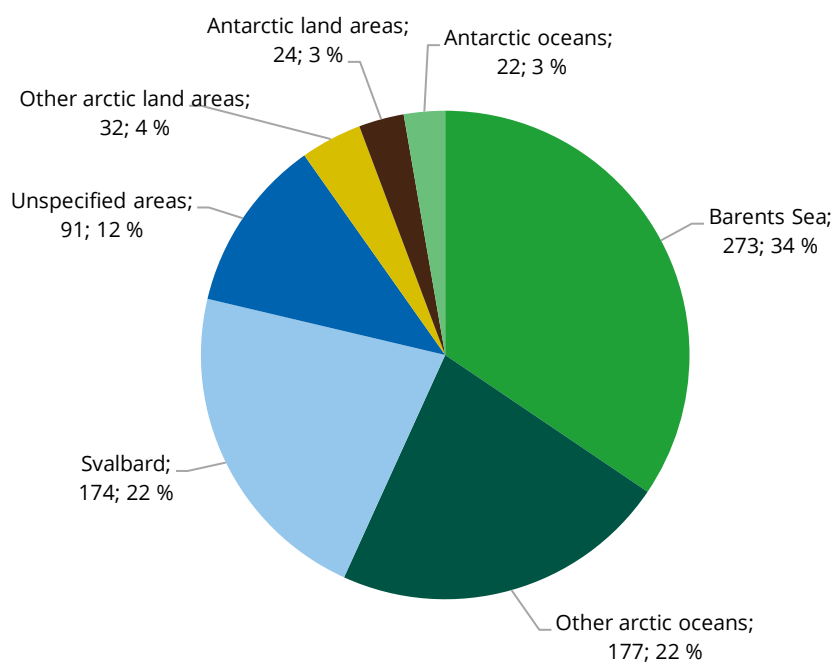
Source: NIFU and Statistics Norway

UiT - The Arctic University of Norway showed a slight increase in FTEs, from 153 in 2018 to 157 in 2022, demonstrating a continued commitment to polar research. Other universities and colleges saw a significant rise in FTEs, increasing from 42 to 63, indicating substantial growth in participation from these institutions. However, the University of Bergen saw a decrease from 65 FTEs in 2018 to 56 in 2022, reflecting reduced effort. Similarly, the University of Oslo experienced a substantial drop, with FTEs decreasing from 83 to 24, highlighting a major decline in their contributions within polar research.

The Norwegian University of Science and Technology (NTNU) also saw a reduction in FTEs, decreasing from 35 in 2018 to 22 in 2022. The business enterprise sector showed a drastic decrease, with FTEs plummeting from 59 in 2018 to just 5 in 2022, indicating a significant decline in business enterprise involvement in polar research.

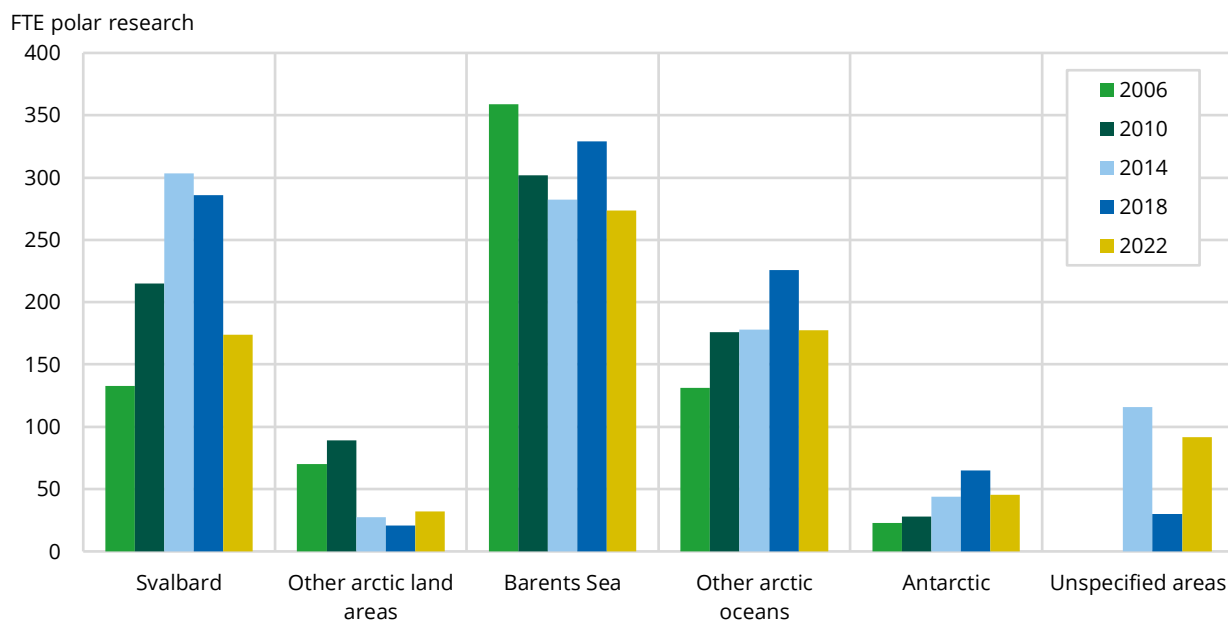
4.3. Polar research, geographically distribution

The total FTEs to polar research are distributed geographically in Figure 4.5, shown as number of FTEs and their relative distribution. The Barents Sea region is by far the largest, accounting for one-third of the volume, i.e. 273 FTE or 34 percent. Svalbard and other Arctic oceans (Greenland Sea, Polar Sea) were approximately the same size, with R&D conducted based on these areas accounted for 22 percent each, i.e. 175 FTEs. FTEs based on R&D from Antarctica accounted for about 6 percent of the total, or slightly less than 50 FTEs.

Figure 4.5 Number of FTE related to polar R&D, geographically distribution in 2022

Source: Statistics Norway

It is also interesting to examine the development over time, to see where the changes have occurred. Most areas have experienced a reduction in terms of R&Ds, especially Svalbard, which decreased from 290 FTEs in 2018 to 174 FTEs in 2022. The oceanic regions also saw reductions to some extent, while only other Arctic land areas and unspecified areas experienced increases.

Figure 4.6 Number of FTE related to polar R&D, geographically distributed every fourth year from 2006, 2010, 2014, 2018 and 2022

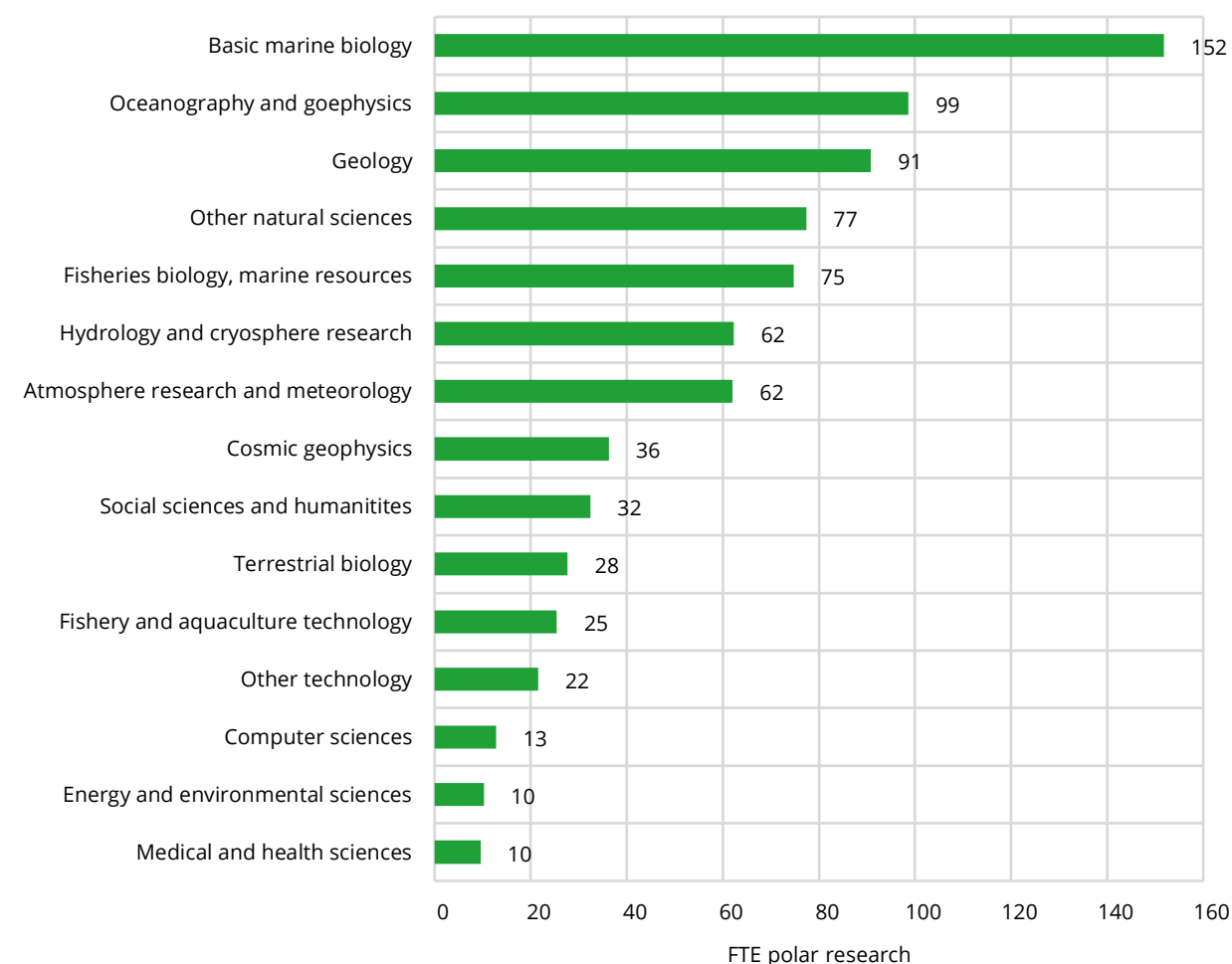
Source: NIFU and Statistics Norway

4.4. Polar research by fields of R&D

The FTE devoted to polar R&D are distributed by fields in Figure 4.7, by descending order. Most of the major fields of R&D are represented, but the vast majority of the polar R&D are conducted within the natural sciences, accounting for about 85 percent of the R&D volume. Engineering and technology account for approximately 10 percent, while humanities and social sciences together make up 4 percent. Medical and health sciences represent the smallest portion, accounting for only 1 percent.

If we examine the individual fields, basic marine biology is by far the largest field, with a volume of about 150 FTE, almost 20 percent of the total FTEs. This is followed by oceanography and geophysics with almost 100 FTEs (about 12 percent), and geology with about 90 FTE (11 percent). Several minor fields within natural sciences are combined in the category other natural sciences and constitute almost 80 FTEs (about 10 percent of the total FTEs).

Figure 4.7 Number of FTE related to polar R&D by fields in 2022



Source: Statistics Norway

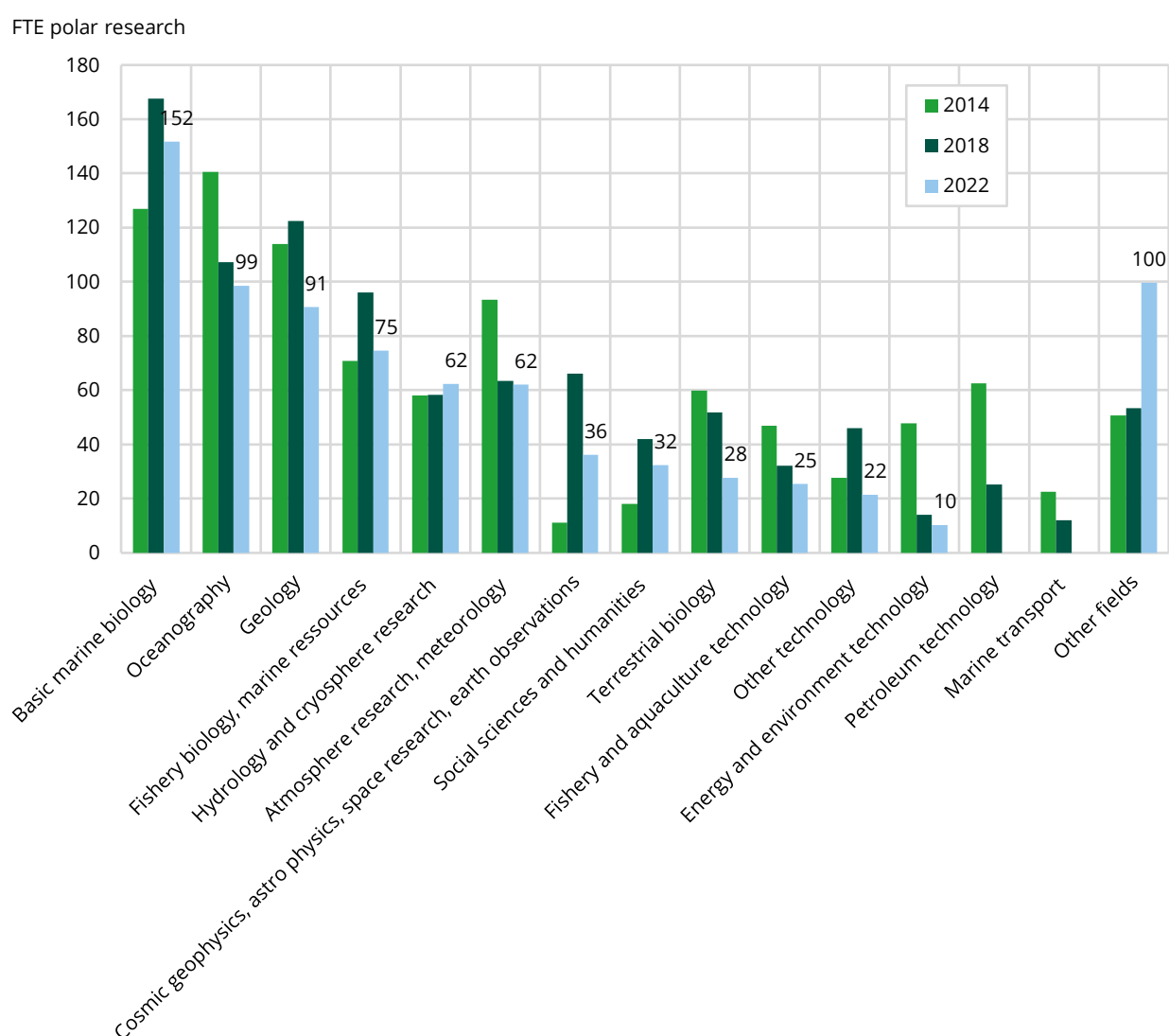
If we compare these FTE numbers with the previous mappings from 2014 and 2018, as shown in Figure 4.8, there have been several significant changes in the number of conducted FTEs. Until today, basic marine biology and various geology fields have remained the largest fields over the period, although most fields have also decreased.

