INTERREG AURORA
NEW NORTH PROJECT

WP1
MARKET DESCRIPTION

Interreg Aurora New North

Co-funded by the European Union

LAPIN LIITTO

KAINUUN LIITTO

POHJOIS-KARJALA Maakuntaliitto

POHJOIS-POHJANMAA COUNCIL OF OULU REGION

KVARKENRÅDET MERENKURKUN NEUVOSTO

Länsstyrelsen Västerbotten

Länsstyrelsen Norrbotten

Finnmark fylkeskommune
Finnmárkku fylkkagielda
Finmarkun fylkinkomuuni

Troms fylkeskommune
Romssa fylkkasuohkan
Tromssan fylkinkomuuni

Nordland FYLKESKOMMUNE

TRANSPORT UTVIKLING

APRIL 2025

Aurora

"New North -Transport, Logistics, and Security of Supply" is an Interreg Aurora project-collaboration among the regions of Northern Norway, Northern Sweden and Northern Finland. The project is co-funded by the EU's Interreg Aurora programme.

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HIGHLIGHTS FROM THE REPORT

Report structure

Chapter 1 to 5 in this report, and appendices, describes the background, method, practice for measuring traffic volumes, the WP1 region, the industries, various transportation examples and transport issues in general. Quantitative assessments of border crossings and transport volumes along the corridors are described in chapter 6. Supplementary information can be found in the appendices in Chapter 7. The report will present AADT[1] for the heaviest vehicles along four road corridors, and an indication of selected industries share of the total AADT. Detailed information from the interviewed companies is not included in the text.

Project organization

"New North -Transport, Logistics, and Security of Supply" is a project collaboration among the regions of Northern Norway, Northern Sweden and Northern Finland.

The New North project consists of four work packages (WP), where this report is a part of WP1: Future seamless freight transport. WP1 is led by Finnmark county, and the partners are Troms County and Nordland County.

This report is the documentation from phase 1 of WP1. The focus in phase 1 is a description of the status of commercial transport. The subsequent phases of WP 1, which will be completed during 2026, will among other things focus on bottlenecks, improvement initiatives and exit strategy.

Norwegian focus and ambitions

The Norwegian focus of the project is that the report shall gather relevant information from selected road transport corridors, particularly transport of seafood and subsequent border crossings between Norway and Finland/Sweden.

During several years, the North-Norwegian counties have prepared studies of commercial transport. The strategy behind the studies is called "Coast to Market". The analysis has been an important knowledge base and a tool for the counties regional business- and transport planning as well as background for inputs to national authorities.

The previous studies have mainly focused on national transports and to a lesser extent the market after the crossing of international borders.

The market for Norwegian export, especially seafood, is international and the transports often cross the borders of neighbouring countries. As an example, more than 75% of Finnmark county total export by road, goes through Finland or Finland/Sweden.

Long transport routes through several countries require knowledge beyond the national level, for example to be able to carry out good planning and analysis work. No matter where challenges and bottlenecks are along a long logistical chain, transports will be affected.

[1] Annual Average Daily Traffic

It is an ambition that WP1 will contribute with more information and that the documentation will be a knowledge base for further work and improved international cooperation.

In the project work we have so far as possible tried to use the same methodology as used in previous analyses of Northern Norway. This is the first time such work, involving all three countries, has been done.

The documentation from WP1 can be a basis for further work in the New North project and other relevant initiatives in the north, such as work in Platform North[2].

Statement on cross-border transport cooperation

The need for cooperation is also stated in a "Joint statement from the transport ministers of Finland, Sweden and Norway" (Norway, April 30. 2024). The ministers will consider summarizing a Nordic strategy for long-term development of cross-border connections, based on each country's strategic transport plans. It was also stated that important areas of cooperation include notification and sharing of information and joint evaluation of transport corridors.

The Joint Statement can be found by using the link below:
https://www.regjeringen.no/contentassets/6d35b33d73754d8291ce0b226e6fa01a/joint-statement-from-the-transport-ministers-in-finland.pdf)

From the Norwegian side, cross border cooperation is also stated by the Government in their whitepaper no. 9 (2024 – 2025) page 138 (Meld. St. 9 2024–2025):

"The Government proposes to develop a strategic corridor for military mobility through Northern Norway, Northern Sweden and Northern Finland. The measure will have significant financial consequences. The three countries must identify bottlenecks and consider updating regulations and plans before any specific investment needs can be said. The planning will not in itself have significant financial or administrative consequences."

(Translated from Norwegian by the WP1-project)

The picture shows the ministers of transport at the railway terminal in Narvik: Anders Carlson (Sweden), Jon-Ivar Nygård (Norway) and Lulu Ranne (Finland).

(Photo: Norwegian Ministry of Transport)

[2]Platform North is an initiative taken by The Swedish Transport Administration for collaboration between the Nordic countries. The purpose of the initiative is to create a regional cross-border cooperation forum for infrastructure managers for all modes of transport in collaboration with other actors.

The selected corridors

The report is based on four selected road transport corridors for an area north of the Vestfjord (Nordland County) in Norway and south to the Bay of Bothnia (Oulu/Luleå). The selected corridors are shown in the figure below. The selected road corridors are numbered 1 to 4, from east to west.

The industries

Transport intensive industries	Norway	Sweden	Finland
Seafood			
Minerals and mining			
Agriculture			
Waste			
Grocery			
Petroleum products			
Forestry, paper and pulp			
Other			

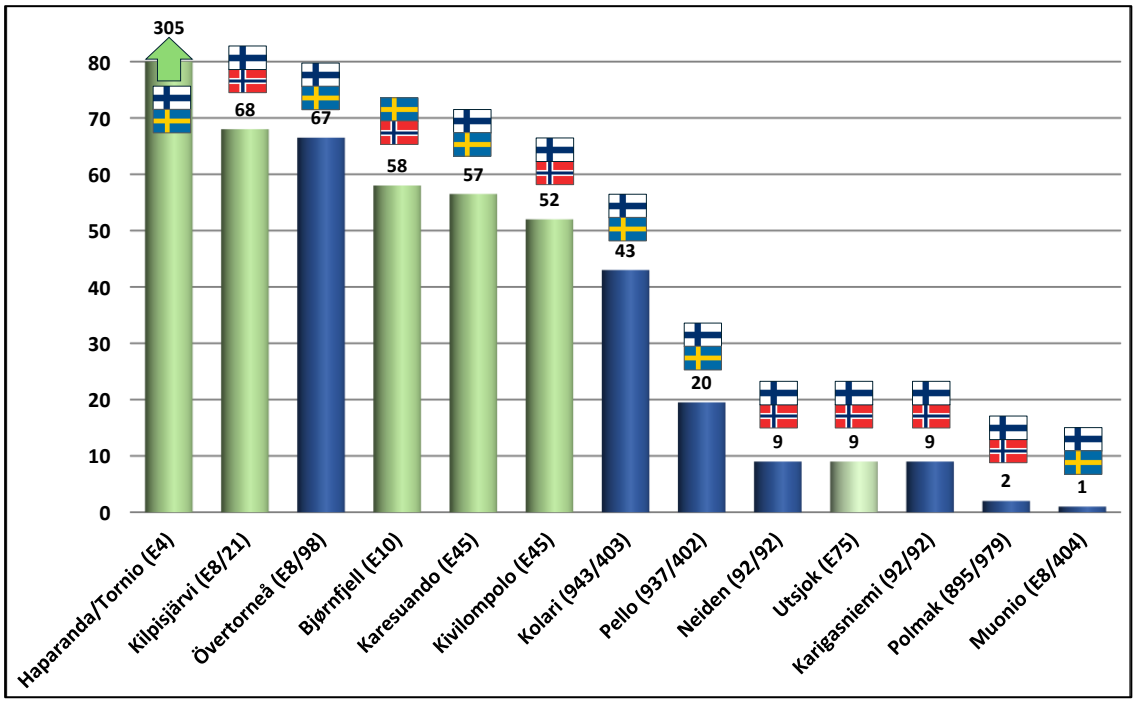
The report briefly presents information for the regional industries, focusing on road transport intensive industries, shown in the table below.

The table (left) also indicate in which county the industries are most important. Seafood is for instance important in Norway, while forestry is less important.

Most of the industries are important in all countries.

The border crossings

There are 13 border crossings in the WP1-region[3]. Four are directly connected to the selected corridors. The figure below shows AADT for the heaviest vehicles. The light green bars show border crossings that are directly connected to the selected corridors. The bar for Haparanda/Tornio has been "cut" for visualisation reasons, as the transports at this border station are significantly higher than the other stations.



[3] See chapter 2.1

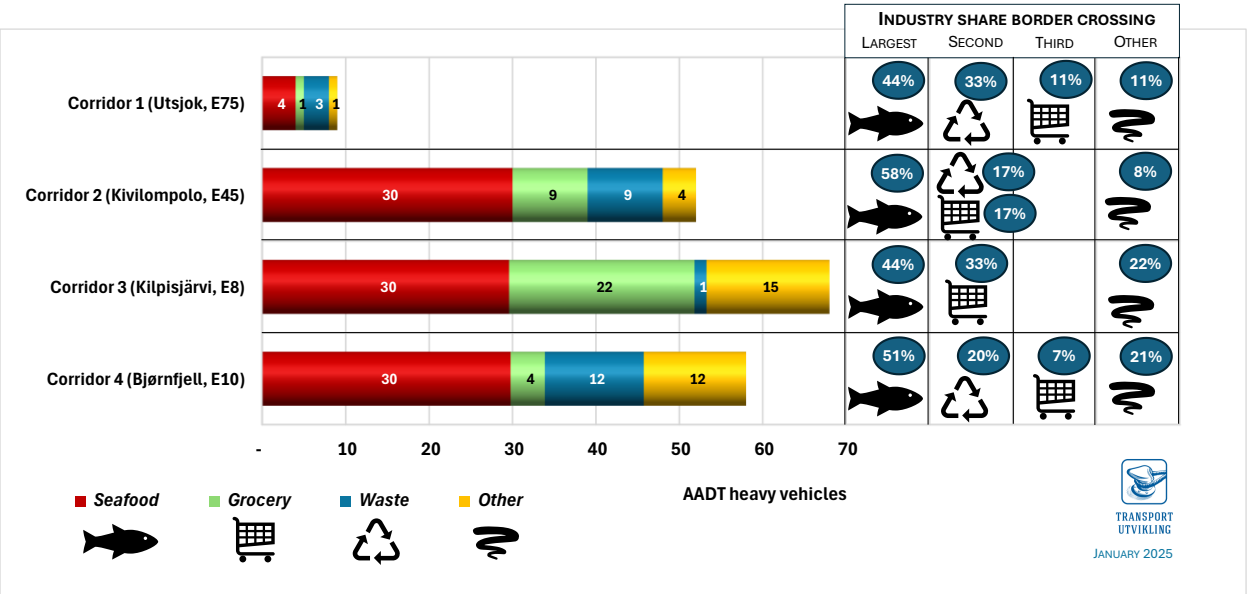
Along the selected corridors there are four border crossings, connecting the corridors to Norway. There are several other border crossings in Northern Norway, both in Nordland and in Finnmark. The selection is not only based on priority, but also project capacity/resources. There are for example more than one alternative corridor to Utsjok in Eastern Finnmark. However, all meet north of Inari (only 100-120 km south of the border) and most of a total transport distance to a destination will be the same. Utsjok is also used as the border is located along E75, which is the only corridor in Eastern Finnmark which is a part of EU's TEN-T comprehensive network.

For these border stations detailed primary data is available. This makes it possible to describe both the number of vehicles over 16 meters, and which industries crossed the border in 2023.

The border stations are:

- Utsjok: Corridor 1, road E75/4
- Kivilompolo: Corridor 2, roads E45/93
- Kilpisjärvi: Corridor 3, roads E8/21
- Bjørnfjell: Corridor 4, road E10

The figure below shows total AADT (heavy vehicles => 16 m) that passed the border points in 2023, and the share of the largest industries.



All the selected Norwegian border crossings are dominated by seafood products. The AADT share is between 44% and 58%. The main border crossing for seafood (and all other goods) in 2023 were:

- Kivilompolo
- Kilpisjärvi
- Bjørnfjell

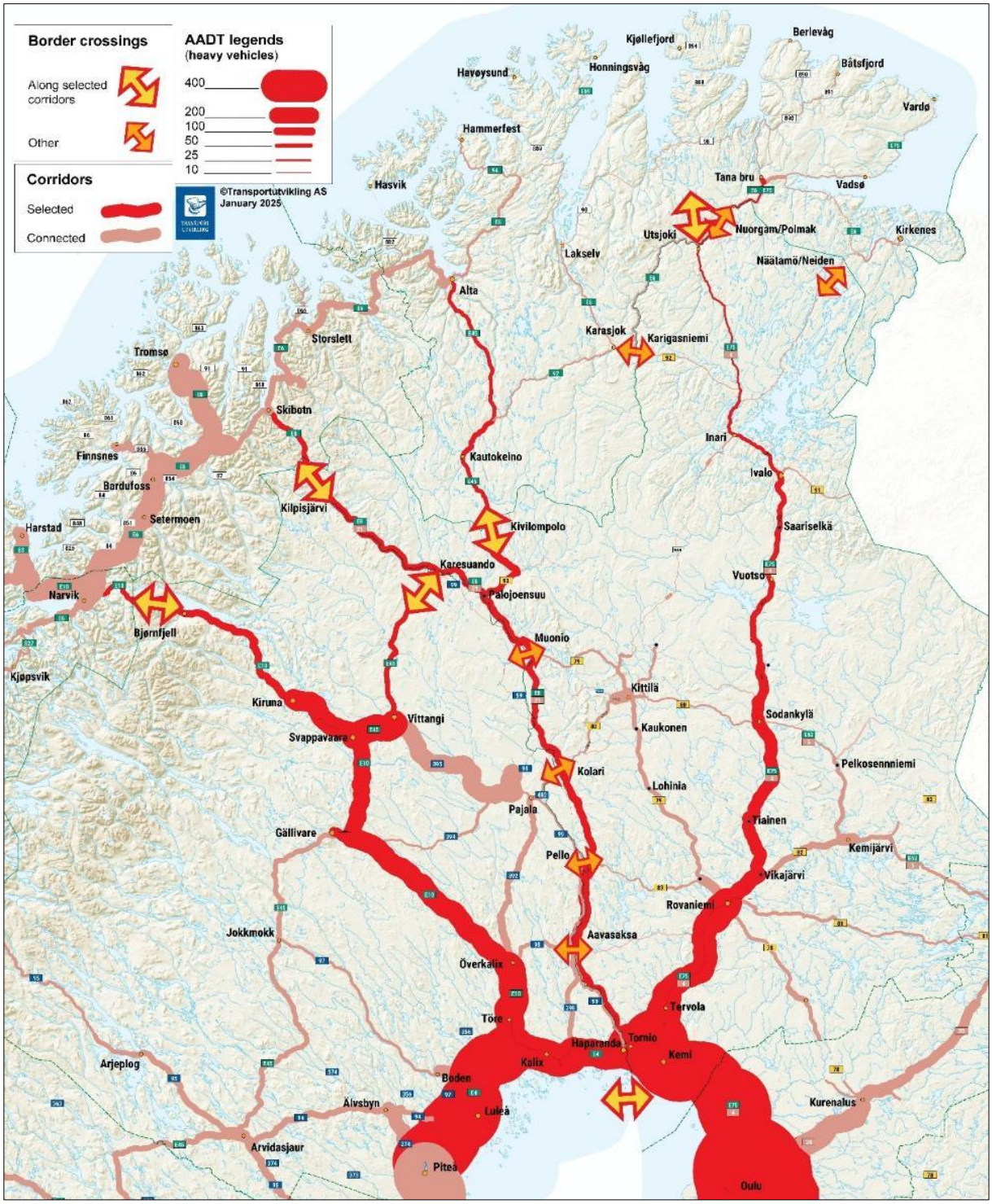
All with an AADT of approximately 30 when it comes to seafood.

Seafood is a high value product. The seafood export value was 800-900 million Euros for each of the three main crossings, and the share of the seafood value was between 79% and 95% of the total value crossing the border stations.

Except seafood, the largest industries which used the border were grocery- og waste-products.

Road transportation with the heaviest vehicles

The map shows the selected corridors with red colour and connections to the corridors with a lighter colour. The corridors are numbered 1-4, and the border crossings are indicated with double arrows. Thicker lines indicate larger AADT-volumes (AADT) than thinner.



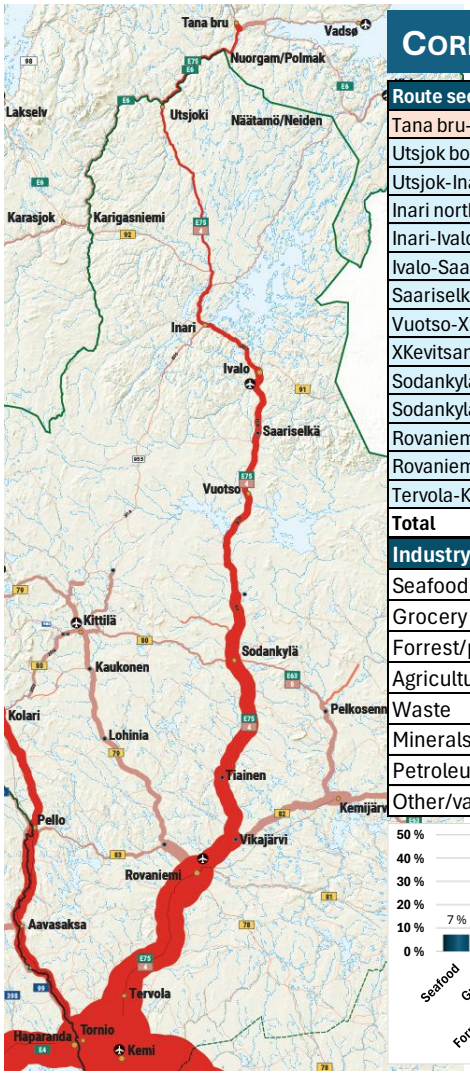
Even though the road transportation work, measured by AADT-total, is lower in the north than in the south the corridors are regionally important. Although the volumes are smaller further north, the corridors are regionally important. The corridors are vital transport routes to and from the north, and they contribute to strengthening and developing robust local communities.

The four corridors

Corridor 1 (Tana bru-Utsjok-Tornio)

The corridor has the following characteristics:

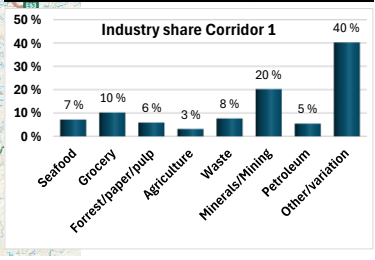
- The border crossing between Norway and Finland takes place in Utsjok, along E75/4.
- The total distance from Tana bru to Tornio is 579 km.
- The AADT variation, mainly based on national statistics, along the corridor varies from 9 (border crossing Utsjok) to more than 300 north of Keminmaa.
- The AADT for the entire corridor is 116, based on a km-weighted total AADT[4].
- Among the selected industries minerals and mining dominates (20%) followed by grocery trade (10%), based on a km-weighted AADT[5] for each industry group.
- Vehicle classification differences, unidentified/other vehicles count for 40%. The real unidentified share of the heaviest commercial vehicles is lower, ref chapter 3.3.2 and 3.3.3.



CORRIDOR 1 – TANA BRU-UTSJOK-TORNIO

Route section	Road no.	Country	Distance	AADT
Tana bru-Utsjok	E6/E75	Nor	69	27
Utsjok border	E75	Nor/Fin	0	9
Utsjok-Inari north	E75 X92(n)	Fin	94	24
Inari north-Inari	E75 X92(s)	Fin	31	40
Inari-Ivalo	E75	Fin	39	46
Ivalo-Saariselkä	E75	Fin	31	67
Saariselkä-Vuotso	E75	Fin	41	66
Vuotso-XKevitsantie	E75	Fin	52	74
XKevitsantie-Sodankylä	E75	Fin	36	120
Sodankylä (north)	E75	Fin	0	147
Sodankylä-Rovaniemi	E75	Fin	74	154
Rovaniemi north	E75	Fin	0	200
Rovaniemi-Tervola	E75	Fin	75	286
Tervola-Keminmaa	E75	Fin	37	330
Total			**579**	**116**

Industry share	%
Seafood	7 %
Grocery	10 %
Forrest/paper/pulp	6 %
Agriculture	3 %
Waste	8 %
Minerals/Mining	20 %
Petroleum	5 %
Other/variation	40 %



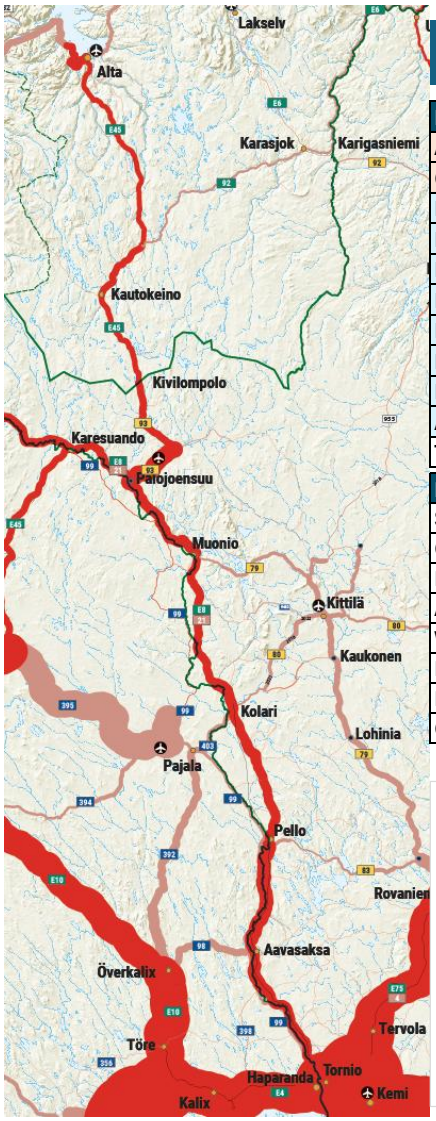
[4] Total AADT per. route section multiplied with the distance (km) in each section. The sum of the product for each section is divided by the total number of km. in the corridor. The same method is used for all corridors.

[5] AADT per industry and per. route section multiplied with the distance in km in each section. The sum of the product for each section is divided by the total number of km. in the corridor. The weighted product per industry is calculated as a percentage of the total. The same method is used for all corridors.

Corridor 2 (Alta-Kivilompolo-Keminmaa)

The corridor has the following characteristics:

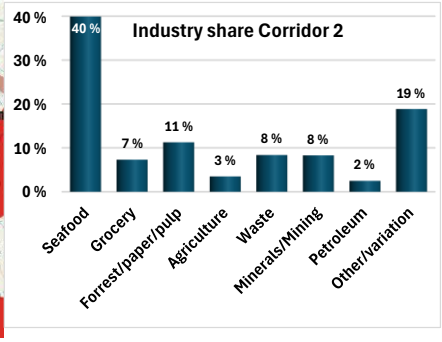
- The border crossing between Norway and Finland takes place in Kivilompolo, along E45/93.
- The total distance from Alta to Keminmaa is 554 km.
- The AADT variation, mainly based on national statistics, along the corridor varies from 48 (Alta Gievdneguoika) to126 between Pello and Aavasaksa.
- The AADT for the entire corridor is 77, based on a km-weighted total AADT.
- Among the selected industries seafood from Norway dominates (40%) followed by forest products (11%), based on a km-weighted AADT for each industry group.
- Vehicle classification differences, unidentified/other vehicles count for 19%. The real unidentified share of the heaviest commercial vehicles is lower, ref chapter 3.3.2 and 3.3.3.



CORRIDOR 2 – ALTA-KIVILOMPOLO-KEMINMAA

Route section	Road no.	Country	Distance	AADT
Alta-Gievdneguoika	E45	Nor	100	48
Gievdneguoika-Kivilompolo	E45	Nor	76	64
Kivilompolo border	E45	Nor/Fin	0	52
Kivilompolo-Hetta	E45	Fin	37	67
Hetta-Palejoensuu	E45	Fin	28	75
Palejoensuu-Munio	E8	Fin	49	91
Mounio-Kolari	E8	Fin	77	76
Kolari-Pello	E8	Fin	69	87
Pello-Aavasaksa	E8	Fin	49	126
Aavasaksa-Tornio	E8	Fin	69	87
Total			**554**	**77**

Industry share	%
Seafood	40 %
Grocery	7 %
Forrest/paper/pulp	11 %
Agriculture	3 %
Waste	8 %
Minerals/Mining	8 %
Petroleum	2 %
Other/variation	19 %



The reason for the high seafood share is since seafood transports from both Troms (crossing Kilpisjärvi) and Finnmark (crossing Kivilompolo) use this corridor.

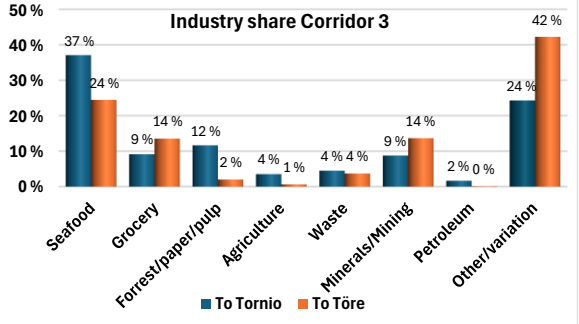
Corridor 3 – Skibotn-Karesuando-Tornio/Töre

The corridor has the following characteristics:

- The border crossing between Norway and Finland takes place in Kilpisjärvi, along E8. Karesuando (E45) is also used if the destination/origin for the transports is in Sweden or Western Europe.
- The total distance from Alta to Tornio is 510 km and 513 to Töre.
- The AADT variation, mainly based on national statistics, along the corridor varies from:
  - To Töre via Karesuando: 57 (Karesuando border) to 318[6] between Vittangi and Svappavaara (E45)
  - To Tornio via Finland: 126 between Pello and Aavasaksa.
- The AADT for the entire corridor is 81 to Tornio and 169 to Töre, based on a km-weighted total AADT.
- Among the selected industries seafood from Norway dominates (24%-37%) followed by forest products, minerals, and mining, based on a km-weighted AADT for each industry group.
- Vehicle classification differences, unidentified/other vehicles count for 24%-42%. The real unidentified share of the heaviest commercial vehicles is lower, ref chapter 3.3.2 and 3.3.3.

Route section	Road no.	Country	Distance	AADT
Skibotn-Kilpijärvi border	E8	Nor	41	68
Kilpisjärvi border	E8	Nor/Fin	0	68
Kilpisjärvi-Karesuando	E8	Fin	118	84
Karesunado-Palejoensuu	E8	Fin	38	75
Palejoensuu-Munio	E8	Fin	49	91
Mounio-Kolari	E8	Fin	77	76
Kolari-Pello	E8	Fin	69	87
Pello-Aavasaksa	E8	Fin	49	126
Aavasaksa-Tornio	E8	Fin	69	87
Karesuando border	E45	Fin/Swe	0	57
Karesunado-X395 (Vittangi)	E45	Swe	103	64
Vittangi X395-Svappavarra/E10	E45	Swe	27	318
Svappavara-Gällivare XE10	E10	Swe	65	201
Gällivaare-Överkalix	E10	Swe	126	244
Överkalix-Morjärv	E11	Swe	33	353
Morjärv-Töre	E12	Swe	18	310
Total Skibotn-Tornio			**510**	**81**
Total Skibotn-Töre			**513**	**169**

Industry share	%	
	To Tornio	To Töre
Seafood	37 %	24 %
Grocery	9 %	14 %
Forrest/paper/pulp	12 %	2 %
Agriculture	4 %	1 %
Waste	4 %	4 %
Minerals/Mining	9 %	14 %
Petroleum	2 %	0 %
Other/variation	24 %	42 %

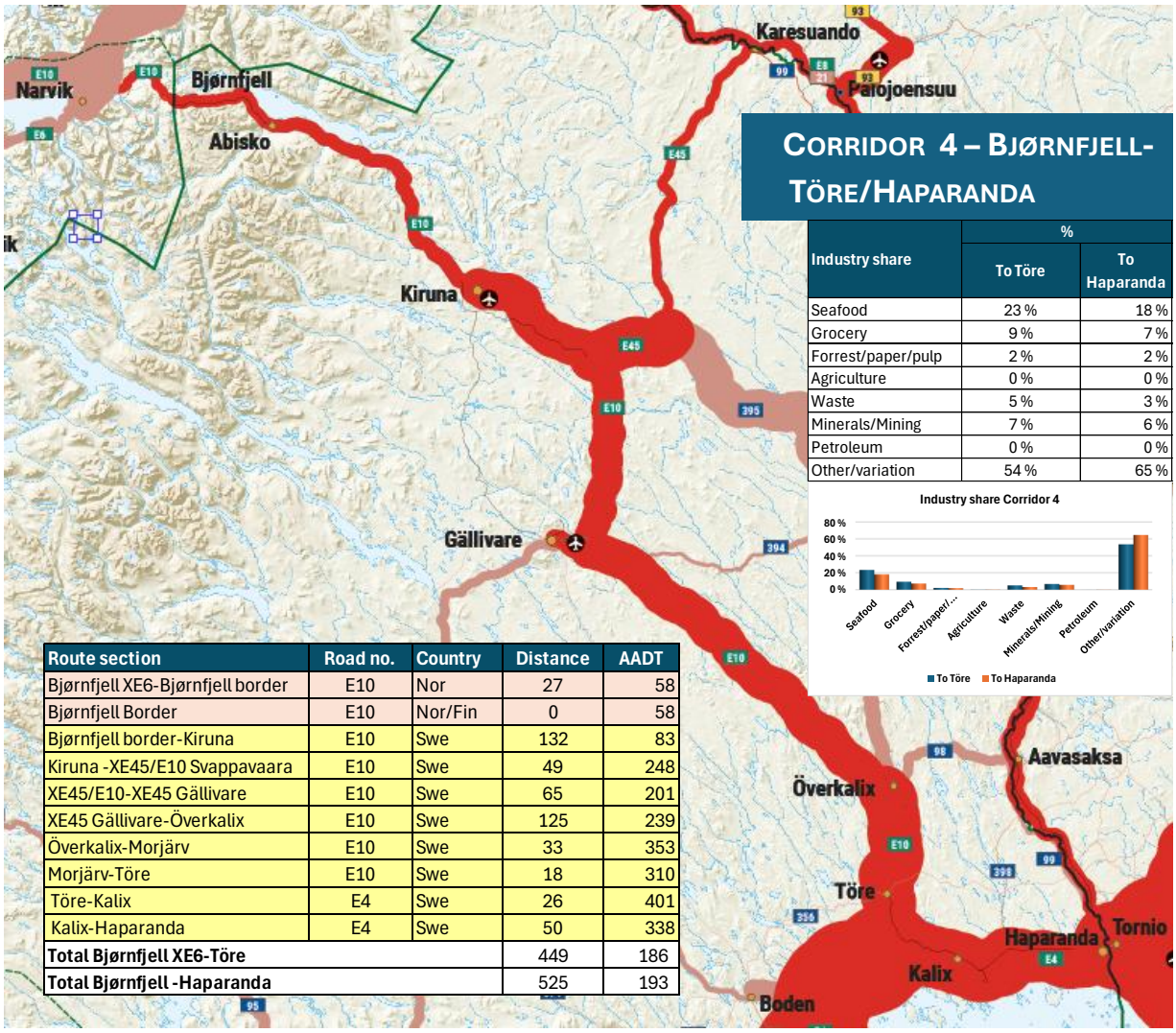


[6] Influenced by transport from Kaunis Iron

Corridor 4 – Bjørnfjell-Töre/Haparanda)

The corridor has the following characteristics:

- The border crossing between Norway and Sweden takes place on Bjørnfjell (E10). If the destination/origin for the transport is in Finland or eastern markets, Haparanda/Tornio is often used.
- The total distance from E6 XBjørnfjell to Haparanda is 525 km, and 449 km to Töre.
- The AADT variation, mainly based on national statistics, along the corridor varies from:
  - To Töre: 58 (Border crossing Bjørnfjell) to more than 350 between Överkalix and Morjärv (E10)
  - To Haparanda: 58 (Border crossing Bjørnfjell) to more than 400 between Töre and Kalix.
- The AADT for the entire corridor is 186 to Töre and 193 to Haparanda, based on a total km-weighted AADT.
- Among the selected industries seafood from Norway dominates (18% to 23%) followed by grocery and minerals and mining.
- Vehicle classification differences, unidentified/other vehicles count for 54%-65%. The real unidentified share of the heaviest commercial vehicles is lower, ref chapter 3.3.2 and 3.3.3.



Industry share	%	
	To Töre	To Haparanda
Seafood	23 %	18 %
Grocery	9 %	7 %
Forrest/paper/pulp	2 %	2 %
Agriculture	0 %	0 %
Waste	5 %	3 %
Minerals/Mining	7 %	6 %
Petroleum	0 %	0 %
Other/variation	54 %	65 %

Route section	Road no.	Country	Distance	AADT
Bjørnfjell XE6-Bjørnfjell border	E10	Nor	27	58
Bjørnfjell Border	E10	Nor/Fin	0	58
Bjørnfjell border-Kiruna	E10	Swe	132	83
Kiruna -XE45/E10 Svappavaara	E10	Swe	49	248
XE45/E10-XE45 Gällivare	E10	Swe	65	201
XE45 Gällivare-Överkalix	E10	Swe	125	239
Överkalix-Morjärv	E10	Swe	33	353
Morjärv-Töre	E10	Swe	18	310
Töre-Kalix	E4	Swe	26	401
Kalix-Haparanda	E4	Swe	50	338
Total Bjørnfjell XE6-Töre			449	186
Total Bjørnfjell -Haparanda			525	193

Different classifications of traffic data

A key ambition in WP1 was to try to show and describe common transport flows on the road in the three countries, with the largest/heaviest commercial vehicles. The starting point was a Norwegian methodology based on public registrations of the heaviest commercial vehicles, - which is 16 meters or longer. This provides the opportunity to identify vehicles such as semi-trailers and larger combined lorries, and exclude non-commercial vehicles such as buses, snow ploughs etc.

As we have experienced, the three countries do not use the same classifications to identify comparable figures for the heaviest vehicles. There may be several reasons why figures do not correspond on each side of the border. We have not verified the exact reasons for the differences.