To summarize some of the changes from 2018 to 2022:

- Basic Marine Biology FTE decreased from about 170 to 150.
- Oceanography: FTE decreased from about 110 to 100.
- Geology: FTE decreased significantly from about 120 to 90.
- Fishery Biology, Marine Resources: FTE decreased from about 95 to 75 in 2022.
- Hydrology and Cryosphere Research: FTE slightly increased from about 58 to 62 from 2018 to 2022.

Overall, the most notable changes from 2018 to 2022 include significant decreases in many fields such as Geology, Cosmic geophysics, and Terrestrial biology, while the 'other fields' category (most of them within natural sciences) saw a notable increase. As the 'other field' had significant growth while several fields within natural sciences saw decreases, it is likely that some of them are hidden in these figures.

Figure 4.8 Number of FTE related to polar R&D by fields in 2014, 2018 and 2022



Source: NIFU and Statistics Norway

4.5. Funding of polar research in 2022

Based on the number of full-time equivalents (FTE) to polar research in 2022 (794 FTEs), and infrastructure costs related to polar research, we have estimated total current expenditure of 1 639 million NOK on polar research in 2022. Of this amount, 1 218 million NOK were current expenditures (salaries and other current costs related R&D) and 421 million NOK were current expenditures for operational infrastructure costs devoted to polar R&D. In addition, 26 million NOK were investments in infrastructures (capital expenditure) used for polar R&D. The total infrastructure costs amounted to 447 million NOK. Infrastructure costs typically include expenses for buildings, research vessels and laboratories. The total R&D expenditures were estimated at 1 665 million NOK.

Table 4.2 R&D expenditure to polar research by type of cost and sector of performance in 2022. Mill. NOK

Sector of performance	Current expenditures (salaries and other current costs)	Current expenditures for infrastructures	Total current expenditures	Investments	Total expenditures
Higher education sector	492	128	620	11	631
Institute sector	713	293	1006	14	1021
Business enterprise sector	13	0	13	0	13
Total	1 218	421	1 639	26	1 665

Source: Statistics Norway

Details of how the total infrastructure costs in the higher education sector and the institute sector are funded, are presented in table 4.3. As shown in table 4.2, almost 450 million NOK were costs to infrastructure. While about one third of the cost were spent of the higher education sector, the other two third were spent by the institute sector. If we look at funding sources, almost half of the costs were funded by ministries and directorates (constituting 45 percent of the total costs). The Research Council and general university funds funded approximately the same amount, or around 12 percent each. Companies in the enterprise sector did not use any of their resources on infrastructure costs, but the industry funded about 10 percent of the costs.

Table 4.3 R&D expenditure to infrastructure costs to polar R&D by sector of performance and source of funds in 2022, Mill. NOK

Source of funding	Higher education sector	Institute sector	Total	Share of total (%)
General university funds	56	.	56	13 %
Research Council of Norway	34	20	55	12 %
Ministries and directorates	2	199	201	45 %
Industry	3	37	40	9 %
EU commission	11	.	11	2 %
Abroad	0	15	16	3 %
Other National Sources	33	36	69	15 %
Total	140	307	447	100 %

Source: Statistics Norway

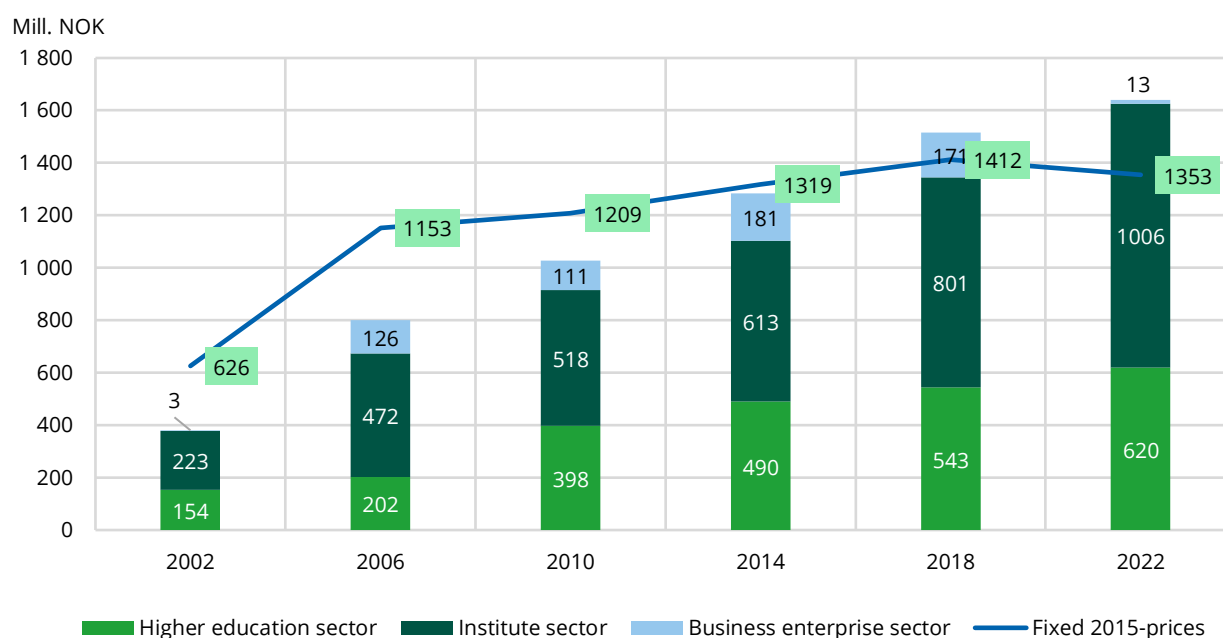
The amount spent on polar R&D over the years is presented in Figure 4.9, showing current expenditures on polar research by sector of performance for all years the mappings have been conducted. For comparison, we have also measured the expenditures in fixed 2015-prices. Overall, the expenditures show a similar trend as the FTEs on R&D from 2002 to 2018, but unlike FTEs, R&D expenditures continued to increase in 2022.

The reason for the increase in 2022, can be due to a slight methodological difference in the mapping compared to the previous ones. Specifically, in the 2022 mapping, we separately asked for current expenditures related to infrastructure specifically used for polar research. In previous mappings, these costs were assumed to be included in the measured current expenditures. The results of these different methods may partly explain why we calculate higher expenditures in the current mapping, compared to previously mappings where we only included costs for salaries and general

current R&D expenses (not specifically dedicated to polar research). However, as there is always some uncertainty in R&D expenditures, we are quite confident that the expenditures in this mapping are reasonable accurate, and it enables to present separate figures for infrastructure cost spent on polar R&D, both operational currents costs and investments to infrastructure. More information about the differences between the methods are discussed in the methodology part (page 12-13).

From 2018 to 2022, current expenditures on polar research increased by approximately 124 million NOK (from 1 515 to 1 639 million NOK). Measured in fixed 2015-prices, this represented a decrease of 4.2 percent (from 1 412 to 1 353 million NOK). Looking at expenditure trends earlier in the period, there was a real growth of 5 percent from 2006 to 2010, followed by 9 percent growth from 2010 to 2014, and a 7 percent growth in the period from 2014 to 2018. As growth in expenditures appears to have stalled, the figures indicate that polar R&D activity has declined somewhat in recent years. The reduction in FTEs from 2018 to 2022 was as much as 17 percent, similarly, reflecting a downward trend.

Figure 4.9 Current expenditures to polar research, by sector of performance in 2002, 2006, 2010, 2014 and 2022. Mill. NOK and fixed 2015-prices



Source: NIFU and Statistics Norway

Despite the substantial investment in The Nansen Legacy¹, totaling about 740 million NOK over the period from 2018 to 2024 (approximately 100 million NOK annually), it appears that this funding is insufficient to sustain the R&D activities in 2022.

A detailed table outlining the sources of funding and sectors of performance for polar research in 2022 is presented in Table 4.3. Although funding increased in real terms, we observed a decrease in expenditure when accounting for inflation. Public funding sources account for approximately 75 percent of the total expenditure. General university funds and various funding from the Research Council each contribute 20 percent, while ministry funding constitutes about 37 percent of the total. This category includes core funding directly to research institutes from ministries, bypassing the

¹ The Nansen Legacy is a novel and holistic Arctic research project providing integrated scientific knowledge on the rapidly changing marine climate and ecosystem (<https://arvenetternansen.com/about-us/>).

Research Council (e.g., core funding to institutes such as the Institute of Marine Research and the Norwegian Polar Institute). Funding from industry and the EU Commission makes up about 6 percent and 5 percent respectively.

Table 4.4 Total expenditure to polar research by sector of performance and source of funding in 2022. Mill. NOK

Source of funding	Higher education sector	Institute sector	Business enterprise sector	Total	Share of total (%)
General university funds	317			317	19 %
Research Council of Norway	170	163	1	333	20 %
Ministries and municipalities	8	611		619	37 %
Industry	23	60	13	96	6 %
EU commission	34	41		75	5 %
Abroad	10	45		55	3 %
Other National Sources	69	100	0	170	10 %
Total	631	1 021	13	1 665	100 %

Source: Statistics Norway

5. Research related to Svalbard

In this chapter, we present findings related to the mapping of R&D in and related to Svalbard, including FTEs and R&D expenditures, compared to previous mappings. The mapping does only cover R&D performed by Norwegian institutions. The numbers of researcher days are presented in the report authored by NIFU (Aksnes, 2024).

5.1. A brief introduction

Research in Svalbard has a long history, dating back to the 19th century. Today, it plays a crucial role in supporting permanent settlements and offers modern research facilities and infrastructure, that attract international cooperation.

The primary research centers are located in Longyearbyen and Ny-Ålesund, with significant activities also in Hornsund and Barentsburg. Longyearbyen is home to the University Centre in Svalbard ([UNIS](#)) and the [Svalbard Science Forum \(SSF\)](#), which coordinates research efforts.

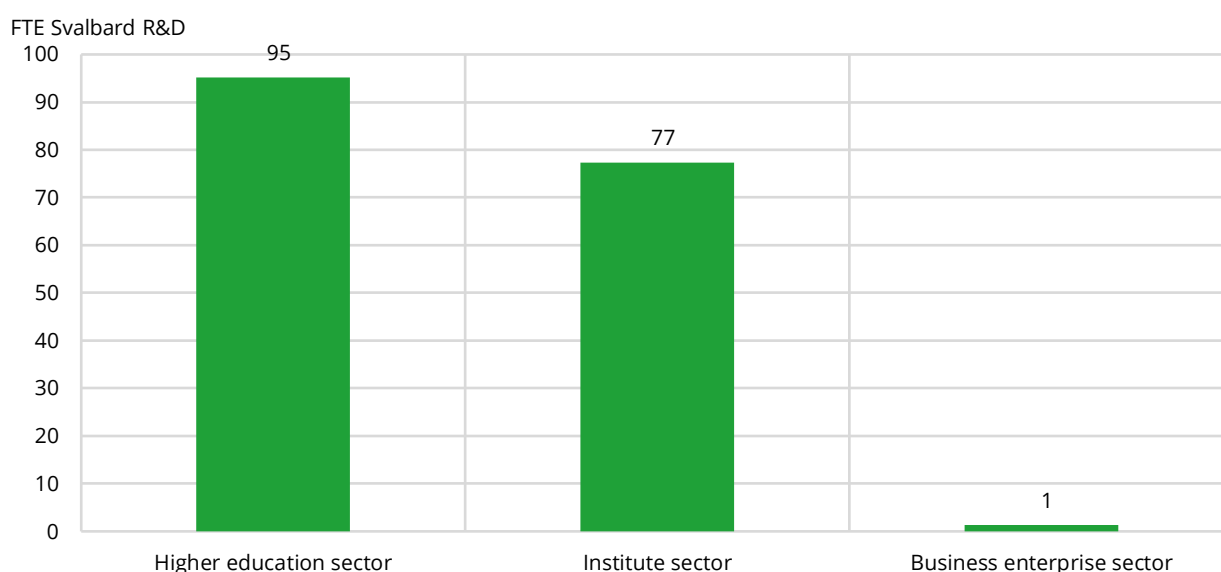
[Ny-Ålesund Research Station](#) serves as an international research hub where the Norwegian Polar Institute performs the host role and has the overall on-site responsibility. [Kings Bay AS](#) owns the land and has the main task to provide the infrastructure necessary to conduct research and environmental monitoring, while [Ny-Ålesund Science Managers' Committee \(NySMAC\)](#) is a forum established to enhance cooperation and coordination among researchers, research institutions and research activities in Ny-Ålesund.

The Institute of Geophysics at the Polish Academy of Sciences have extensive activities and facilities in Hornsund and other places in the archipelago. Russian research has a base in Barentsburg. Other countries, such as the Czech Republic, maintain research stations in the area.

5.2. Research related to Svalbard in 2022

The mapping has revealed that approximately 175 FTEs of R&D related to Svalbard were conducted in 2022. Slightly more than half (55 percent) of the R&D efforts were conducted in the higher education sector, 45 percent in the institute sector, and only 1 percent were conducted by companies in the business enterprise sector.

Figure 5.1 Number of FTE to R&D related to Svalbard by sector of performance in 2022

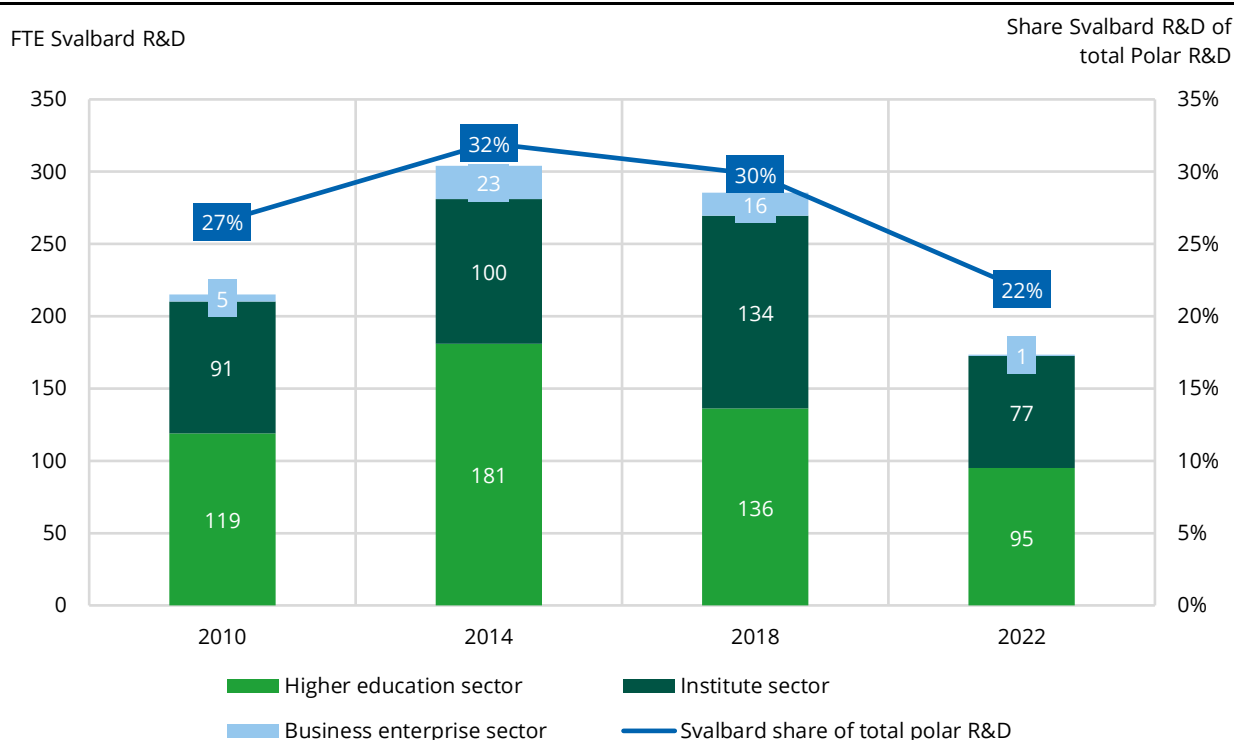


Source: Statistics Norway

Compared to 2018, when approximately 290 FTEs were conducted, this represents a significant reduction of about 40 percent. The figures also indicate Svalbard's share of total polar R&D FTEs, which has declined from around 30 percent to 22 percent in 2022. Compared to 2018 figures, we saw a drop in all sectors.