To verify whether the registrations differ in general, the total AADT was compared for a selection of border crossing points. Regardless of classification, the total AADT numbers should be the same. The deviations here were very small, which indicates that it is the actual classification of vehicle groups that deviates.

An ambition with the description concerning data classification/statistics is to receive feedback that can help clarify the issue. If this is achieved and accepted, public statistics in all countries may in the future be designed in such a way that the figures become more uniform and comparable, and more understandable for the public and non-professionals.

The more people who are given the opportunity to understand and comment on the figures, the better quality is expected to be achieved in future analyses.

1 THE PROJECT AND PROJECT AMBITIONS

"New North -Transport, Logistics, and Security of Supply" is a project collaboration among the regions of Northern Norway, Northern Sweden and Northern Finland. The region previously made up the western part of the Barents Region. The project is co-funded by the EU's Interreg Aurora programme.

The goal of the New North project is development of a sustainable transport system in the region. The project aims to respond to a changing geopolitical situation and knowledge from the Barents Transport and Logistics Project (BRTL). The project should strengthen cooperation between the regional stakeholders and be a contribution to improved transport links in the northern regions. The basis of the "New North" project is the geopolitical situation and the rapidly developing industrial structure of the northern regions, which influences the need to improve current logistics and transport corridors. At the same time, the green transition, the countries' and the EU's commitment to challenging climate reductions require better, sustainable and energy-efficient multimodal transport solutions.

The New North project consists of four work packages (WP):

- WP1: Future seamless freight transport (led by Finnmark and Norwegian partners)
- WP2: Transport safety (led by Lapland)
- WP3: Electric aviation (led by Västerbotten)
- WP4: Green rail transport (led by North Karelia)

In the "New North" project, the Norwegian partners Finnmark, Troms and Nordland will be responsible for work package 1 (WP1). Finnmark county is the work-package leader and Transportutvikling AS is hired to conduct the consultancy work.

WP1 will first (this report) present a status for freight transport along selected corridors, focusing on border crossings between Northern Norway and Northern Finland/Sweden

The Norwegian focus in the project/report are as follows:

- create relevant information on selected road transport corridors and industries
- present the information as detailed as possible.
- Try to present comparable AADT-figures for the heaviest vehicles along the selected corridors
- indicate the selected industries shares of the total AADT along the corridors.

Detailed information from the companies should not be included in the text except when information is publicly known or approved by the companies.

This first report forms the basis for the projects next phases. The information obtained, will be further developed during the next project phases and used to identify various bottlenecks for freight transports along the selected corridors with suggestions for improvement. Further work may also investigate the individual countries' different procedures for registration of transport statistics and proposals for continuation of work after project completion (exit strategy). It is an ambition that the final project will be a knowledge base when working on improving cross-border transports in the North-Nordic region.

2 BRIEF REGIONAL DESCRIPTION

2.1 THE WP1 REGION

The WP1 project focuses on transport corridors passing through the northern part of Sub-area Aurora region[7]. Regions outside the focus area will influence the transportation work due to export/import from/to the region and transit operations. Customers and suppliers are often found outside the region, as well as in other countries. The short demographic description focuses on the northern part of the region, corresponding to the geographical area that covers the selected corridors. The focus regions are as follows:

- Norway: Finmark county, Troms County and Nordland County south to the Vestfjord
- Sweden: Norrbottens län
- Finland: Lapland and North Ostrobothnia south to Oulu

The map shows the WP1 focus area.

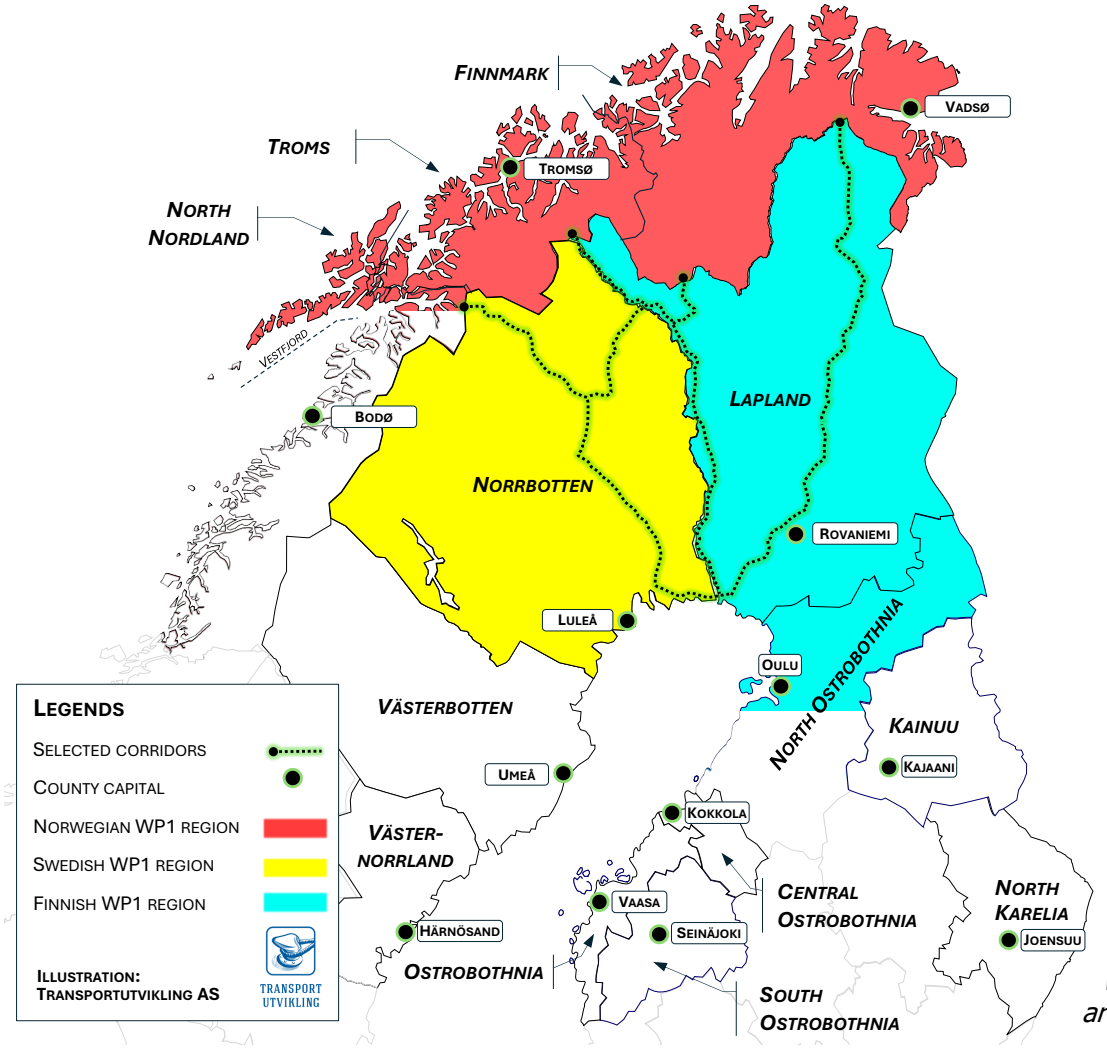


Figure 1-1: WP1 focus area.

Some of the descriptions includes nearby regions like for instance Västerbotten in Sweden and the southern parts of Nordland County in Norway.

[7] The following regions are included in "Sub-area Aurora": Lapland, North Ostrobothnia, Central Ostrobothnia, Ostrobothnia, South Ostrobothnia, Norrbotten, Västerbotten, Västernorrland, Troms, Finnmark and Nordland

2.2 POPULATION AND INDUSTRIES

Approximately 752.000 inhabitants are living in the WP1 region (see figure 1-2), most of them living close to or along the selected transport corridors. 33% of this population is located to Norrbotten and 23% in Lapland. Troms has approximately the same population as Lapland. 11% of the population is found in the Northern parts of Nordland County and 10% in Finnmark. The total population in Nordland is 243.000, and approximately 160.000 is living south of the Vestfjord/Tysfjord.

The population figures alone are not the only parameter influencing road transport. However, the population size has a significant impact on transports of for instance grocery products and municipal waste. Both industries are heavy users of the road network.

The figure below shows the population in WP1's focus area as per year end 2024.

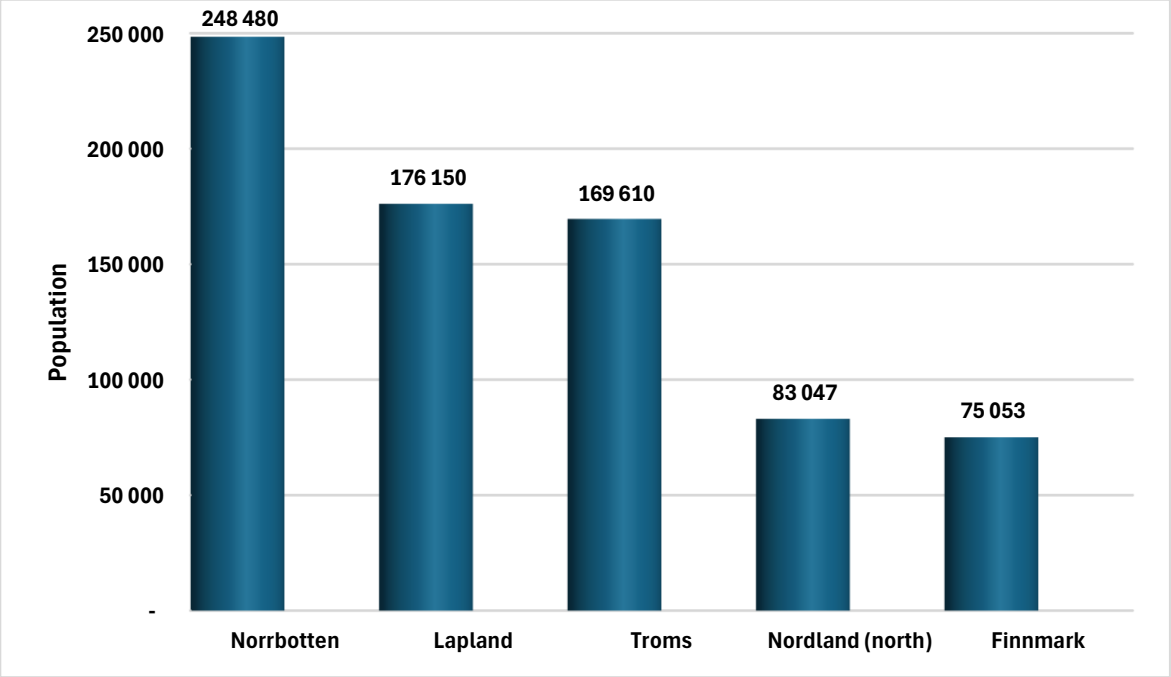


Figure 1-2: Population WP1 focus area (2024)

The main transport intensive industries in the region are described in more detail in the chapters 5.2 to 5.9, and appendices (chapter 7).

3 WP1 METHOD AND PROJECT WORK

3.1 METHOD AND DATA COLLECTION

3.1.1 THE CORRIDORS FOR DATA COLLECTION

Based on our principles mandate we have identified the heaviest freight volumes along selected road corridors originated/destined in Norway. The corridors are crossing the borders of Finland and/or Sweden. As far as we have reliable information, we have also identified connecting transports influencing the transport work along the selected corridors. Only a small share of the transport around Oulu and Luleå are identified, while all transports to/from Norway north of the Vestfjord/Ofotfjorden are identified.

The transportation work along the corridors increases from north to south, and the information we have obtained via primary sources is more precise for the northern parts of the region.

3.1.2 SOURCES FOR ROAD TRAFFIC INFORMATION

Both secondary- (public statistics and reports) and primary- (interviews) data have been used for the preparation of relevant information.

Data (interviews) is collected from several organisation/companies in all countries. More than 190 companies/organizations have been contacted, for the purpose of identifying transport volumes and routes for the different industries. Most of the interviews concerns Norwegian companies and they're in- and outgoing border crossing transports. The sources for primary information can be found in Appendix 7.2.

Table 3-1, below, shows the sources used for national secondary information:

Type of information	Norway	Sweden	Finland
Road traffic information	Norwegian Public Roads Administration	Swedish Transport Administration	Finnish Transport Infrastructure Agency
Statistics in general	Statistisk sentralbyrå (Statistics Norway, SSB)	Statistikmyndigheten (Statistics Sweden, SCB)	Tilastokeskus (Statistics Finland)

Table 3-1: National sources for secondary information

The public road statistics used are not fully comparable between countries (see chapter 3.3).

3.1.3 BORDER CROSSINGS

Concerning border crossing statistics (AADT), our basic estimate is based on an average AADT in two countries. As there are possible sources of error in the public registrations, some public border crossing figurers is adjusted based on interviews and other information.

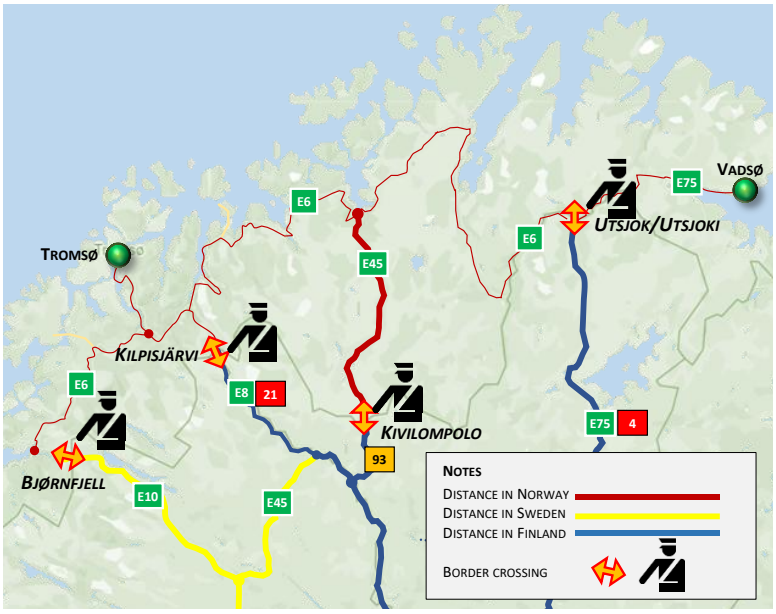


Figure 3-1: Border crossings where detailed information exists.

As a result of the selection of interviews, we have detailed freight-flow information from primary sources (as well as and secondary sources) for the border stations crossing Norwegian borders:

<u>Norway/Finland:</u>
- E75/4 Utsjok[8]
- E45/93 Kivilompolo
- E8/21 Kilpisjärvi

<u>Norway/Sweden:</u>
- E10 Bjørnfjell

For the remaining border crossings, we have used traffic-estimates based om public statistic, industry locations, potential transport routes and information from a selection of primary sources (companies and organizations).

For the corridors along the selected corridors, the other border crossings are:

<u>Norway/Finland:</u>
- Polmak/Nuorgam (Roads 895/970)
- Other crossing close to the corridors are
  - 92 Neiden/Näätämö (Roads 92/92)
  - 92 Karisgasniemi (Roads 92/92)

<u>Sweden/Finland:</u>
- Karesuando/Karesuvanto (Roads E45/93)
- Haparanda/Tornio (Roads E4/E8)
- Other crossing close to the corridors are
  - Kolari (Roads 403/943)
  - Muonio (Roads 404/E8(21))
  - Pello (Roads 402/937)
  - Övertorneå/Aavasaksa (98/E8(21))

<u>Norway/Sweden</u>
- None north of the Vestfjord. The closest are Graddis/Junkerdal in Nordland

[8] Utsjok(i) is located close to 3 other border crossings between Eastern Finnmark and Lapland: Karisgasniemi, Polmak/Nuorgam and Neiden/Näätämö.

3.1.4 DATA COLLECTION AND COMPILATION

Data collections are based on information from the selected industries. As primary information is not fully available, and that many companies do not want to provide their figures, the following method has been used to compile and estimate figures for the selected industries:

Seafood		• Actual volumes and transport routes are based on primary information obtained through interviews with 80-90% of the seafood companies in Norway exporting seafood products, and importing input materials (pallets, packaging etc). • National statistics has been used to verify primary information and give an overall picture.
Minerals and mining		• Actual volumes and transport routes are based on primary information obtained through interviews with all relevant mining companies in Norway and a few major companies in Sweden and Finland. • For other companies in Finland/Sweden, their annual reports and internet sources have been used. • National statistics forms the basis for estimating transport flows that do not directly kan be derived from the major mineral players (like gravel, crushed stone etc)
Grocery		• Actual volumes and transport routes are based on primary information obtained through interviews with all major grocery wholesalers in Norway and Finland. • In Sweden, we have used experience data from Finland and Norway, and adjusted these figures according to municipal population and each chain's number of retailers/stores in each municipality
Waste		• Actual volumes and transport routes are based on primary information obtained through interviews with all major waste companies in Norway. • In Finland we have obtained information from a selection of waste companies in Lapland, and used annual report for the remaining. • In Sweden we have received detailed information from a selection of municipalities. • The information obtained through interviews have been checked against national waste figures (waste per inhabitant), municipal population, industry structure and location of the waste hubs and recycling plants.
Forestry		• The Northern part of Northern Norway has no significant forest industry, and no figures are included in the basis. • For Finland and Sweden, we have used national statistics for commercial felling's per region and road transportation data from Skogforsk (Sweden) and Vayla (Finland). • In Sweden, the information is supplemented with interview with Sveaskog.
Agriculture		• Actual volumes and transport routes are based on primary information obtained through interviews with all major agriculture companies in Norway (Tine, Nortura etc). • In Finland and Sweden we have used regional statistics for dairy and meet production, supplemented with information from agricultural organizations in Sweden (Jordbruksverket) and the ELY-centre in Finland.
Petroleum		• Actual volumes and transport routes are based on primary information obtained through interviews with all major petroleum companies in Norway (Circle K, ST1 etc). • In Sweeden and Finland we have used statistics for sold volume per municipality, and verified this in relation to population per municipality, industry needs, transport intensity in the corridors. • Norwegian actual figures are used as a reference for the calculations in Finland and Sweden.

Table 3-2: Data collection

3.2 ROAD TRANSPORT INFRASTRUCTURE

3.2.1 TEN-T

Europe has a network of European roads that are numbered from E1 and up. Many of them crosses national borders. Figure 3-2 shows the TEN-T road network in the northern part of the countries. The Core-network is outlined with bold red lines, while thinner red lines show the comprehensive network/other roads.

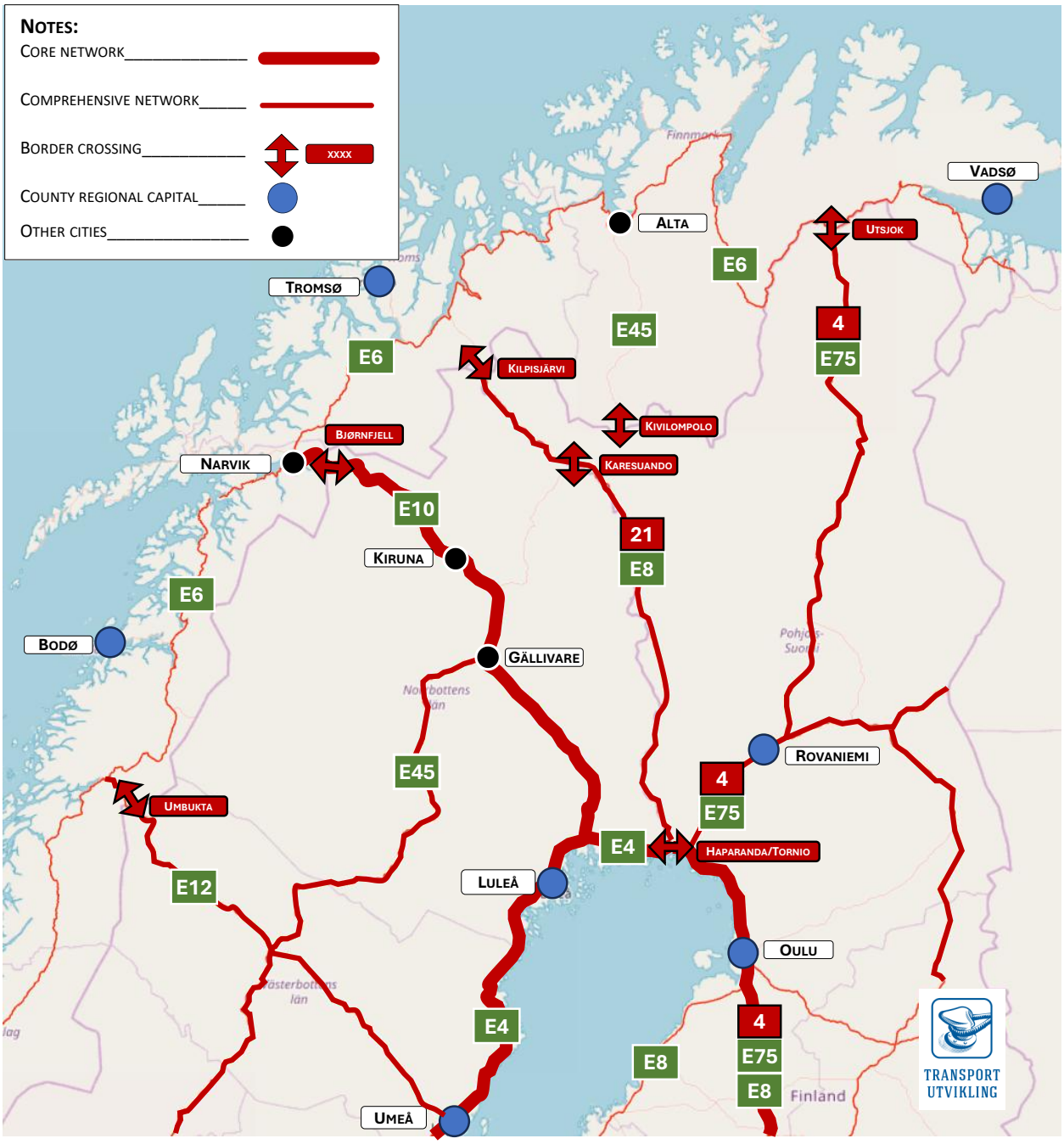


Figure 3-2: TEN-T road network.

Europe's road network consists of two primary frameworks: the first one is the International E-road Network (E-Roads), established by UNECE, assigning numbers of major roads that cross multiple countries. The second is the Trans-European Transport Network (TEN-T). TEN-T policy is a cornerstone of the European Union's transport infrastructure strategy, aiming to establish a unified and efficient multimodal transport network across Europe. This comprehensive network

encompasses railways, roads, inland waterways, maritime shipping routes, ports, airports, and intermodal terminals, facilitating seamless movement of goods and people within the EU.

The TEN-T network is structured into three hierarchical layers:

1. **Core Network**: This includes the most strategically significant connections and nodes, essential for the EU's long-term competitiveness and cohesion. The Core Network is slated for completion by 2030.
2. **Extended Core Network**: Serving as an intermediary layer, the Extended Core Network aims to enhance connectivity and is expected to be completed by 2040
3. **Comprehensive Network**: This layer ensures accessibility to all European regions, integrating them into the broader transport framework, with a target completion date of 2050 [9]

Narvik is the sole location in the northern Norway region included in the Core Network, specifically as part of the Scandinavian-Mediterranean Corridor. This inclusion underscores Narvik' s strategic importance in facilitating trans-European connectivity. Additionally, several roads in Northern Norway are designated as part of the Comprehensive Network, enhancing cross-border links:

- **E75**: Connecting to the Utsjok border station.
- **E8**: Leading to the Kilpisjärvi border station.
- **E12**: Extending to the Umbukta border station.

However, it's noteworthy that the E45, which leads to the Kivilompolo border station, -one of the most trafficked crossings between Northern Norway and Finland/Sweden is not currently part of the Comprehensive Network.

While Norway aligns with TEN-T objectives and integrates its infrastructure accordingly, it does not participate in the EU's Connecting Europe Facility (CEF[10]) funding mechanism. This is because Norway is not an EU-member, but as an EEA member can opt to participate in.

Instead, Norway finances its TEN-T related infrastructure projects through national budgets, as outlined in the National Transport Plan (NTP).

[9] https://transport.ec.europa.eu/transport-themes/infrastructure-and-investment/trans-european-transport-network-ten-t_en

[10] Connecting Europe Facility establishes conditions, methods and procedures for providing financial assistance to trans-European networks with the intention of supporting projects of common interest to Member States in the areas of transport, energy and telecom/digital.

3.2.2 ROAD CLASSIFICATION/ROAD NUMBERING

Figure 3-3 shows the road classification and road numbering in the three countries. The numbering/road signs for E-roads are the same in all countries.

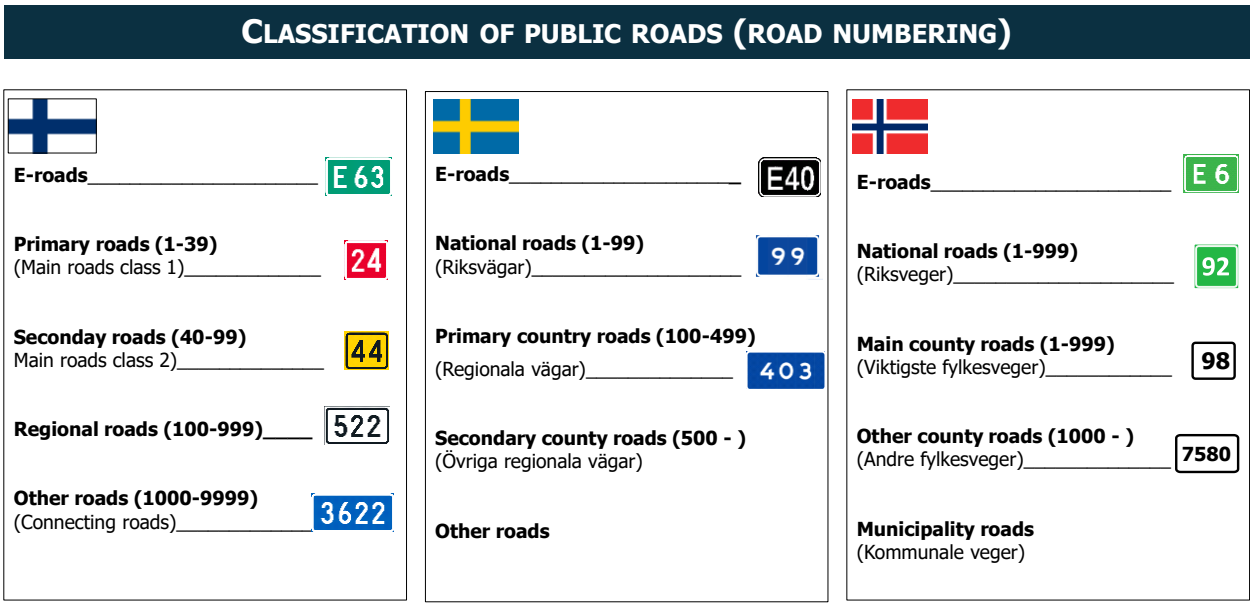


Figure 3-3: Classification of public roads.

- In Norway and Sweden, the European road numbers are integrated into the road numbering system, so that the European roads in these countries usually do not have any other national road number.
- In Finland, European road numbers are used in parallel with national numbers. Regional contractors are responsible for providing road maintenance in accordance with the service level defined by the Finnish Transport Infrastructure Agency.
- International roads (primary roads/riksvägar) are a road classification found in all three countries. The definition of national roads varies from country to country, but national roads in most countries are roads that connect national regions and the country to the neighbouring countries.
- A county road (fylkesveg) in Norway is a road owned by a county municipality and maintained by the county municipality in which the road is located.
- In Sweden, a county road (länsväg) is a state-owned public road that is not a national road or a European road. County roads are divided into two categories based on their importance: primary and other county roads.
- In Finland, the regional ELY Centres and the Finnish Transport Infrastructure Agency is responsible for the maintenance and development of the state-owned road network (including regional roads).

3.3 PUBLIC VEHICLE CLASSIFICATION AND REGISTRATION

In our total AADT estimates for traffic with the heaviest commercial vehicles, and as a basis for visualization (maps), we have as a starting point used public data. There are differences between countries in terms of what is reported publicly. We have tried to utilize national statistics that are as comparable as possible in the different countries.

3.3.1 TRUCK SIZES IN GENERAL

Even though there are variations among the different roads, Finland and Sweden can in general utilize longer and heavier trucks than in Norway. In Norway, the usual limit is 50 tons total weight and 22,5 meters. For some routes, vehicles with modular systems are allowed (60 tons/25,25 m). Such trucks are more common in Finland/Sweden than in Norway.

In Finland 34,5 m (76 tons) trucks have been allowed on most parts of the road network since 2013, 60 tons since 1997, 56 tons since 1990 and 48 tons since 1982.

After December 2023, Sweden has allowed 34,5 m modular trucks for sections of the state-owned road network. [11] The maximum permissible weights for the road depend on the load-bearing class[12] of the road and the distance between the axles. When it comes to the implementation of BK4 (highest load bearing class) with 74 tonnes in the Northern Region (Norrbotten, Västerbotten, Jämtland and Västernorrland), a report[13] from Trafikverket (Swedish Transport Administration) states that "Forecasted opening for 74 tonnes trucks until 2026 is 71 percent of the strategically designated road network and 54 percent of the state roads in the region."

There may sometimes be some exceptions from the general weight rules, like Pajala-Svappavaara in Norrbotten, where 90 tonnes trucks are allowed, -based on an annual application for weight exemption from the existing regulations.

Picture 3-1: *A Kaunis Iron truck has gross weight of 90 tons and a payload of 62 tonnes.*

[11] https://www.transportstyrelsen.se/sv/vagtrafik/yrkestrafik/gods-och-buss/matt-och-vikt/langd-och-breddbestammelser/34-meter-langa-fordonstag/

[12] Bärighetsklasser (BK) på vägar och broar - Bransch

[13] https://bransch.trafikverket.se/contentassets/9d861d7e13004618aa2decb5db07510c/uppdatering-av-regeringsuppdrag--implementering-av-barighetsklass-4-2024-06-04_rattad-till-ompublicering.pdf (Trafikverket, June 2024)

3.3.2 PUBLIC FIGURES USED IN THIS REPORT

In our basic description, we have tried to identify the "heaviest vehicles. It is an ambition that the vehicle groups should be as comparable as possible with the methodology used in Norway over many years i.e. from 16 meters and longer. When identifying freight flow, we have used the following AADT-information from public statistics:

- Norway: Vehicles => 16 meters.
- Finland: The total of truck and semi-trailer (group 4), truck and trailer (group 5) and High-Capacity trucks (group 9).
- Sweden: Very heavy vehicles.

Even though this groups should be quite similar, there are differences.

In Sweden, "Very heavy vehicles" may include shorter vehicles than the 16 m. in Norway. The picture shows a short power-driven vehicle with three axles (Source: Trafikverket, legal loading document). A snowplough truck with 3 or 4 axles, may also be included in the Swedish figures. Such vehicles are normally much shorter[14] than 16 m.

Based on the chosen principles, the illustration below indicates which vehicles (public figures) that is used for the purpose of this report. We have tried to find the most comparable "heaviest" vehicles in the different countries, based on public statistics.

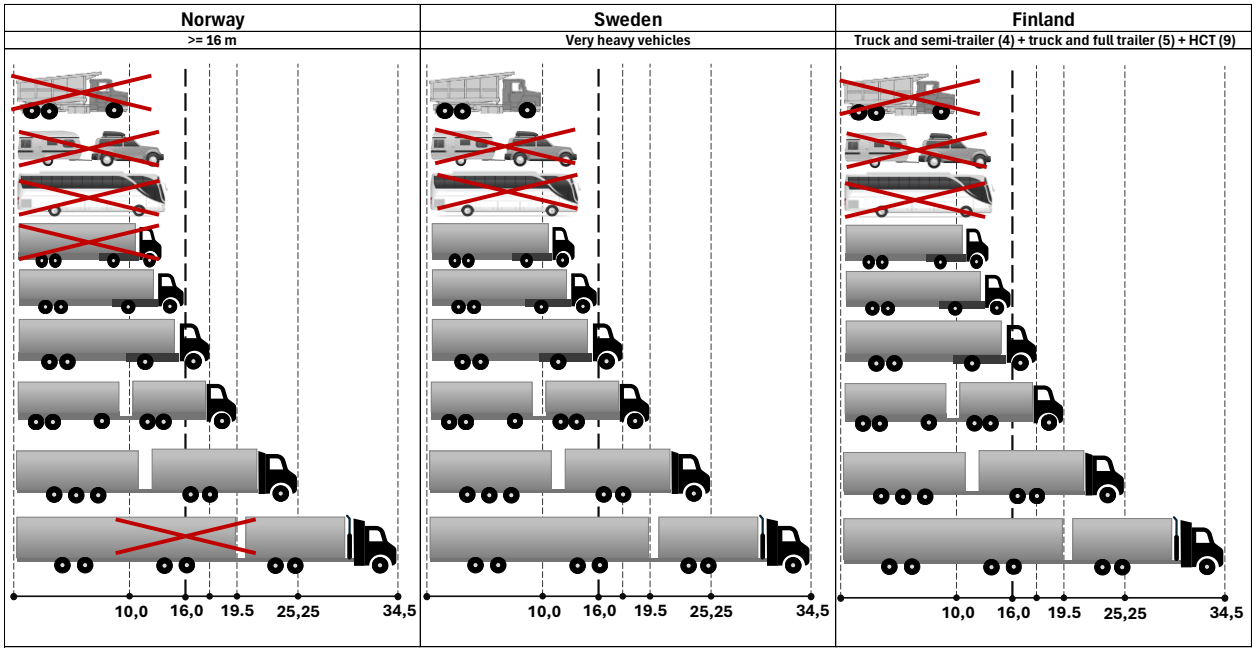


Figure 3-4: "Heaviest" vehicles based on chosen principles.

- In general, public registrations based on the chosen principles, show higher AADT-figures for the heaviest vehicles in Sweden/Finland than Norway.
  - The Finnish registration of border crossing AADT-figures between Finland and Norway, usually shows higher figures in Finland than Norway, - but there are exceptions (the Norwegian registration in Utsjok is higher than the Finnish figures).
- On the border crossings between Finland and Sweden, AADT[15] "mycket tunge fordon" (Sweden), generally shows higher figures than group 4, 5 and 9 in Finland.