In the higher education sector, the numbers of FTE fell from about 136 to 95, a reduction of 30 percent and the institute sector had a reduction of 56 FTEs, or about 40 percent. For the business enterprise sector, only 1 FTEs were conducted in 2022, a significant drop of more than 90 percent, compared to 2018. Based on these reductions, this suggests that Svalbard seems to be becoming less relevant in polar R&D, or perhaps less accessible.

Figure 5.2 Number of FTE to R&D related to Svalbard and Svalbard share of total polar R&D in 2010, 2014, 2018 and 2022

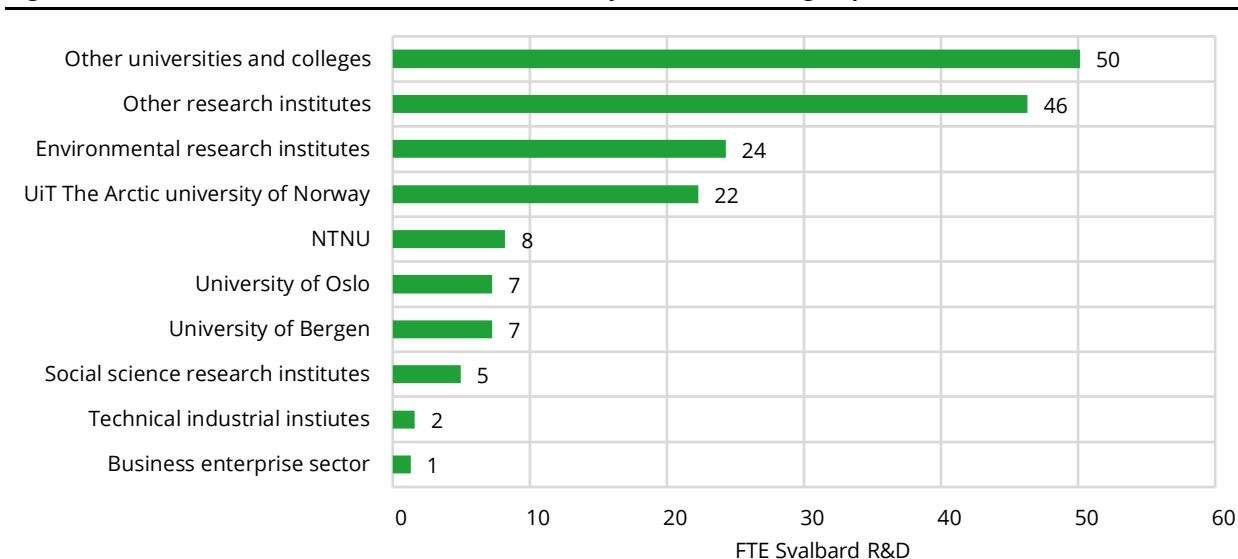


Source: NIFU and Statistics Norway

UiT The Arctic University of Norway is the largest contributor to research related to Svalbard, with a total of 22 FTEs dedicated to this area. However, the largest group contributing 50 FTEs related to Svalbard is other universities and colleges, which includes R&D from six universities and colleges, with The University Center at Svalbard being the largest among them. Other research institutes, such as the Norwegian Polar Institute, NORCE, and the Geological Survey of Norway (NGI), contribute significantly to Svalbard research with a total volume of 46 FTEs in 2022. Environmental research institutes, including NILU, NERSC, and NIVA, collectively account for 24 FTEs. The University of Bergen, the University of Oslo, and NTNU each contributed approximately 7 to 8 FTEs related to Svalbard in 2022.

5.3. R&D related to Svalbard, by sector and institutions in 2022

Figure 5.3 Number of FTE to R&D related to Svalbard by institutions and group of institutes and sector in 2022

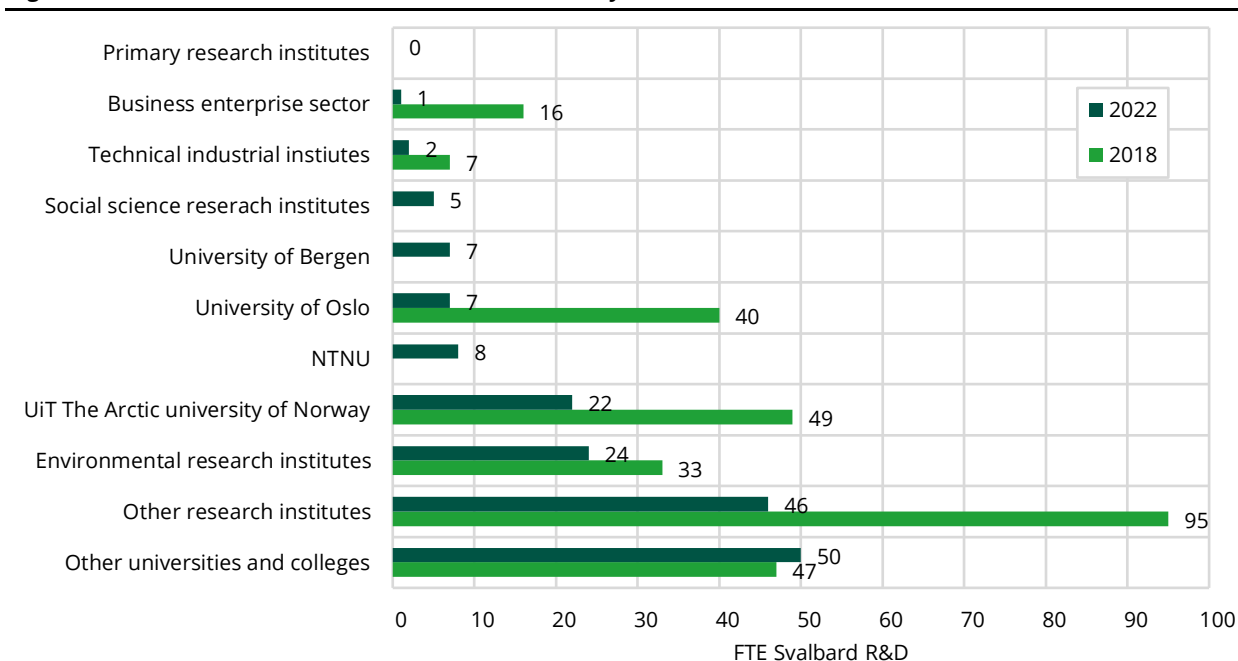


Source: Statistics Norway

We also compared the 2022 FTE figures related to Svalbard with those from 2018 and present these figures for the largest institutions and groups of institutes in Figure 5.4. As the total volume of FTEs has decreased significantly, this reduction is observed across several institutions. The largest reduction was seen in the 'other research institutes,' which dropped from 95 to 46 FTEs, a decrease of about 50 percent. UiT The Arctic University of Norway also halved its R&D volume, from 49 to 22 FTEs, a 55 percent reduction compared to 2018. The University of Oslo experienced a substantial reduction as well, with a decrease to 7 FTEs, or about 83 percent.

However, both NTNU and the University of Bergen, along with social science institutes, conducted R&D related to Svalbard in 2022, which they had not done in 2018. Additionally, other universities and colleges increased their R&D volume compared to 2018.

Figure 5.4 Number of FTE to R&D related to Svalbard by institutions in 2018 and 2022

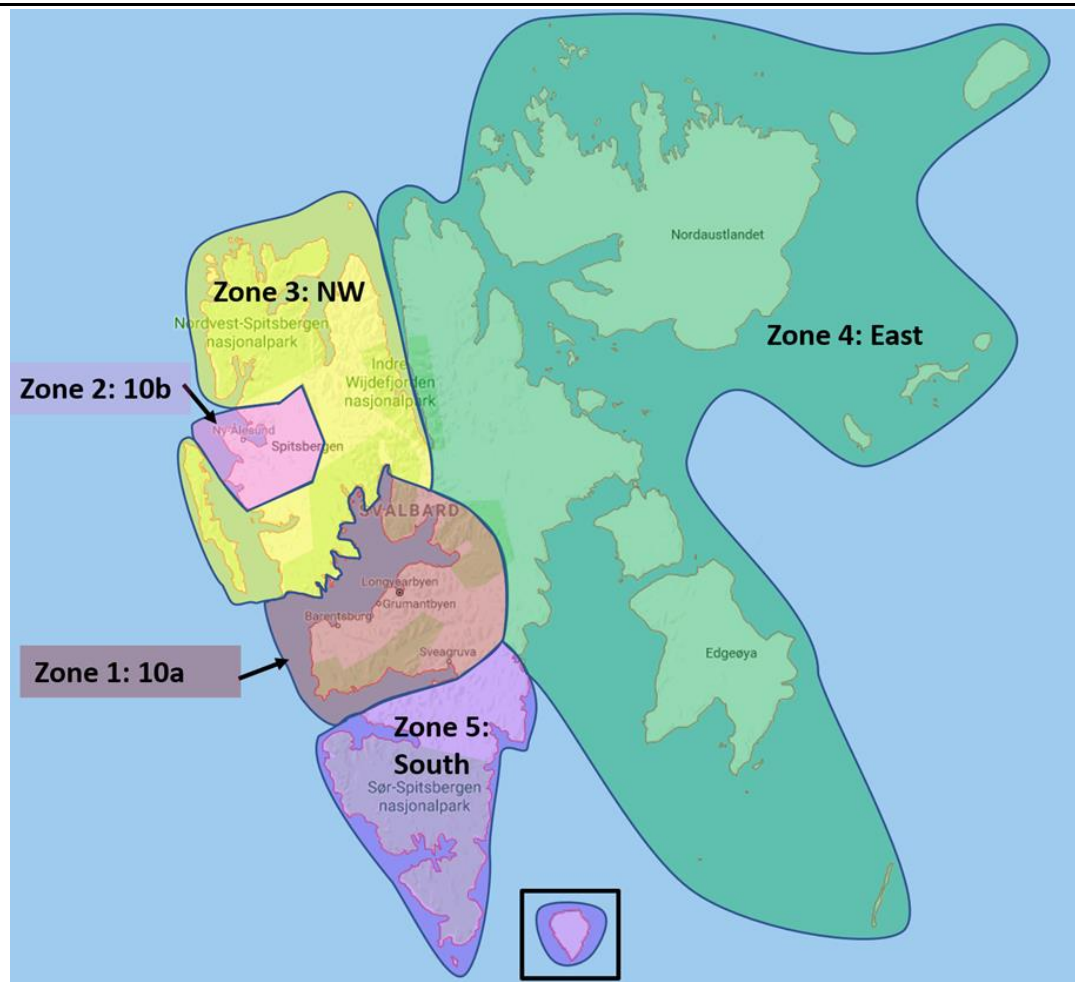


Source: NIFU and Statistics Norway

5.4. R&D related to Svalbard, geographically distributed

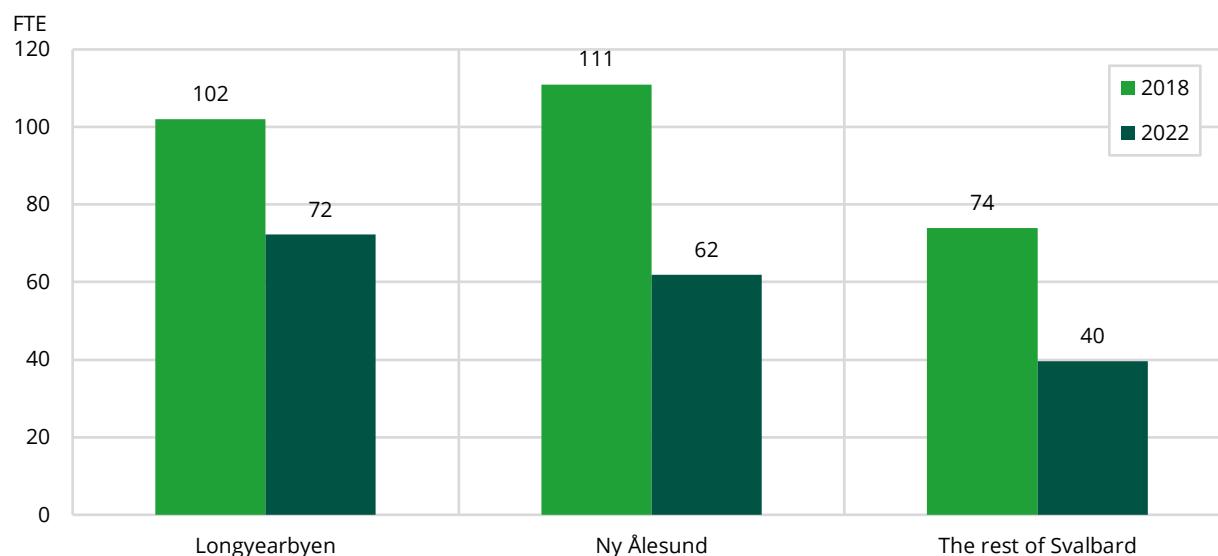
In the 2018 mapping, Svalbard was divided into five zones of interest. These are zone 1: Longyearbyen and surroundings, zone 2: Ny Ålesund and Kongsfjorden, zone 3: Northwest Svalbard, zone 4: East Svalbard (Nord Austlandet and Hopen), and zone 5: South Svalbard, including Hornsund and Bjørnøya. For a complete overview of the zones and the descriptions, see Figure 5.5 Map of Svalbard.

Figure 5.5 Map of Svalbard



Source: Norwegian Polar institute

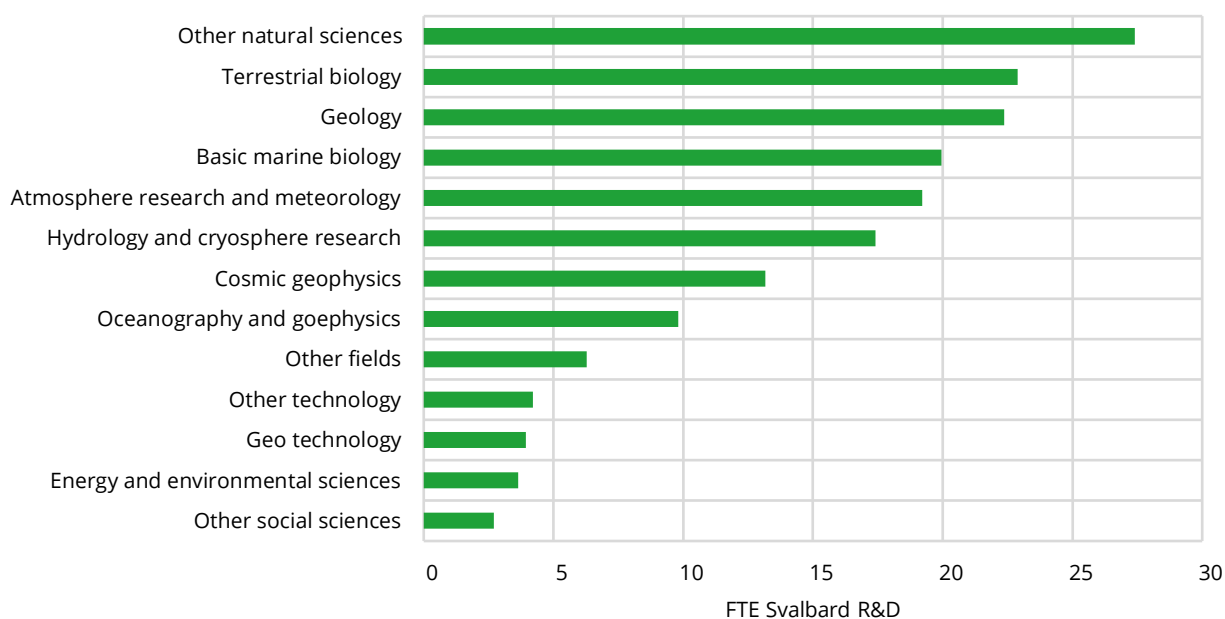
However, in the present mapping, we have merged zones 3–5 and only present numbers of zone 1, 2 and the rest of Svalbard (zones 3–5). In Figure 5.6 the FTEs related to Svalbard are presented for 2018 and 2022 across these zones. It shows that the R&D activity has decreased for all zones, from 102 to 72 FTEs for Longyearbyen and surroundings (a reduction of about 30 percent), from 111 to 60 FTE for Ny Ålesund (a reduction of 46 percent), and for the rest of Svalbard, the reduction was from 74 to 40 FTE (46 percent).

Figure 5.6 Number of FTE to R&D related to Svalbard by zones in 2018 and 2022

Source: Statistics Norway

5.5. R&D related to Svalbard by fields of R&D

The distribution of R&D activity related to Svalbard in 2022 by fields is shown in Figure 5.7. R&D activities related to Svalbard are mostly within the natural sciences, accounting for about 90 percent of the total. The largest fields are 'other natural sciences' an unspecified field, which constituted 27 FTEs. However, the largest single fields were terrestrial biology, geology, and basic marine biology, each with around 20 FTEs. This was followed by several fields related to climate research, such as atmospheric research, meteorology, hydrology, and cosmic geophysics, each with around 15 to 20 FTEs. Most of the research related to Svalbard focuses on climate and environmental studies.

Figure 5.7 Number of FTE to R&D related to Svalbard by fields in 2022

Source: Statistics Norway

5.6. Funding of R&D related to Svalbard

The total funding of R&D related to Svalbard, are summarized in Table 5.1. As for the polar research, the mapping of Svalbard, also included questions regarding infrastructure cost, current expenditure and investment costs. Based on the reported FTEs, we have calculated current R&D expenditures to be 262 million NOK. Additionally, the R&D performing units reported 72 million NOK for current infrastructure costs and 8 million NOK for infrastructure investments. In total, 343 million NOK was spent on R&D expenditures related to Svalbard in 2022.

The estimated current cost for R&D related to Svalbard in 2018 was approximately 450 million NOK. This represents a reduction of 115 million NOK compared to the estimated total current expenditure of 335 million NOK in 2022.

Table 5.1 Total R&D expenditures related to Svalbard by type of costs and sector of performance in 2022. Mill. NOK

Sector of performance	Current expenditures (salaries and general current cost)	Current cost to infrastructure	Total Current expenditures	Investment	Total
Higher education sector	142	33	175	2	177
Institute sector	118	40	157	6	164
Business enterprise sector	2		2		2
Total	262	72	335	8	343

Source: Statistics Norway

6. Discussion

In this chapter, we discuss the changes in polar R&D activity in 2022 compared to previous mappings. Overall, we have observed a decline in polar R&D activity, both in terms of R&D FTEs and R&D expenditures for both the polar regions, the High North and for research related to Svalbard.

We will also include the results of the findings regarding changes in R&D activity since the previous 2018-mapping and discuss possible reasons for these changes.

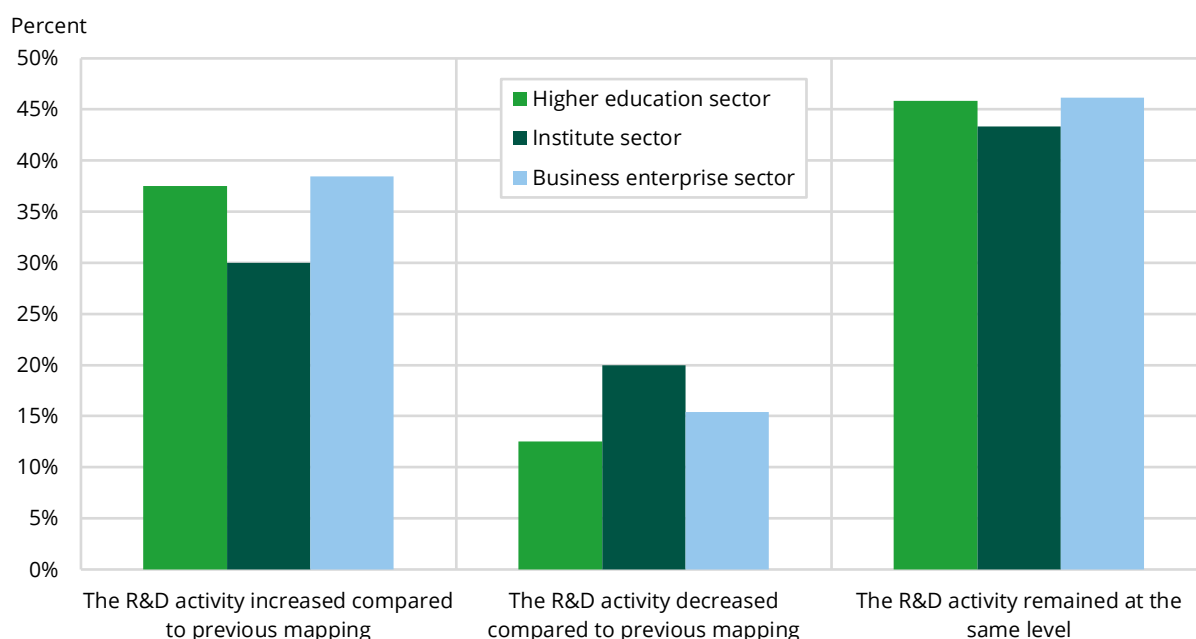
Lastly, we will compare the number of R&D FTEs dedicated to polar research with the scientific publications (i.e. bibliometric data) related to these areas. The bibliometric analysis is conducted by NIFU and will be published in a separate report (Aksnes, 2024).

6.1. Change of R&D activities compared to previous mapping

In the survey we included questions regarding the R&D volume compared to the previous mapping. The units were asked: *"Compared to the previous mapping in 2018, have the R&D activity in polar or High North regions increased, decreased or remained at the same level?"*

The responses to this question are summarized in Figure 6.1 by sector of performance. Approximately 40 percent of the units, regardless of sector, reported that their activity remained at the same level. Around one third of the units indicated an increase in R&D activity, while 12 to 20 stated a decrease in R&D activities.

Figure 6.1 Proportion of units that increased, decreased or remained at the same level with regard to R&D activity in 2022, compared to 2018, by sector of performance



Note: Higher education sector, N=49, Institute sector, N=30, Business enterprise sector, N=29.

Source: Statistics Norway

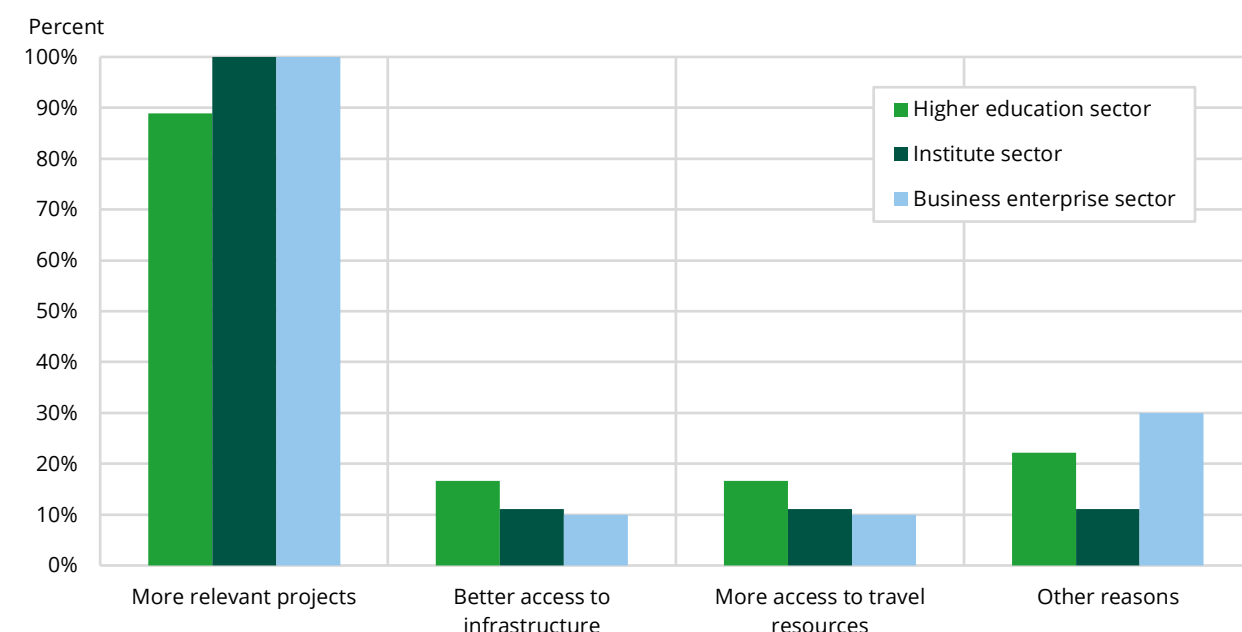
If we examine the responses from the five largest university departments regarding the R&D activity, three of them stated that their activity remained at the same level, while one each reported an increase or decrease. These university departments had a total of about 210 FTEs in polar R&D in 2022, compared to 175 FTEs in 2018, representing an increase of 35 FTEs, or approximately 20 percent.

Similarly, for the institute sector, examining the five largest units in terms of polar R&D FTEs, reveals that only one institute reported increased R&D activity, while four reported activities at the same level. Comparing the actual numbers of reported FTEs for polar R&D in 2018 and 2022, these five largest institutes had about 395 FTEs in 2022, whereas collectively they had about 410 FTEs in 2018, indicating a decrease of about 4 percent.

Despite the overall decrease in polar R&D activity since 2018, these findings are somewhat reassuring as they suggest that some of the most significant R&D units in both sectors have maintained or even increased their polar R&D activities over this period. Although some larger units reduced the polar R&D activity compared to 2018, most of the reduction in R&D can mainly be attributed to units where polar R&D is not a core activity.

Units that reported either an increase or decrease in their R&D activity were asked about possible reasons for the change. The results regarding the increase in activity are presented in Figure 6.2.

Figure 6.2 Proportion of units that increased the R&D activity in 2022 compared to 2018, and possible reasons for the increase, by sector of performance



Note: Higher education sector, N=18, Institute sector, N=9, Business enterprise sector, N=11.
Source: Statistics Norway

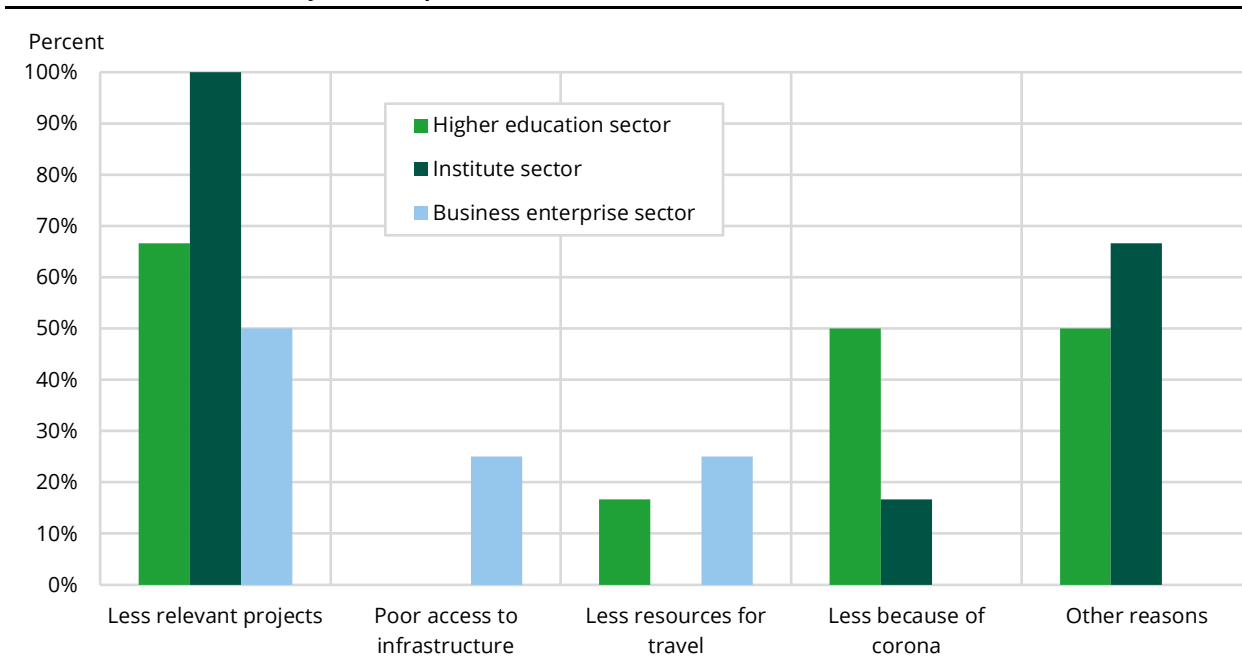
The predefined reasons that units could select from were 'more relevant projects,' 'better access to infrastructure,' 'increased access to travel resources to arctic/polar areas,' and 'other reasons.' However, nearly all units, irrespective of sector, that reported an increase in polar R&D activity stated 'more relevant projects' as the primary reason. Additionally, about 10 to 15 percent of the units mentioned improved access to infrastructure and travel resources. Among the 'other reasons' stated by 20 to 30 percent of respondents for increasing R&D activity were the addition of a new PhD student, new employment, increased external funding, and greater interest in the polar region. It's important to note that these findings are based on a small number of responses.