[14] The maximum length for a snowplough truck in Norway is 14 meters.
[15] Annual Average Daily Traffic

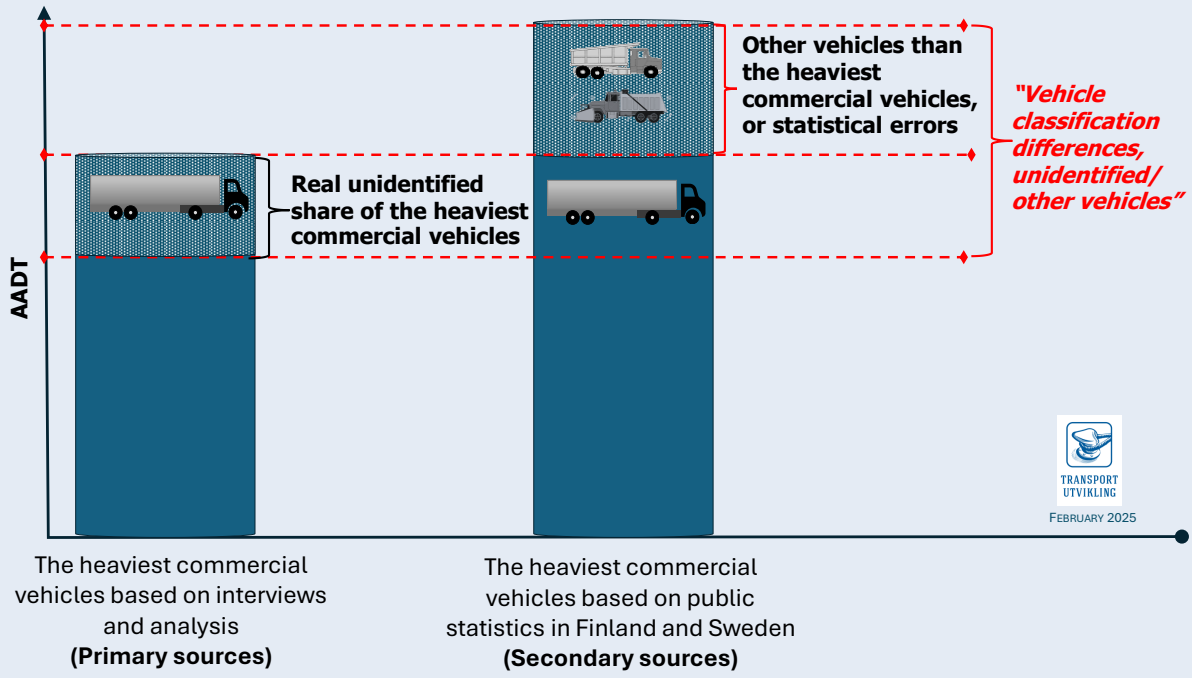
3.3.3 "VEHICLE CLASSIFICATION DIFFERENCES, UNIDENTIFIED/OTHER VEHICLES."

In the chapters 6.2.3 to 6.2.6, AADT is quantified along the four corridors. Here, each corridor's AADT is distributed as a percentage by the most important industries that use the corridor. For each corridor, a share of the transport is not directly attributed to industries. This proportion of the corridor's ÅDT is referred to as ***"Vehicle classification differences, unidentified/ other vehicles."***

The explanation for this is that the analysis is based on both primary and secondary data. Primary data are mainly actually identified transports carried out with the largest commercial vehicles, while secondary data from public statistics also include other and smaller vehicles.

The reference figures for the calculated percentage are public data.

The term "Vehicle classification differences, unidentified/other vehicles" therefore includes not only unidentified commercial vehicles of the heaviest category, but also other vehicles that are not included in the mandate for the analysis, as well as any statistical sources of error. The figure below illustrates this:



The actual unidentified share of the heaviest commercial vehicles is therefore lower than the percentage quoted in Chapters 6.2.3 to 6.2.6., which is referred to as *"Vehicle classification differences, unidentified/other vehicles."*

3.3.4 VEHICLE CLASSIFICATION IN THE THREE COUNTRIES

The following vehicle classification (all vehicles) is used for public statistics in the three countries:

Norway	Sweden	Finland
Published by: Lenght	**Published by: Weight**	**Published by: Vehicle category**
• <5,6 m	• Leight vehicles (lätta)	1. Passenger car or van
• >= 5,6 m	• Heavy (tunga)	2. Truck without trailer
• 5,6 m – 7,6 m	- Medium heavy (medeltunga)	3. Buses and coaches
• 7,6 m – 12,5 m	- Very heavy (mycket tunga)	4. Truck and semi-trailer
• 12,5 m – 16,0 m		5. Truck and trailer
• >= 16,0 m		6. Passenger car and trailer
• 16,0 m – 24,0 m		7. Passenger car and caravan
• >=24,0 m		8. MC
		9. High-Capacity Truck (>76 tons)
Detection system		
Means of inductive loops/sensors in the road surface	*Hose sensors in the road surface*	*Electromagnetic induction loops embedded in the roads*

Table 3-3: Public vehicle classification i Norway, Sweden and Finland

3.3.4.1 Vehicle classification in Norway

Traffic on permanent measuring stations is detected by means of inductive loops/sensors in the road surface. When a car crosses the loops; length, speed, vehicle class and distance to the vehicle in front are recorded in seconds. It also registers which lane and direction the car is moving. The vehicles are classified in length groups, ref table 3-3, which is the base for public information.

There are continuous registrations (24/7) for many measuring points. Historical data can be obtained. Measurement errors may occur because of various factors, e.g. that the system is periodically out of order. Such conditions may cause that a traffic registration device not always is able to capture all traffic with the best quality of measured values. The registration is transferred in real time to the Norwegian Public Roads Administration's traffic data system, where the registrations are checked and aggregated. Aggregated data becomes available in the traffic data portal two to three hours later.

3.3.4.2 Vehicle classification in Sweden

The measurements are carried out with a hose sensor and an analysis computer. When the wheels on a vehicle axle compress the rubber hose, the resulting air pulse is recorded with a time accuracy of one millisecond. The number of vehicles, their direction and speed are calculated. Vehicle classification is based on the length between axles of the towing vehicle. If the length is more than 4,4[16] metres (new classification from 2021), the vehicle is classified as a heavy vehicle. This means that shorter vehicles than the Norwegian 16 m. can be classified as

[16] New classification from 2021. Previous classification was 3,3 m. In 2019 and 2020, the Swedish Transport Administration conducted development work to change the vehicle analysis model that we have used up to and including 2020. Vehicle appearances and axle configurations change over time, and this in turn leads to vehicles being incorrectly detected in vehicle classes where they do not belong. The idea of the new vehicle class model is that it will better harmonize with the appearance of today's vehicle fleet and lead to quality improvements in the information resulting from the ÅDT survey. Among other things, about ten new vehicle combinations have been identified and the limit for what is classified as a passenger car and truck has changed (Source: Trafikverket, Luleå).

the heaviest vehicles. Other misclassifications may occur due to measurement errors of various kinds[17]. In public statistics the vehicles are classified in weight-groups, ref table 3-3.

As weight cannot be measured by hose sensors, an internal method is used to identify the vehicle group based on distance between axles.

- Light vehicles are less than 3.5 tons, based on length between axles ≤ 4.4 m.
- Heavy vehicles are more than 3,5 tons, and the length between axles > 4.4 m.
    - Medium heavy vehicles are defined as 2-axle vehicles without trailers.
    - Very heavy vehicles are defined as 2-axle vehicle with trailer and 3-axle vehicle with and without a trailer.

On the main road network, road numbers below 500, measurements are made every four years. Other roads are measured every twelve years.

Picture 3-2: "Heavy vehicle", parked fish truck (semi) north of Luleå (Photo: Transportutvikling AS)

3.3.4.3 Vehicle classification in Finland

Automatic traffic measuring stations (LAM[18] or TMS) are composed of data collection units and electromagnetic induction loops embedded in roads, whereby the metallic mass of the vehicle causes a change in the magnetic field of the loop. The LAM device consists of two induction loops and a data collection unit in each band. The LAM device registers vehicles exceeding the point, direction of travel, lane, speed, vehicle length, time difference between successive vehicles and vehicle category. The stations contain sensors that produce computational data.

Based on the public information attained from Digitraffic[19] the vehicles are classified by vehicle categories, ref table 3-3. Group 1,6,7 and 8 are by the Finnish authorities classified as "Light vehicles) and group 2,3,4,5 and 9 as "Heavy vehicles).

[17] Dataproduktspecifikation – Årsmedeldygnstrafik (ÅDT) på statliga bilvägar mätt med mobil utrustning, Trafikverket (document to be updated summer 2025)
[18] LAM or TMS (Traffic Measurement System)
[19] Digitraffic is a service operated by Fintraffic offering real time traffic information. https://tie.digitraffic.fi/ui/tms/history/

3.3.5 AADT VARIANCES AT THE BORDERS

The map (figure 3-5) shows the border crossings figures for the heaviest vehicles crossing the Norwegian border to Finland or Sweden, based on the principles used in this report.

Red AADT symbols shows Norwegian registrations, blue finish and yellow is registrations made by Swedish authorities.

- Norway – Sweden:
  - The Swedish figures are higher than the Norwegian. We find the same variance for border crossing outside the WP1 region (Junkerdal (Rv.77) and Umbukta/Tärnaby (E12))
    - ✓ The Norwegian figures for Bjørnfjell show an AADT of 57 (=>16 m). The AADT of very heavy vehicles registered by Trafikverket in Sweden is 75.
- Norway-Finland
  - The Finnish figures (except Utsjok) are generally higher than the Norwegian.
    - ✓ The Finnish figures at Kivilompolo and Kilpisjärvi are almost the similar as the Norwegian figures for vehicles longer than 12,5 m (which also includes busses, snowplough-trucks etc).
    - ✓ The Norwegian figures for Kilpisjärvi show an AADT of 68 (=>16 m), while the Finnish AADT figures for the heaviest vehicles (group 4,5 and 9) was 76.
    - ✓ For Kivilompolo the Norwegian figure is 51, and the Finnish 68.

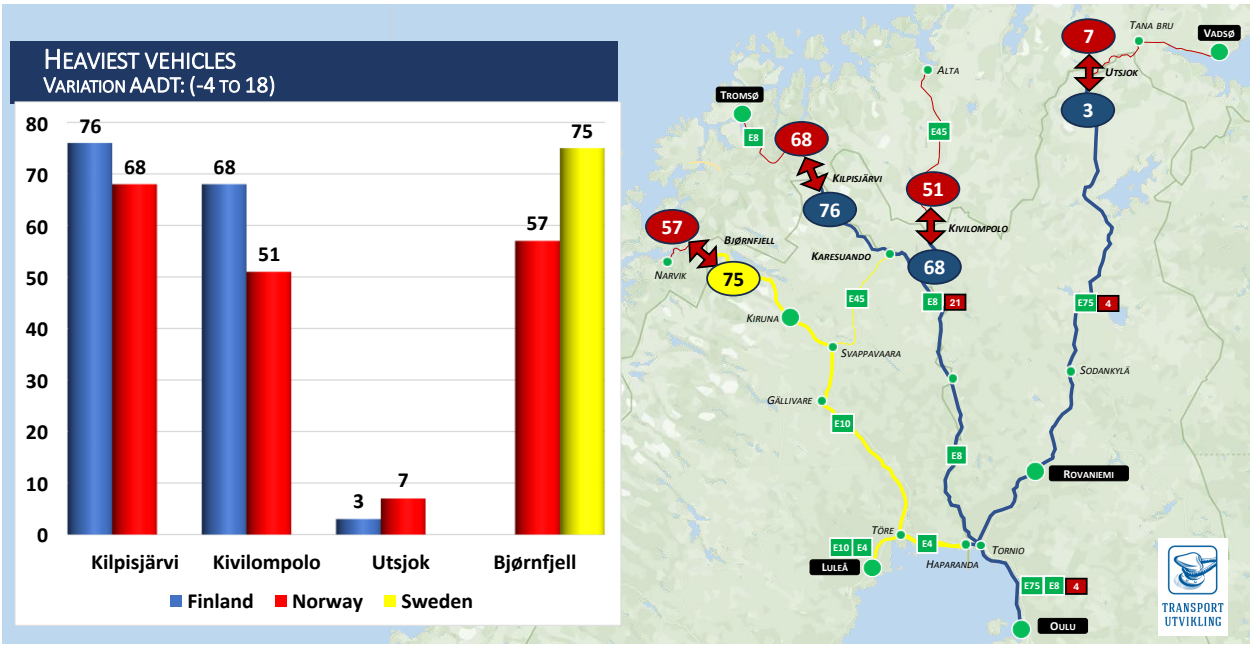


Figure 3-5: Border crossing Norway and Finland/Sweden (AADT heaviest vehicles)

The variations for the border stations Kilpisjärvi, Kivilompolo and Bjørnfjell are 12%-32%, - which gives an AADT variation between 8 and 18. An AADT of 18 corresponds to an annual traffic of more than 6.570 vehicles.

Variation total AADT

Although the AADT figures vary for the heaviest vehicles, possibly due to reasons mentioned in chapter 3.3.6, the total AADT figures should be the same in both countries if the measurement period and measurement pace is the same. Here, the Norwegian figures are lower than the Swedish, but to a much lesser extent than for larger vehicles.

Between Finland and Norway (2023 figures), the Finnish AADT-total is lower for Kivilompolo and Utsjok, but higher for Kilpisjärvi. The differences are quite small.

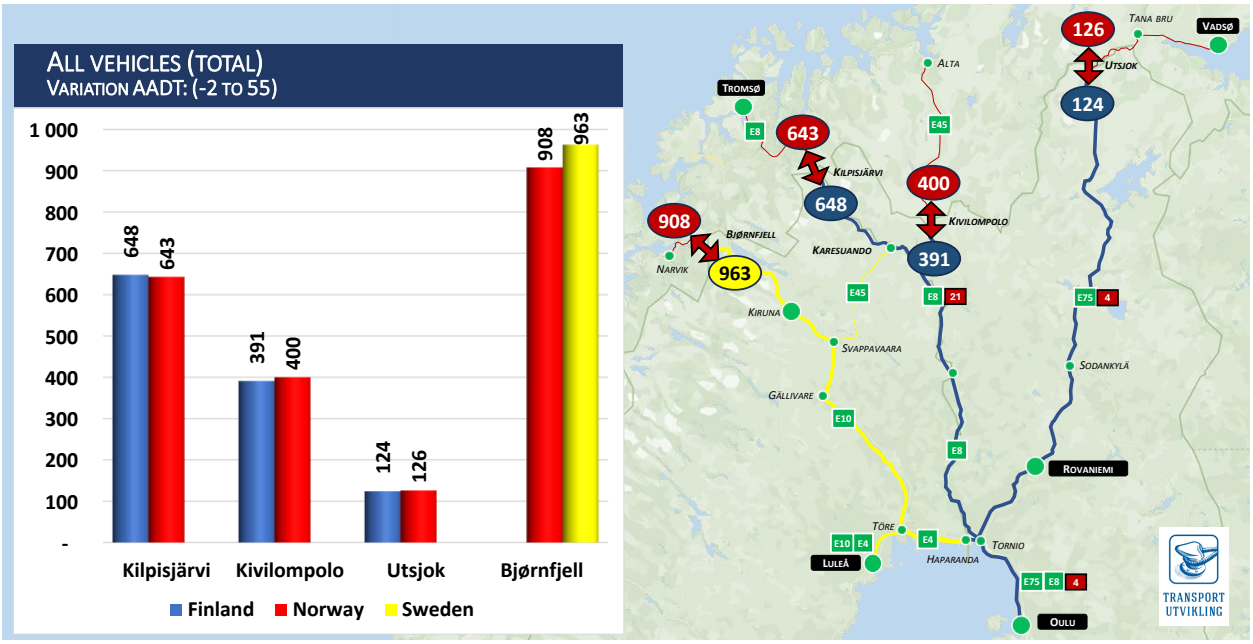


Figure 3-6: Border crossing Norway and Finland/Sweden (AADT total)

<u>Comments on Karesuando/Karesuvanto and Haparanda/Tornio (Sweden/Finland)</u>
Both are border crossings used for import/export to/from Norway.

<u>Karesuando/Karesuvanto</u>
For Karesuando/Karesuvanto Norwegian transport represents a larger share than the crossings over Haparanda/Tornio. E45 and E45/E10 (via Töre in Norrbotten) is commonly used for Norwegian transports to Sweden or Continental Europe. The distance via Karesuando is 13% shorter from Tromsø to Töre, via Karesuando, than via Haparanda/Tornio. Based on public statistic and the chosen principles for measurement, the Swedish figures are higher for the heaviest vehicles. For AADT total the Finnish figures is higher.

<u>Haparanda/Tornio</u>
Figure 3-7 shows public data for "AADT-total" and the "heaviest", based on chosen principles and two different measuring points in each country. The Swedish figures are from 2022 and the Finnish from 2023. The data source is the national authorities traffic volumes maps. For the probably most relevant measuring points (closest to the border), the AADT-differences are relatively large, both for the heaviest vehicles and total.

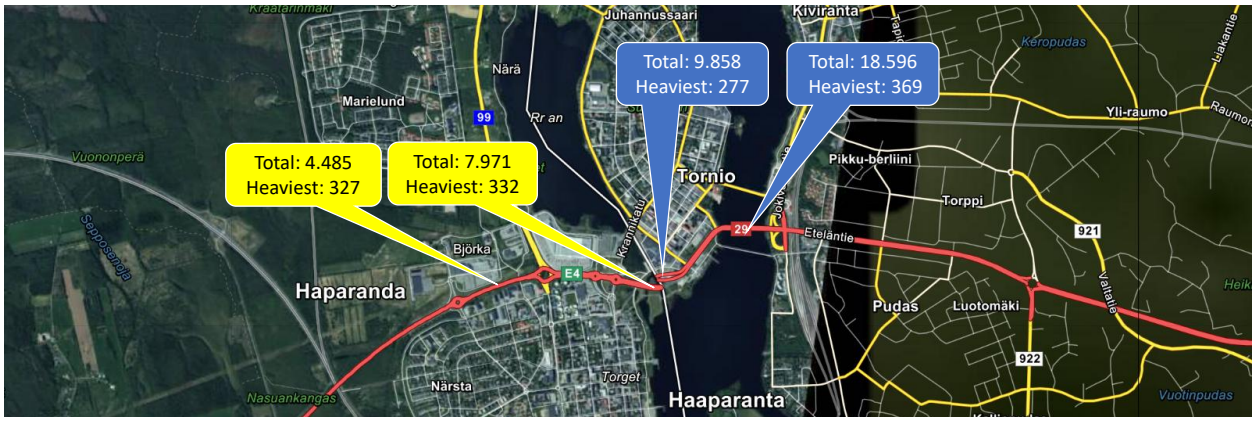


Figure 3-7: Border crossing Haparanda-Tornio (AADT for «heaviest vehicles" and total)

3.3.6 WHY AADT-DIFFERENCES

As we have experienced, the three countries do not use the same classifications to identify comparable figures for the heaviest vehicles.

There may be several reasons why figures do not correspond on each side of the border. We have not verified the exact reasons for the differences. Possible explanations for the differences may be:

Vehicle classification, and the groups we have chosen, is probably the most likely reason. Even though we have tried to find the most similar groups, there are understandable differences. Vehicle length in Norway (16 m) may only to some extent correspond to vehicles with 3 or more axles in Sweden, but not always. Shorter vehicles than 16 m are probably included in the Swedish figures. In Finland group 4 (semitrailer) and group 5 (truck with trailer) may include shorter vehicles than 16 meters, as both groups can include shorter vehicles.

Stretch measurements
Some of the public figures used are based on an average AADT for a stretch along the road, while other are based on specific measurement points.

Place of registration
Not all measured figures represent a border crossing, e.g. a snowplough vehicle turning around at the border or a business delivery to a hotel, or a shop, close to the border.

Registration year
All registrations for Finland and Norway are from 2023. For Bjørnfjell (Norway/Sweden) we have used 2022 figures. When it comes to Haparanda/Tornio and Karesuando, the Finnish figures are from 2023 and the Swedish from 2022.

Technical issues or measurement system
Technical issues like inadequate registration, due to that the system was not operational may also be a cause.

National policy
The categorization/group in the different countries may be appropriate based on the needs of national analyses and planning. This is a reasonable reason for the differences, even if the comparison between the countries becomes more complicated.

Other
Other error causes we do not have knowledge of.

An ambition with this description is to receive feedback that can help clarify the issue. If this is achieved, public statistics in all countries can be designed in such a way that the figures become more uniform and understandable for the public and non-professionals. The more people who are given the opportunity to understand and comment on the figures, the better quality is expected to be achieved in future analyses.

4 TRANSPORT CORRIDORS AND BORDER CROSSINGS

This report focuses om selected road transport corridors from the coast of Northern Norway (north of the Vestfjord), and south to Oulu and Luleå. The main roads are E10, E8 (21), E75 (4) and E45 (93). All corridors end up/passing through the northern part of Bay of Bothnia.

Figure 4-1: Selected corridors.

The main road corridors, and connected corridors are numbered 1 to 4, from east to west.

1. **Eastern-Finnmark ↔ Utsjok**
   a. Tornio ↔ North-Finland
   b. Tornio ↔ Haparanda ↔ North-Sweden
2. **Western-Finnmark ↔ Kivilompolo**
   a. Palojoensuu ↔ Karesuando ↔ North Sweden
   b. Palejoensuu ↔ Tornio
      i. Haparanda↔ North-Sweden
      ii. North-Finland
3. **Troms ↔ Kilpisjärvi ↔ Karesuvanto**
   a. Karesuando ↔ North-Sweden
   b. Palojoensuu ↔ North-Finland
4. **Nordland/Troms ↔ Bjørnfjell ↔ Töre**
   a. North-Sweden
   b. Haparanda/Tornio ↔ North-Finland

Close to the selected corridors alternative routes/connections may be used, due to for instance logistical reasons, distance, weather, closed roads and other conditions. In the WP1 region there are 13 border crossing, and 6 of the crossings are directly connected to the selected corridors. The six crossings are marked with red arrows in thew figure below.

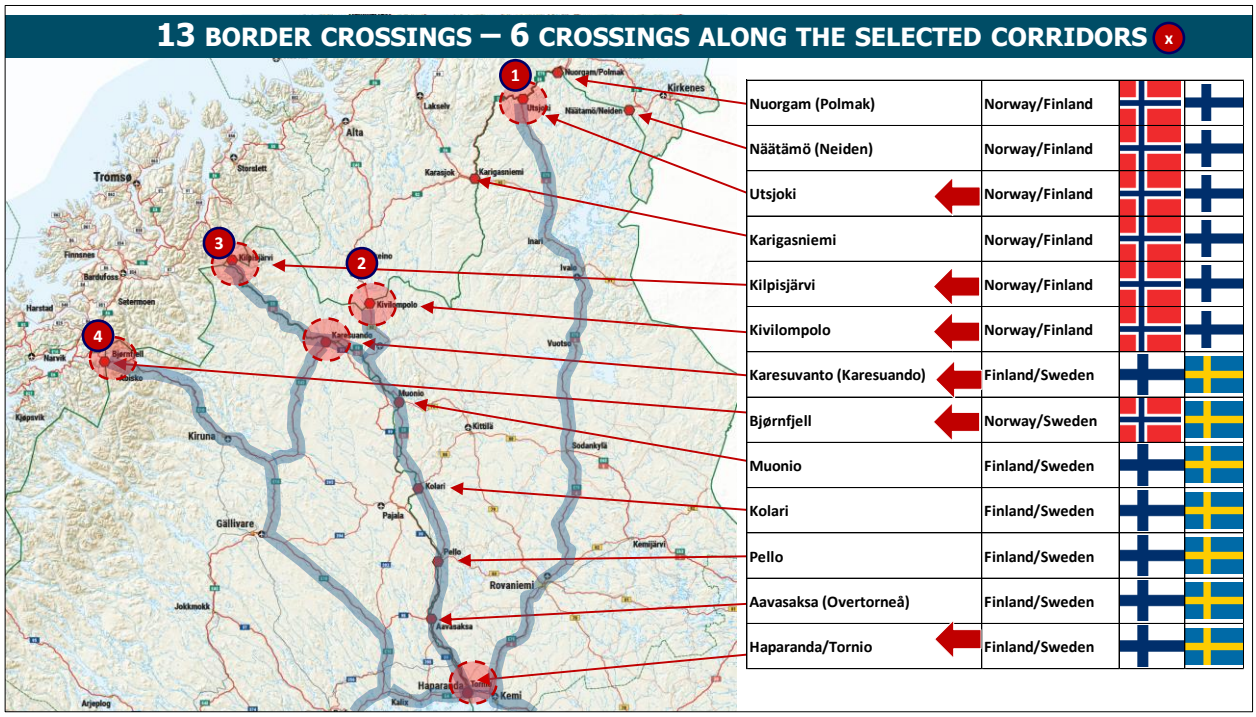


Figure 4-2: Border crossings.

Utsjok(i)-Corridor 1

The border crossing station is located along E75 (primary road 4) in Finland. E75 starts in Vadsø in Eastern Finnmark end ends in Sitía (Crete). Daily opening hours is from 09.00–23.00. Both Norwegian and Finnish customs have offices at the station.

Picture 4-1: Utsjok(i) border crossing (Photo: Markus Karlsen)

Kivilompolo-Corridor 2

The border crossing station is located along E45 (secondary road 93) in Finland. E45 starts in Alta in Western Finnmark end ends in Gela (Sicily). Open 24/7. Both Norwegian and Finnish customs have offices at the station.

Picture 4-2: Kivilompolo border crossing (Photo: Transportutvikling AS)

Kilpisjärvi/Helligskogen – Corridor 3
The border crossing station is located along E8 (primary road 21) in Finland. E8 starts in Tromsø in Troms County and ends in Åbo/Turku (Southwest Finland). Open 24/7. Both Norwegian and Finnish customs have offices at the station.

Picture 4-3: Kilpisjärvi border crossing (Photo: Transportutvikling AS)

Bjørnfjell – Corridor 4
The border crossing station is located along E10 at the Norwegian/Swedish border in Norway. E10 starts in Å (Lofoten Norway/Nordland) and ends in Luleå.

Opening hours:

Monday-Friday: 08.00–23.00 (may-august)

Monday-Friday: 08:00-02:00 (September-April).

Saturday: 08:00-18:00
Sunday: 13:00-23:00

Picture 4-4: Bjørnfjell border crossing (Photo: Transportutvikling AS)

Karesuando/Karesuvanto – Corridor 2 and 3

The border crossing is located along E45 (secondary road 93 in Finland) between Finland and Sweden. As a result of both countries being members of the EU, there are no border crossing formalities at the border.

Picture 4-5: Karesuando bridge, seen from Sweden (Photo: Transportutvikling AS)

Haparanda/Tornio

The border crossing is located along E8/E4 between Finland and Sweden. As a result of both countries being members of the EU, there are no border crossing formalities at the border.

Picture 4-6: Haparanda/Tornio border crossing (Photo: Markus Karlsen)

In addition to the 6 mentioned border crossings. Kolari is to some extent used for transports to/from Eastern Finnmark and Sweden.

The border crossing between Norway and Finland/Sweden has usually limited opening hours. Only Kivilompolo (E45/93) and Kilpisjärvi (E8/21) are open around the clock. Between Finland and Sweden, there are no restrictions.

5 THE INDUSTRIES AND TRANSPORTATION

5.1 INTRODUCTION

Transport intensive industries	Norway	Sweden	Finland
Seafood			
Minerals and mining			
Agriculture			
Waste			
Grocery			
Petroleum products			
Forestry, paper and pulp			
Other			

This chapter gives a brief overview of the various regional industries, key players and transportation. The information from the various industries is based on both interviews with companies/organizations and secondary sources (statistics, reports and other written documentation).

The region's most important road transport intensive industries are shown in the table:

Figure 5-1: Road transport intensive industries.

Many of these industries are found in all countries, but they have different road transport volumes due to the size of population, industry structures and chosen modes of transport. The industries using heavy vehicles along the road corridors, are not always the industries with the largest transport volumes. Oil, gas, minerals and various heavy bulk transports are mostly using sea and rail for their main transports. This is the same situation in all countries.

The group "Other" (last row in figure 5-1) includes several transports that are not a part of the selected industries. This can be empty vehicles, transports of various industrial goods, transports of machinery/equipment, transports of linen goods, maintenance vehicles, show-plough trucks etc. Individually, the transport volumes may be small, but together the numbers are high.

A share of the road transports through the region are not related to trade between regional industries, but to transit operations. An example is transports of seafood from Norway, where the transport network in Sweden and Finland is used as a transit route to e.g. European continental markets. The same situation occurs for the Norwegian grocery industry, where Sweden/Finland is used as transit countries from Southern Norway to the north.

We have more detailed primary information from the Norwegian industries than the industries in Finland/Sweden.

All overview tables from each industry chapter can be found in appendix 7.4.

5.2 SEAFOOD INDUSTRY

Almost all seafood transports in the region originate in Norway. This applies to both farmed/aquaculture (salmon) and wild-caught fish (cod and other wild species).

There are also seafood industries in Northern Sweden and Finland. The caught volumes are small, compared to Norway. Sweden and Finland have a few processing plants (like Hätälä in the Oulu region and BD fisk in Luleå), and producers of various inputs to the Norwegian industry (like pallets from Versowood in Oulu).

All modes of transport (road, rail, sea and air) are used for the transport of Norwegian seafood.

5.2.1 SHORT OVERVIEW SEAFOOD TRANSPORTATION

Seafood	
Important industry in	Norway
Modes of transportation	All modes of transportations is used, also airfreight.
Volumes	Approximately 900.000 tons of seafood were transported from the region north of Vestfjorden i Norway. In 2023. 580.000 tons were transported by truck and truck/rail out of the region
AADT	580.000 tons corresponds to an AADT of approximately 170, based on the average weight for truck transport out of Northern Norway. More than half of the truck/rail volume used truck as the only mode of transportation, though Sweden, Finland and E6 Norway. Most of the trucked volume goes through Sweden.
Finland and eastern markets	40.000-50.000 tons (AADT 12-14)of the truck-volume passed international borders, destinated for eastern markets where Finland is a relevant transit country. A share of these transports crossed the border of Haparanda/Tornio
	In addition, inputs like pallets etc were imported to the industry, often from Finland/Baltic countries
Border crossing and most important corridors	All border crossing stations between Norway (north of Vestfjorden) and Finland/Sweden is used. The main border crossings are: o Kivilompolo (E45/93) - Corridor 2 o Kilpisjärvi (E8/21) - Corridor 3 o Bjørnfjell (E10) - Corridor 4

Table 5-1: Overview transportation – seafood

5.2.2 MAIN SEAFOOD PLAYERS

In Northen Norway (north of the Vestfjord there are around 160 wild catch receivers. Most of them are small, and the 30 largest counts for 80% of the volume. In the same region there are 17 slaughterhouses for salmon (21 in total in Northern Norway). In addition, there are several other companies engaged in the seafood industry (processing firms and producers of fish feed, packaging, pallets etc.)

Wild catch receivers

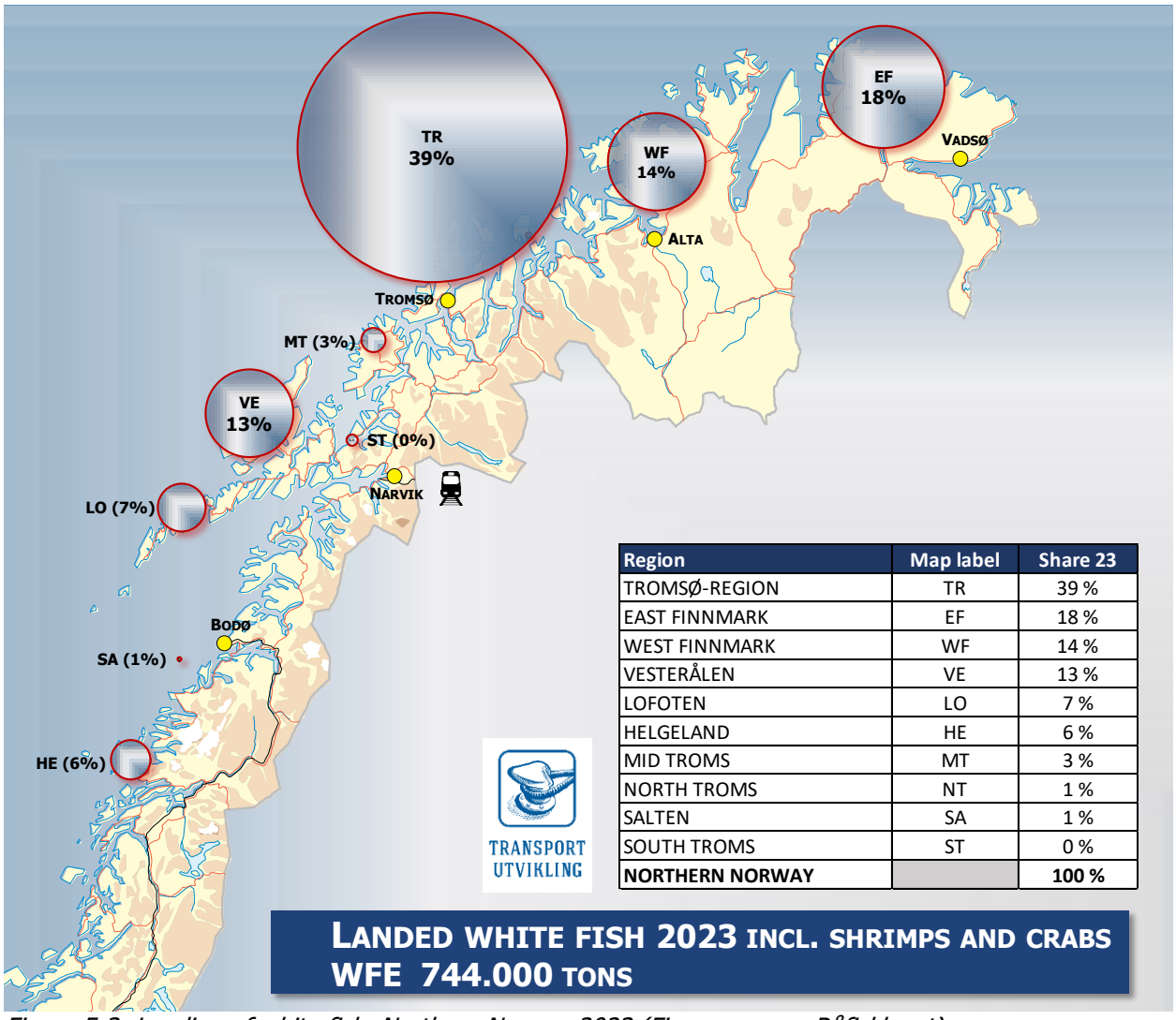
The wild catch receivers are located all over Northern-Norway.

The map below shows the location of the largest wild catch receivers in Northern Norway in 2021. The map shows about half of the registered wild catch receivers.

Figure 5-2: Location of the largest wild catch receivers.

The largest wild-catch regions in the WP1 region are the Tromsø region, East Finnmark, West Finnmark and Vesterålen/Lofoten.

The map below shows the regions where white fish (mainly cod, ex. pelagic) were landed in Northern Norway in 2023. The weight is based on WFE[20].



Region	Map label	Share 23
TROMSØ-REGION	TR	39 %
EAST FINNMARK	EF	18 %
WEST FINNMARK	WF	14 %
VESTERÅLEN	VE	13 %
LOFOTEN	LO	7 %
HELGELAND	HE	6 %
MID TROMS	MT	3 %
NORTH TROMS	NT	1 %
SALTEN	SA	1 %
SOUTH TROMS	ST	0 %
NORTHERN NORWAY		**100 %**

Figure 5-3: Landing of white fish, Northern Norway 2023 (Figure source: Råfisklaget)

Picture 5-1: Norwegian trawler (Source: Holmøy Maritime).

[20] Wild Fish Equivalent (weight of live fish).

Aquaculture - slaughterhouses

The location of the 21 slaughterhouses in Northern Norway (salmon) is shown in figure 5-4.

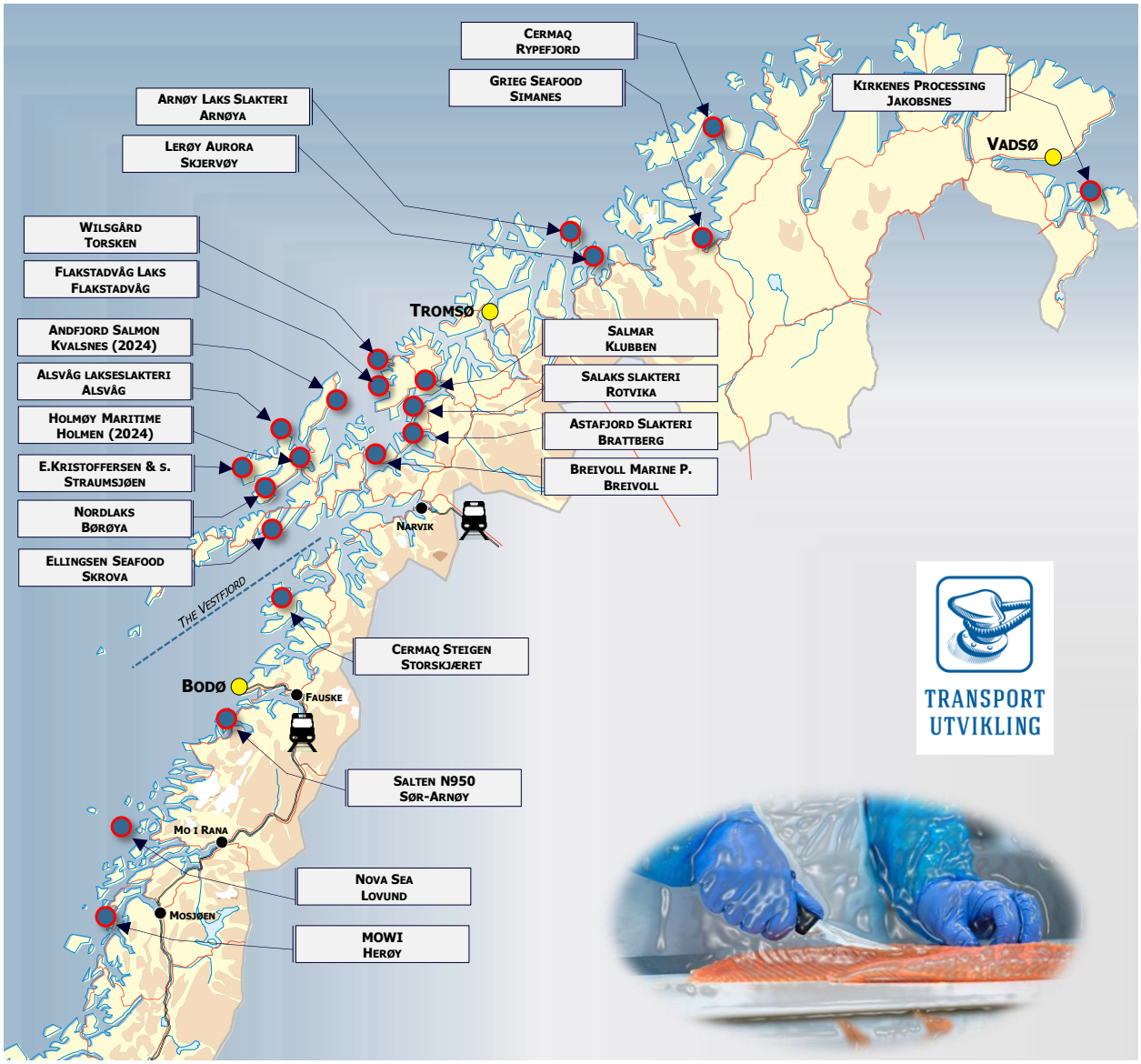


Figure 5-4: Location of slaughterhouses for salmon (2025)

5.2.3 SEAFOOD TRANSPORTATION IN GENERAL

5.2.3.1 National figures

Norway is among the largest fishery nations in the world. Close to 45% of the nationally landed/produced fish volume in Norway originates in Northern Norway, - and most of it north of the Vestfjord (WP1 area). The total Norwegian seafood export in 2023 amounted to approximately 2.5 million tonnes. The exported volume goes to more than 200 countries.

In 2023, close to 100% of the farmed volumes (national figures) in Norway, Sweden and Finland was produced in Norway. The corresponding figure for wild-caught fish was approximately 92%.

Poland is the country buying the largest volume of fish from Norway, mainly salmon for further processing. Sweden and Finland are also among the top 30 import countries. First, salmon, but also large volumes of herring to Sweden. Of the total of 2,5 million tonnes Sweden imported 51.000 tonnes (2% of the total Norwegian export) tonnes and Finland 24.000 tonnes (1%).

From Norway (whole Norway) 1 million tonnes (AADT 290) was transported by road, corresponding to an accumulated AADT[21] of 290. The remaining volumes are transported by sea, and rail and air in combination with truck.

5.2.3.2 WP1 region

In the WP1 region (north of the Vestfjord), approximately 1,3 million tonnes (WFE[22]) were produced/landed in 2023, -corresponding to a transport volume of more than 900.000 tonnes.

In addition to truck transport, seafood from the Norwegian WP1 region goes by sea from several ports, and rail transport from Norwegian terminals, - mainly Narvik but also Fauske and Kiruna.

For more distant markets, air transport is mainly used from Oslo and Helsinki, but also from other airports such as e.g. Arlanda. There are also some flights from Evenes in Nordland County.

Figure 5-5 shows the distribution between transport modes for Norwegian seafood exports north of the Vestfjord in 2023.

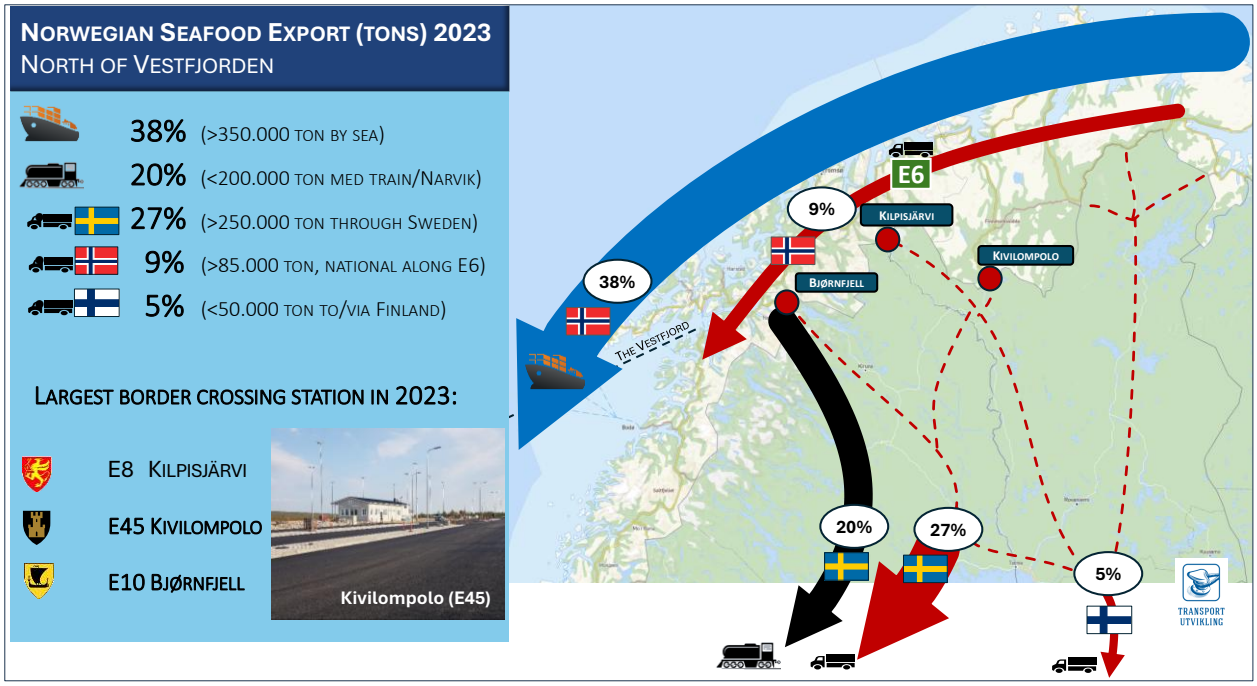


Figure 5-5: Transport modes -export of seafood 2023.

- Sea transport was used for 38% of the exports. This mainly applies to frozen products from the wild-catch industry.
- Train transport, mainly from Narvik through Sweden to Oslo, counted for 20%. This largely applies to fresh salmon products.

[21] Annual Average Daily Traffic
[22] Wild Fish Equivalent (weight of live fish), which is higher than the transport weight

- 27% went through Sweden by trucks. These are several different products.
- 9% was national transport along the E6 and 5% were transported to or via Finland (e.g. to the Baltics/Poland).

The total transport volume related to the seafood industry (WP1 region) is considerable higher than 900.000 tonnes, due to for instance transport of input factors (pallets, packaging, fish-feed etc.), internal transport between plants etc.

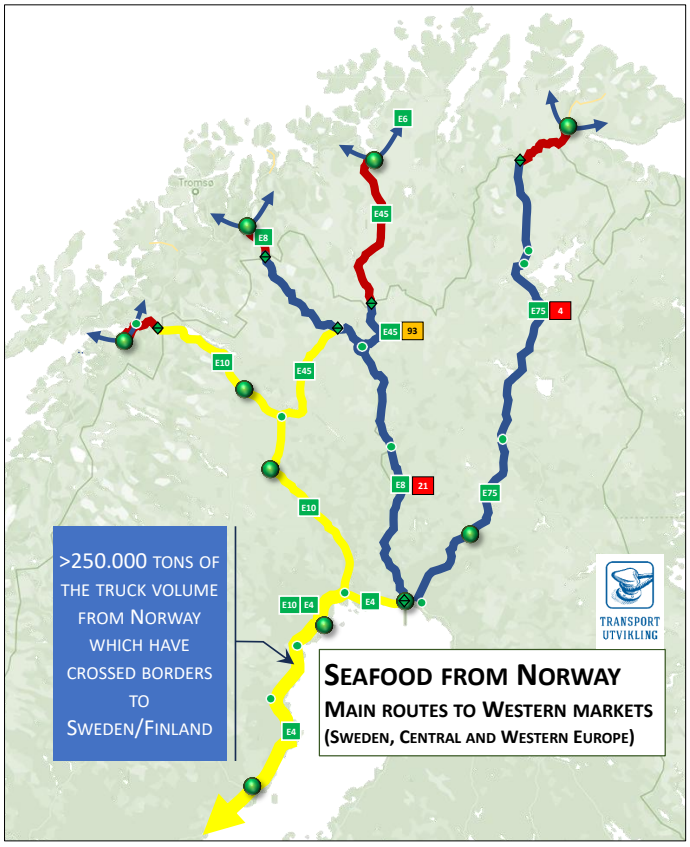
In 2023, the volumes from the wild-catch industry were larger than the volumes from the aquaculture industry, but the value of the farmed fish is significantly higher than the wild-caught fish. Most of the exported seafood from Northern Norway are destinated for the European market, including Poland, Finland, Sweden and the Baltic states.

5.2.4 ROAD TRANSPORTATION (SEAFOOD)

Approximately 400,000[23] tonnes (AADT 115) were transported from Northern Norway (north of the Vestfjord).

5.2.4.1 Routes to Sweden and Central/Western Europe

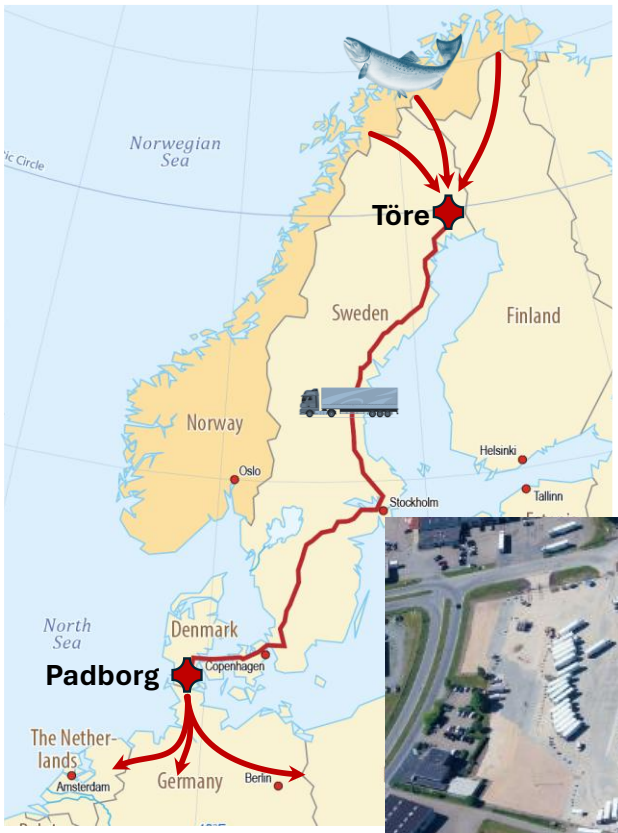
If the destination is in Sweden and Central/Westen Europe the best route is through Sweden, due to shorter distance, good road quality and no ferry connections. Some transports may cross the border in Haparanda/Tornio.



More than 250.000 tons (AADT 72), equivalent to 85%, of the seafood volume which crossed the Norwegian borders by truck in 2023, continued further through Sweden, for instance to Padborg in Denmark.

Figure 5-6: Main transport routes of seafood to western markets.

[23] Source: Public statistics and interviews conducted by Transportutvikling AS



Padborg is one of Europe's most important terminal cities for Norwegian seafood, especially salmon. From Padborg, the seafood is distributed to several European destinations. Large logistical companies like Girteka/Thermo-transit have their terminals in Padborg.

The figure shows a typical route from Northern Norway, via Töre in Norrbotten (E10) to Padborg in Denmark.

Figure 5-7: Typical transportation route to Padborg terminals.

Picture 5-2: Thermo-transits new terminal in Padborg (Source: Thermo-transit/ Dataforsyningen.dk))

Example: transports Norway - Norrbotten

BD Fisk OY[24] is buying their fresh farmed salmon from Northern-Norway, for processing in Sweden. Their transport routes usually involve border crossing at Bjørnfjell. The journey from Northern Norway to the Luleå takes 7-10 hours.

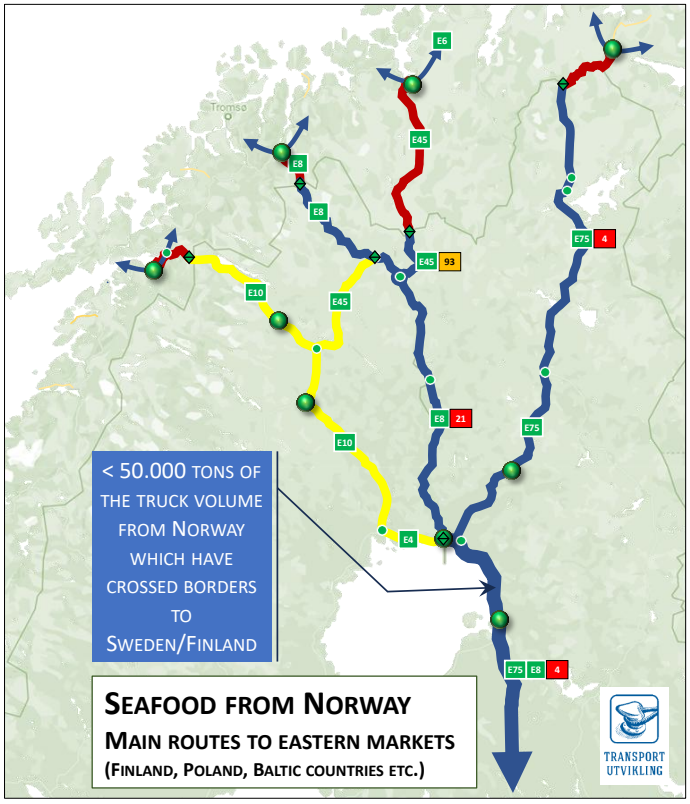
BD Fisk has received the Norrbotten Environmental Award for its environmental work.

Picture 5-3: The management of BD Fisk receiving the environmental award.

[24] Fish processing company with 26 employees on a permanent basis, with headquarter in Luleå.

5.2.4.2 *Routes to Finland and Eastern Europe*

Then different routes chosen in Sweden/Finland depends mainly on the destination of the seafood products and if chosen route contributes to balanced cargo (filling up empty trucks on the return route). The route for destinations in Central/Western Europe goes often through Sweden, while destinations in in Eastern Europa may use Finnish roads.



Close to 50.000 tons (AADT 15) of the seafood volumes transported by truck, have destinations in Poland, Finland, Baltic region and European markets. The figures used, also include truck transports to Helsinki airport Vaanta.

50.000 tons represent ca. 15% og the seafood volume which crossed the Norwegian borders by truck in 2023.

For these markets, the route can go through Finland. Exporters in Finnmark and Troms can use the Finnish network, while exporters in Nordland uses the Swedish road network to Haparanda/Tornio, og further through Finland to the destination.

Figure 5-8: Main transport routes of seafood to eastern markets.

Example: transports to/from Norway and Finland

Hätälä OY[25] is buying fresh farmed salmon from Northern-Norway, for further processing in Finland. Their transport routes usually involve border crossing in Kilpisjärvi, Kivilompolo and Utsjok. The journey from Northern Norway to the Hätälä factory in Oulu takes 8-12 hours. When returning the fish truck from Oulu, it may be possible to fill up the truck with for instance pallets from Versowood, - as shown in the figure below.

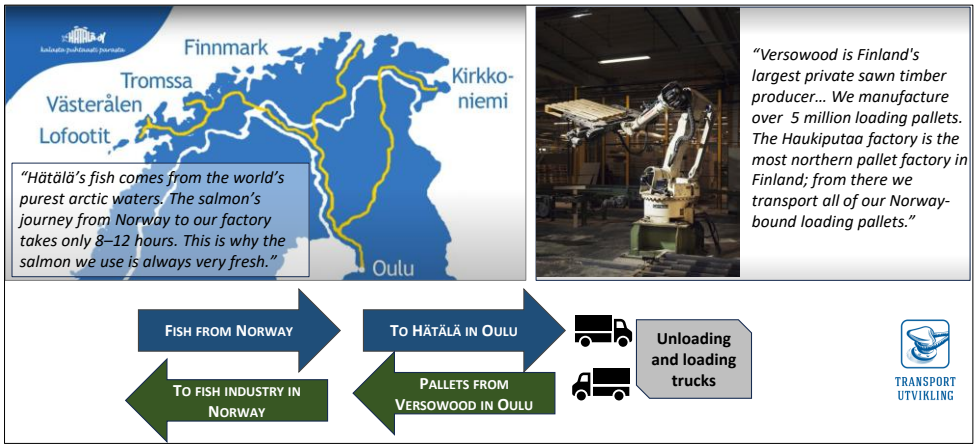


Figure 5-9: Fish from Norway and pallets in return.

[25] Large nationwide fish processing company with 220 employees on a permanent basis (up to 350 in high season) headquartered in Oulu.

5.2.5 VALUE OF SEAFOOD-TRANSPORTATION

The Norwegian border crossing is dominated by seafood products of very high value. For the four corridors, detailed valuations have been made for the border crossings between Norway and Finland/Sweden based on actual transport volumes and sales values as of 2023. For all crossings, seafood dominates the value of transportation both due to volume as well as the price.

The seafood value was 800-900 million[26] Euros for each of the three largest crossings, and the share of the seafood value was between 79% and 95% of the total value crossing the border stations.

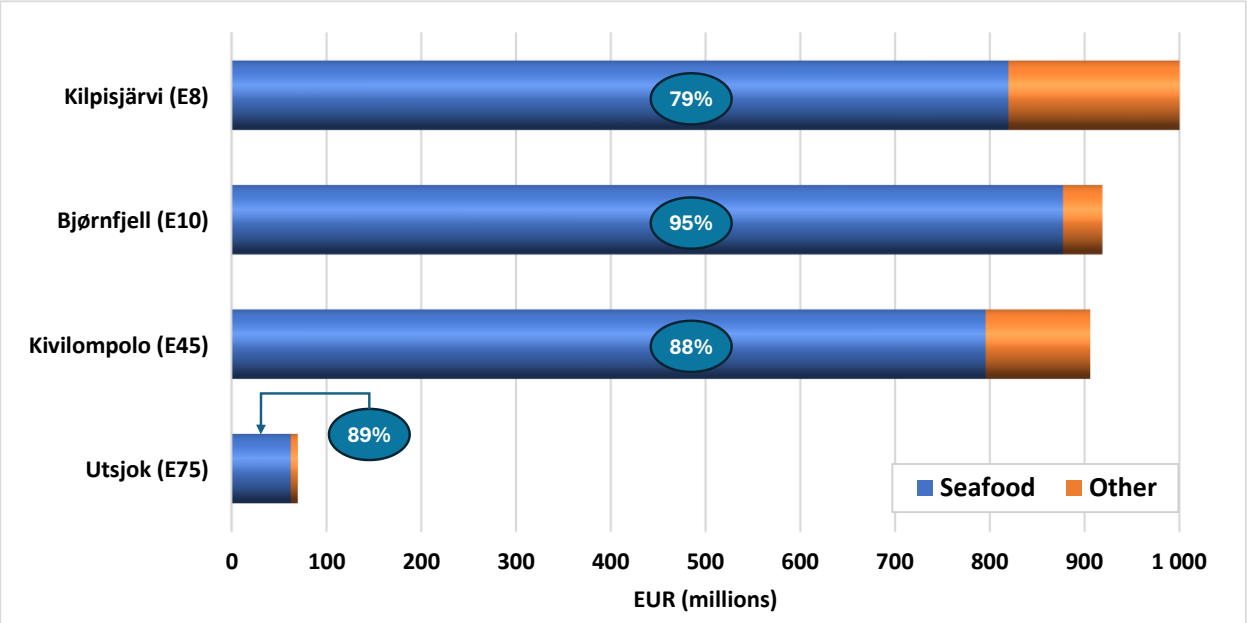


Figure 5-10: Value of seafood, Norwegian border crossings 2023.

[26] Based on an EUR/NOK exchange rate of 11,5

5.3 MINERALS AND MINING

All three countries have an active mining/mineral industry, which produces and transports various minerals. The largest volumes occur in Sweden, then Finland and Norway. Most of the mining volumes goes by rail/sea, while transports of gravel, crushed stones etc mostly uses the entire road network in all countries. In general, the largest road volumes occur from gravel, crushed stones etc, not from the large mining companies, -even though some of them have huge outgoing transport volumes on shorter distances and incoming input factors that are transported on the road network.

5.3.1 SHORT OVERVIEW TRANSPORTATION OF MINERALS AND MINING

Minerals and mining	
Important industry in	All countries. The largest mining volumes is found Sweden and Finland. Gravel/crushed stone etc represents large volumes in all countries.
Modes of transportation	Mostly sea and rail for the mining industry, but also truck transports on shorter distances (e.g. Kaunis Iron and Boliden Kevitsa). Gravel/soil etc is mainly transported by road.
Volumes	Huge volumes from the registered mining industry (30-35 MT transported by rail/sea). Gravel/crushed stone etc represents 25%-30% of the total transportation work along all roads in the region, and estimated up to 5% along the corridors
AADT	The road volume along corridors corresponds to an AADT of approximately more than 200 for the busiest roads (Pajala-Svappavaara). AADT for gravel/crushed stones varies from very small volumes up to 55.
International transports	The majority of the sea/rail volumes are international transports. Road volumes are mostly national, particularly gravel and crushed stones.
Border crossing and most important corridors	Small volumes are crossing road borders between Norway and Finland /Sweden. Used border crossings between Norway and Finland are: o Kilpisjärvi (E8/21) - Corridor 3 o Kivilompolo (E45/93) - Corridor 2

Table 5-2: Overview transportation – minerals and mining

Picture 5-4: Aitik mining truck being loaded (Source: Boliden)

5.3.2 MAIN MINERAL PLAYERS

The main players in the mineral business are the large mining companies and the producers og gravel, crushed stone, sand etc.

Mining companies

The locations of the largest mining companies are shown in figure 5-11. These companies account for the largest transport volumes in total, but not for the largest road transport volumes in the mineral industry.

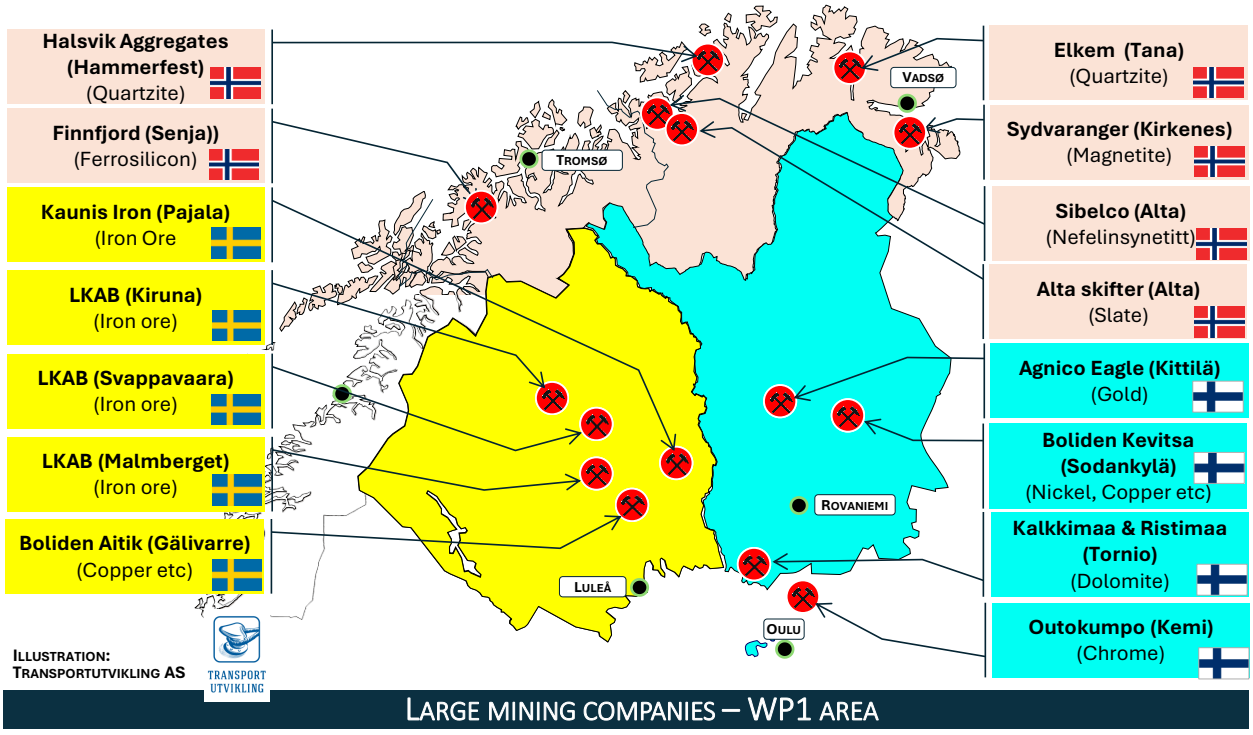


Figure 5-11: Location of large mineral/mining companies (WP1 area)

Close to the WP1 region other large mineral/mining companies are located, both in Västerbotten (e.g. Boliden), Northern Ostrobothnia (e.g. Pyhasalmi) and in the southern parts of Nordland (e.g. Rana Gruber). In addition, there are several medium sized companies in the region (e.g. Skaland Graphite in Senja, Troms County).

See appendix 7.5 for a short description of the mining companies.

Gravel, crushed stone, sand etc

In general, the largest road volumes occur from gravel, crushed stones etc, from other companies than large mining companies. Gravel, crushed stone etc. is used for various infrastructure projects (like building and maintenance of roads), various construction projects (like land reclamation and development of building areas) etc. Such transports usually take place over short distances.

There are several operational pits where crushed stone, sand, etc. are transported to various maintenance and construction projects. The pits are located almost everywhere.

Figure 5-12 shows an example from Norrbotten and the location of a huge number of gravel pits (red dots).

The consequence of decentralized location is that transport work occurs in large parts of the region. The situation is the same in all three countries.

Many of the pits in Norrbotten are also located along the selected corridors crossing Norrbotten. The relevant corridors are marked with red transparent lines and numbers on the figure.

Figure 5-12: Example, gravel pits i Norrbotten (Source: SGU)

According to national statistics (SSB, SCA and Statistics Finland) a total of 900 million tonnes of various goods were transported along national roads by domestic registered vehicles. Between 26% and 35% where related to gravel, crushed stone, sand and soil. We have no reason to believe that the share of these commodities is lower in the New North area, than nationally.

However, the relevant share for the selected corridors, and based on the mandate in this report, is much lower. The reasons are:

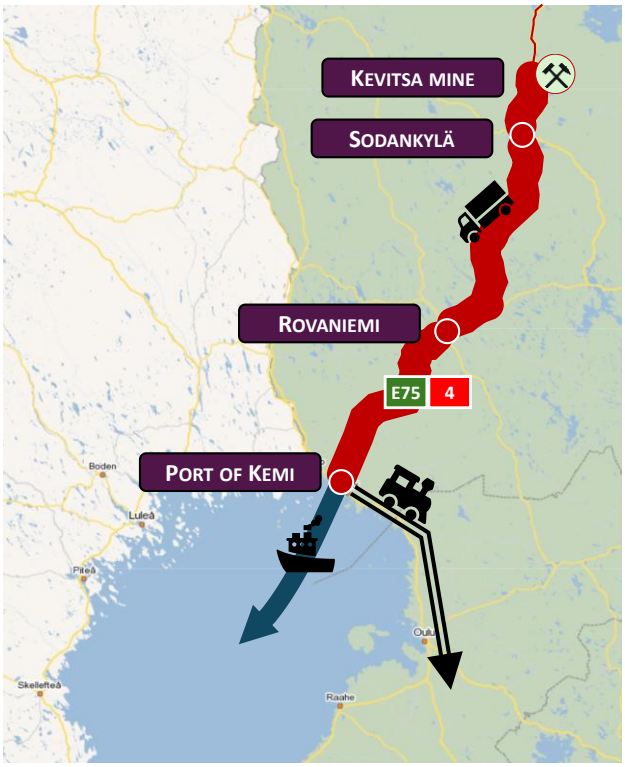
- The corridors described in the report only cover a small share of the total road network, and the share of gravel transport must be adjusted accordingly.
- The national statistics cover all transports and vehicles registered abroad are not included. This report also includes vehicles registered abroad, and consequently the share must be lower.

The share (25-35%) can to some extent be underpinned by detailed data from Finnmark for 2023, where all key mineral players have been interviewed, and the entire road network was included. However, along the main corridors in Finnmark, and particularly near the border crossing, -the share was much lower and between 2% and 10%. The share of gravel/soil etc was highest, where the total AADT was lowest.

The annual figures are also affected by larger periodical construction projects and the location of the projects.

5.3.3 MINERAL TRANSPORTATION IN GENERAL

The bulk of road transport is not a result of the activities from the largest mining companies, as most of them are using railway and sea transports for their outgoing products. For incoming transports and for sections of the outbound transportation route, truck may be utilised.



Companies like Kaunis Iron (Pajala) and Boliden Kevitsa (Sodankylä) use road transport for parts of the total transport distance, while a company like Elkem Tana (Eastern Finnmark) only uses sea transport.

Figure 5-13 shows an example of multimodal logistics. Boliden Kevitsa are trucing their products to Kemi, where both sea and rail are used for onward transports.

Figure 5-13: Example of multimodal logistics (Boliden Kevitsa)

5.3.4 ROAD TRANSPORTATION (MINERALS)

Mineral transports by road are usually not crossing borders. Companies like LKAB and Kaunis Iron use trains when crossing the borders.

For gravel pits etc. we have estimated the AADT figures as an average of 5% of the total public registered AADT. Furthermore, we have used 2% for border crossing transports between Finland and Sweden. These figures are geographically adjusted based on:

- the share is usually lower where the transportation work is highest and influenced by other industries and transit traffic (e.g. north of large cities like Luleå and Oulu)
- the information we have obtained from secondary sources (reports, internet etc).

5.4 GROCERY

In all three countries, there are only a few main players in the grocery market. Due to both inbound logistics to terminals/storing facilities, and distribution to a huge number of retail outlets, - the transport volume by road is high.

In Northen Finland and Northern Sweden, -the transports are mainly domestic, while transports to/from Northern Norway often takes place via Swedish or Finnish transport infrastructure.