The reasons for decreased polar R&D activities among units are presented in Figure 6.3. The most stated reason was 'less relevant projects,' reported by two-thirds of units from the higher education sector and by all research institutes. Poor access to infrastructure and limited resources were mentioned by only a small percentage of units, while reductions due to the COVID-19 pandemic were stated by half of the university departments. Other reasons for decreasing polar R&D activities included downsizing, key personnel reductions, fewer PhD students, and reduced collaboration with

Russian institutions. Once again, it's crucial to take into consideration that these findings are based on responses from a limited number of units.

However, looking back to 2022, the corona pandemic was in its final phase in the beginning of the year, and it is plausible that travel restrictions affected polar research activities. Additionally, reduced collaboration with Russian institutions due to the war in Ukraine may have also impacted R&D activities for some institutions and departments.

Figure 6.3 Proportion of units that decreased the R&D activity in 2022 compared to 2018, and possible reasons for the decrease, by sector of performance.



Note: Higher education sector, N=6, Institute sector, N=6, Business enterprise sector, N=4.

Source: Statistics Norway

6.2. Comparison of FTE to polar research with publications related to polar research

In this chapter, we are comparing resources allocated to R&D in terms of FTEs to polar R&D with scientific publications by the Norwegian research community over the years, especially from 2018 until today. These are two indicators that reflect the volume of research: the first (R&D FTE) is an input indicator, while scientific publishing is an output indicator. They cannot be directly compared, as it often takes one to two years or longer for research to result in a scientific article. In such a comparison, we should therefore expect a delay for the publication indicator. Nevertheless, we expect to see a similar trend for both indicators when we compare them over a longer period.

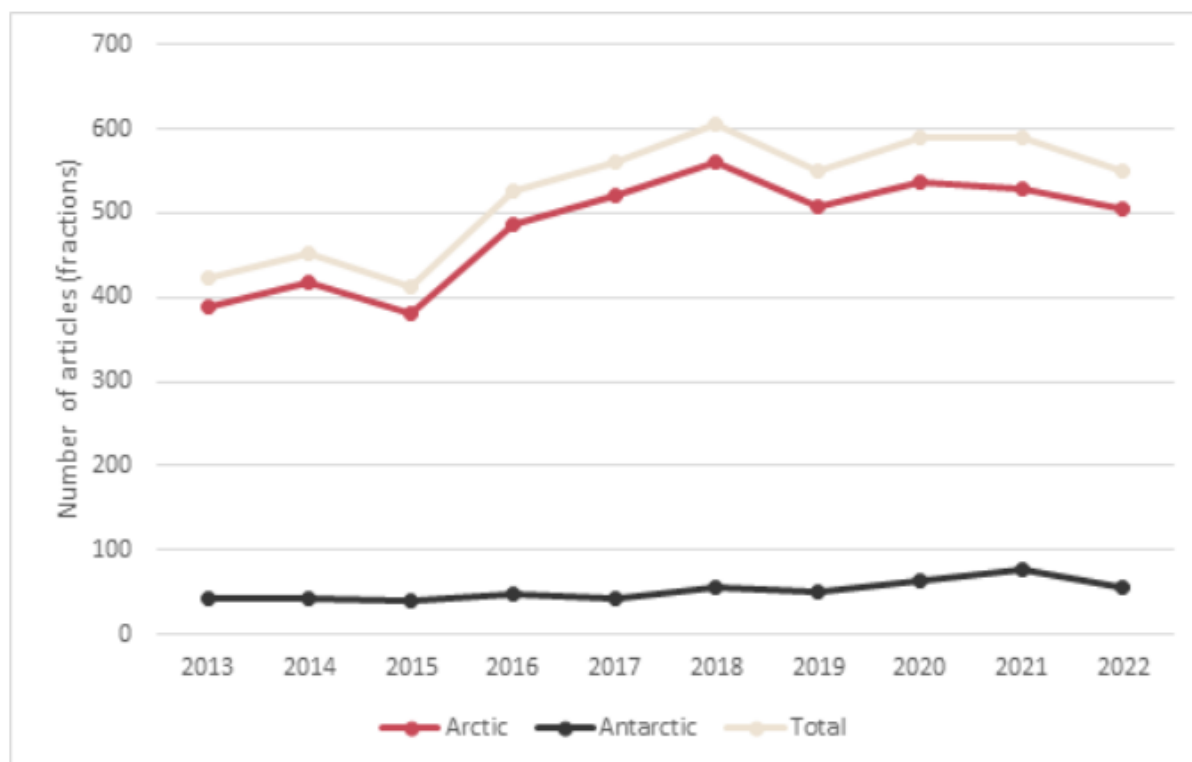
Another aspect to consider is that the performing sectors do not exclusively publish scientific publications. This is especially true for the institute sector, which publishes their research in non-scientific reports, and particularly for the business enterprise sector, which in general publishes only few scientific publications. Therefore, a comparison of such indicators is best suited for the higher education sector, where the majority of academic research is published as scientific publications. In any case, it is interesting to do a comparison of these indicators and for all sectors, in this study. Additionally, observed differences and similarities in these indicators, might support possible explanations for the development of polar research activity. The development in scientific publications, can be explained by the development in numbers of FTEs, and vice versa.

Figure 6.4 (Figure 4.1, Aksnes (2024)) shows the number of Norwegian polar research articles for Arctic and Antarctica and the total number of articles (fraction). In 2013, the number of Norwegian

polar research articles (fractions²) was about 440, and increased to about 565 in 2022, representing a 28 percent growth. However, the publication volume peaked in 2018 with about 600 publications. From the top in 2018 to 2022, the publication volume decreased to about 550, or about 8 percent.

If we compare this trend in scientific publications with the FTEs to polar research, we observe a similar trend, at least when comparing the same years. From 2018 to 2022, the number of FTE was reduced by about 17 percent. However, the FTEs in 2014 were at the same level as in 2018, while the publications showed significant growth in the same period.

Figure 6.4 Number of Norwegian polar research articles (fractions) total and per geographic area, 2013-2022



Note: Some articles deal with, or are based on, research conducted in both the Arctic and Antarctic (bipolar articles), and these articles are included under both categories.

Source: NIFU

Further, the share of Antarctic articles of total number of polar articles was about 8 percent in 2022. FTEs conducted in Antarctica constituted slightly less at 6 percent (Figure 4.5). The share of articles related to Svalbard, of polar research was 24 percent in 2022 (Aksnes (2024)), while the share of FTEs related to Svalbard was 22 percent the same year (Figure 5.2).

If we look into the national landscape of the polar research and which institutions are the largest by scientific publications, UIT The Arctic University of Norway was the largest contributor to polar research with a share of about 18 percent of all polar articles. Then followed University of Bergen and University of Oslo with a share of polar research articles at 9.4 and 8.9 percent respectively (Table 4.2, Aksnes (2024)). Compared to the FTEs to polar research, it matches quite well for UIT The Arctic University of Norway, with a share of 20 percent, but the University of Bergen and University of Oslo had shares of polar research FTEs at 7 and 3 percent respectively (Figure 4.3).

² Fractions of articles are used as indicator, rather than whole counts, due to a high share of co-publishing.

Both at an overall and institutional level, the figures of FTEs to polar research and publications related to polar research, are comparable and gives a similar picture of the research. We also see the same declining trend since the previous mapping in 2018 until today mapping in 2022.

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Appendix A: Questionnaires



Statistisk sentralbyrå
Statistics Norway

Kartlegging av polarforskning og nordområdeforskning (FoU) i Norge i 2022 - universitets- og høyskolesektoren

Svarfrist: 12. desember 2023.

Opplysningene du taster inn lagres når du går frem og tilbake i skjemaet. Det er mulig å gå ut av skjemaet for så å komme tilbake senere uten at inntastede data forsvinner. På skjemaets siste side kan man oppgi sin e-postadresse og få tilsendt en kopi av besvarelsen.

Ved spørsmål, kontakt Kristoffer Rørstad, telefon: 92 81 97 22, e-post: kristoffer.rorstad@ssb.no

1. Vennligst oppgi kontaktopplysninger

Institutt	<input type="text"/>
Lærested	<input type="text"/>
Kontaktperson	<input type="text"/>
Tlf	<input type="text"/>
E-post	<input type="text"/>

2. Utførte instituttet polar- og/eller nordområdeforskning i 2022?

- ☐ Ja
☐ Nei

Definisjon av polarforskning (FoU): Forskning (FoU) som drives med grunnlag i materiale fra polarområdene (Arktis og Antarktis), omkring fenomener med lokalisering i polarområdene, eller som tar direkte sikte på anvendelse i polarområdene. Alle fagområder er omfattet.

Arktiske områder: Den polare delen av Arktis inkludert bl.a. Svalbard, Jan Mayen, det nordlige Norskehavet, Barentshavet, Grønlandshavet og Polhavet. Omfatter landområder nord for skoggrensen med kontinuerlig permafrost og havområder nord for grensen for maksimal havisutbredelse. I norsk sektor følger avgrensningen 72. breddegrad og ikke grensen for maksimal utbredelse av havis. Avgrenset med mørk blå/grå farge på kartet.

Antarktiske områder: Området sør for den antarktiske konvergens hvor de varme vannmassene nordfra møte de kalde vannmassene fra Sørishavet (polarfronten). Polarfrontens posisjon varierer, men befinner seg vanligvis mellom 50 og 60 grader sør. Også de sub-arktiske øyene, slik som Bouvetøya og Sør-Georgia, som tidvis kan ligge nord for konvergens er inkludert. Avgrenset med mørk blå farge på kartet.



Definisjon av nordområdeforskning (FoU):

Forskning (FoU) som har tematisk relevans og/eller henter sitt materiale og/eller sikter mot anvendelse av FoU-resultater i nordområdene. Alle fagområder er omfattet (også medisinsk forskning når den er basert på biologisk-/klinisk-/helse-materiale eller data innhentet i nordområdene). FoU-arbeidet kan utføres ved enheter som har sin institusjonsadresse i nordområdene eller utenfor.

Nordområdene: Nordområdene omfatter området innenfor den svarte linjen (i Nordland, Troms og Finnmark) med fjord- og kystområdene, nordlige deler av Norskehavet, Barentshavet og Svalbard). I tillegg inngår nord-Sverige, nord-Finland og nordvest-Russland, markert med grå farge i kartet.



I denne kartleggingen er det noe overlapp mellom de geografiske områdene for Arktis og nordområdene ved at Svalbard og deler av Barentshavet og Polhavet inngår i begge. FoU som er utført herskal rapporteres både under "Arktisk polarforskning" og "Nordområdeforskning". Dette er viktig for at vi skal kunne utarbeide totaltall for henholdsvis polarforskning og nordområdeforskning.

Generell FoU-aktivitet som ikke er spesifikt rettet mot arktiske eller nordområder skal ikke inkluderes, sekv om den FoU-utførende enheten er lokalisert i arktiske/nordområder. Eksempel: et foretak i Tromsø som utvikler IT-systemer uten spesifikk anvendelse/problemløsning knyttet til nordområdene, regnes ikke som FoU relatert til nordområdene.

Definisjon av FoU-årsverk

FoU-årsverk er årsverk brukt til FoU. I beregning av antall FoU-årsverk skal også administrasjon knyttet til denne FoU-aktiviteten inkluderes. Eksempel: en person som bruker 40 % av sin tid til FoU, og videre 10% til administrasjon av FoU i løpet av et år, tilsvare 0,5 FoU-årsverk. I rapporteringen av FoU-årsverk skal administrasjon og teknisk personale inkluderes i tillegg til faglige/vitenskapelig personale. Videre skal både fast og midlertidig ansatte inkluderes.

3. I hvilke geografiske områder var FoU-aktiviteten relatert til?

- ☐ Svalbard
- ☐ Nordområder (utenom Svalbard)
- ☐ Polare områder - Antarktis og øvrige Arktis (utenom Svalbard)

Sett kryss i aktuelle områder

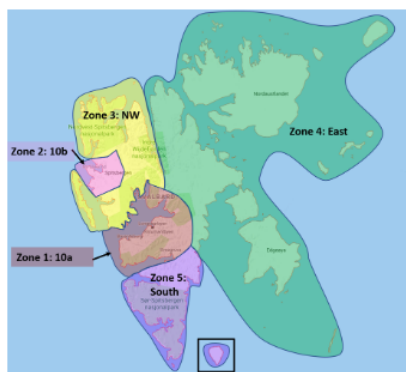
4. Oppgi antall FoU-årsverk som instituttet utførte i 2022, og spesifiser nedenfor hvor disse var konsentrert om (hvilket område data var innhentet/forskningen omhandlet).

FoU-årsverk er årsverk brukt til FoU. Inkluder FoU-årsverk fra teknisk/administrativt personale i tillegg til vitenskapelig personale/forskere og annet faglig personale.

Polare områder	Nordområder	Svalbard	Geografisk område	Antall FoU-årsverk
Antarktis			Antarktis - landområder	<input type="text"/>
Antarktis			Antarktis - havområder	<input type="text"/>
Arktis			<u>Arktiske landområder utenom Svalbard</u>	<input type="text"/>
Arktis			Polhavet	<input type="text"/>
Arktis			Grønlandshavet	<input type="text"/>
Arktis			Øvrige havområder i Arktis	<input type="text"/>
Arktis			Uspesifisert arktis	<input type="text"/>
Arktis	Nordområde	Svalbard	<u>Svalbard: Longyearbyen med nærområder (sone 1)</u>	<input type="text"/>
Arktis	Nordområde	Svalbard	<u>Svalbard: Ny Ålesund med nærområder (sone 2)</u>	<input type="text"/>
Arktis	Nordområde	Svalbard	<u>Svalbard for øvrig (sone 3-5)</u>	<input type="text"/>
Arktis	Nordområde		Barentshavet og nordlige del av Norskehavet	<input type="text"/>
	Nordområde		Hav- og kystområder utenfor Nord-Norge	<input type="text"/>
	Nordområde		Nordland	<input type="text"/>
	Nordområde		Troms	<input type="text"/>
	Nordområde		Finnmark	<input type="text"/>
	Nordområde		Nord-Sverige, nord-Finland og nordvest-Russland	<input type="text"/>
	Nordområde		Uspesifisert/generell nordområde	<input type="text"/>
Sum Polare områder				<input type="text" value="0"/>
Sum Nordområder				<input type="text" value="0"/>
Sum Svalbard				<input type="text" value="0"/>

Hold musmarkøren på underlinjet tekst i tabellen for forklaring.

Kartet viser de geografiske sonene Svalbard er inndelt i. I tabellen skal FoU-årsverkene fordeles i sone 1, sone 2 og sone 3-5 samlet. For marint område skal rapporteringen inkludere 12 nautiske mil.