5.4.1 SHORT OVERVIEW TRANSPORTATION OF GROCERY PRODUCTS

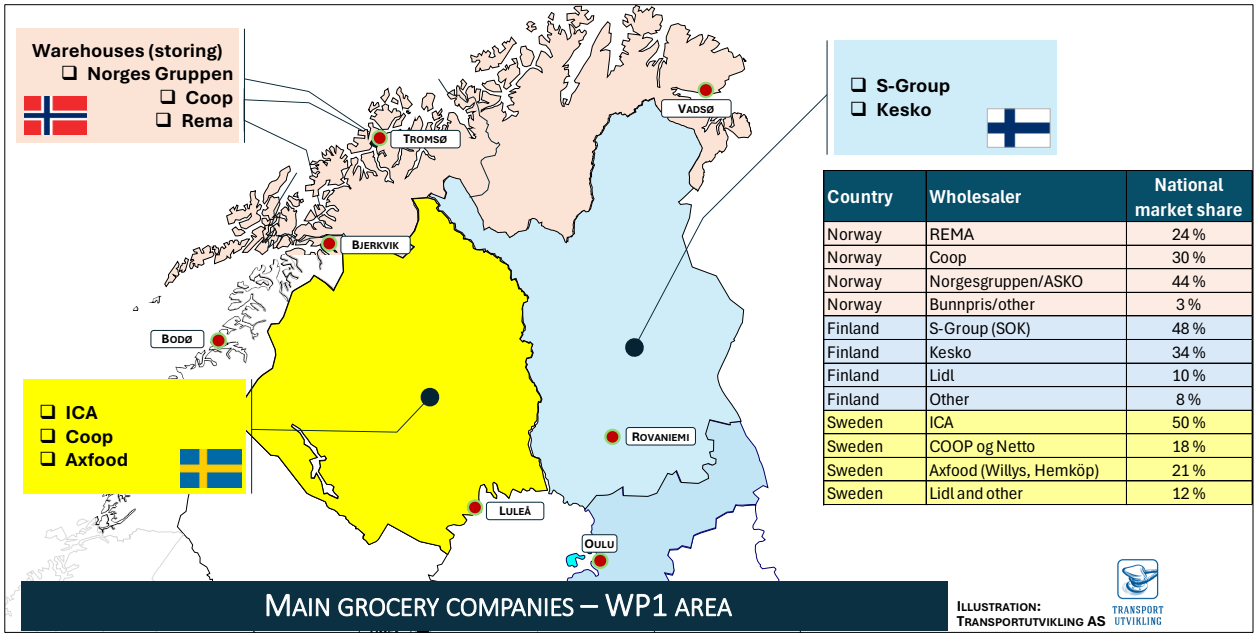
Grocery	
Important industry in	All countries
Modes of transportation	Mainly truck transports, but also railway transport in Sweden (Swedish wholesalers) and through Sweden (Norwegian wholesalers)
Volumes	Transport volumes are mainly related to population. The largest volumes along road are found in Lapland, Norrbotten and around regional warehouses i Nordland and Troms.
AADT	The volumes correspond to an maximum AADT of approximately 700-800 for the entire region
International transports	Transports for the wholesalers in Finland and Sweden are national. For the Norwegian wholesalers Sweden and Finland is used as a transit country for inbound transports (rail through Sweden and road through Sweden and Finland). Distribution from Norwegian storing facilities in Troms/Nordland often uses the road network in Sweden/Finland for transports to Finnmark.
Border crossing and most important corridors	The main border crossings are: o Kilpisjärvi (E8/21) - Corridor 3 o Karesuando (E45) - Oslo to Tromsø crossing Kilpisjärvi - Corridor 2/3 o Kivilompolo (E45/93) - Corridor 2 Other border crossing are also used

Table 5-3: Overview transportation – grocery

Picture 5-5: Rema semi-trailers without tractor unit

5.4.2 MAIN GROCERY PLAYERS (WHOLESALERS)

The largest wholesalers (grocery companies) are shown in Figure 5-14. Although there are other players (see table the figure), these companies dominate the grocery market in the individual countries.



Country	Wholesaler	National market share
Norway	REMA	24 %
Norway	Coop	30 %
Norway	Norgesgruppen/ASKO	44 %
Norway	Bunnpris/other	3 %
Finland	S-Group (SOK)	48 %
Finland	Kesko	34 %
Finland	Lidl	10 %
Finland	Other	8 %
Sweden	ICA	50 %
Sweden	COOP og Netto	18 %
Sweden	Axfood (Willys, Hemköp)	21 %
Sweden	Lidl and other	12 %

Figure 5-14: Main grocery companies.

Norwegian WP1 region

In Northern Norway the main wholesalers are Rema, Coop and NorgesGruppen/ASKO. These players distribute to the entire market in the Norwegian part of the WP1 region, north of the Vestfjord. Together they have around 250 retailers in the region of various size and assortment, controlling most of grocery market in Northen Norway (ca. 95%).

Finnish WP1 region

In Northen Finland the main wholesalers are Kesko, S-Group og Lidl. In Finland, more than 90% of the market is controlled by these three companies. Together they have around 100 retailers in Lapland, of various size and assortment. Including the northern part of North Ostrobothnia and Oulu, they probably have twice this number of retailers. Kesko alone have around 120 in Lapland and Northern Ostrobothnia.

Swedish WP1 region

In Northern Sweden ICA, Coop and Axfood are dominating the market. Close to 90% of the national market is controlled by these three companies. Together they have around 125 retailers in Norrbotten, of various size and assortment.

5.4.3 WHOLESALE GROCERY TRANSPORTATION IN GENERAL

In Norway, all wholesalers use a combination of rail and road transports for their inbound volumes. The main railway terminal for inbound transports is Narvik, - but also Fauske and Kiruna. Rail transport to Narvik utilizes the Swedish railway network.

Examples:

- The main share of Rema's inbound transports goes to by train, though Sweden, to Narvik and further to consolidation at their warehouse close to Narvik (Bjerkvik).
- Asko's inbound transports is a combination of road and rail transports, mainly from their central warehouse for dry groceries in Vestby (Akershus county, south in Norway to their regional warehouse outside Tromsø.
- Coops regional warehouse for northern Norway is located in Tromsø and a share of the inbound transports from southern Norway is carried out by modular trucks[27] through Sweden/Finland.

All distribution to the retailers goes by truck. The transportation is primarily carried out using trucks and various sizes of combination vehicles, such as semi-trailers.

All wholesalers in Northern Norway uses transport infrastructure in Sweden and/or Finland for their inbound logistics; like train/truck transports in Sweden and truck transports through Finland. Kilpisjärvi is an important border crossing for Norwegian grocery transports to Tromsø and the railway terminal in Kiruna is also used for intermodal transports to Finnmark.

In Finland, the wholesalers do not have regional storing facilities. The inbound transports go to terminals in the region, where it is not stored, or direct from main storing houses in the south or from main producers.

Examples:

- The largest share of Kesko's inbound transports comes from their main warehouse in Hakkila, Vantaa. They have a terminal in Oulu where groceries are sorted/prepared for the various truck loads to the retailers. Kesko has also direct transports to Northern Finland K grocery stores from their main warehouse Hakkila, Vantaa. So Kesko have both direct transports and transports to Oulu terminal.
- S-Groups logistics is provided by Inex, and their central warehouse located in Sipoo, Helsinki, which is the departure point for most of S-Group's merchandise deliveries. Deliveries from the central warehouse are directed either straight to the stores or to regional terminals; in Oulu and a smaller HUB terminal in Rovaniemi where deliveries are consolidated for regional final distribution. They do also have a smaller terminal in Kajaani.

The overall inbound transports are carried out by truck and all distribution to the retailers goes by truck. The transportation is primarily carried out using trucks and various sizes of combination vehicles, such as semi-trailers, full-trailer combinations and HCT (High-Capacity Trucks).

In Sweden, truck is main transportation mode for inbound transports, but rail to Luleå is also to some extent utilized. There are no regional warehouses in the north, and the consolidation goes through terminals. ICA has s main warehouse in Borlänge and Coop outside Eskilstuna.

Distribution to the retailers usually goes by truck, directly or through a terminal.

[27] 25,25 m, which is the largest trucks allowed in Norway.

All grocery wholesalers can use more than one transport mode. Figure 5-15 shows 3 possible transport systems, one in each country.

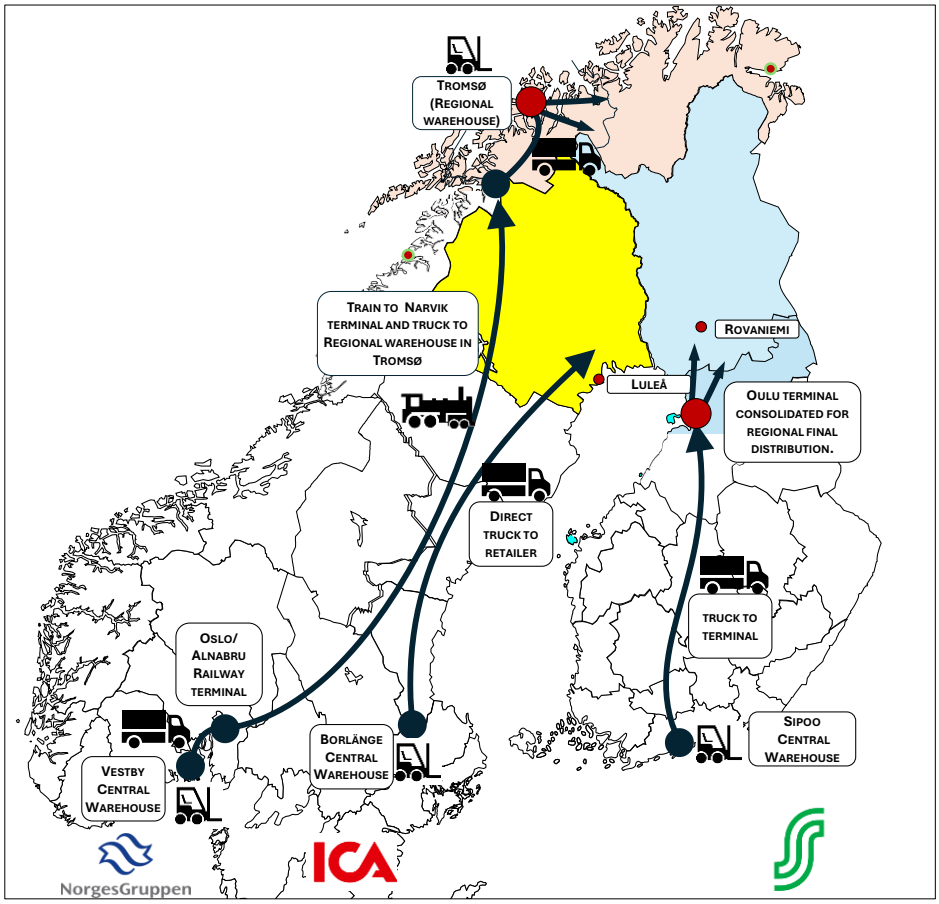


Figure 5-15: Example: 3 possible transport routes

Norway (NorgesGruppen/Asko)

1. Truck transport from their Central warehouse south of Oslo to Alnabru railway terminal
2. Railway transport to Narvik railway terminal
3. Truck transport to their regional warehouse in Tromsø
4. Distribution by truck to retailers

Sweden (ICA)

Direct truck transport from their Central warehouse in Borlänge to retailers in the north

Finland (S-Group)

1. Truck transport from their central warehouse in Sipoo to Oulu terminal (Helsinki)
2. Consolidation in Oulu and further transport to retailers in the north

5.4.4 ROAD TRANSPORTATION (GROCERY)

The grocery industry is a heavy user of road transports, and all distribution to the retailers goes by truck. In the WP1 region there are around 500 retailers located over a large area, from the Barents/North Sea and south to the Vesterfjord, Luleå and Oulu. The decentralized location of the retailers complicates the logistics and the possibility of coordinating transports.

Many retailers have deliveries 4-6 times per week. Large outlets, like for instance ICA Maxi in Haparanda have 6 deliveries per week, by road from Borlänge.

As an indication of the maximum transport volume, the grocery business performs 250.000-300.000 annual transports (to and from) and a total AADT of approximately 700-800 on all the roads in the region. The actual number is lower due to consolidation of transport (more than one outlet pr. trip) and that smaller distribution vehicles are used in central areas.

Only Norway has cross-border grocery transports by road, because of:

- In-transports to warehouses to northern Norway from southern Norway, where large parts of the transports go through Sweden and Finland.
- Distribution to retailers from warehouses in Tromsø/Bjerkvik where transport routes often go through Sweden and Finland to reach Finnmark, especially East Finnmark (Kirkenes)

A possible route for a roundtrip between Tromsø and Kirkenes can involve 8 border crossings and a roundtrip distance 1.600 km.

Figure 5-16: Possible route between Tromsø and Kirkenes

Our AADT figures used in this report, are based on actual information from the grocery actors in Norway and Finland. For Sweden we have used the average figures from Norway and Finland, and routed transports from Luleå along the corridors and distributed the transports according to where Coop's, ICA's and Axfood's stores are located in the Swedish WP1 region -and considered the population of each municipality. The information has been cross-checked against a few outlets in Norrbotten.

5.5 WASTE

Waste from households and the industry represents resources in form of input factors to energy production (recovery), material recycling and biological recycling. In all countries, the municipalities are responsible for waste from households. Household waste is waste generated by households and businesses that falls under the municipal waste responsibility.

Commercial waste, which represents a large share of total waste volume are often handled by private companies, and information is not easily available.

I all countries the main share of the household waste is used for energy recovery, in large energy recovery plants like in Boden, Kiruna, Oulu and Tromsø. Most of the remaining waste is used for material recycling (glass, metal etc).

5.5.1 SHORT OVERVIEW WASTE TRANSPORTATION

Waste	
Important industry in	All countries
Modes of transportation	Mainly truck transports, but also some sea transports in Norway (metal for material recycling)
Volumes	Household waste is estimated to approximately 324.000 ton for the WP1 region. The largest volumes are in Norrbotten. In addition to household waste there are large amounts of industrial waste.
AADT	This volume corresponds to a total regional AADT between 85 and 115, based on the average weight for truck transport in the respective countries.
International transports	International transports are related to transportation of waste to various recycling plant, mainly in Sweden and Finland. Several border crossings are used.
Border crossing and most important corridors	The main border crossings are: o Bjørnfjell (E10) -often to Swedish energy recycling plants - Corridor 4 o Kivilompolo (E45/93) - Corridor 2 o Haparanda/Tornio (E8/E4) - All corridors o Karesuando (E45) - Corridor 2 and 3 o Karisgasniemi (92/92) - Connected to Corridor 2 Other border crossing are also used.

Table 5-4: Overview transportation – waste

Picture 5-6: Djupvik Environmental Park, Narvik (Source: HRS)

5.5.2 MAIN WASTE PLAYERS

Table 5-5 below shows a list of the main municipality owned waste organizations in the region.

Country	Main organization	Location	Muncipalities served
Norway	Lofoten Avfallsselskap IKS	Nordland	Vågan, Vestvågøy, Flakstad and Moskenes
Norway	Reno Vest IKS	Nordland	Hadsel, Sortland, Andøy, Bø, Øksnes and Lødingen
Norway	HRS IKS	Nordland	Harstad, Narvik, Evenes, Gratangen, Ibestad, Kvæfjord, Lavangen and Tjeldsund
Norway	Senja Avfall IKS	Tromsø	Balsfjord, Salangen, Senja, Dyrøy, Målselv and Sørreisa
Norway	Avfallsservice AS	Tromsø	Kvænangen, Kårfjord, Lyngen, Nordreisa, Skjervøy and Storfjord
Norway	Remiks, AS	Tromsø	Tromsø
Norway	Masternes Gjenvinning	Finnmark	Finnmark
Norway	Finnmark Ressursselskap AS	Finnmark	Hammerfest
Norway	Finnmark Miljøtjeneste IKS	Finnmark	Måsøy, Nordkapp, Porsanger, Karasjok, Lebesby and Gamvik
Norway	ØFAS AS	Finnmark	Berlevåg, Båtsfjord, Nesseby, Sør-Varanger, Tana, Vardø and
Norway	VEFAS IKS	Finnmark	Alta, Kautokaino, Hasvik and Loppa
Norway	Municipalities with own waste management	Tromsø	Bardu municipality
Finland	Kiertokaari	N.Ostrobothnia	Oulu, Hailuoto, Ii, Kempele, Lumijoki, Pudasjärvi, Raahe, and Siikajoki. Simo is part of the operational area
Finland	Lapeco	Lapland	Enontekiö, Inari, Kemijärvi, Kittilä, Muonio, Pelkosenniemi, Salla, Savukoski and Sodankylä.
Finland	Napapiirin Residum	Lapland	Rovaniemi, Pello and Ranua.
Finland	Perämeren Jätehuolto	Lapland	Kemi, Tornio, Keminmaa, Tervola and Ylitornio.
Finland	Municipalities with own waste management	Lapland	Posio, Simo, Utsjoki and Kolari
Sweden	Muncipalities in Norrbotten	Norrbotten	Arjeplog, Arvidsjaur, Boden, Gällivare, Haparanda, Jokkmokk, Kalix, Kiruna, Luleå. Pajala, Piteå, Älvsbyn, Överkalix and

Table 5-5: Waste organizations

The organization of municipal waste collection are not similar, but all three countries have a mix of responsibilities between private companies and public organizations/municipalities. Also in all three countries, the transportation can be outsourced to various contractors, - often private companies.

- In Norway the municipal waste handling is taken care of by inter-municipal companies or companies with limited responsibilities (No: IKS/AS).
- Some of the same system exist in Finland.
- In Sweden the single municipalities are responsible, even if they organize it through own subsidiaries (e.g. Lumire in Luleå).

The size of the companies is usually related to the regional population in their region (municipal waste) and waste from the industry in the region.

There are several large recycling plants in the region, receiving waste for energy- or material recycling. Waste volumes go for instance to:

- Boden (Bodens Energi) and Kiruna (Tekniska verken) in Sweden
- Syklo Energia (Rusko, Oulu)
- Kvitebjørn (Tromsø).

We would like to mention the Finnish recycling company Kuusakoski, which have several plants in Finland and Sweden. Kuusakoski carbon-free steel recycling plant will be located to Veitsiluoto (Kemi). The plant is scheduled to be in operation in 2025. The new plant will increase Kuusakoski's recycling capacity by 150.000 tonnes (25%) and potentially increase transportation from both Sweden and Norway.

Figure 5-17: Kuusakoski carbon-free steel recycling plant (Source: Kuusakoski)

5.5.3 WASTE TRANSPORTATION IN GENERAL

Based on publicly available statistics the household waste was between 400 kg og 500 kg per inhabitant in the three countries. Based on the population figures, and average waste amount pr. inhabitant, the following waste amounts may be generated in the WP1 region:

Region	Kg per inhabitant	Year of information	Population Q4-23	Total, ton waste per region	Source	Comments
Norrbotten	471	2022	248 480	117 034	Avfall Sverige	2023: 4% less than 2022 (national figures)
Troms	328	2023	169 610	55 632	SSB	National figures, 375 kg
Finnmark	351	2023	75 053	26 344	SSB	National figures, 375 kg
Nordland, nord	408	2023	80 318	32 770	SSB	National figures, 375 kg
Lapland	521	2022	176 147	91 773	Statistics Finland	National figures
Total WP1 main area	**432**		**749 608**	**323 552**		

Table 5-6: Household waste per region

Based on these figures it was, in the WP1 region, produced more than 320.000 tons of household waste in 2023[28]. The main share originates in Norrbotten, due to the large share of the population.

The market is dominated by truck-transport, particularly inbound transports to consolidation waste facilities. The population is spread over large areas and often in regions with few people/low volumes. Under such framework conditions, truck becomes the most rational mean of transport.

Transportation from the waste facilities is usually organized by truck, but both rail and sea transport can be used, when the prerequisites for this are in place (volume, nearby quay and railway etc). In Northern Norway, where most of the population/waste companies are located close to the ocean, sea transports are often used for transport of metal for material recycling.

[28] The average waste figurers from Sweden and Finland are from 2022, but satisfactory for the purpose of this report

5.5.4 ROAD TRANSPORTATION (WASTE)

The waste industry is a heavy user of road transports in all three countries, also cross border. As an example is waste from Norway to Finland/Sweden, where quite large volumes are crossing borders for both energy- and material recycling.

Figure 5-18 shows the top 3 destinations for Norwegian waste export, and the region where the waste originates. Kiruna and Boden count for more than 65% of the registered waste export from Norway (AADT 19). The largest export regions are Northern Nordland and Western Finnmark, which indicates than most of the traffic goes along E10 and E45. Northern Finland is also receiving waste from Norway, but less than Northern Sweden.

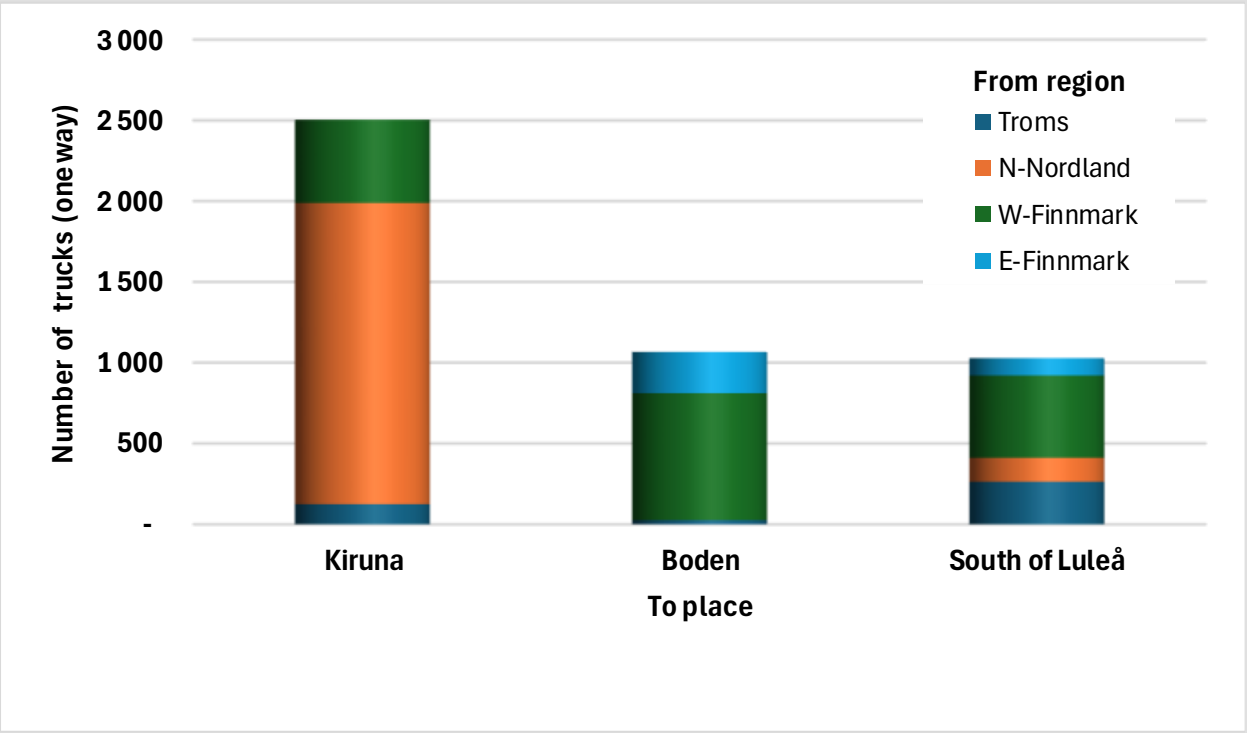


Figure 5-18: Top 3 markets for identified Norwegian waste export.

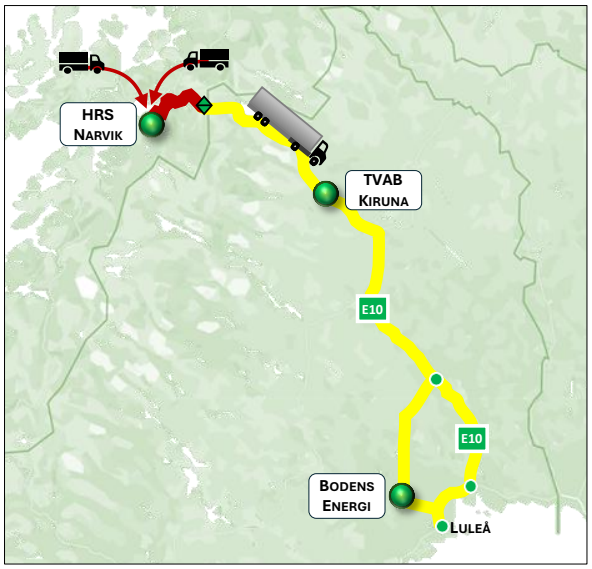


Figure 5-19 shows a usual route from Norway to Sweden for transport of waste for energy recycling. There are other routes.

Regional waste for recycling is consolidated/stored at the company HRS in Narvik.

From Narvik the road transport goes along E10 to Kiuna (TVAB) or further to Boden (Bodens Energi)

At present the only mode of transportation is truck.

Figure 5-19: Example: Waste transportation route from Norway to Kiruna/Boden.

Road transports originate in the municipalities. From a local depot waste can be transported directly to a recycling hub, or to a regional depot/hub and then to a recycling plant. Some waste is deposited.

For calculation purposes we can considerably increase the household-waste figures (320.000 tons) mention in table 5-6, due to:

- The trucks collecting household waste goes to and from the households.
- Household waste is usually transported to a waste-HUBs, and out of the HUB to various recycling plants. These recycling plants can be located far away from the regional HUB, implying a higher transportation distance than if the recycling had taken place locally.

Collection of municipal waste often takes place with smaller vehicles, while bigger vehicles are used from the local hub to the recycling plant.

Depending on the size of the vehicle, and if the waste in incoming or outgoing from a local hub, -an annual AADT (whole WP1 region) of 85-115 can be estimated. The transportation work will be highest in populated regions and around waste recycling plants.

In addition to the household waste, large volumes of industrial waste are transported to various recycling plants, both inside and outside the WP1 region. For instance, to Umeå Eco Industrial Park and Celsa's circular steel plant in Mo i Rana.

5.6 FORESTRY AND TIMBER TRANSPORTS

Forest production in Finland and Sweden are important industries. Pulp and paper are largely exported to an international market; however the business shows a tendency towards an ever-higher degree of processing within national borders. In Finland, the industry is mainly located to Kemi and Oulu, and in Sweden to Kalix and Piteå. Northern Norway has small forest resources, and the largest commercial felling's happens south of the Vestfjord (Helgeland).

5.6.1 SHORT OVERVIEW FORESTRY/TIMBER TRANSPORTATION

Forestry and timber	
Important industry in	Finland and Sweden
Modes of transportation	Both sea, rail and truck transports are used
Volumes	Commercial fellings in the WP1 region amounted to 8,45 million m^3. Based on secondary sources, more than 50% of the felling's were in Finland. Almost nothing i the Norwegian WP1 region
AADT	The estimated total volume corresponds to a total regional AADT of 160-180. A share of the total volume affects the selected road corridors
International transports	Transports of finished goods are mainly international and performed by sea transports. There are quite huge timber transports between Sweden and Finland. Exact volumes are not identified
Border crossing and corridors	The main border crossings are believed to be: o Haparanda/Tornio (E4/E8) o Övertorneå/Aavasaksa (98/99)

Table 5-7: Overview transportation – forestry and timber

Picture 5-7: Timber truck running on biogas (Source: Sveaskog, Photo credit Örjan Karlsson, Roxx Media)

5.6.2 MAIN FORESTRY/TIMBER PLAYERS

The main players in the forestry business are the forest owners and companies which produces products from forests. The same company can be both a forest owner and a producer. Figure 5-20 shows large forest companies in the region. Some of them do not have a specific location (a mill or a factory), -for instance forest owners like Allskog (Norway) and Sveaskog (Sweden).

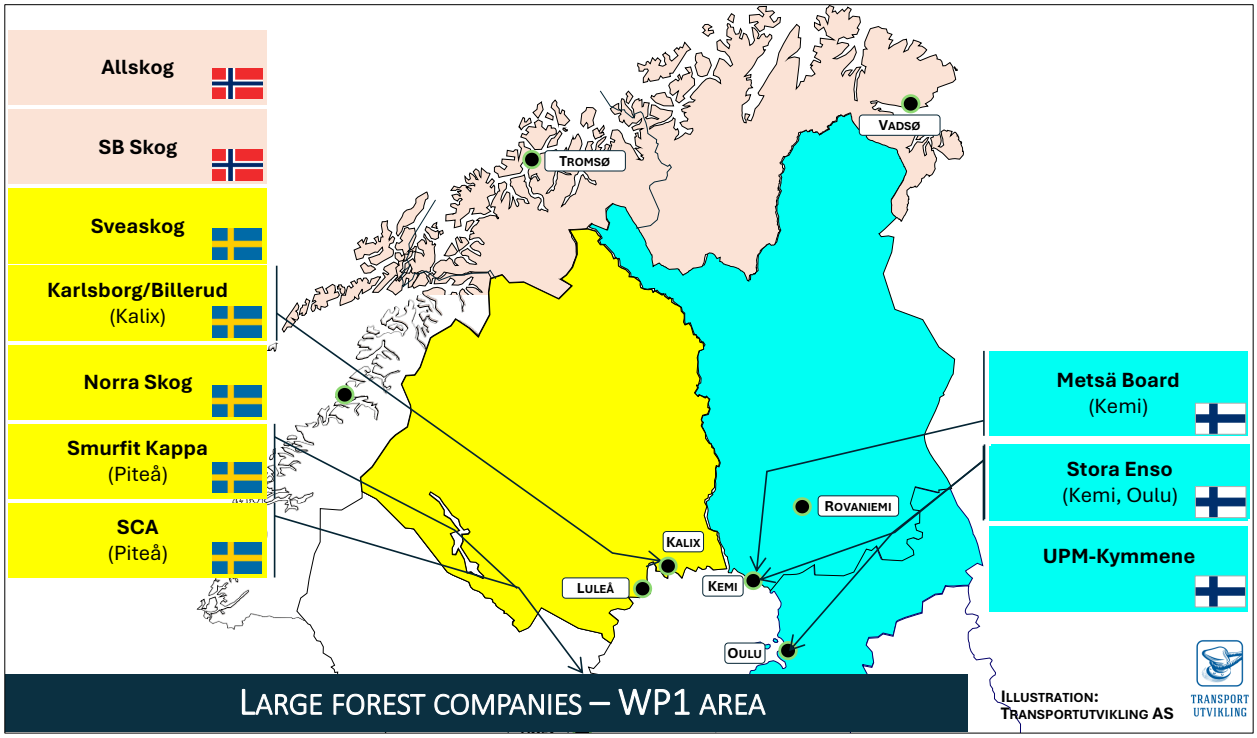


Figure 5-20: Large forest companies.

See appendix 7.6 for a short description of the forest companies.

5.6.3 FORESTRY TRANSPORTATION IN GENERAL

Based on national statistics the commercial felling's in Norrbotten and Lapland amounted to more than 8 million m^3 in 2023, around 4-8% of the national volumes.

WP 1 region	Norrbotten	Lapland	North of Vestfjorden	Total WP1
Commercial fellings (mill.m^3)	3,90	4,53	0,02	8,45
Share of country	4,4 %	7,4 %	0,1 %	5,2 %

The forest industry in Sweden and Finland is among the largest users of transport, both by road, rail and boat, from forest fields to processing plants and shipping points/ports.

The transport of timber and forest products is extensive in both northern Sweden and northern Finland. In Northern Norway, particularly north of the Vestfjord, forest production is very limited. There are some imports of wood products/construction materials from Sweden and Finland.

Most of the timber is transported to production sites, terminals and ports by truck. Within Sweden, SCA operates rail shuttles between Piteå, Umeå and Skövde for delivery to southern

Scandinavian customers. The same system train is used for transports of production materials north. Most of the transports from the production facilities goes by sea.

5.6.4 ROAD TRANSPORTATION (FORESTRY)

Forest transport is primarily carried out on adapted roads (forest roads) and less busy roads. However, the public road network must also be used on parts of the transport leg. For example, European roads and national roads is used for about 21% of the transport from forest fields to reception points in Sweden (Source: Skogforsk).

In Sweden and Finland, it is allowed, on many road sections, to use trucks with a gross weight of up to 76 tonnes, i.e. approx. 55 m^3 of timber. In Northern Finland, the use of larger trucks has been opened on some road sections, e.g. between Ivalo and Rovaniemi, with a gross vehicle weight of 104 tonnes. In Norway, the maximum gross weight for timber transports is 60 tons.

Figure 5-21: Trials with mega trucks in Finland (Traficom)

Our estimates are based on interviews with Sveaskog, and secondary information from Skogforsk, Vayla and national statistics.

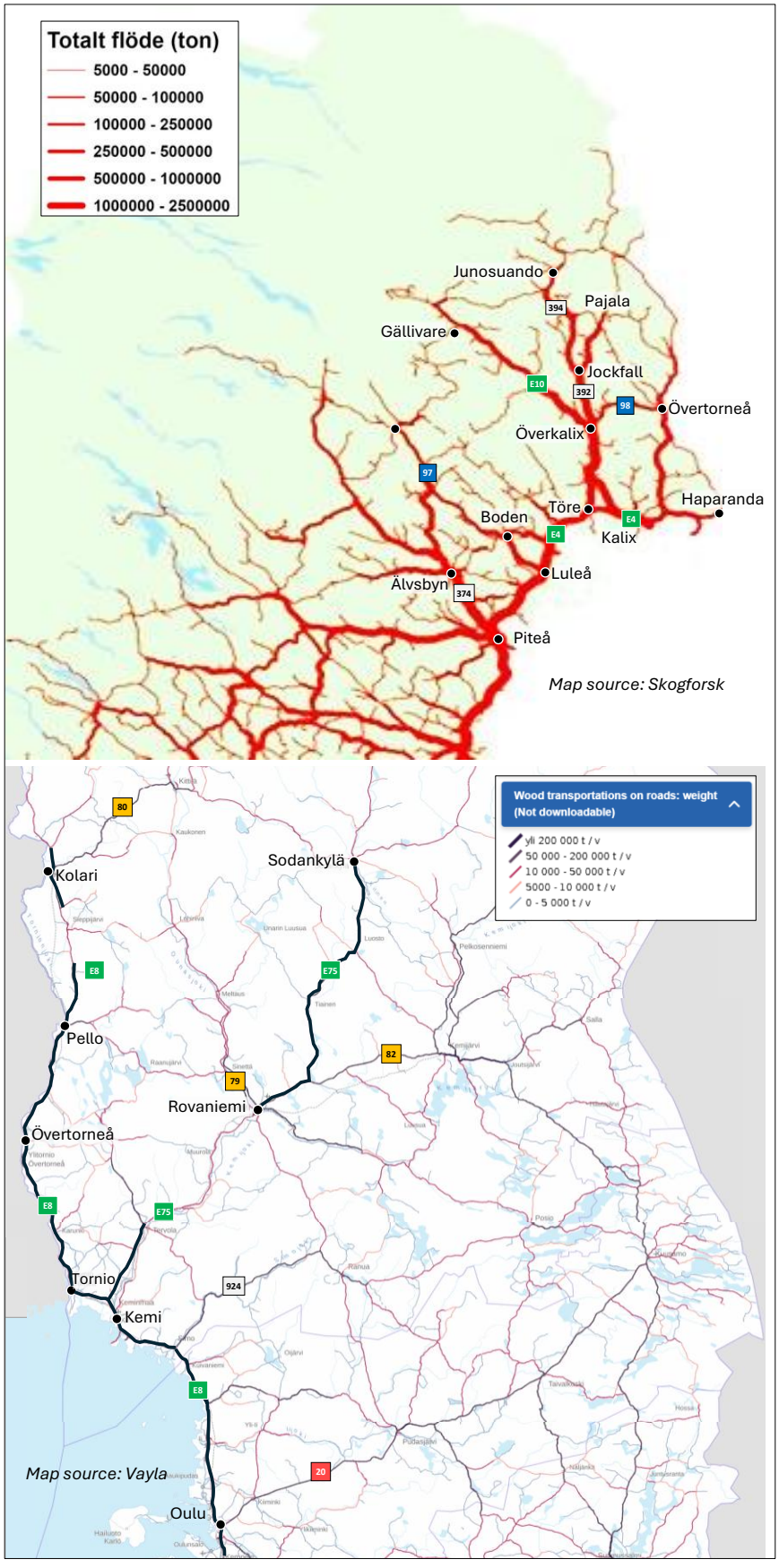


Figure 5-22 shows wood traffic indications (tons) from Sweden and Finland. The maps are slightly modified by Transportutvikling (included road numbers, names etc).

Lines on the map indicates tons transported along different roads.

For Sweden the map shows all relevant roads.

Figure 5-22: Important Forest roads in Norrbotten and Lapland

5.7 AGRICULTURE

Agricultural transports are generated by the farmers in- and outgoing products. Products like milk and meat are transported to diaries and slaughterhouses, and the farmers receive input factors like feed, fertilizer and equipment from the suppliers.

5.7.1 SHORT OVERVIEW TRANSPORTATION OF AGRICULTURE PRODUCTS

Agriculture	
Important industry in	All countries, but the main agricultural regions are south of the WP region. Dairies and meat slaughterhouses dominates agriculture transports in the WP region
Modes of transportation	Truck and sea transport (Norway)
Volumes	Meat production in the WP1 region (ex. reindeer) was 20.174 tons and dairy production amounted to 168,6 million litres. The largest volumes is produced in Lapland
AADT	The volume corresponds to an total AADT of approximately 24 (Lapland), 19 (Northern Norway) and 14 (Norrbotten), based on average transport weight
International transports	Road volumes are mostly national. Some distribution between Troms and Finnmark crossed borders between Norway and Finland
Border crossing and most important corridors	The most commoly used border crossing between Norway and Finland are: o Kilpisjärvi (E8/21) - Corridor 3 o Kivilompolo (E45/93) - Corrdor 2 Also Neiden and Utsjok (Coridor 1)

Table 5-8: Overview transportation – agriculture

Picture 5-8: Tine dairy Tana, Finnmark (Source: Tine)

5.7.2 MAIN AGRICULTURAL PLAYERS

The main players are obviously the farmers, even though the transports are usually taken care of by the main buyers (diaries and slaughterhouses etc) and suppliers (feed, fertilizer etc)

The location of main diaries and slaughterhouses are shown in the figure below.

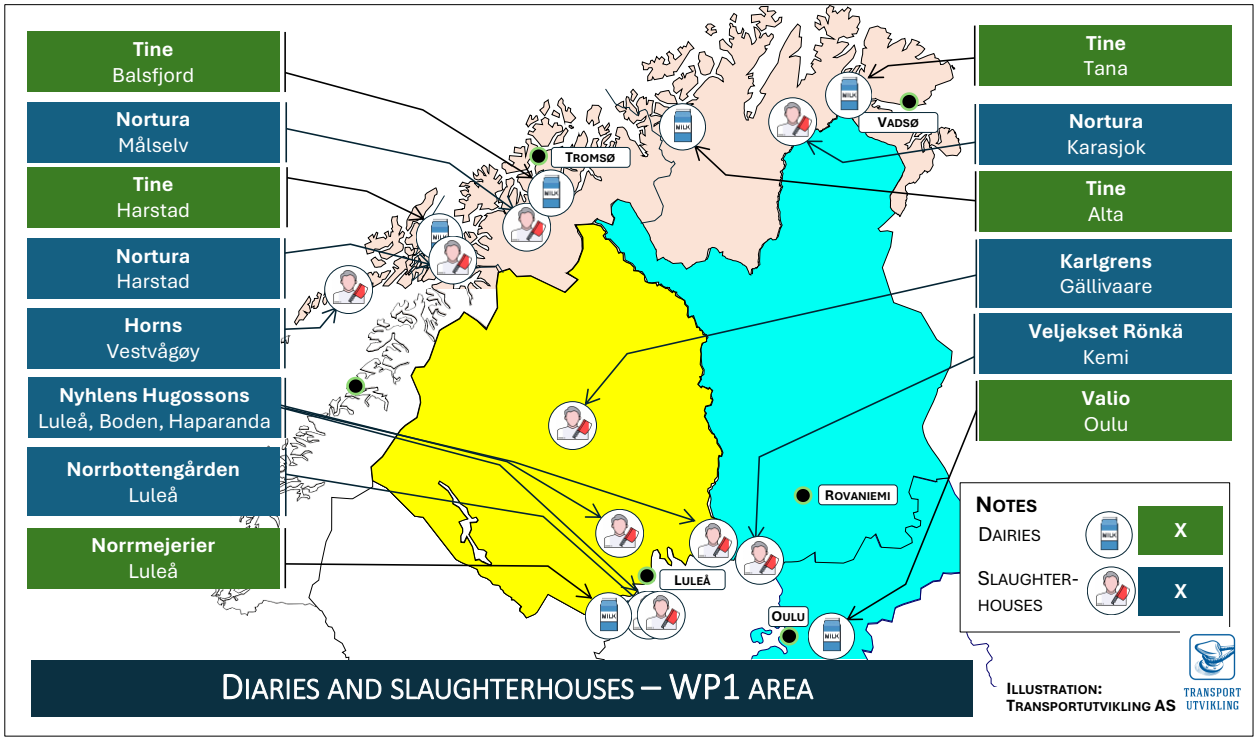


Figure 5-23: Diaries and slaughterhouses - WP1 region.

See appendix 7.7 for a short description of dairies, slaughterhouses and farmers.

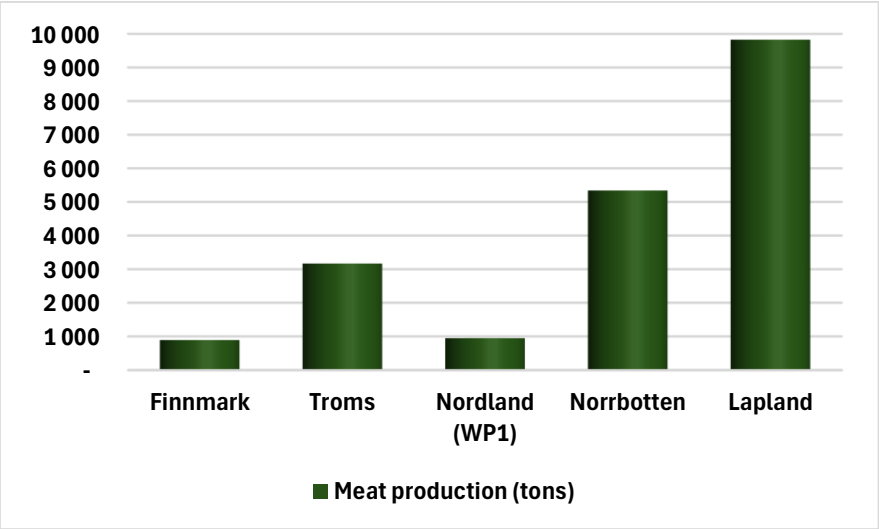
In addition to farmers, diaries and slaughterhouses, there are suppliers of feed, fertilizer and various equipment to the farmers. In Norway the largest is Felleskjøpet, with main hubs in Balsfjord (Troms) and Tana (Finnmark). They have several other locations of varying size (Alta, Vestvågøy, Harstad, Senja, Nordreisa, Tromsø). The other supplier is Fiskå Mølle, with main location in Balsfjord. Fiskeå Mølle have also other locations (Andøy and Stamsund).

5.7.3 AGRICULTURAL TRANSPORTATION IN GENERAL

The WP1 region (Northern Norway south to the Vestfjord, Norrbotten and Lapland) are relatively small production regions, compared to the total in countries. [29]

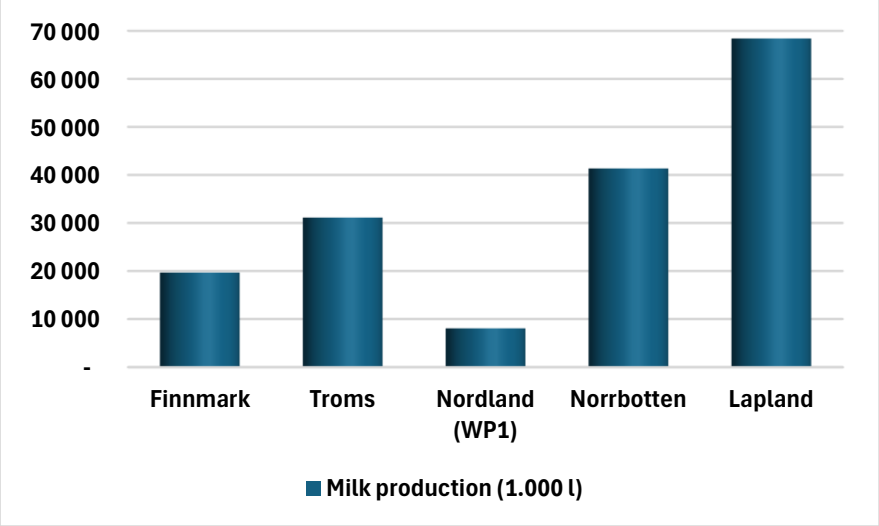
- Lapland produces 3% of Finland's milk and 4,5% of the meat. (North Ostrobothnia is Finland's largest producer of milk and beef).
- Norrbotten produces less than 1,5% of Sweden's milk and approximately 1% of the meat.
- Northern Norway (north of the Vestfjord) produces 4% of Norway's milk and 2% of the meat. In Nordland, more than 90% of the milk- and meat production originated south of the Vestfjord.

[29] The source for the figures is: Landsbruksdirektoratet (Norway), Luke (Finland) and Jordbruksverket (Sweden)



In 2023, the meat production in the WP1 region amounted to 20.174 tons. Lapland had the largest meat production in the WP1 region, while Norrbotten was the second largest.

Figure 5-24: Meat production 2023 – WP1 region.



In 2023, the milk production in the WP1 region amounted to 168,6 million litres. Lapland had the largest milk production in the WP1 region, while Norrbotten was the second largest.

Figure 5-25: Meat production 2023 – WP1 region.

In addition to the outbound transports from farmers, there are outbound transports of finished goods from diaries and slaughterhouses. Transports from the diaries and slaughterhouses is not calculated, as the majority is included in the grocery figures,

Trucks are the dominating mean of transport for the agricultural business. From the farmers live animals goes by truck to the slaughterhouse, and milk to the diaries. From the diaries/slaughterhouses end products goes by truck to the consumers, grocery outlets or through warehouses for further distribution to the end market.

In Northern Norway sea transports are to some extent used for incoming products to the suppliers' warehouses for feed, fertilizer etc. After warehousing, products are distributed by truck.

5.7.4 ROAD TRANSPORTATION (AGRICULTURE)

The AADT figures are based on transports from farmers to diaries/slaughterhouses in all three countries.

Most of the road transport are connected to the location of these production sites. Most of the transportation concerns milk. Based on an average of 20.000 litre pr milk truck (from farmers to diaries) og 11 tons pr transport of live animals, the regional AADT are:

- Northern Norway (WP1): 19
- Lapland: 24
- Norrbotten:14

Outbound transports from the diaries/slaughterhouses are primarily included in the AADT for the grocery business.

Production of milk (litre) and meat (tons) are bases on the municipals share of national statistics, and estimated weight for truck transports of milk and live animals.

The figure below shows possible road transportation routes for Tine diary in Tana (Finnmark). Finished goods are transported by road to Oslo, usually through the border station Utsjok and through Finland and Sweden. Karisgasniemi and Kivilompolo may also be used. Both modular trucks (25,25 m) and conventional trucks/semitrailer are used.

The route through E6 Norway is 20-25% longer than routes through Finland/Sweden.

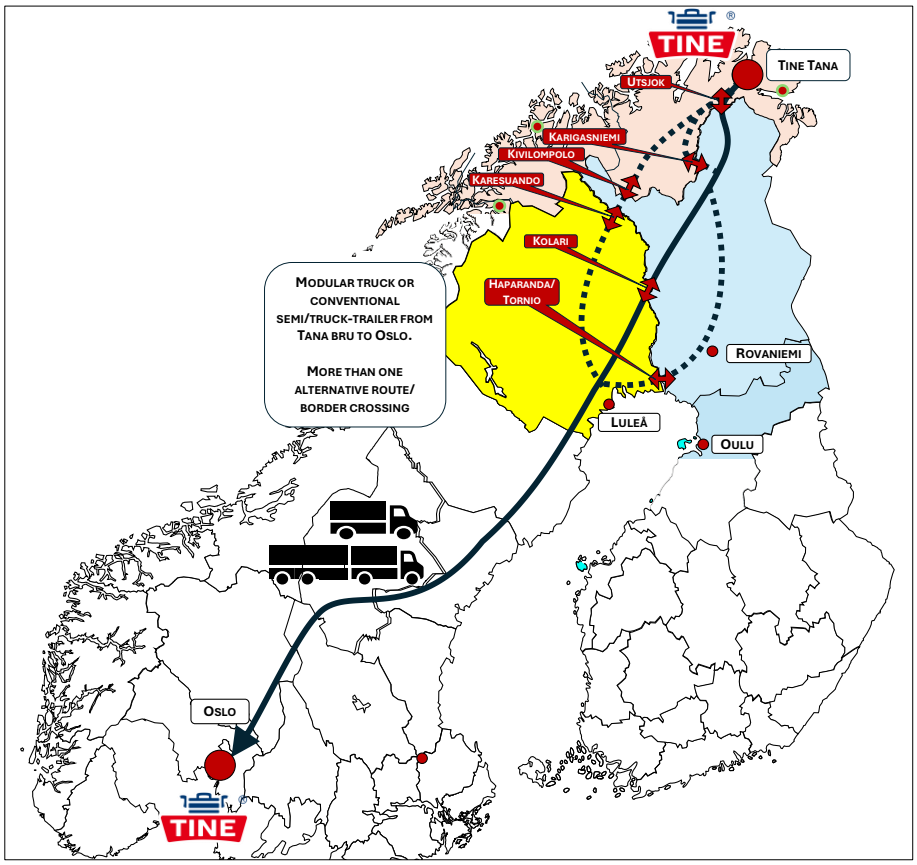


Figure 5-26: Example: Outbound transport Finnmark-Oslo, finished goods Tine Diary Tana

5.8 PETROLEUM PRODUCTS

Norway is one of the largest petroleum producers in the world. Pipelines and sea transport are the main transportation modes, not road.

Usually, inbound transport to the region takes place by sea transport to a regional port. The main road transportation work in all countries is distribution of petroleum product from ports to petrol stations and the industry.

Refined petroleum products are sold in the end-user market through petrol stations and dealer networks to the large customer market. Such products include everything from the lightest petroleum gases to heavy fuel oils.

Alternative energy sources such as electric power are being developed, eventually leading to reduced consumption of fossil fuels.

5.8.1 SHORT OVERVIEW TRANSPORTATION OF PETROLEUM PRODUCTS

Petroleum	
Important industry in	Distribution of petroleum products are important in all countries
Modes of transportation	Inbound to the region mainly by sea, and distribution by truck
Volumes	In the WP1 region more than 1 million tons are distributed to petrol stations and the industry.
AADT	This volume corresponds to a total regional AADT between 100 and 115, based on the average weight for truck transports of petroleum
International transports	Most of the petroleum distribution is national. There are some imports and exports between all countries.
Border crossing and most important corridors	The most used border crossings between Norway and Finland/Sweden is: o Kivilompolo (E45/93) - Corrdor 2

Table 5-9: Overview transportation - petroleum products

5.8.2 MAIN PETROLEUM PLAYERS

In the three countries, there are several fuel companies that own and operate energy stations. Petrol stations are important for commercial transport, and many petrol stations are adapted for larger commercial vehicles). Some of the companies own and/or operating petrol stations have operations in all the Nordic countries, either directly or indirectly.

The largest volumes of petroleum products are unloaded at various ports and then distributed to the final users (petrol-stations, industry etc). Many end-users are located across the region.

The following major companies are operating petrol stations:

- Finland: ABC, Neste Oil and Shell/St1.
- Sweden: OKQ8, Circle K, Shell/St1, Preem, Ingo, Q-Star, Ingo/Jet and Tanka
- Norway: Circle K, Shell, Esso, YX and Best.

See appendix 7.8 for a short description of the petroleum companies.

The main regional ports unloading petroleum products are shown in the figure below.

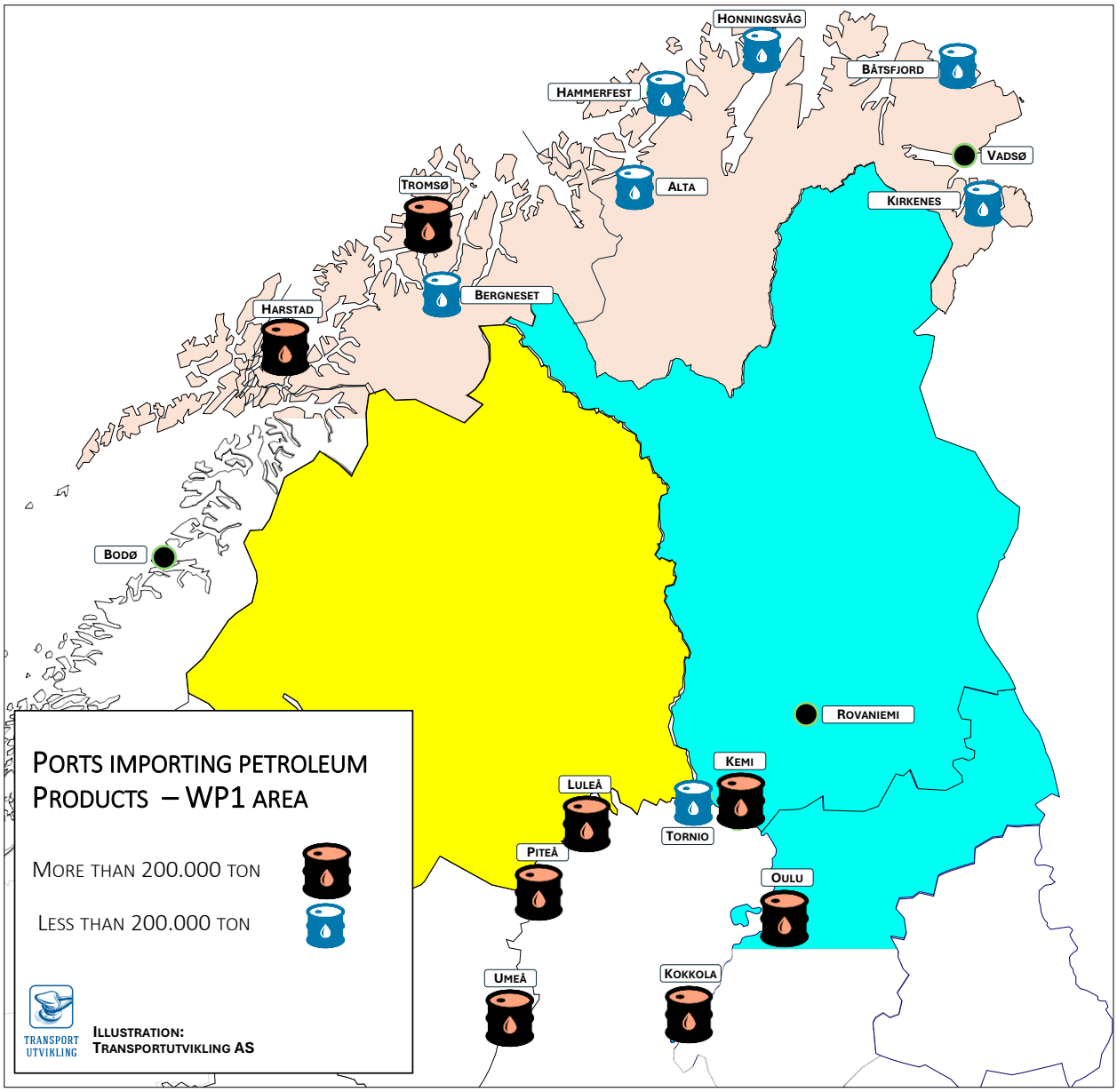


Figure 5-27: Ports importing petroleum products - WP1 region.

5.8.3 PETROLEUM TRANSPORTATION IN GENERAL

Petroleum products are transported by ship from refineries to central ports (depots) in Northern Finland (Oulu, Kemi and the LNG terminal in Tornio Kokkola), in Northern Sweden (Luleå, Piteå, Umeå) and in Northern Norway (Bodø, Tromsø, Hammerfest, Alta, Kirkenes and others.

From the main depots, the petroleum products are distributed to the end-market (several petrol stations, industrial companies, airports and ships) by truck. A share of the total volumes is not distributed by truck but used for the purpose of refuelling of various ships.

5.8.4 ROAD TRANSPORTATION (PETROLEUM)

For Norway, road transports figures are based om information collected from the companies. In Sweden and Finland, we have used statistics for sold volume per municipality and verified this information in relation to population per municipality, industry needs, transport intensity in the corridors.

Location in relation to neighbouring municipalities has been considered. For example, are sales in Boden (according to Swedish statistics from Statistics Sweden) significantly lower than in Luleå, probably because many of the people who live in Boden work and refuel their cars in the neighbouring municipality.

Norwegian figures are used as a reference for the calculations in Finland and Sweden. In Sweden and Finland, the single transports are based on 55 m^3, while the volumes per transport in Norway are lower.

In the WP1 region, the consumption per capita in the municipalities, varies between 1,000 and 3,000 litres per capita.

The distribution takes place from the ports shown in figure 5-27.

5.9 OTHER TRANSPORTS

Only the selected industries are included in the AADT figures. Other transports are related to various cargo, like project cargo, various equipment, steel and building products, transport of vehicles, household appliances, various industry products, empty truck etc.

Furthermore, some of the national figures used is believed to include AADT values which is not relevant according to our mandate. For instance, shorter trucks with 3 or more axles, snowplough-vehicles, passenger cars with trailer/camping wagon etc.

6 BORDER CROSSINGS AND FREIGHT FLOW ALONG THE CORRIDORS

This chapter provides an overview of the border crossings, and freight transports along the selected corridors.

6.1 BORDER CROSSINGS

Figure 5-28 shows AADT (heaviest vehicles) for the 13 border crossings in the region. For the Swedish/Finnish border crossings, AADT is calculated as an average between two countries' public registrations. For the border crossings over Kivilompolo, Utsjok, Neiden, Karisgasniemi and Polmak, -the public figures have been adjusted according to information obtained through Finnmark County's transport analysis for 2023.

Bjørnfjell and Kilpisjärvi is based on national statistics from Norwegian authorities (SVV).

The light green bars show border crossings that are directly connected to the selected corridors. The bar for Haparanda/Tornio has been "cut" for visualisation reasons, as the transports at this border station are significantly higher than the other stations.

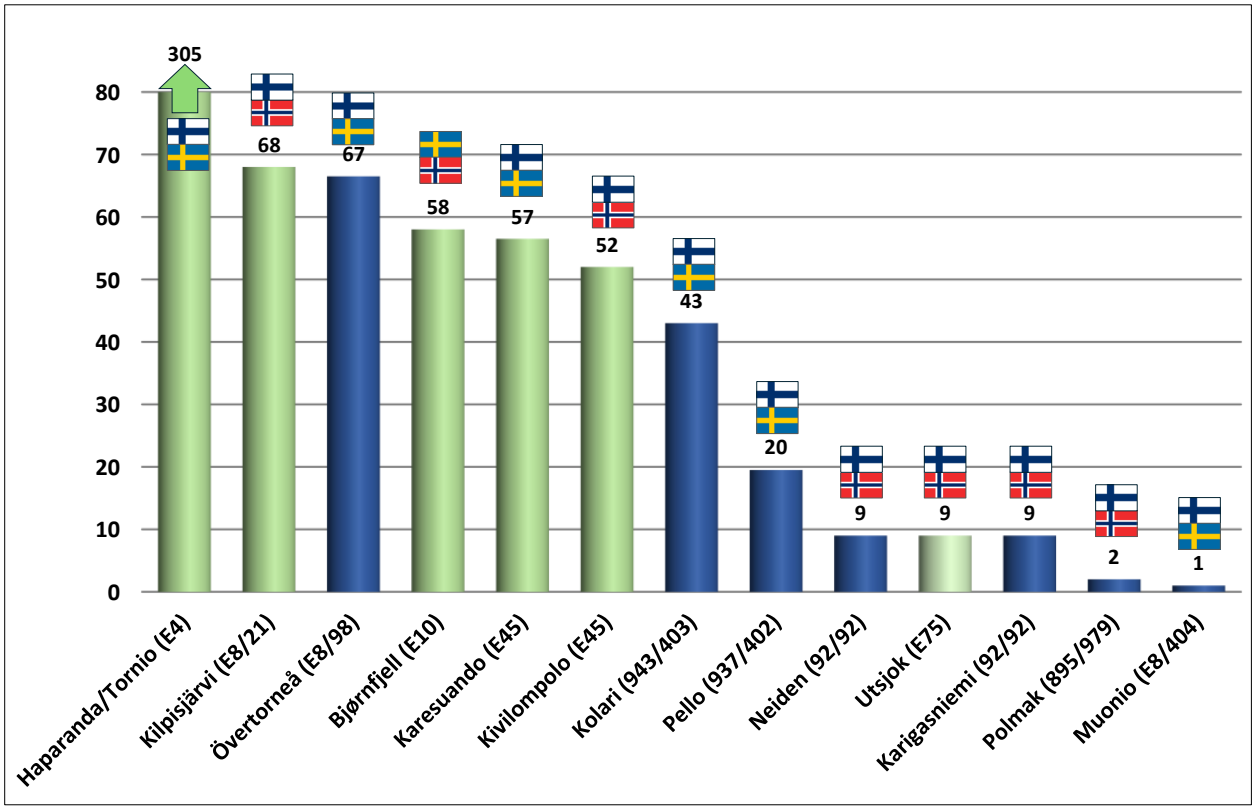


Figure 5-28: AADT border crossings 2023, heavy vehicles.

6.2 FREIGHT FLOW ALONG THE TRANSPORT CORRIDORS

6.2.1 INTRODUCTION

For several years the counties in Northern Norway have prepared detailed analyses of road transport performance by industry. The transport analyses have been national, and the description of the transports stops at the border with neighbouring countries. All relevant industries have been considered, but the focus has been on seafood. An ambition is to get a better overview of transports, after the border crossing.

The map in figure 5-31 (page 76) shows freight flow along the selected corridors measured by AADT for the heaviest vehicles. The information is based on national public statistics and primary information from interviews. The traffic information in the individual countries is not fully comparable. This can be attributed to both different vehicle classifications and years of registration. The visualisation nevertheless gives a reasonably good picture of total AADT with heavy vehicles, based on a common methodology. In general, all corridors will have more road transport volume when moving south. This is due to both higher populations, more extensive business activity and an accumulation of volumes. Although the volumes are smaller further north, the corridors are regionally important. They represent vital transport routes to and from the north and contributes to strengthening and developing robust local communities.

In the Norwegian part of the WP1 region, seafood completely dominates the transport sector. Further south, the volume and the share of the transport changes. The seafood share becomes lower ("diluted") as transports are influenced by transport of other goods (e.g. more waste -and grocery transports due to increased population) and the transportation from key industries such as forestry, minerals and waste.

"Seafood dilution" along the corridors

Figure 5-29 shows the "seafood dilution ratio" exemplified by the road transport share (AADT) of seafood along corridor 4 (E10), between Bjørnfjell border and Töre in Norrbotten.

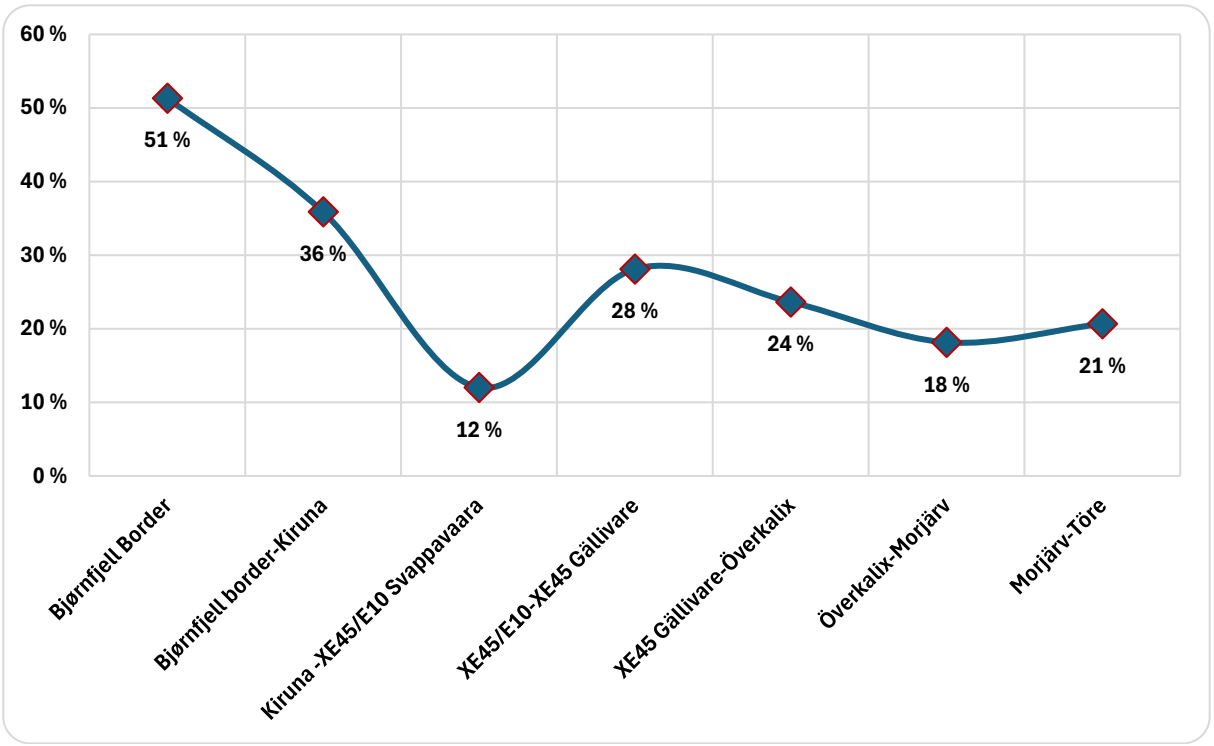


Figure 5-29: Seafood share along Corridor 4

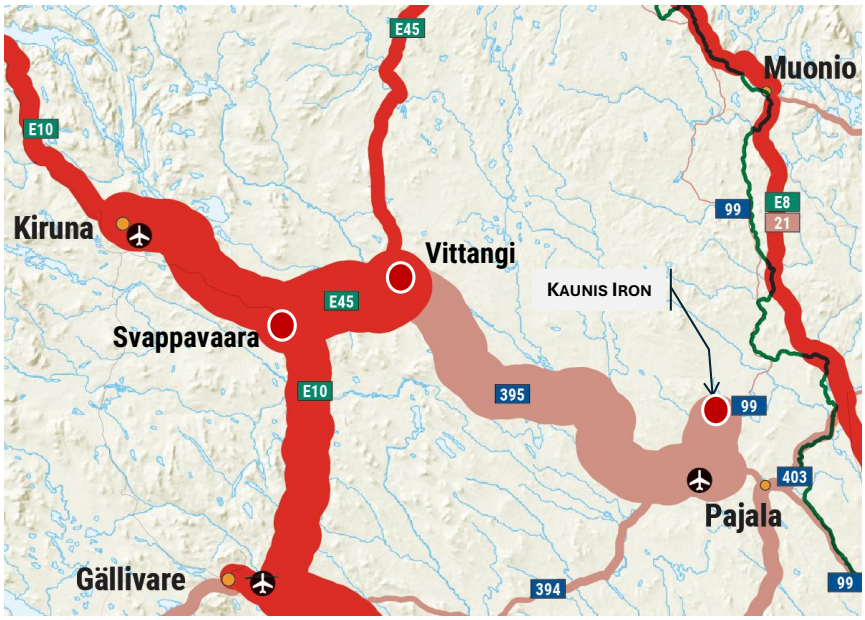
When crossing the Bjørnfjell border approximately 50% of the heaviest vehicles were loaded with seafood. The seafood share is significant north of Kiruna, but much lower south of Kiruna (to Svappavaara), because of other transports becoming more dominant.

South of Svappavaara (E10), the proportion of seafood increases because of seafood transports coming in along the E45 from both Troms and Finnmark. These seafood transports crossed the border in Karesuando.

The same "dilution" of the seafood transport share applies for all corridors involving Norwegian border crossings.