FoU relatert til Svalbard

5. Dere har oppgitt at instituttet hadde FoU-aktivitet på Svalbard som utgjorde 0 FoU-årsverk i 2022. Oppgi hvordan lønn og andre driftskostnader til denne FoU-aktiviteten ble finansiert.

Finansiering	Prosent
Grunnbevilgning (gjelder fast personale, stipendiater, postdoc og andre lønnet av lærestedenes grunnbudsjett)	<input type="text"/>
Norges forskningsråd	<input type="text"/>
Departementer mv.	<input type="text"/>
Næringsliv	<input type="text"/>
EU-kommisjonen	<input type="text"/>
Utlandet (utenom EU)	<input type="text"/>
Andre kilder (fond, private, egne inntekter)	<input type="text"/>
Totalt (skal summeres til 100 %)	0

FoU relatert til Svalbard

6. Hadde instituttet utgifter til drift av og investeringer til infrastruktur knyttet til FoU-aktiviteten på Svalbard?

Ta med kostnader til laboratorier, anlegg, fartøy eller utstyrsenheter som ble brukt til denne FoU-aktiviteten. For investeringer ta med beløp over 2 millioner kroner. Oppgi beløp i mill. kroner.

Finansiering	Drift	Investeringer
Grunnbevilgning	<input type="text"/>	<input type="text"/>
Norges forskningsråd	<input type="text"/>	<input type="text"/>
Departementer mv.	<input type="text"/>	<input type="text"/>
Næringsliv	<input type="text"/>	<input type="text"/>
EU-kommisjonen	<input type="text"/>	<input type="text"/>
Utlandet (utenom EU)	<input type="text"/>	<input type="text"/>
Andre kilder (fond, private, egne inntekter)	<input type="text"/>	<input type="text"/>
Sum	0	0

FoU relatert til Svalbard

7. Dere har oppgitt at instituttet hadde FoU-aktivitet på Svalbard som utgjorde 0 FoU-årsverk i 2022.

Fordel FoU-årsverkene prosentvis skjønnsmessig etter fagfelt

Fagfeltene er listet etter fagområder og omfatter både disipliner og tematiske områder.

Fagfelt	Prosent
Velg fag	<input type="text"/>
Velg fag	<input type="text"/>
Velg fag	<input type="text"/>
Velg fag	<input type="text"/>
Velg fag	<input type="text"/>
Velg fag	<input type="text"/>
Velg fag	<input type="text"/>
Velg fag	<input type="text"/>
Velg fag	<input type="text"/>
Velg fag	<input type="text"/>
Totalt (skal summeres til 100%)	0

FoU relatert til Nordområdene

8. Dere har oppgitt at instituttet hadde FoU-aktivitet i Nordområdene som utgjorde 0 FoU-årsverk i 2022.**Oppgi hvordan lønn og andre driftskostnader til denne FoU-aktiviteten ble finansiert.**

Finansiering	Prosent
Grunnbevilgning (gjelder fast personale, stipendiater, postdoc og andre lønnet av lærestedenes grunnbudsjett)	<input type="text"/>
Norges forskningsråd	<input type="text"/>
Departementer mv.	<input type="text"/>
Næringsliv	<input type="text"/>
EU-kommisjonen	<input type="text"/>
Utlandet (utenom EU)	<input type="text"/>
Andre kilder (fond, private, egne inntekter)	<input type="text"/>
Totalt (skal summeres til 100 %)	0

Antall FoU-årsverk er hentet fra spørsmålet om geografisk fordeling, og er totalt antall årsverk i Nordområdene inkl. ev. Svalbard. Svaret skal relateres til dette antallet.

Svaret skal relateres til instituttets totale FoU-aktivitet i Nordområdene inkl. ev. Svalbard.

FoU relatert til Nordområdene

9. Dere har oppgitt at instituttet hadde FoU-aktivitet i Nordområdene som utgjorde 0 FoU-årsverk i 2022.

Fordele FoU-årsverkene prosentvis skjønnsmessig etter fagfelt
Fagfeltene er listet etter fagområder og omfatter både disipliner og tematiske områder.

Fagfelt	Prosent
Velg fag <input type="text"/>	<input type="text"/>
Velg fag <input type="text"/>	<input type="text"/>
Velg fag <input type="text"/>	<input type="text"/>
Velg fag <input type="text"/>	<input type="text"/>
Velg fag <input type="text"/>	<input type="text"/>
Velg fag <input type="text"/>	<input type="text"/>
Velg fag <input type="text"/>	<input type="text"/>
Velg fag <input type="text"/>	<input type="text"/>
Velg fag <input type="text"/>	<input type="text"/>
Velg fag <input type="text"/>	<input type="text"/>
Totalt (skal summeres til 100%)	0

Antall FoU-årsverk er hentet fra spørsmålet om geografisk fordeling, og er totalt antall årsverk i Nordområdene inkl. ev. Svalbard. Svaret skal relateres til dette antallet.

FoU relatert til polare områder (Antarktis og Arktis)

10. Dere har oppgitt at instituttet hadde polar FoU som utgjorde 0 FoU-årsverk i 2022.

Oppgi hvordan lønn og andre driftskostnader til denne FoU-aktiviteten ble finansiert.

Finansiering	Prosent
Grunnbevilgning (gjelder fast personale, stipendiater, postdoc og andre lønnet av lærestedenes grunnbudsjett)	<input type="text"/>
Norges forskningsråd	<input type="text"/>
Departementer mv.	<input type="text"/>
Næringsliv	<input type="text"/>
EU-kommisjonen	<input type="text"/>
Utlandet (utenom EU)	<input type="text"/>
Andre kilder (fond, private, egne inntekter)	<input type="text"/>
Totalt (skal summeres til 100 %)	0

Antall FoU-årsverk er hentet fra spørsmålet om geografisk fordeling, og er totalt antall årsverk i polare områder inkl. ev. Svalbard. Svaret skal relateres til dette antallet.

FoU relatert til polare områder (Antarktis og Arktis)

11. Hadde instituttet utgifter til drift av og investeringer til infrastruktur knyttet til FoU-aktiviteten i polare områder (Antarktis og øvrige Arktis)?

Ta med kostnader til laboratorier, anlegg, fartøy eller utstyrsenheter som ble brukt til denne FoU-aktiviteten. For investeringer ta med beløp over 2 millioner kroner. Oppgi beløp i mill. kroner.

Finansiering	Drift	Investeringer
Grunnbevilgning	<input type="text"/>	<input type="text"/>
Norges forskningsråd	<input type="text"/>	<input type="text"/>
Departementer mv.	<input type="text"/>	<input type="text"/>
Næringsliv	<input type="text"/>	<input type="text"/>
EU-kommisjonen	<input type="text"/>	<input type="text"/>
Utlandet (utenom EU)	<input type="text"/>	<input type="text"/>
Andre kilder (fond, private, egne inntekter)	<input type="text"/>	<input type="text"/>
Sum	0	0

Svaret skal relateres til instituttets totale FoU-aktivitet i polare områder inkl. ev. Svalbard.

FoU relatert til polare områder (Antarktis og Arktis)

12. Dere har oppgitt at instituttet hadde polar FoU som utgjorde 0 FoU-årsverk i 2022.

Fordel disse FoU-årsverkene prosentvis skjønsmessig etter fagfelt

Fagfeltene er listet etter fagområder og omfatter både disipliner og tematiske områder.

Fagfelt	Prosent
Velg fag	
Velg fag	
Velg fag	
Velg fag	
Velg fag	
Velg fag	
Velg fag	
Velg fag	
Velg fag	
Velg fag	
Velg fag	
Totalt (skal summeres til 100%)	0

Antall FoU-årsverk er hentet fra spørsmålet om geografisk fordeling, og er totalt antall årsverk i polare områder inkl. ev. Svalbard. Svaret skal relateres til dette antallet.

13. Hadde instituttet FoU knyttet til urfolk i 2022?

Hvis ja, vennligst oppgi antall FoU-årsverk etter tema

Tema	FoU-årsverk
Reindrift	
Språk	
Rettsvitenskap og rettighetsforhold	
Kultur og historie	
Helsefag	
Øvrige fag/tema	

14. Sammenlignet med tidligere år (2018-kartleggingen, dersom enheten var med), var enhetens FoU-aktivitet innenfor polare og/eller nordområder i 2022 på samme nivå som tidligere, eller mer eller mindre?

- ☐ Enhetens FoU-omfang i 2022 var på samme nivå som tidligere
☐ Enhetens FoU-omfang i 2022 var mindre enn tidligere
☐ Enhetens FoU-omfang i 2022 var større enn tidligere

15. Hva er de viktigste årsakene til at enhetens FoU-omfang er redusert i forhold til tidligere?

- ☐ Vi har færre relevante prosjekter
☐ Vi har dårligere tilgang til relevant infrastruktur
☐ Vi har mindre ressurser til å reise til arktiske/polare områder
☐ Vi hadde mindre muligheter pga coronapandemien
☐ Andre årsaker

15. Hva er de viktigste årsakene til at enhetens FoU-omfang har økt?

- ☐ Vi har fått flere prosjekter
- ☐ Vi har fått bedre tilgang til infrastruktur
- ☐ Vi har mer tilgang til ressurser til å reise til arktiske/polare områder
- ☐ Andre årsaker

16. Takk for besvarelsen av spørreskjemaet om polar- og nordområdeforskning 2022. Dette er skjemaets siste side. Trykk "send inn" om skjemaet er ferdig utfyllt og klar for innlevering.

Om du ønsker kopi av besvarelsen, vennligst oppgi din epost-adresse her:

Eventuelle tilleggskommentarer oppgis i feltet nedenfor.

[Tilbake](#)[Send inn](#)

Kartlegging av polarforskning og nordområdeforskning (FoU) i Norge i 2022 - instituttsektoren

Svarfrist: 12. desember 2023.

Opplysningene du taster inn lagres når du går frem og tilbake i skjemaet. Det er mulig å gå ut av skjemaet for så å komme tilbake senere uten at inntastede data forsvinner. På skjemaets siste side kan man oppgi sin e-postadresse og få tilsendt en kopi av besvarelsen.

Ved spørsmål, kontakt Kristoffer Rørstad, telefon: 92 81 97 22, e-post: kristoffer.rorstad@ssb.no

1. Vennligst oppgi kontaktopplysninger

Institutt	
Kontaktperson	
Tlf	
E-post	

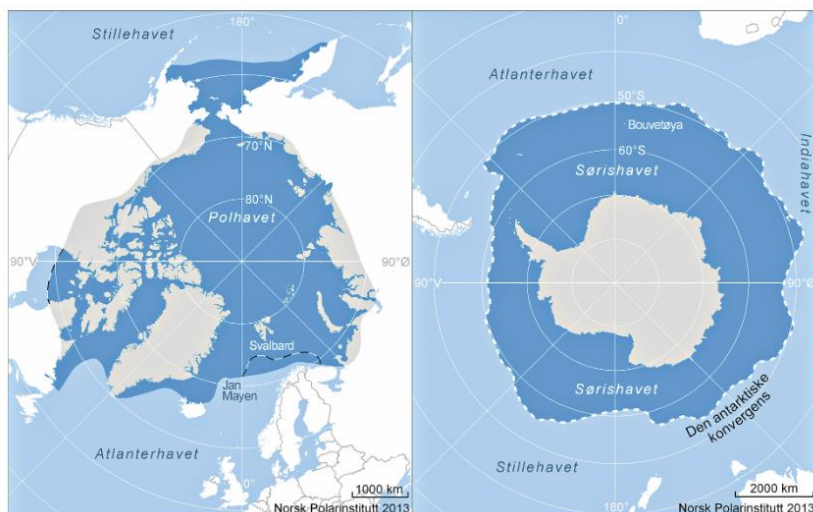
2. Utførte instituttet polar- og/eller nordområdeforskning i 2022?

- ☒ Ja
☐ Nei

Definisjon av polarforskning (FoU): Forskning og utviklingsarbeid (FoU) som drives med grunnlag i materiale fra polarområdene (Arktis og Antarktis), omkring fenomener med lokalisering i polarområdene, eller som tar direkte sikte på anvendelse i polarområdene. Alle fagområder er omfattet.

Arktiske områder: Den polare delen av Arktis inkludert bl.a. Svalbard, Jan Mayen, det nordlige Norskehavet, Barentshavet, Grønlandshavet og Polhavet. Omfatter landområder nord for skoggrensen med kontinuerlig permafrost og havområder nord for grensen for maksimal havisutbredelse. I norsk sektor følger avgrensningen 72. breddegrad og ikke grensen for maksimal utbredelse av havis. Avgrenset med mørk blå/grå farge på kartet.

Antarktiske områder: Området sør for den antarktiske konvergens hvor de varme vannmassene nordfra møte de kalde vannmassene fra Sørishavet (polarfronten). Polarfrontens posisjon varierer, men befinner seg vanligvis mellom 50 og 60 grader sør. Også de sub-arktiske øyene, slik som Bouvetøya og Sør-Georgia, som tidvis kan ligge nord for konvergensen er inkludert. Avgrenset med mørk blå farge på kartet.



Definisjon av nordområdeforskning (FoU):

Forskning og utviklingsarbeid (FoU) som har tematisk relevans og/eller henter sitt materiale og/eller sikter mot anvendelse av FoU-resultater i nordområdene. Alle fagområder er omfattet (også medisinsk forskning når den er basert på biologisk-/klinisk-/helse- materiale eller data innhentet i nordområdene). FoU-arbeidet kan utføres ved enheter som har sin institusjonsadresse i nordområdene eller utenfor.

Nordområdene: Nordområdene omfatter området innenfor den svarte linjen (i Nordland, Troms og Finnmark) med fjord- og kystområdene, nordlige deler av Norskehavet, Barentshavet og Svalbard). I tillegg inngår nord-Sverige, nord-Finland og nordvest-Russland, markert med grå farge i kartet.



I denne kartleggingen er det noe overlapp mellom de geografiske områdene for Arktis og nordområdene ved at Svalbard og deler av Barentshavet og Polhavet inngår i begge. FoU som er utført herskal rapporteres både under "Arktisk polarforskning" og "Nordområdeforskning". Dette er viktig for at vi skal kunne utarbeide totaltall for henholdsvis polarforskning og nordområdeforskning.

Generell FoU-aktivitet som ikke er spesifikt rettet mot arktiske eller nordområder skal ikke inkluderes, sekv om den FoU-utførende enheten er lokalisert i arktiske/nordområder. Eksempel: et foretak i Tromsø som utvikler IT-systemer uten spesifikk anvendelse/problemløsning knyttet til nordområdene, regnes ikke som FoU relatert til nordområdene.

Definisjon av FoU-årsverk

FoU-årsverk er årsverk brukt til FoU. I beregning av antall FoU-årsverk skal også administrasjon knyttet til denne FoU-aktiviteten inkluderes. Eksempel: en person som bruker 40% av sin tid til FoU, og videre 10% til administrasjon av FoU i løpet av et år, tilsvare 0,5 FoU-årsverk. I rapporteringen av FoU-årsverk skal administrasjon og teknisk personale inkluderes i tillegg til faglige/vitenskapelig personale. Videre skal både fast og midlertidig ansatte inkluderes.

3. I hvilke geografiske områder var FoU-aktiviteten relatert til?

- ☐ Svalbard
- ☐ Nordområder (utenom Svalbard)
- ☐ Polare områder - Antarktis og øvrige Arktis (utenom Svalbard)

Sett kryss i aktuelle områder

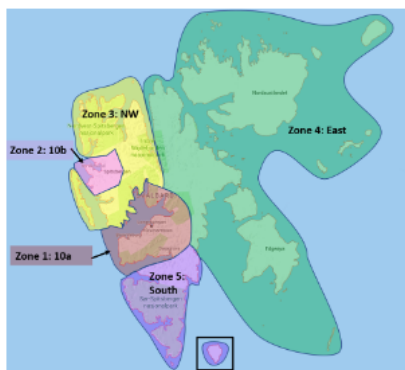
4. Oppgi antall FoU-årsverk som instituttet utførte i 2022, og spesifiser nedenfor hvor disse var konsentrert om (hvilket område data var innhentet/forskningen omhandlet).

FoU-årsverk er årsverk brukt til FoU. Inkluder FoU-årsverk fra teknisk/administrativt personale i tillegg til vitenskapelig personale/forskere og annet faglig personale.

Polare områder	Nordområder	Svalbard	Geografisk område	Antall FoU-årsverk
Antarktis			Antarktis - landområder	<input type="text"/>
Antarktis			Antarktis - havområder	<input type="text"/>
Arktis			<u>Arktiske landområder utenom Svalbard</u>	<input type="text"/>
Arktis			Polhavet	<input type="text"/>
Arktis			Grønlandshavet	<input type="text"/>
Arktis			Øvrige havområder i Arktis	<input type="text"/>
Arktis			Uspesifisert arktis	<input type="text"/>
Arktis	Nordområde	Svalbard	<u>Svalbard: Longyearbyen med nærområder (sone 1)</u>	<input type="text"/>
Arktis	Nordområde	Svalbard	<u>Svalbard: Ny Ålesund med nærområder (sone 2)</u>	<input type="text"/>
Arktis	Nordområde	Svalbard	<u>Svalbard for øvrig (sone 3-5)</u>	<input type="text"/>
Arktis	Nordområde		Barentshavet og nordlige del av Norskehavet	<input type="text"/>
	Nordområde		Hav- og kystområder utenfor Nord-Norge	<input type="text"/>
	Nordområde		Nordland	<input type="text"/>
	Nordområde		Troms	<input type="text"/>
	Nordområde		Finnmark	<input type="text"/>
	Nordområde		Nord-Sverige, nord-Finland og nordvest-Russland	<input type="text"/>
	Nordområde		Uspesifisert/generell nordområde	<input type="text"/>
Sum Polare områder				<input type="text" value="0"/>
Sum Nordområder				<input type="text" value="0"/>
Sum Svalbard				<input type="text" value="0"/>

Hold musmarkøren på underlinjet tekst i tabellen for forklaring.

Kartet viser de geografiske sonene Svalbard er inndelt i. I tabellen skal FoU-årsverkene fordeles i sone 1, sone 2 og sone 3-5 samlet. For marint område skal rapporteringen inkludere 12 nautiske mil.



FoU relatert til Svalbard

5. Dere har oppgitt at instituttet hadde FoU-aktivitet på Svalbard som utgjorde 0 FoU-årsverk i 2022. Oppgi hvordan lønn og andre driftskostnader til denne FoU-aktiviteten ble finansiert.

Finansiering	Prosent
Norges forskningsråd	<input type="text"/>
Departementer mv.	<input type="text"/>
Næringsliv	<input type="text"/>
EU-kommisjonen	<input type="text"/>
Utlandet (utenom EU)	<input type="text"/>
Andre kilder (fond, private, egne inntekter)	<input type="text"/>
Totalt (skal summeres til 100 %)	0

FoU relatert til Svalbard

6. Hadde instituttet utgifter til drift av og investeringer til infrastruktur knyttet til FoU-aktiviteten på Svalbard?

Ta med kostnader til laboratorier, anlegg, fartøy eller utstyrsenheter som ble brukt til denne FoU-aktiviteten. For investeringer ta med beløp over 2 millioner kroner. Oppgi beløp i mill. kroner.

Finansiering	Drift	Investeringer
Norges forskningsråd	<input type="text"/>	<input type="text"/>
Departementer mv.	<input type="text"/>	<input type="text"/>
Næringsliv	<input type="text"/>	<input type="text"/>
EU-kommisjonen	<input type="text"/>	<input type="text"/>
Utlandet (utenom EU)	<input type="text"/>	<input type="text"/>
Andre kilder (fond, private, egne inntekter)	<input type="text"/>	<input type="text"/>
Sum	0	0

FoU relatert til Svalbard

7. Dere har oppgitt at instituttet hadde FoU-aktivitet på Svalbard som utgjorde 0 FoU-årsverk i 2022.

Fordel FoU-årsverkene prosentvis skjønnsmessig etter fagfelt

Fagfeltene er listet etter fagområder og omfatter både disipliner og tematiske områder.

Fagfelt	Prosent
Velg fag <input type="text"/>	<input type="text"/>
Velg fag <input type="text"/>	<input type="text"/>
Velg fag <input type="text"/>	<input type="text"/>
Velg fag <input type="text"/>	<input type="text"/>
Velg fag <input type="text"/>	<input type="text"/>
Velg fag <input type="text"/>	<input type="text"/>
Velg fag <input type="text"/>	<input type="text"/>
Velg fag <input type="text"/>	<input type="text"/>
Velg fag <input type="text"/>	<input type="text"/>
Velg fag <input type="text"/>	<input type="text"/>
Totalt (skal summeres til 100%)	0

FoU relatert til Nordområdene

8. Dere har oppgitt at instituttet hadde FoU-aktivitet i Nordområdene som utgjorde 0 FoU-årsverk i 2022.

Oppgi hvordan lønn og andre driftskostnader til denne FoU-aktiviteten ble finansiert.

Finansiering	Prosent
Norges forskningsråd	<input type="text"/>
Departementer mv.	<input type="text"/>
Næringsliv	<input type="text"/>
EU-kommisjonen	<input type="text"/>
Utlandet (utenom EU)	<input type="text"/>
Andre kilder (fond, private, egne inntekter)	<input type="text"/>
Totalt (skal summeres til 100 %)	0

Antall FoU-årsverk er hentet fra spørsmålet om geografisk fordeling, og er totalt antall årsverk i Nordområdene inkl. ev. Svalbard. Svaret skal relateres til dette antallet.

FoU relatert til Nordområdene

9. Dere har oppgitt at instituttet hadde FoU-aktivitet i Nordområdene som utgjorde 0 FoU-årsverk i 2022.

Fordel FoU-årsverkene prosentvis skjønnsmessig etter fagfelt

Fagfeltene er listet etter fagområder og omfatter både disipliner og tematiske områder.

Fagfelt	Prosent
Velg fag ▼	<input type="text"/>
Velg fag ▼	<input type="text"/>
Velg fag ▼	<input type="text"/>
Velg fag ▼	<input type="text"/>
Velg fag ▼	<input type="text"/>
Velg fag ▼	<input type="text"/>
Velg fag ▼	<input type="text"/>
Velg fag ▼	<input type="text"/>
Velg fag ▼	<input type="text"/>
Velg fag ▼	<input type="text"/>
Totalt (skal summeres til 100%)	0

Antall FoU-årsverk er hentet fra spørsmålet om geografisk fordeling, og er totalt antall årsverk i Nordområdene inkl. ev. Svalbard. Svaret skal relateres til dette antallet.

FoU relatert til polare områder (Antarktis og Arktis)

10. Dere har oppgitt at instituttet hadde polar FoU som utgjorde 0 FoU-årsverk i 2022.

Oppgi hvordan lønn og andre driftskostnader til denne FoU-aktiviteten ble finansiert.

Finansiering	Prosent
Norges forskningsråd	<input type="text"/>
Departementer mv.	<input type="text"/>
Næringsliv	<input type="text"/>
EU-kommisjonen	<input type="text"/>
Utlandet (utenom EU)	<input type="text"/>
Andre kilder (fond, private, egne inntekter)	<input type="text"/>
Totalt (skal summeres til 100 %)	0

Antall FoU-årsverk er hentet fra spørsmålet om geografisk fordeling, og er totalt antall årsverk i polare områder inkl. ev. Svalbard. Svaret skal relateres til dette antallet.

FoU relatert til polare områder (Antarktis og Arktis)

11. Hadde instituttet utgifter til drift av og investeringer til infrastruktur knyttet til FoU-aktiviteten i polare områder (Antarktis og øvrige Arktis)?

Ta med kostnader til laboratorier, anlegg, fartøy eller utstyrsenheter som ble brukt til denne FoU-aktiviteten. For investeringer ta med beløp over 2 millioner kroner. Oppgi beløp i mill. kroner.

Finansiering	Drift	Investeringer
Norges forskningsråd	<input type="text"/>	<input type="text"/>
Departementer mv.	<input type="text"/>	<input type="text"/>
Næringsliv	<input type="text"/>	<input type="text"/>
EU-kommisjonen	<input type="text"/>	<input type="text"/>
Utlandet (utenom EU)	<input type="text"/>	<input type="text"/>
Andre kilder (fond, private, egne inntekter)	<input type="text"/>	<input type="text"/>
Sum	0	0

Svaret skal relateres til instituttets totale FoU-aktivitet i polare områder inkl. ev. Svalbard.

FoU relatert til polare områder (Antarktis og Arktis)

12. Dere har oppgitt at instituttet hadde polar FoU som utgjorde 0 FoU-årsverk i 2022.

Fordel disse FoU-årsverkene prosentvis skjønnsmessig etter fagfelt

Fagfeltene er listet etter fagområder og omfatter både disipliner og tematiske områder.

Fagfelt	Prosent
Velg fag	<input type="text"/>
Velg fag	<input type="text"/>
Velg fag	<input type="text"/>
Velg fag	<input type="text"/>
Velg fag	<input type="text"/>
Velg fag	<input type="text"/>
Velg fag	<input type="text"/>
Velg fag	<input type="text"/>
Velg fag	<input type="text"/>
Velg fag	<input type="text"/>
Velg fag	<input type="text"/>
Totalt (skal summeres til 100%)	0

Antall FoU-årsverk er hentet fra spørsmålet om geografisk fordeling, og er totalt antall årsverk i polare områder inkl. ev. Svalbard. Svaret skal relateres til dette antallet.

13. Hadde instituttet FoU knyttet til urfolk i 2022?**Hvis ja, vennligst oppgi antall FoU-årsverk etter tema**

Tema	FoU-årsverk
Reindrift	<input type="text"/>
Språk	<input type="text"/>
Rettsvitenskap og rettighetsforhold	<input type="text"/>
Kultur og historie	<input type="text"/>
Helsefag	<input type="text"/>
Øvrige fag/tema	<input type="text"/>

14. Sammenlignet med tidligere år (2018-kartleggingen, dersom instituttet var med), var instituttets FoU-aktivitet innenfor polare og/eller nordområder i 2022 på samme nivå som tidligere, eller mer eller mindre?

- ☐ FoU-omfanget i 2022 var på samme nivå som tidligere
- ☐ FoU-omfanget i 2022 var mindre enn tidligere
- ☐ FoU-omfanget i 2022 var større enn tidligere

15. Hva er de viktigste årsakene til at enhetens FoU-omfang er redusert i forhold til tidligere?

- ☐ Vi har færre relevante prosjekter
- ☐ Vi har dårligere tilgang til relevant infrastruktur
- ☐ Vi har mindre ressurser til å reise til arktiske/polare områder
- ☐ Vi hadde mindre muligheter pga coronapandemien
- ☐ Andre årsaker

15. Hva er de viktigste årsakene til at enhetens FoU-omfang har økt?

- ☐ Vi har fått flere prosjekter
- ☐ Vi har fått bedre tilgang til infrastruktur
- ☐ Vi har mer tilgang til ressurser til å reise til arktiske/polare områder
- ☐ Andre årsaker

16. Takk for besvarelsen av spørreskjemaet om polar- og nordområdeforskning 2022. Dette er skjemaets siste side. Trykk "send inn" om skjemaet er ferdig utfyllt og klar for innlevering.**Om du ønsker kopi av besvarelsen, vennligst oppgi din epost-adresse her:****Eventuelle tilleggskommentarer oppgis i feltet nedenfor.**

Tilbake

Send inn

Kartlegging av polarforskning og nordområdeforskning (FoU) i Norge i 2022 - næringslivet

Svarfrist: 12. desember 2023.

Opplysningene du taster inn lagres når du går frem og tilbake i skjemaet. Det er mulig å gå ut av skjemaet for så å komme tilbake senere uten at inntastede data forsvinner. På skjemaets siste side kan man oppgi sin e-postadresse og få tilsendt en kopi av besvarelsen.

Ved spørsmål, kontakt Kristoffer Rørstad, telefon: 92 81 97 22, e-post: kristoffer.rorstad@ssb.no

1. Vennligst oppgi kontaktopplysninger

Bedrift/foretak	<input type="text"/>
Kontaktperson	<input type="text"/>
Tlf	<input type="text"/>
E-post	<input type="text"/>

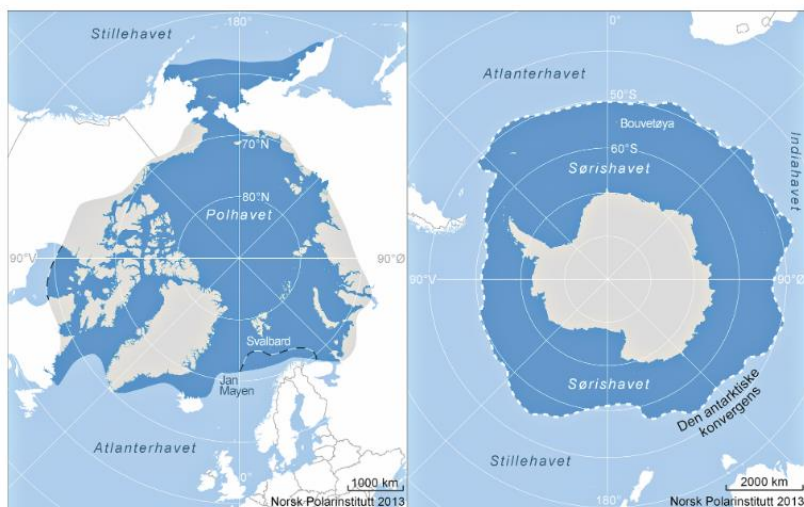
2. Utførte foretaket/bedriften polar- og/eller nordområdeforskning i 2022?

- ☐ Ja
☐ Nei

Definisjon av polarforskning (FoU): Forskning og utviklingsarbeid (FoU) som drives med grunnlag i materiale fra polarområdene (Arktis og Antarktis), omkring fenomener med lokalisering i polarområdene, eller som tar direkte sikte på anvendelse i polarområdene. Alle fagområder er omfattet.