Large transport work on short distances in the entire region

Several road stretches in the region are influences by local companies performing shorter transports by road. Such transport is for instance transport of gravel from gravel pits to various construction projects or mineral transport from a mine to a rail og sea connection.



Many of these transports do not influence the selected corridors, but some do.

For instance, Boliden Kevistas transports from Sonadkylä to the port of Kemi (E75/4) or Kaunis Irons transports from Pajala to Svappavaara (99, 395 and E45), for further rail transport to the port of Narvik.

Figure 5-30: High local transport performance by road.

Figure 5-30 shows an AADT of approximately 200 between Pajala (Kaunisvaara) and Svappavaara. Most of the transports along this road is a result of Kaunis Irons activity. Their trucks are 2-3 times heavier than usual. The figure only shows the number of vehicles, not the size. The line between Pajala and Vittangi/Svappvaara would have been 2-3 times ticker, if tons/volumes has been the measurement scale.

Kaunis Irons transports also influence one of the selected corridors (E45) between Vittangi and Svappavaara.

6.2.2 THE CORRIDOR MAP

The map in figure 5-31 shows the selected corridors with red colour and connecting roads with a lighter colour. The corridor number and main border crossings are also shown. Thicker lines indicate larger transport volumes (AADT) than thinner.

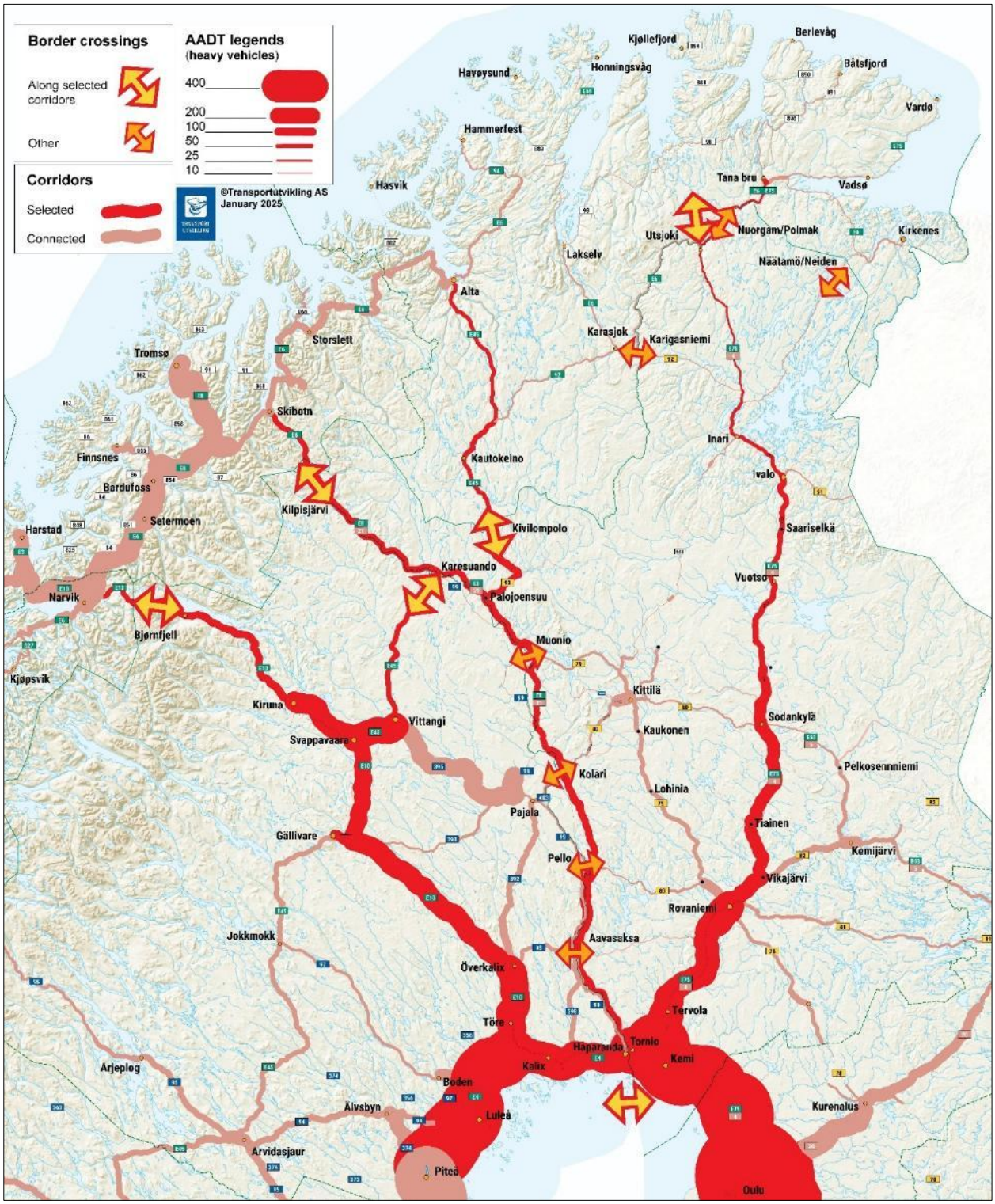


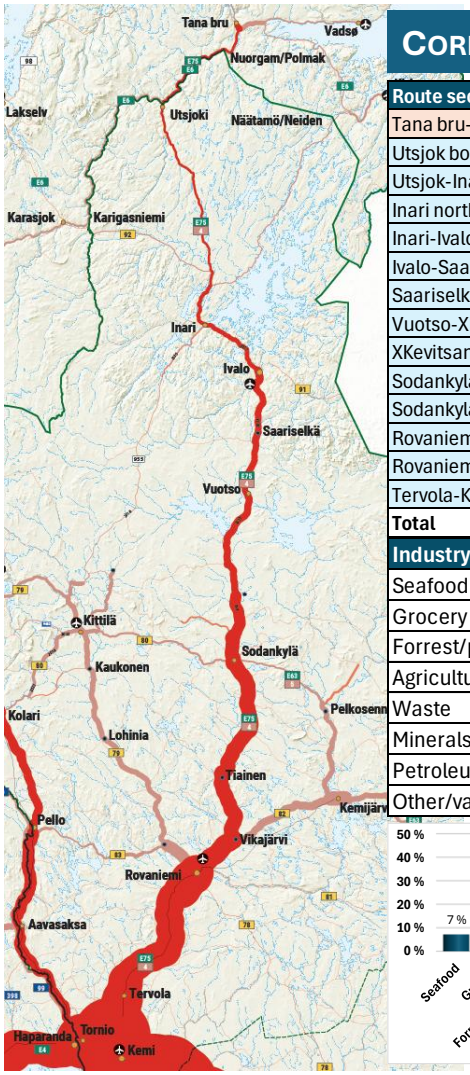
Figure 5-31: Corridors and total freight flow (AADT, heaviest vehicles)

The separate corridors er commented on in the following chapters.

6.2.3 CORRIDOR 1 (TANA BRU-UTSJOK-TORNIO)

The corridor has the following characteristics:

- The border crossing between Norway and Finland takes place in Utsjok, along E75/4.
- The total distance from Tana bru to Tornio is 579 km.
- The AADT variation, mainly based on national statistics, along the corridor varies from 9 (border crossing Utsjok) to more than 300 north of Keminmaa.
- The AADT for the entire corridor is 116, based on a km-weighted total AADT[30].
- Among the selected industries minerals and mining dominates (20%) followed by wholesale grocery (10%), based on a km-weighted AADT[31] for each industry group.
- Vehicle classification differences, unidentified/other vehicles count for 40%. The real unidentified share of the heaviest commercial vehicles is lower, ref chapter 3.3.2 and 3.3.3.



CORRIDOR 1 – TANA BRU-UTSJOK-TORNIO

Route section	Road no.	Country	Distance	AADT
Tana bru-Utsjok	E6/E75	Nor	69	27
Utsjok border	E75	Nor/Fin	0	9
Utsjok-Inari north	E75 X92(n)	Fin	94	24
Inari north-Inari	E75 X92(s)	Fin	31	40
Inari-Ivalo	E75	Fin	39	46
Ivalo-Saariselkä	E75	Fin	31	67
Saariselkä-Vuotso	E75	Fin	41	66
Vuotso-XKevitsantie	E75	Fin	52	74
XKevitsantie-Sodankylä	E75	Fin	36	120
Sodankylä (north)	E75	Fin	0	147
Sodankylä-Rovaniemi	E75	Fin	74	154
Rovaniemi north	E75	Fin	0	200
Rovaniemi-Tervola	E75	Fin	75	286
Tervola-Keminmaa	E75	Fin	37	330
Total			**579**	**116**

Industry share	%
Seafood	7 %
Grocery	10 %
Forrest/paper/pulp	6 %
Agriculture	3 %
Waste	8 %
Minerals/Mining	20 %
Petroleum	5 %
Other/variation	40 %

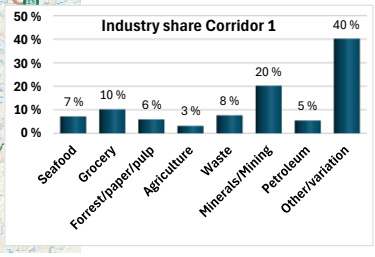


Figure 5-32: Corridor 1

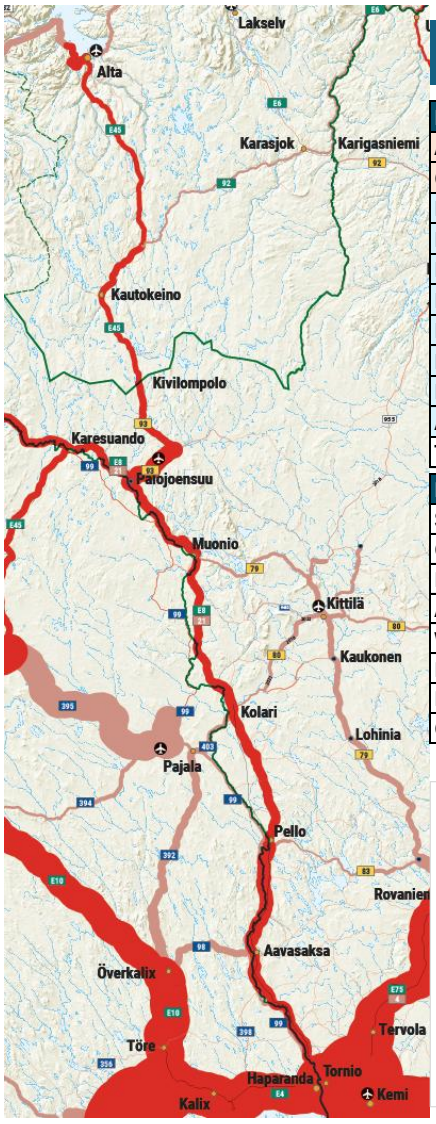
[30] Total AADT per. route section multiplied with the distance (km) in each section. The sum of the product for each section is divided by the total number of km. in the corridor. The same method is used for all corridors.

[31] AADT per industry and per. route section multiplied with the distance in km in each section. The sum of the product for each section is divided by the total number of km. in the corridor. The weighted product per industry is calculated as a percentage of the total. The same method is used for all corridors.

6.2.4 CORRIDOR 2 (ALTA-KIVILOMPOLO-KEMINMAA)

The corridor has the following characteristics:

- The border crossing between Norway and Finland takes place in Kivilompolo, along E45/93.
- The total distance from Alta to Keminmaa is 554 km.
- The AADT variation, mainly based on national statistics, along the corridor varies from 48 (Alta Gievdneguoika) to 126 between Pello and Aavasaksa.
- The AADT for the entire corridor is 77, based on a km-weighted total AADT.
- Among the selected industries seafood from Norway dominates (40%) followed by forest products (11%), based on a km-weighted AADT for each industry group.
- Vehicle classification differences, unidentified/other vehicles count for 19%. The real unidentified share of the heaviest commercial vehicles is lower, ref chapter 3.3.2 and 3.3.3.



CORRIDOR 2 – ALTA-KIVILOMPOLO-KEMINMAA

Route section	Road no.	Country	Distance	AADT
Alta-Gievdneguoika	E45	Nor	100	48
Gievdneguoika-Kivilompolo	E45	Nor	76	64
Kivilompolo border	E45	Nor/Fin	0	52
Kivilompolo-Hetta	E45	Fin	37	67
Hetta-Palejoensuu	E45	Fin	28	75
Palejoensuu-Munio	E8	Fin	49	91
Mounio-Kolari	E8	Fin	77	76
Kolari-Pello	E8	Fin	69	87
Pello-Aavasaksa	E8	Fin	49	126
Aavasaksa-Tornio	E8	Fin	69	87
Total			**554**	**77**

Industry share	%
Seafood	40 %
Grocery	7 %
Forrest/paper/pulp	11 %
Agriculture	3 %
Waste	8 %
Minerals/Mining	8 %
Petroleum	2 %
Other/variation	19 %

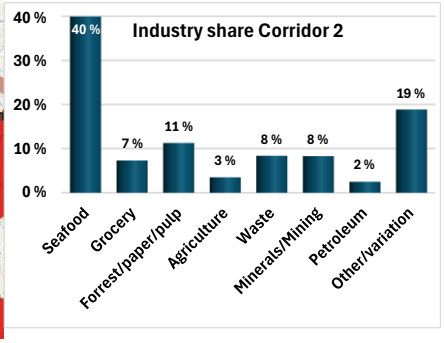


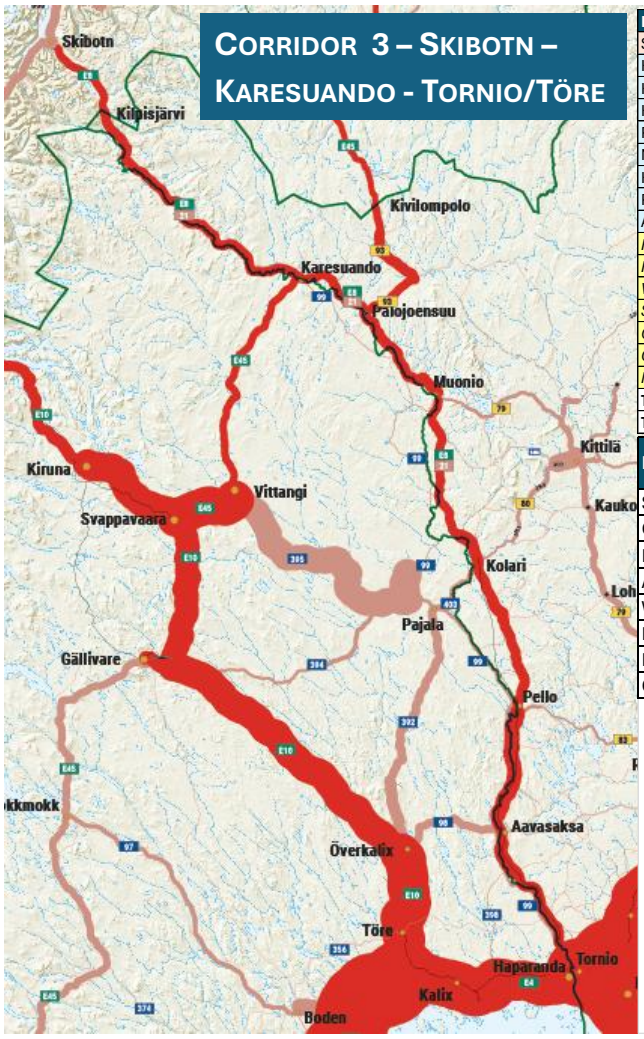
Figure 5-33: Corridor 2

The reason for the high seafood share is since seafood transports from both Troms (crossing Kilpisjärvi) and Finnmark (crossing Kivilompolo) use this corridor.

6.2.5 CORRIDOR 3 – SKIBOTN-KARESUANDO-TORNIO/TÖRE

The corridor has the following characteristics:

- The border crossing between Norway and Finland takes place in Kilpisjärvi, along E8. Karesuando (E45) is also used if the destination/origin for the transports is in Sweden or Western Europe.
- The total distance from Alta to Tornio is 510 km and 513 to Töre.
- The AADT variation, mainly based on national statistics, along the corridor varies from:
  - To Töre via Karesuando: 57 (Karesuando border) to 318[32] between Vittangi and Svappavaara (E45)
  - To Tornio via Finland: 126 between Pello and Aavasaksa.
- The AADT for the entire corridor is 81 to Tornio and 169 to Töre, based on a km-weighted total AADT.
- Among the selected industries seafood from Norway dominates (24%-37%) followed by forest products, minerals, and mining, based on a km-weighted AADT for each industry group.
- Vehicle classification differences, unidentified/other vehicles count for 24%-42%%. The real unidentified share of the heaviest commercial vehicles is lower, ref chapter 3.3.2 and 3.3.3.



Route section	Road no.	Country	Distance	AADT
Skibotn-Kilpijärvi border	E8	Nor	41	68
Kilpisjärvi border	E8	Nor/Fin	0	68
Kilpisjärvi-Karesuando	E8	Fin	118	84
Karesunado-Palejoensuu	E8	Fin	38	75
Palejoensuu-Munio	E8	Fin	49	91
Mounio-Kolari	E8	Fin	77	76
Kolari-Pello	E8	Fin	69	87
Pello-Aavasaksa	E8	Fin	49	126
Aavasaksa-Tornio	E8	Fin	69	87
Karesuando border	E45	Fin/Swe	0	57
Karesunado-X395 (Vittangi)	E45	Swe	103	64
Vittangi X395-Svappavarra/E10	E45	Swe	27	318
Svappavara-Gällivare XE10	E10	Swe	65	201
Gällivaare-Överkalix	E10	Swe	126	244
Överkalix-Morjärv	E11	Swe	33	353
Morjärv-Töre	E12	Swe	18	310
Total Skibotn-Tornio			**510**	**81**
Total Skibotn-Töre			**513**	**169**

Industry share	%	
	To Tornio	To Töre
Seafood	37 %	24 %
Grocery	9 %	14 %
Forrest/paper/pulp	12 %	2 %
Agriculture	4 %	1 %
Waste	4 %	4 %
Minerals/Mining	9 %	14 %
Petroleum	2 %	0 %
Other/variation	24 %	42 %

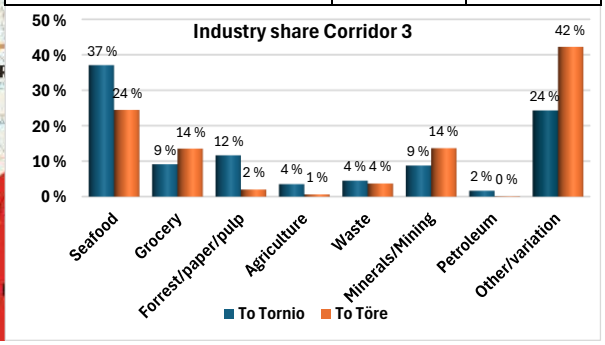


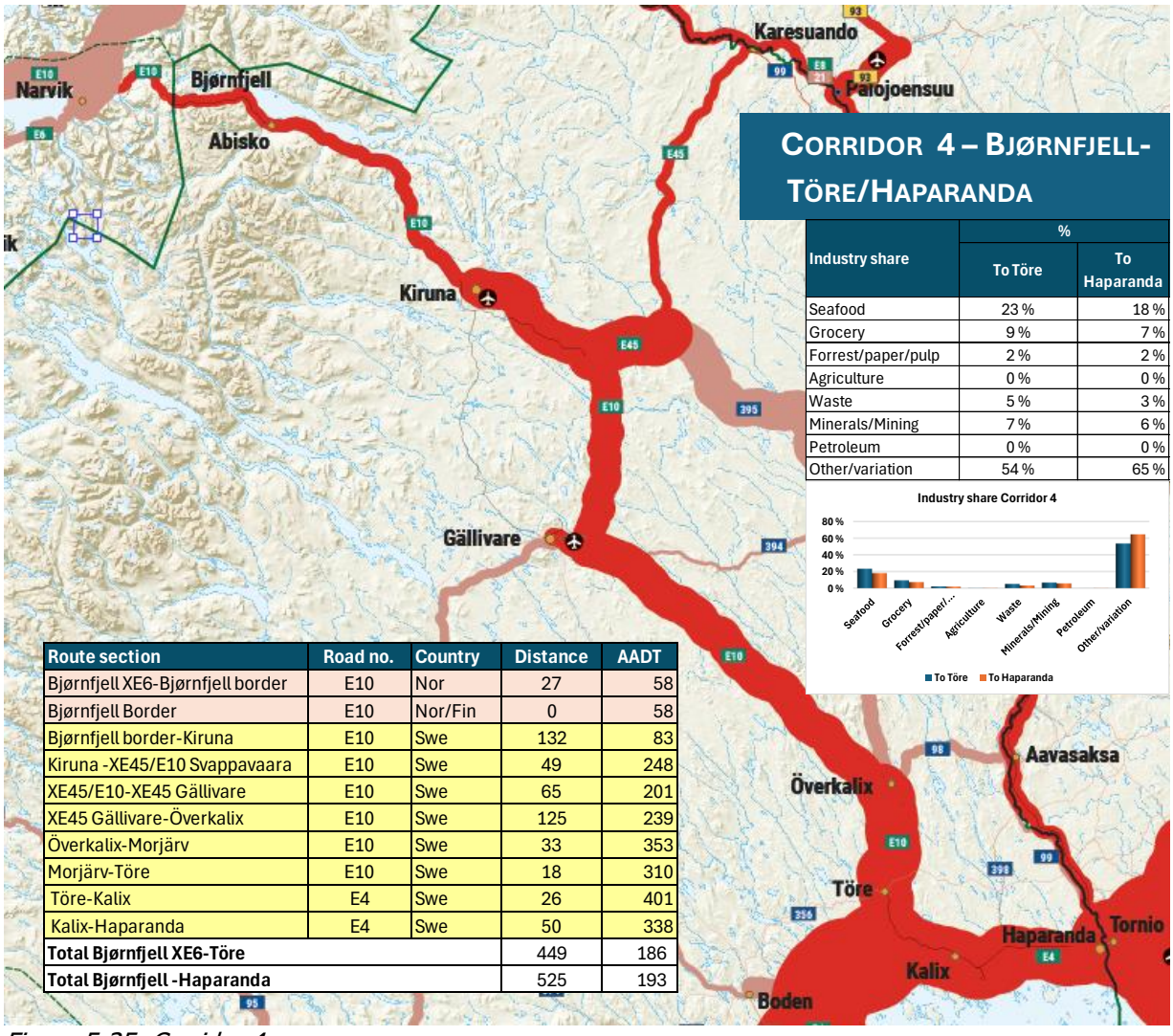
Figure 5-34: Corridor 3

[32] Influenced by transport from Kaunis Iron

6.2.6 CORRIDOR 4 – BJØRNFJELL-TÖRE/HAPARANDA)

The corridor has the following characteristics:

- The border crossing between Norway and Sweden takes place on Bjørnfjell (E10). If the destination/origin for the transport is in Finland or markets in eastern Europe, transport often continues to border crossing Haparanda/Tornio Sweden/Finland).
- The total distance from E6 Bjørnfjell to Haparanda is 525 km, and 449 km to Töre.
- The AADT variation, mainly based on national statistics, along the corridor varies from:
  - To Töre: 58 (Border crossing Bjørnfjell) to more than 350 between Överkalix and Morjärv (E10)
  - To Haparanda: 58 (Border crossing Bjørnfjell) to more than 400 between Töre and Kalix.
- The AADT for the entire corridor is 186 to Töre and 193 to Haparanda, based on a total km-weighted AADT.
- Among the selected industries seafood from Norway dominates (18% to 23%) followed by grocery and minerals and mining.
- Vehicle classification differences, unidentified/other vehicles count for 54%-65%. The real unidentified share of the heaviest commercial vehicles is lower, ref chapter 3.3.2 and 3.3.3.



Industry share	%	
	To Töre	To Haparanda
Seafood	23 %	18 %
Grocery	9 %	7 %
Forrest/paper/pulp	2 %	2 %
Agriculture	0 %	0 %
Waste	5 %	3 %
Minerals/Mining	7 %	6 %
Petroleum	0 %	0 %
Other/variation	54 %	65 %

Route section	Road no.	Country	Distance	AADT
Bjørnfjell XE6-Bjørnfjell border	E10	Nor	27	58
Bjørnfjell Border	E10	Nor/Fin	0	58
Bjørnfjell border-Kiruna	E10	Swe	132	83
Kiruna -XE45/E10 Svappavaara	E10	Swe	49	248
XE45/E10-XE45 Gällivare	E10	Swe	65	201
XE45 Gällivare-Överkalix	E10	Swe	125	239
Överkalix-Morjärv	E10	Swe	33	353
Morjärv-Töre	E10	Swe	18	310
Töre-Kalix	E4	Swe	26	401
Kalix-Haparanda	E4	Swe	50	338
Total Bjørnfjell XE6-Töre			449	186
Total Bjørnfjell -Haparanda			525	193

Figure 5-35: Corridor 4

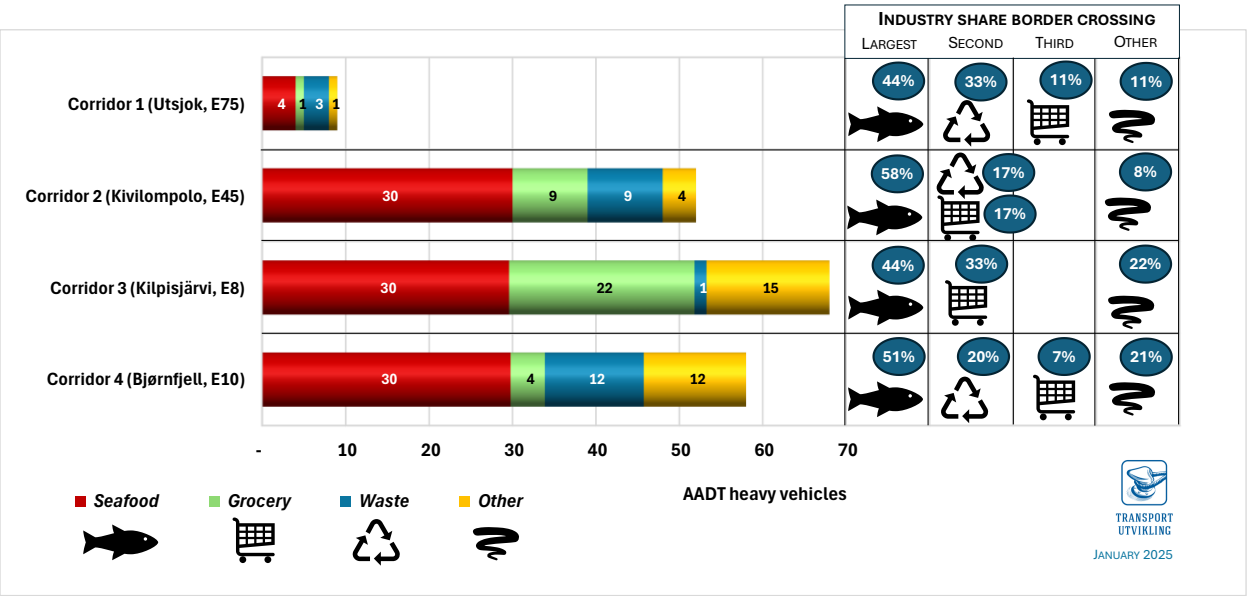
6.2.7 CORRIDOR 1 TO 4 - BORDER CROSSING FIGURES

Along the selected corridors there are four border crossings, connecting the corridors to Norway. For these border stations detailed primary data is available. This makes it possible to describe both the number of vehicles over 16 meters, and which industries crossed the border in 2023.

The border stations are:

- Utsjok: Corridor 1, road E75
- Kivilompolo: Corridor 2, roads E45/93
- Kilpisjärvi: Corridor 3, roads E8/21
- Bjørnfjell: Corridor 4, road E10

The figure below shows total AADT (heavy vehicles => 16 m) that passed the border points in 2023, and the share of the largest industries.



All the Norwegian border crossings are dominated by seafood products. The AADT share is between 44% and 58%. The main border crossings for Norwegian seafood in 2023 were:

- Kivilompolo
- Kilpisjärvi
- Bjørnfjell

All with a seafood-AADT of approximately 30.

Seafood is a high value product. The seafood value was 800-900 million Euros for each of the three main crossings, and the share of the seafood value was between 79% and 95% of the total value crossing the border stations.

Except seafood, the largest industries which used the border were grocery- and waste-products.

7 APPENDICES

7.1 ORGANIZATION AND TIME SCHEDULE WP1

WP1 involves the three northernmost county municipalities in Norway, with Finnmark County Municipality as the responsible partner. The municipalities contact persons are:

Finnmark County Municipality (responsible Norwegian partner)

- Contact person: Eirik Selmer, E-mail: eirik.selmer@ffk.no,
  Mobile: +47 922 49441

Troms County Municipality

- Contact person: Marius Chramer, E-post:marius.chramer@tromsfylke.no,
  Mobile: +47 958 16737

Nordland County Municipality

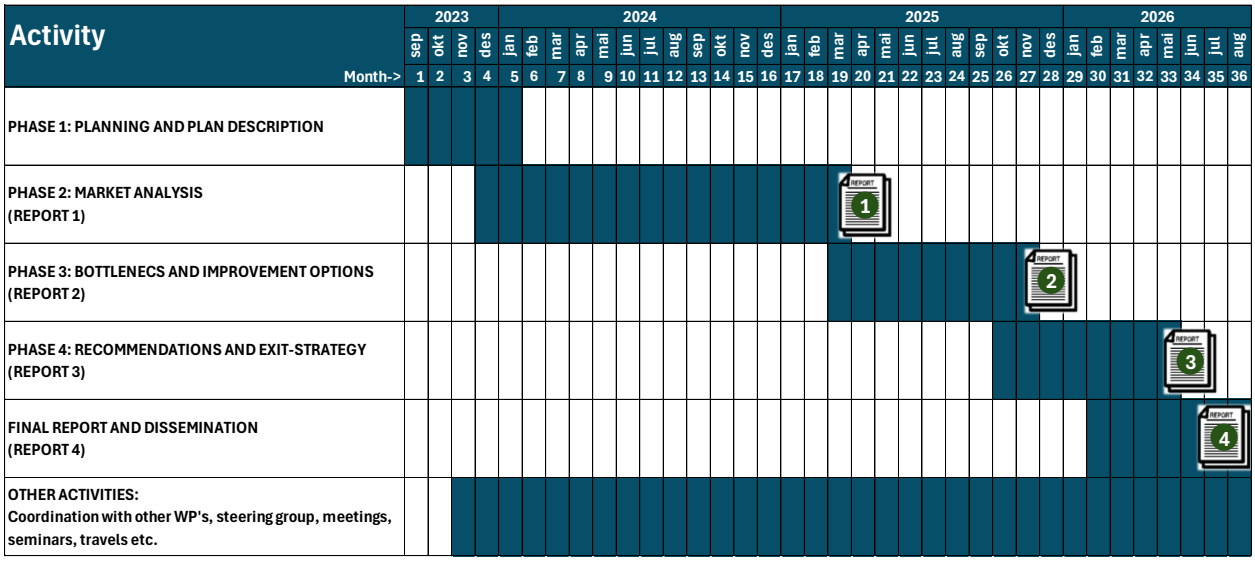
- Contact person: Trond Heimtun, E-post: trohei@nfk.no,
  Mobile: +47 9970 74351

The project consultant is Transportutvikling AS

- Contact person: Stig Nerdal, E-post: stig.nerdal@transportutvikling.no, Mobile: +47 958 71905

Time schedule WP1

The schedule of W1's activities is shown in the table below. The project started on September 2023 and will have a duration for 36 months.