Arktiske områder: Den polare delen av Arktis inkludert bl.a. Svalbard, Jan Mayen, det nordlige Norskehavet, Barentshavet, Grønlandshavet og Polhavet. Omfatter landområder nord for skoggrensen med kontinuerlig permafrost og havområder nord for grensen for maksimal havisutbredelse. I norsk sektor følger avgrensningen 72. breddegrad og ikke grensen for maksimal utbredelse av havis. Avgrenset med mørk blå/grå farge på kartet.

Antarktiske områder: Området sør for den antarktiske konvergens hvor de varme vannmassene nordfra møte de kalde vannmassene fra Sørishavet (polarfronten). Polarfrontens posisjon varierer, men befinner seg vanligvis mellom 50 og 60 grader sør. Også de sub-arktiske øyene, slik som Bouvetøya og Sør-Georgia, som tidvis kan ligge nord for konvergensen er inkludert. Avgrenset med mørk blå farge på kartet.



Definisjon av nordområdeforskning (FoU):

Forskning og utviklingsarbeid (FoU) som har tematisk relevans og/eller henter sitt materiale og/eller sikter mot anvendelse av FoU-resultater i nordområdene. Alle fagområder er omfattet (også medisinsk forskning når den er basert på biologisk-/klinisk-/helse- materiale eller data innhentet i nordområdene). FoU-arbeidet kan utføres ved enheter som har sin institusjonsadresse i nordområdene eller utenfor.

Nordområdene: Nordområdene omfatter området innenfor den svarte linjen (i Nordland, Troms og Finnmark) med fjord- og kystområdene, nordlige deler av Norskehavet, Barentshavet og Svalbard). I tillegg inngår nord-Sverige, nord-Finland og nordvest-Russland, markert med grå farge i kartet.



I denne kartleggingen er det noe overlapp mellom de geografiske områdene for Arktis og nordområdene ved at Svalbard og deler av Barentshavet og Polhavet inngår i begge. FoU som er utført herskal rapporteres både under "Arktisk polarforskning" og "Nordområdeforskning". Dette er viktig for at vi skal kunne utarbeide totaltall for henholdsvis polarforskning og nordområdeforskning.

Generell FoU-aktivitet som ikke er spesifikt rettet mot arktiske eller nordområder skal ikke inkluderes, sekv om den FoU-utførende enheten er lokalisert i arktiske/nordområder. Eksempel: et foretak i Tromsø som utvikler IT-systemer uten spesifikk anvendelse/problemløsning knyttet til nordområdene, regnes ikke som FoU relatert til nordområdene.

Definisjon av FoU-årsverk

FoU-årsverk er årsverk brukt til FoU. I beregning av antall FoU-årsverk skal også administrasjon knyttet til denne FoU-aktiviteten inkluderes. Eksempel: en person som bruker 40 % av sin tid til FoU, og videre 10% til administrasjon av FoU i løpet av et år, tilsvare 0,5 FoU-årsverk. I rapporteringen av FoU-årsverk skal administrasjon og teknisk personale inkluderes i tillegg til faglige/vitenskapelig personale. Videre skal både fast og midlertidig/innleid ansatte inkluderes.

3. I hvilke geografiske områder var FoU-aktiviteten relatert til?

- ☐ Svalbard
- ☐ Nordområder (utenom Svalbard)
- ☐ Polare områder - Antarktis og øvrige Arktis (utenom Svalbard)

Sett kryss i aktuelle områder

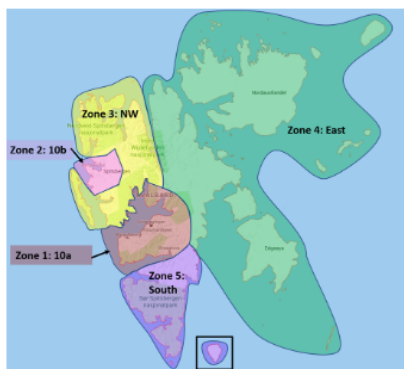
4. Oppgi antall FoU-årsverk som bedriften/foretaket utførte i 2022, og spesifiser nedenfor hvor disse var konsentrert om (hvilket område data var innhentet/forskningen omhandlet).

FoU-årsverk er årsverk brukt til FoU. Inkluder FoU-årsverk fra teknisk/administrativt personale i tillegg til vitenskapelig personale/forskere og annet faglig personale.

Polare områder	Nordområder	Svalbard	Geografisk område	Antall FoU-årsverk
Antarktis			Antarktis - landområder	<input type="text"/>
Antarktis			Antarktis - havområder	<input type="text"/>
Arktis			<u>Arktiske landområder utenom Svalbard</u>	<input type="text"/>
Arktis			Polhavet	<input type="text"/>
Arktis			Grønlandshavet	<input type="text"/>
Arktis			Øvrige havområder i Arktis	<input type="text"/>
Arktis			Uspesifisert arktis	<input type="text"/>
Arktis	Nordområde	Svalbard	<u>Svalbard: Longyearbyen med nærområder (sone 1)</u>	<input type="text"/>
Arktis	Nordområde	Svalbard	<u>Svalbard: Ny Ålesund med nærområder (sone 2)</u>	<input type="text"/>
Arktis	Nordområde	Svalbard	<u>Svalbard for øvrig (sone 3-5)</u>	<input type="text"/>
Arktis	Nordområde		Barentshavet og nordlige del av Norskehavet	<input type="text"/>
	Nordområde		Hav- og kystområder utenfor Nord-Norge	<input type="text"/>
	Nordområde		Nordland	<input type="text"/>
	Nordområde		Troms	<input type="text"/>
	Nordområde		Finnmark	<input type="text"/>
	Nordområde		Nord-Sverige, nord-Finland og nordvest-Russland	<input type="text"/>
	Nordområde		Uspesifisert/generell nordområde	<input type="text"/>
Sum Polare områder				<input type="text" value="0"/>
Sum Nordområder				<input type="text" value="0"/>
Sum Svalbard				<input type="text" value="0"/>

Hold musmarkøren på underlinjet tekst i tabellen for forklaring.

Kartet viser de geografiske sonene Svalbard er inndelt i. I tabellen skal FoU-årsverkene fordeles i sone 1, sone 2 og sone 3-5 samlet. For marint område skal rapporteringen inkludere 12 nautiske mil.



FoU relatert til Svalbard

5. Dere har oppgitt at bedriften/foretaket hadde FoU-aktivitet på Svalbard som utgjorde 0 FoU-årsverk i 2022. Oppgi hvordan lønn og andre driftskostnader til denne FoU-aktiviteten ble finansiert i millioner kroner

Finansiering	Mill. kr
Egne midler og fra andre norske bedrifter	<input type="text"/>
Norges forskningsråd	<input type="text"/>
Departementer mv.	<input type="text"/>
SkatteFUNN	<input type="text"/>
Innovasjon Norge	<input type="text"/>
EU-kommisjonen	<input type="text"/>
Utlandet (utenom EU)	<input type="text"/>
Andre kilder (fond, stiftelser, forskningsinstitutter)	<input type="text"/>
Sum	0

FoU relatert til Svalbard

6. Hadde bedriften/foretaket utgifter til drift av og investeringer til infrastruktur knyttet til FoU-aktiviteten på Svalbard?

Ta med kostnader til laboratorier, anlegg, fartøy eller utstyrsenheter som ble brukt til denne FoU-aktiviteten. For investeringer ta med beløp over 2 millioner kroner. Oppgi beløp i mill. kroner.

Finansiering	Drift	Investeringer
Egne midler og fra andre norske bedrifter	<input type="text"/>	<input type="text"/>
Norges forskningsråd	<input type="text"/>	<input type="text"/>
Departementer mv.	<input type="text"/>	<input type="text"/>
SkatteFUNN	<input type="text"/>	<input type="text"/>
Innovasjon Norge	<input type="text"/>	<input type="text"/>
EU-kommisjonen	<input type="text"/>	<input type="text"/>
Utlandet (utenom EU)	<input type="text"/>	<input type="text"/>
Andre kilder (fond, stiftelser, forskningsinstitutter)	<input type="text"/>	<input type="text"/>
Sum	0	0

FoU relatert til Svalbard

7. Dere har oppgitt at bedriften/foretaket hadde FoU-aktivitet på Svalbard som utgjorde 0 FoU-årsverk i 2022.

Fordel FoU-årsverkene prosentvis skjønnsmessig etter fagfelt

Fagfeltene er listet etter fagområder og omfatter både disipliner og tematiske områder.

Fagfelt	Prosent
Velg fag	
Velg fag	
Velg fag	
Velg fag	
Velg fag	
Velg fag	
Velg fag	
Velg fag	
Velg fag	
Velg fag	
Velg fag	
Totalt (skal summeres til 100%)	0

FoU relatert til Svalbard

8. Hadde bedriften/foretakets ansatte opphold på Svalbard i 2022 for å utføre FoU-arbeid?

Vennligst oppgi i så fall det totale antall persondøgn tilbragt på øygruppen

Antall døgn:

FoU relatert til Nordområdene

9. Dere har oppgitt at bedriften/foretaket hadde FoU-aktivitet i Nordområdene som utgjorde 0 FoU-årsverk i 2022.

Oppgi hvordan lønn og andre driftskostnader til denne FoU-aktiviteten ble finansiert i millioner kroner.

Finansiering	Mill. kr
Egne midler og fra andre norske bedrifter	
Norges forskningsråd	
Departementer mv.	
SkatteFUNN	
Innovasjon Norge	
EU-kommisjonen	
Utlandet (utenom EU)	
Andre kilder (fond, stiftelser, forskningsinstitutter)	
Sum	0

Antall FoU-årsverk er hentet fra spørsmålet om geografisk fordeling, og er totalt antall årsverk i Nordområdene inkl. ev. Svalbard. Svaret skal relateres til dette antallet.

FoU relatert til Nordområdene

10. Dere har oppgitt at bedriften/foretaket hadde FoU-aktivitet i Nordområdene som utgjorde 0 FoU-årsverk i 2022.

Fordel FoU-årsverkene prosentvis skjønnsmessig etter fagfelt
Fagfeltene er listet etter fagområder og omfatter både disipliner og tematiske områder.

Fagfelt	Prosent
Velg fag	
Velg fag	
Velg fag	
Velg fag	
Velg fag	
Velg fag	
Velg fag	
Velg fag	
Velg fag	
Velg fag	
Totalt (skal summeres til 100%)	0

Antall FoU-årsverk er hentet fra spørsmålet om geografisk fordeling, og er totalt antall årsverk i Nordområdene inkl. ev. Svalbard. Svaret skal relateres til dette antallet.

FoU relatert til polare områder (Antarktis og Arktis)

11. Dere har oppgitt at bedriften/foretaket hadde polar FoU som utgjorde 0 FoU-årsverk i 2022.

Oppgi hvordan lønn og andre driftskostnader til denne FoU-aktiviteten ble finansiert i millioner kroner.

Finansiering	Mill. kr
Egne midler og fra andre norske bedrifter	
Norges forskningsråd	
Departementer mv.	
SkatteFUNN	
Innovasjon Norge	
EU-kommisjonen	
Utlandet (utenom EU)	
Andre kilder (fond, stiftelser, forskningsinstitutter)	
Sum	0

Antall FoU-årsverk er hentet fra spørsmålet om geografisk fordeling, og er totalt antall årsverk i polare områder inkl. ev. Svalbard. Svaret skal relateres til dette antallet.

FoU relatert til polare områder (Antarktis og Arktis)

12. Hadde bedriften/foretaket utgifter til drift av og investeringer til infrastruktur knyttet til FoU-aktiviteten i polare områder (Antarktis og Arktis)?

Ta med kostnader til laboratorier, anlegg, fartøy eller utstyrsenheter som ble brukt til denne FoU-aktiviteten. For investeringer ta med beløp over 2 millioner kroner. Oppgi beløp i mill. kroner.

Finansiering	Drift	Investeringer
Egne inntekter og fra andre norske bedrifter	<input type="text"/>	<input type="text"/>
Norges forskningsråd	<input type="text"/>	<input type="text"/>
Departementer mv.	<input type="text"/>	<input type="text"/>
SkatteFUNN	<input type="text"/>	<input type="text"/>
Innovasjon Norge	<input type="text"/>	<input type="text"/>
EU-kommisjonen	<input type="text"/>	<input type="text"/>
Utlandet (utenom EU)	<input type="text"/>	<input type="text"/>
Andre kilder (fond, stiftelser, forskningsinstitutter)	<input type="text"/>	<input type="text"/>
Sum	0	0

Svaret skal relateres til instituttets totale FoU-aktivitet i polare områder inkl. ev. Svalbard.

FoU relatert til polare områder (Antarktis og Arktis)

13. Dere har oppgitt at bedriften/foretaket hadde polar FoU som utgjorde 0 FoU-årsverk i 2022.

Fordel disse FoU-årsverkene prosentvis skjønnsmessig etter fagfelt

Fagfeltene er listet etter fagområder og omfatter både disipliner og tematiske områder.

Fagfelt	Prosent
Velg fag <input type="text"/>	<input type="text"/>
Velg fag <input type="text"/>	<input type="text"/>
Velg fag <input type="text"/>	<input type="text"/>
Velg fag <input type="text"/>	<input type="text"/>
Velg fag <input type="text"/>	<input type="text"/>
Velg fag <input type="text"/>	<input type="text"/>
Velg fag <input type="text"/>	<input type="text"/>
Velg fag <input type="text"/>	<input type="text"/>
Velg fag <input type="text"/>	<input type="text"/>
Velg fag <input type="text"/>	<input type="text"/>
Velg fag <input type="text"/>	<input type="text"/>
Totalt (skal summeres til 100%)	0

Antall FoU-årsverk er hentet fra spørsmålet om geografisk fordeling, og er totalt antall årsverk i polare områder inkl. ev. Svalbard. Svaret skal relateres til dette antallet.

14. Hadde bedriften/foretaket FoU knyttet til urfolk i 2022?**Hvis ja, vennligst oppgi antall FoU-årsverk etter tema**

Tema	FoU-årsverk
Reindrift	<input type="text"/>
Språk	<input type="text"/>
Rettsvitenskap og rettighetsforhold	<input type="text"/>
Kultur og historie	<input type="text"/>
Helsefag	<input type="text"/>
Øvrige fag/tema	<input type="text"/>

15. Sammenlignet med tidligere år (2018-kartleggingen, dersom bedriften/foretaket var med), var FoU-aktivitet innenfor polare og/eller nordområder i 2022 på samme nivå som tidligere, eller mer eller mindre?

- ☐ FoU-omfanget i 2022 var på samme nivå som tidligere
- ☐ FoU-omfanget i 2022 var mindre enn tidligere
- ☐ FoU-omfanget i 2022 var større enn tidligere

16. Takk for besvarelsen av spørreskjemaet om polar- og nordområdeforskning 2022. Dette er skjemaets siste side. Trykk "send inn" om skjemaet er ferdig utfylt og klar for innlevering.**Om du ønsker kopi av besvarelsen, vennligst oppgi din epost-adresse her:****Eventuelle tilleggskommentarer oppgis i feltet nedenfor.****Tilbake****Send inn**

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