7.2 LIST OF CONTACTS AND PRIMARY INFORMATION SOURCES

Organization	Industry	Country	Region
Alesundfisk Mehamn	Fishery (wild catch)	Norway	East Finnmark
Allskog	Forestry	Norway	Northern Norway
Alsvåg Lakseslakteri	Fishery (aquaculture)	Norway	North Nordland
Alta Skifer	Minerals	Norway	West Finnmark
Arctic Catch AS, Vadsø	Fishery (wild catch)	Norway	East Finnmark
Arctic Catch AS, Vardø	Fishery (wild catch)	Norway	East Finnmark
Arctic Resource Norge	Fishery (wild catch)	Norway	West Finnmark
Arktis Fisch	Fishery (wild catch)	Norway	East Finnmark
Arnøy Laks Slakteri	Fishery (aquaculture)	Norway	N-Troms
ASKO	Grocery	Norway	Troms
Astafjord Slakteri	Fishery (aquaculture)	Norway	Troms
Axfood	Grocery	Sweden	Sweden
BAMA	Grocery	Norway	Troms
BaneNor	Railway infrastructure	Norway	Nordland
BaRe	Grocery	Norway	South Nordland
Bergsfjordbruket	Fishery (wild catch)	Norway	West Finnmark
Berle Fisk AS	Fishery (wild catch)	Norway	East Finnmark
BioMar	Fishery (feed)	Norway	North Nordland
BNG	Petroleum	Norway	West Finnmark
Bolagsverket	Government Agency	Sweden	Sweden
Boliden Aitik	Minerals	Sweden	Norrbotten
Boliden Kevitsa	Minerals	Finland	Lapland
Breivoll Marine produkter	Fishery (aquaculture)	Norway	Troms
Bunkeroil Båtsfjord	Petroleum	Norway	West and East Finnmark
Bunkeroil Hammerfest	Petroleum	Norway	West Finnmark
Bunkeroil Honningsvåg	Petroleum	Norway	West Finnmark
Bunkeroil Kirkenes	Petroleum	Norway	East Finnmark
Business Lapland	Business organisation	Finland	Lapland
Båtsfjord Sentr.fryselager	Fishery (wild catch)	Norway	East Finnmark
Båtsfjordbruket, Båtsfjord	Fishery (wild catch)	Norway	East Finnmark
Cargill Bergneset	Fishery (feed)	Norway	Troms
Cargill Halsa	Fishery (feed)	Norway	South Nordland
Cermaq Norway AS, Rypefjord	Fishery (aquaculture)	Norway	West Finnmark
Cermaq Steigen	Fishery (aquaculture)	Norway	South Nordland
Cirkle K Alta	Petroleum	Norway	West Finnmark
Coast Berlevåg AS	Fishery (wild catch)	Norway	East Finnmark
Coast Kjøllefjord AS	Fishery (wild catch)	Norway	East Finnmark
Coop	Grocery	Sweden	Norrbotten
Coop	Grocery	Norway	Troms
E. Kristoffersen & Sønner	Fishery (aquaculture)	Norway	North Nordland
Elkem Tana	Minerals	Norway	East Finnmark
Ellingsen Seafood AS	Fishery (aquaculture)	Norway	North Nordland
Organization	**Industry**	**Country**	**Region**

ELY centre	Centres for Economic Development, Transport and the Environment	Finland	Lapland
Energikotor Norr	Project organization energy	Sweden	Norrbotten
Felleskjøpet	Agriculture	Norway	West Finnmark
Felleskjøpet	Agriculture	Norway	Troms
Felleskjøpet	Agriculture	Norway	East Finnmark
Felleskjøpet	Agriculture	Norway	Nordland
Finnmark avfalls IKS	Waste	Norway	West Finnmark
Finnmark county	County	Norway	Finnmark
Finnmark Miljøtjeneste	Waste	Norway	West and East Finnmark
Finnmark Rein	Agriculture	Norway	West Finnmark
Finnmark Ressursselskap AS	Waste	Norway	West Finnmark
Finnmark Sand	Minerals	Norway	West Finnmark
Fiskekroken	Fishery (aquaculture)	Norway	South Nordland
Fiskå Mølle	Agriculture	Norway	Troms
Flakstadvåg laks	Fishery (aquaculture)	Norway	Troms
Futurum	Business organisation	Norway	North Nordland
Gamst Shilova	Fishery (wild catch)	Norway	East Finnmark
Gamvik Seafood AS	Fishery (wild catch)	Norway	East Finnmark
Geminor	Waste logistics	Norway	Whole region
Grieg Seafood AS, Alta	Fishery (aquaculture)	Norway	West Finnmark
Halsvik Aggregates	Minerals	Norway	West Finnmark
Hararanda Fjärrtransporter AB	Transport/forwarding	Sweden	Norrbotten
Havøysund Fisk	Fishery (wild catch)	Norway	West Finnmark
HRS	Waste	Norway	North Nordland/Troms
ICA	Grocery	Sweden	Norrbotten
ICA Haparanda	Grocery retailer	Sweden	Norrbotten
INEX Partners Oy	Grocery logistics	Finland	Finland
Isanlegget AS, Mehamn	Fishery (wild catch)	Norway	East Finnmark
Jangaard Export, Gjesvær	Fishery (wild catch)	Norway	West Finnmark
Johan Kvalsvik AS, Akkarfj.	Fishery (wild catch)	Norway	West Finnmark
Kaunis Iron	Minerals	Sweden	Norrbotten
Kesko	Grocery	Finland	Lapland
Kirkenes Processing AS	Fishery (aquaculture)	Norway	East Finnmark
Kirkenesterminalen AS	Fishery (wild catch)	Norway	East Finnmark
Kiruna Municipality	Municipality	Sweden	Norrbotten
Lapeco	Waste	Finland	Lapland
Lapin kauppakamari	Business organisation	Finland	lapland
Lapin Litto	County	Finland	Lapland
Lerøy Aurora	Fishery (aquaculture)	Norway	N-Troms
Organization	**Industry**	**Country**	**Region**

Lerøy N. Seafoods AS, Kjøllefjord	Fishery (wild catch)	Norway	East Finnmark
Lerøy N.Seafoods AS, Berlevåg	Fishery (wild catch)	Norway	East Finnmark
Lerøy N.Seafoods AS, Båtsfj.	Fishery (wild catch)	Norway	East Finnmark
Lerøy N.Seafoods AS, Forsøl	Fishery (wild catch)	Norway	West Finnmark
Lerøy N.Seafoods AS, Melbu	Fishery (wild catch)	Norway	North Nordland
Lerøy N.Seafoods AS, Rypefjord	Fishery (wild catch)	Norway	West Finnmark
Lerøy N.Seafoods AS, Stamsund	Fishery (wild catch)	Norway	North Nordland
Lerøy N.Seafoods AS, Sørvær	Fishery (wild catch)	Norway	West Finnmark
Lerøy N.Seafoods, Skårvågen	Fishery (wild catch)	Norway	North Nordland
LKAB	Minerals	Sweden	Norrbotten
Luleå municipality/Lumire	Municipality owned company	Sweden	Norrbotten
Lyder Fisk, Bugøynes	Fishery (wild catch)	Norway	East Finnmark
Lyder Fisk, Dyfjord	Fishery (wild catch)	Norway	East Finnmark
Lyder Fisk, Torhop	Fishery (wild catch)	Norway	East Finnmark
Lyder Fisk, Veidnes	Fishery (wild catch)	Norway	East Finnmark
Lyngen Reker AS	Fishery (wild catch)	Norway	N-Troms
Melkøya	Petroleum	Norway	West Finnmark
MOWI Herøy	Fishery (aquaculture)	Norway	South Nordland
Myre Fiskemottak	Fishery (wild catch)	Norway	West Finnmark
Napapiirin Residuum Oy	Waste	Finland	Lapland
Narvik municipality	Municipality	Norway	North Nordland
Nergård Sørøya AS	Fishery (wild catch)	Norway	West Finnmark
NHO	Business organisation	Norway	Norway
Nord Norsk Spedisjon	Transport/forwarding	Norway	Nordland
Nordkyn Eiendom	Fishery (wild catch)	Norway	East Finnmark
Nordlaks Produkter AS	Fishery (aquaculture)	Norway	North Nordland
Nordland county	County	Norway	Nordland
Nordvågen AS, Nordvågen	Fishery (wild catch)	Norway	West Finnmark
Norges Lastebileierforbund	Trucking organization	Norway	Troms
Norrbotten County	County	Sweden	Norrbotten
Norrbotten county	County	Sweden	Norrbotten
Norrbottens Handelskammara	Business organisation	Finland	Norrbotten
North Cape King Crab, Billefjord	Fishery (wild catch)	Norway	West Finnmark
North Cape King Crab, Repvåg	Fishery (wild catch)	Norway	West Finnmark
Organization	**Industry**	**Country**	**Region**
Nortura Harstad	Agriculture	Norway	Troms

Nortura Karasjok	Agriculture	Norway	West Finnmark
Nortura Målselv	Agriculture	Norway	Troms
Norway King Crab, Bugøyn.	Fishery (wild catch)	Norway	East Finnmark
Norway King Crab, Trollbukt	Fishery (wild catch)	Norway	East Finnmark
Norway Shrimp	Fishery (wild catch)	Norway	East Finnmark
Nova Sea AS	Fishery (aquaculture)	Norway	South Nordland
Pajala municipality	Municipality	Sweden	Norrbotten
Perpetuum Mijø	Waste	Norway	East Finnmark
Perämeren Jätehuolto Oy	Waste	Finland	Lapland
Polarfeed, Europharma AS	Fishery (feed)	Norway	West Finnmark
Port of Alta	Port	Norway	West Finnmark
Port of Bergneset	Port	Norway	Troms
Port of Kemi	Port	Finland	Lapland
Port of Kirkenes	Port	Norway	East Finnmark
Port of Luleå	Port	Sweden	Norrbotten
Port of Narvik	Port	Norway	North Nordland
Port of Oulu	Port	Finland	North Ostrobothnia
Port of Piteå	Port	Sweden	Norrbotten
Port of Tornio	Port	Finland	Lapland
Port of Tromsø	Port	Norway	Troms
Port of Umeå	Port	Sweden	Vesterbotten
REMA Narvik	Grocery	Norway	North Nordland
Remix	Waste	Norway	Troms
Salaks	Fishery (aquaculture)	Norway	Troms
Salmar Senja	Fishery (aquaculture)	Norway	Troms
SAR-Gruppen	Waste	Norway	West Finnmark
SB Forestry	Forestry	Norge	Nord-Norge
SB Skog?	Forestry	Norway	Northern Norway
SCA	Foestry	Sweden	Norrbotten
SCA Forestry	Forestry	Sweden	Norrbotten
Seagourmet	Fishery (wild catch)	Norway	East Finnmark
Servicegrossisten Nord	Grocery	Norway	North Nordland
S-Group	Grocery	Finland	Lapland
Sibelco Stjernøya	Minerals	Norway	West Finnmark
Sitowise	Tecnology/design provider	Finland	North Ostrobothnia
Skjelnantank	Petroleum	Norway	Troms
Skjånesbruket (Lyder fisk)	Fishery (wild catch)	Norway	East Finnmark
Skogforsk	Forestry	Sweden	Norrland
Skogstyrelsen	Forestry	Sweden	Norrbotten
Skretting	Fishery (feed)	Norway	North Nordland
Sodankylä municipality	Municipality	Finland	Lapland
Organization	**Industry**	**Country**	**Region**
Sodankylä municipality	Municipality	Finland	Lapland
ST 1Norge (Shell)	Petroleum	Norway	East Finnmark

Storbukt F. Ind. AS, Kiberg	Fishery (wild catch)	Norway	East Finnmark
Storbukt F. Ind. AS, Store Korsnes	Fishery (wild catch)	Norway	East Finnmark
Storbukt F.ind. AS, H.våg	Fishery (wild catch)	Norway	West Finnmark
Storbukt F.ind. AS, Sjursjok	Fishery (wild catch)	Norway	West Finnmark
Storbukt F.ind. AS, Smørfjord	Fishery (wild catch)	Norway	West Finnmark
SveaForestry	Forestry	Sweden	Norrbotten
Svensk sjømat i LuleBD Fisk AB	Fishery (processing)	Sweden	Luleå
Swerock AS Avd Alta	Minerals	Norway	West Finnmark
Swerock AS Avd Tana	Minerals	Norway	East Finnmark
Swerock AS Avd Veidnes	Minerals	Norway	East Finnmark
Sydvaranger AS	Minerals	Norway	East Finnmark
Tine Meieri Alta	Agriculture	Norway	West Finnmark
Tine Meieri Storsteinnes	Agriculture	Norway	Troms
Tine Meieri Tana	Agriculture	Norway	East Finnmark
Tobø Fisk AS, Havøysund	Fishery (wild catch)	Norway	West Finnmark
Tornedalsrådet	Development organisation	Sweden/Finland / Norway	Norrbotten
Torsvågbruket AS	Fishery (wild catch)	Norway	Troms
Traficom	Government Agency	Finland	Lapland
Trafikverket	Government Agency	Sweden	Norrbotten
Troms county	County	Norway	Troms
Tufjordbruket, Tufjord	Fishery (wild catch)	Norway	West Finnmark
TVAB	Waste	Sweden	Norrbotten
UIT Narvik	University	Norway	North Nordland
Vardøbruket	Fishery (wild catch)	Norway	East Finnmark
Vayla	Government Agency	Finland	Finland
VEFAS	Waste	Norway	West Finnmark
Västerbotten county	County	Sweden	Västerbotten
Wilsgård	Fishery (aquaculture)	Norway	Troms
ØFAS/Masternes	Waste	Norway	East Finnmark
Øksfjord fiskeindustri	Fishery (wild catch)	Norway	West Finnmark
Øksfjord Lakseindustri	Fishery (aquaculture)	Norway	West Finnmark
Övertoneå Municipality	Municipality	Sweden	Norrbotten
Aalesundfisk Skarsvåg	Fishery (wild catch)	Norway	West Finnmark
Aalesundfisk Vardø	Fishery (wild catch)	Norway	East Finnmark

7.3 ACRONYMS AND ABBREVIATIONS

Acronyms and abbreviations	
AADT	Annual Average Daily Traffic (both directions)
Bjørnfjell	Border crossing station between Norway and Sweden
BRTL	Barents Transport and Logistics Project
CEF	Connecting Europe Facility establishes conditions, methods and procedures for providing financial assistance to trans-European networks with the intention of supporting projects of common interest to Member States in the areas of transport, energy and telecom/digital.
Commercial vehicle	Any type of motor vehicle used for transporting goods (in this project, may also be passengers)
Corridor 1	Eastern-Finnmark -Utsjok-Tornio with connections to Finland and Sweden
Corridor 2	Western-Finnmark - Kivilompolo - Palejoensuu with connections to Finland and Sweden
Corridor 3	Troms Kilpisjärvi - Karesuvanto with connections to Finland and Sweden
Corridor 4	Nordland/Troms- Bjørnfjell-Töre with connection to Sweden and Finland
E45	National road number 93 in Finland
E75	National road number 4 in Finland
E8	National road number 21 in Finland
EEA	The European Economic Area
EU	The European Union
HCT	High Capacity Truck
Jorbruksverket	Swedish Board of Agriculture
Kilpisjärvi	Border crossing station between Norway and Finland (NO: Helligskogen)
Kivilompolo	Border crossing station between Norway and Finland
LAM	Automatic traffic measuring stations (Finland). TMS english
Landbruksdirektoratet	Norwegian Directorate of Agriculture
Modular truck	Or modular vehicle, is a vehicle combination is a tractor-trailer combination of vehicles that each meets the requirements of Directive 96/53/EC
NTP	National Transport Plan
Payload	The weight of an object or the entity that is being carried by a vehicle
Pelagic fishy	Pelagic fish live in the pelagic zone of ocean or lake waters—being neither close to the bottom nor near the shore, like herring, mackerel etc
Råfisklaget	A fish sales association that, in accordance with the Fish Sales Cooperatives Act, takes care of important tasks and organizes first-hand sales of wild-caught fish and other seafood in Northern Norway
SCB	Statistikmyndigheten (Statistics Sweden)
SGU	The Geological Survey of Sweden
SSB	Statistisk Sentralbyrå (Statistics Norway)
SVV	Norwegian Public Roads Administration
TEN-T	Trans European Network-Transport
TEU	Twenty Foot Equivalent Unit
Tilastokeskus	Statistics Finland
Traficom	The Finnish Transport and Communications Agency
UN	The United Nations
UNECE	United Nations Economic Commission for Europe
Utsjok	Border crossing station between Norway and Finland (FI: Utsjoki)
Vestfjorden	Sea area between Lofoten and Salten in Nordland County.
Vaanta	Helsinki Airport
WFE	Wild Fish Equivalent (weight of living fish)
WP1	Work Package 1 (Future seamless freight transport)
WP1 region	Norway: Finmark county, Troms County and the Northern part of Nordland County. Sweden: Norrbottens län. Finland: Lapland and North Ostrobothnia south to Oulu
ÅDT	AADT (used in Sweden and Norway)

7.4 OVERVIEW TABLES (INDUSTRIES)

Seafood	
Important industry in	Norway
Modes of transportation	All modes of transportations is used, also airfreight.
Volumes	Approximately 900.000 tons of seafood were transported from the region north of Vestfjorden i Norway. In 2023. 580.000 tons were transported by truck and truck/rail out of the region
AADT	580.000 tons corresponds to an AADT of approximately 170, based on the average weight for truck transport out of Northern Norway. More than half of the truck/rail volume used truck as the only mode of
Finland and eastern markets	40.000-50.000 tons (AADT 12-14)of the truck-volume passed international borders, destinated for eastern markets where Finland is a relevant transit country. A share of these transports crossed the border of Haparanda/Tornio In addition, inputs like pallets etc were imported to the industry, often from Finland/Baltic countries
Border crossing and most important corridors	All border crossing stations between Norway (north of Vestfjorden) and Finland/Sweden is used. The main border crossings are: o Kivilompolo (E45/93) - Corridor 2 o Kilpisjärvi (E8/21) - Corridor 3 o Bjørnfjell (E10) - Corridor 4

Minerals and mining	
Important industry in	All countries. The largest mining volumes is found Sweden and Finland. Gravel/crushed stone etc
Modes of transportation	Mostly sea and rail for the mining industry, but also truck transports on shorter distances (e.g. Kaunis Iron and Boliden Kevitsa). Gravel/soil etc is mainly transported by road
Volumes	Huge volumes from the registered mining industry (30-35 MT transported by rail/sea). Gravel/crushed stone etc represents 25%-30% of the total transportation work along all roads in the region, and
AADT	The road volume along corridors corresponds to an AADT of approximately more than 200 for the busiest roads (Pajala-Svappavaara). AADT for gravel/crushed stones varies from very small volumes up to 55
International transports	The majority of the sea/rail volumes are international transports. Road volumes are mostly national,
Border crossing and most important corridors	Small volumes are crossing road borders between Norway and Finland /Sweden. Used border crossings between Norway and Finland are: o Kilpisjärvi (E8/21) - Corridor 3 o Kivilompolo (E45/93) - Corridor 2

Agriculture	
Important industry in	All countries, but the main agricultural regions are south of the WP region. Dairies and meat
Modes of transportation	Truck and sea transport (Norway)
Volumes	Meat production in the WP1 region (ex. reindeer) was 20.174 tons and dairy production amounted to 168,6 million litres. The largest volumes is produced in Lapland
AADT	The volume corresponds to an total AADT of approximately 24 (Lapland), 19 (Northern Norway) and 14
International transports	Road volumes are mostly national. Some distribution between Troms and Finnmark crossed borders
Border crossing and most important corridors	The most commoly used border crossing between Norway and Finland are: o Kilpisjärvi (E8/21) - Corridor 3 o Kivilompolo (E45/93) - Corrdor 2 Also Neiden and Utsjok (Coridor 1)

Waste	
Important industry in	All countries
Modes of transportation	Mainly truck transports, but also some sea transports in Norway (metal for material recycling)
Volumes	Household waste is estimated to approximately 324.000 ton for the WP1 region. The largest volumes are in Norrbotten. In addition to household waste there are large amounts of industrial waste.
AADT	This volume corresponds to a total regional AADT between 85 and 115, based on the average weight for
International transports	International transports are related to transportation of waste to various recycling plant, mainly in Sweden
Border crossing and most important corridors	The main border crossings are: o Bjørnfjell (E10) -often to Swedish energy recycling plants - Corridor 4 o Kivilompolo (E45/93) - Corridor 2 o Haparanda/Tornio (E8/E4) - All corridors o Karesuando (E45) - Corridor 2 and 3 o Karisgasniemi (92/92) - Connected to Corridor 2 Other border crossing are also used.

Grocery	
Important industry in	All countries
Modes of transportation	Mainly truck transports, but also railway transport in Sweden (Swedish wholesalers) and through Sweden (Norwegian wholesalers)
Volumes	Transport volumes are mainly related to population. The largest volumes along road are found in Lapland, Norrbotten and around regional warehouses i Nordland and Troms.
AADT	The volumes correspond to an maximum AADT of approximately 700-800 for the entire region
International transports	Transports for the wholesalers in Finland and Sweden are national. For the Norwegian wholesalers Sweden and Finland is used as a transit country for inbound transports (rail through Sweden and road through Sweden and Finland). Distribution from Norwegian storing facilities in Troms/Nordland often uses the road network in Sweden/Finland for transports to Finnmark.
Border crossings	The main border crossings are: o Kilpisjärvi (E8/21) o Karesuando (E45) - transports from Oslo to Tromsø crossing Kilpisjärvi o Kivilompolo (E45/93) Other border crossing are also used

Petroleum	
Important industry in	Distribution of petroleum products are important in all countries
Modes of transportation	Inbound to the region mainly by sea, and distribution by truck
Volumes	In the WP1 region more than 1 million tons are distributed to petrol stations and the industry.
AADT	This volume corresponds to a total regional AADT between 100 and 115, based on the average weight for truck transports of petroleum
International transports	Most of the petroleum distribution is national. There are some imports and exports between all countries.
Border crossings	The most used border crossings between Norway and Finland/Sweden is: o Kivilompolo (E45/93)

Forestry and timber	
Important industry in	Finland and Sweden
Modes of transportation	Both sea, rail and truck transports are used
Volumes	Commercial fellings in the WP1 region amounted to 8,45 million m^3. Based on secondary sources, more than 50% of the felling's were in Finland. Almost nothing i the Norwegian WP1 region.
AADT	The estimated total volume corresponds to a total regional AADT of 160-180. A share of the total volume affects the selected road corridors.
International transports	Transports of finished goods are mainly international and performed by sea transports. There are quite huge timber transports between Sweden and Finland. Exact volumes are not identified.
Border crossings	The main border crossings are believed to be: o Haparanda/Tornio (E4/E8) o Övertorneå/Aavasaksa (98/99)

7.5 LARGE MINING COMPANIES

Norrbotten

The largest mineral companies in Norrbotten are:

LKAB (iron-ore)

LKAB has several operational plants in Kiruna and Gällivare and mined around 80 percent of all iron-ore in the EU. In 2023 they produced 25,3 million tons of iron-ore (Source: LKAB). The vast majority of the transports goes by rail to Narvik and Luleå, for transshipment to sea transport. Some inbound transports go by truck, and subsidiaries may have a more extensive road transport than the parent company:

LKAB Berg och betong in Kiruna and Malmberget, is a company owned by LKAB. LKAB's mines generate large amounts of side rock, also known as waste rock. At the company they crush side rock in a variety of sizes, mainly for own concrete production, but also to driveways, railway projects, or as stone flour for riding arenas, among other things. According to the company's net page they produce approximately 280,000 cubic metres of concrete per year and are the world's largest producer of shotcrete. A large share of their concrete production is used for internal purposes in LKAB.

Kaunis Iron (iron-ore)

Kaunis Iron in Pajala (Kaunisvaara) produced close to 2,3 million tonnes of iron-ore concentrate in 2023. The transport route is from Kaunisvaara to Svappavaara (Pitkäjärvi reloading station) by truck (roads 99, 365, E45 and E10) and further to Narvik by rail and sea transport.

For the road transport heavy trucks are uses. Their total gross weight is 90 tons with a payload of 62 tonnes. Together with Trafikverket, Kaunis Iron has an ongoing project (MaKS) focusing on infrastructure development and traffic safety.

Picture 7-1: Kaunis Iron 90t truck (Photo: Transportutvikling AS, September 2024)

Based on 62 tonnes net weight per truck, 2023 outgoing volumes correspond to more than 100 heavy vehicles one way. I.e. AADT more than 200. In addition, they have ingoing transports.

Boliden Aitik (various minerals)
Aitik is Sweden's largest open-pit Coppermine. In 2023, around 40 million tonnes of ore were processed to form metal concentrates containing copper, gold and silver.

Outbound transports mainly go by rail, and approximately finished goods of 280.000 tons were transported by rail to Rönnskär.

The train are also used for supply to the mine. Inbound transports from Europe are loaded on Atik's train shuttles from Helsingborg to Aitik.

Various inbound truck transports are connected to for instance fuel/diesel from Piteå and tires, mainly from Kemi/Oulu.

Lapland

The largest mineral companies in Lapland are:

Boliden Kevitsa (various minerals)
Boliden Kevitsa are also using road transports from Sonadkylä to the port of Kemi, where both sea and rail is used for onward transports to processing plants. The road volumes from Kevitsa are included in the analysis.

Outokumpo Chrome Oy (chrome, Keminmaa)
At Outokumpu's Kemi Mine, the source of chromite ore that is concentrated into upgraded lumpy ore and fine concentrate are transported by road to the company's ferrochrome smelter in Tornio, located in the same site as their integrated stainless-steel mill. The Kemi mine is targeting to become the first carbon-neutral mine in the world (by 2025).

Agnico Eagle (gold)
Agnico Eagle Finland (Kittilä) the largest gold mine in Europe. Their outbound transport represents smaller transport volumes, while inbound transports are higher (inputs to the production).

Kalkkimaa & Ristimaa (dolomite)
SMA Mineral Oy has limestone mines in Tornio and Pieksämäki and a quartz mine in Tornio. The company is producing around 500.000 tons of various products (limestone, macadam, quartz etc).

Northern Norway (north of the Vestfjord)

The largest mineral companies in Northern Norway, north of the Vestfjord are:

Sibelco (Nefelinsyentitt, Western Finnmark)
Sibelco has a mine and production facility (Nefelinsyentitt) at Stjernøya in Alta Municipality. All outbound production is transported by sea, while some inbound products come in by road for reloading to sea at the port of Alta. Sibelco process about 300.000-400.000 tons per year.

Sydvaranger (Magnetite, Eastern Finnmark)
Sydvaranger is an iron ore mining company located in Sør-Varanger municipality in Northern Norway. Sydvaranger was acquired by the Grangex Group in May 2024. Sydvaranger has a long mining history, and the new owners is currently restructuring the operation. The new operations are expected to start in July 2026 and the first shipment in early 2027. The annual production of concentrate is expected to be around 3 MT.

Elkem Tana (Quartzite, Eastern Finnmark)
Elkem Tana, in Tana municipality, is one of the world's largest quartzite quarries. Nearly 800,000 tonnes of quartzite are mined for use in the ferrosilicon industry. Most of the customers are located to Norway.

The production is shipped out by bulk carriers, to large companies located in Northern Norway (LKAB, Finnfjord AS, Salten Verk and Elkem Rana). Road transport is used for the transport of explosives, parts, fuel, etc.

Halsvik Aggregates (Quartzite, Western Finnmark)
The company is located to Repparfjorden in Hammerfest municipality. The company mines quartzite from an open pit mine. The production is about 250.000 tonnes, and almost all minerals is shipped out from its own quay.

Finnfjord AS (Ferrosilicon, Troms)
Finnfjord AS produces ferrosilicon in Finnfjordbotn in Senja municipality. The factory has a production capacity of around 100,000 tonnes of ferrosilicon per year. The main share of the products are goes by sea. Some products are transported by truck to Finland.

7.6 LARGE FOREST COMPANIES

Below are listed some of the largest forest owners and forest companies.

Northern Sweden

Sveaskog is Sweden's largest forest owner and is owned by the Swedish state. The company's core business is to manage and manage the forest and deliver timber, wood pulp, wood chips, biofuels, forest plants and forest services (Source: Sveaskog). I 2023, Sveaskog has felling's in 9 municipalities in Norrbotten.

SCA's core business is forestry and is Europe's largest private forest owner. SCA has built a well-developed value chain based on renewable raw materials from its own and others' forests. SCA offers paper for packaging, pulp, wood products, renewable energy, services for forest owners and efficient transport solutions. SCA was founded in 1929 and is headquartered in Sundsvall. The company has major production sites in Piteå (Munksund). (Source: SCA)

Norra Skog is a forest owner association owned by 27,000 individual forest owners with a total forest ownership share of just over 2.2 million hectares of forest area in northern Sweden, in the provinces of Norrbotten, Västerbotten and others.
The company has a sawmill, processing units and a pole factory. Norra Skog is a major supplier to Metsä's factory in Kemi.

Smurfit Kappa (Piteå)-produces Containerboard/Kraftliner, with a production capacity of 350.000 tons.

Karlsborg/Billerud (Kalix) - kraft paper, formable paper and market pulp.

Northern Finland

Stora Enso state tatt they are leading supplier of renewable products. They have operation in both Sweden and Finland in packaging, biomaterials and wood construction, Store Enso is among the largest private forest owners in the world. (Source: Store Enso). The Kemi Veitsiluto Sawmill has a production capacity of 200,000 tons, Oulu Mill 450,000 tons kraftliner and 530.00 tons pulp.

UPM-Kymmene Oyj (UPM) is a large Finnish-owned forestry company that operates in Finland and internationally. UPM manufactures fibre products, wood products, molecular bioproducts and low-emission energy in Finland (Source: UPM).

Metsä Board Oyj, is a European producer of fresh fibre board, including foldable cartons, foodservice cartons, etc. Metsä Board is part of Metsä Group, one of the largest forest industry groups in the world. The company also has production/activity in Sweden. The Kemi board mill has a production capacity of 465.000 tons. The Kemi bioproduct mill produces pulp as well as many other bioproducts,

Northern Norway

Allskog is a cooperative owned by around 7,500 forest owners in Norway. The owners are organised in local forest owner associations. Allskog is headquartered in Trondheim. The company is the largest forestry company in the northern part of Nordland, Troms and Finnmark.

SB SKOG is a Norwegian forestry company that manages and operates forests and supplies timber to the industry on a par with the forest owners' cooperative. SB Skog is owned by Viken Skog SA. SB Skog is the largest forestry company in the central and southern parts of Nordland.

7.7 DAIRIES, SLAUGHTERHOUSES AND FARMERS

Dairies

A general trend in the market is that the number of dairies is becoming fewer and that the units are getting bigger.

In Northern Norway there one operational dairy diary group, Tine. There are two TINE dairy-plants in Finmark (Alta and Tana). In Troms there are dairies located to Harstad and Balsfjord. In Nordland there are no dairies north of the Vestfjord.

In Norrbotten Norrmejerier have a dairy located to Luleå. Norrmejerier have decided to close the dairy in Luleå[33] and transfer production to the dairy in Umeå (Västerbotten), - due to reduction in milk consumption. After this reorganization there will be no dairies located to Norrbotten. I 2023 the diary was in operation.

In Northern Finland there are two main dairy companies: Valio and Arla. There are no milk dairies in Lapland. Valio has 13 production plants in Finland and the closest dairy to Lapland is located to Oulu. It is estimated that more than 50%f of the milk produced in Lapland is processed there.

Arla has a facility (Arla Oy Pohjois-Finland) located to Ranua in Lapland. The facility has no milk production and operates as a milk procurement company, brokerage, maintenance services etc. Milk is transported as far as Sippo in Southern Finland.

In addition, there is dairy in Kuusamo (Kuusamon Osuusmeijeri), and milk from some farmers from Eastern Lapland goes there, but amount of milk transported is small compared to Valio/Arla

Slaughter-houses (meat)

In Northern Norway there four slaughterhouses north of the Vestfjord. Most of the plants are owned by Nortura. In Finnmark Nortura has one slaughterhouse in Karasjok, og two in Troms (Målselv and Harstad). In Nordland, north of the Vestfjord Nortura has no slaughterhouses, but a private plant in Lofoten (Horns).

In Norrbotten there are slaughterhouses in Luleå (Norrbottengården), in Gällivare (Karlgrens) and Nyhléns Hugossons which is a group with several plants and production facilities (Luleå, Boden and Haparanda in Norrbotten).

In Northern Finland Veljekset Rönkä Oy works in cooperation with Atria, and slaughters majority of cows/beef and sheep/lamb from the farms in Lapland, estimated over 90%. In addition, there are smaller slaughterhouses like Leivejoen Liha Oy and Viskaali in Muhos/Oulu. Some smaller volumes are also transported by Snellmann/HK Scan to their own slaughterhouses further south.

Lapland has in addition around twenty slaughterhouses for reindeer, and some of them operate in combination with sheep/lamb, for example in Kemijärvi. There are slaughterhouses for reindeer in all countries. Transports of reindeer is not included in the AADT figures.

[33] https://www.svt.se/nyheter/lokalt/norrbotten/allt-farre-dricker-mjolk-norrmejerier-lagger-ned-i-lulea--h54rxu

Farmers

In the WP1 region in Norway, milk is produced 37 out of 48 Municipalities. The 6 largest milk producing municipalities are Alta /Finnmark), Balsfjord (Troms), Tana (Finnmark), Vestvågøy (Nordland), Målselv (Troms) and Kvæfjord (Troms). Together the produce 50% of the total in the Norwegian WP1 region.

The largest meet producing municipalities are Vestvågøy (Nordland), Kvæfjord (Troms), Balsfjord (Troms), Harstad (Troms), Sortland (Nordland) and Hadsel (Nordland). Together the produce close to 50% of the total.

In Norrbotten , milk is produced in 7 out of 14 municipalities. Based on the number of animals, more 40% is produced south of Luleå (Piteå). Boden is the second largest and Kalix ranking as the third largest. It is estimated that close 50% of the milk in Norrbotten is produced north of Luleå, and along/close to the selected corridors.

Meat is produced in most of the municipalities. The 6 largest meet producing municipalities north of Luleå are Boden, Kalix, Älvsbyn, Övertoneå, Haparanda and Överkalix. Together the produce around 48% of the total in Norrbotten. The largest number of animals are found in Piteå and Luleå.

In Lapland, milk is produced in 14 out of 21 municipalities. 30% is produced in Tornio. The 6 largest milk producing municipalities are Tonio, Ylitornio, Tervola, Posio, Rovaniemi and Sodankylä. 77% of the total in Lapland originated in these municipalities.

Like other municipalities in the WP1 region, meat is produced in most of the municipalities (18). The 6 largest meet producing municipalities are Muonio, Kemijärvi, Simo, Utsjoki, Savukoski and Kemi. Together the produce close to 90% of the total in Lapland. Muonio counts for mora than 50% of Lapland's meat production. 70% of the production in Muonio is pork.

7.8 PETROLEUM COMPANIES

The following petroleum companies operates in the region:

Northern Finland

ABC is owned by S-Group[34]. They have stations that cover the whole of Finland.

Neste Gas Stations is owned by Neste[35] and is Finland's largest chain of gas stations and consists of Neste gas stations and Neste Express refrigerated stations, and truck stations intended for heavy vehicles.

Northern Sweden

OKQ8 is owned by OK-Q8 AB and is one of Sweden's largest gas station companies.

Preem is owned by Mohammed H. Al Amoudi (Saudi Arabia). The company[36] is Sweden's largest refinery company for fuel and operates several hundred petrol stations.
The company supplies more than half of Swedish industry with heating and other oil products. Preem has a cooperation agreement with Uno-X, which operates several gas stations in Norway under the brand names YX and Uno-X.

Ingo and Ingo/Jet Ingo is a petrol station brand owned by Circle K (formerly Statoil Fuel & Retail). Ingo filling stations are located to Sweden.

Q-star is owned by the company Qstar Försäljning AB, which also owns the brands Pump and Bilisten. Qstar operates several stations in the countryside and in smaller towns in Sweden.

Northern Norway

Exxon Mobil Corporation owns ESSO. The company operates several petrol stations in Norway.

Best is Norway's only retailer-owned gas station chain. Stations are foundall-over Norway.

YX/Uno-X
Preem (Sweden)has a cooperation agreement with Uno-X, which operates several gas stations in Norway under the brand names YX and Uno-X.

In more than one country

Shell/St1 is owned by St1[37]. The company has several petrol stations in Northern Finland, Northern Sweden and Northern Norway. Shell/St1 has also facilitated heavy vehicles (forklifts) at many stations.

Alimentation Couche-Tard Inc (Canada) owns Circle K. Circle K operates several hundred gas stations in Norway and Sweden. Several of the stations are adapted for larger vehicles (Circle-K truck)

[34] S Group is a Finnish group in the trade and services sector owned by its customers in Finland
[35] Neste Oil also owns Finland's only oil refinery located in Porvoo.
[36] Preem AB owns two refineries located in Preem AB, respectively. Gothenburg and Lysekil.
[37] St1 is established in all the Nordic countries and is headquartered in Helsinki. They have their own oil refinery in Gothenburg.