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# The Urban System of Eastern Norway

**by**

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*Urban Systems and Urban Networking in the Baltic Sea Region*

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**Introduction**

This study of the Norwegian urban system is limited to the counties of Oslo, Akershus, Østfold, Hedmark, Oppland, Buskerud, Vestfold and Telemark, commonly referred to as Eastern Norway («Østlandet»). The report is based on findings of the Interreg IIC project: *Urban Systems and Urban Networking in the Baltic Sea Region* carried out on behalf of the Committee for Spatial Development in the Baltic Sea Region (CSD/BSR).

The following presentation consists of three parts. First we will give a general analysis of the urban system in Eastern Norway including statistics and a brief history. Secondly, a more in-depth examination of large and important cities follows, including major activities, planning and development issues and interaction, both within the urban system and towards the BSR. The third and final part will summarise findings, present main results and assess Eastern Norway's position in a future division of labour in the BSR.

# Part I – General Analysis

## A. A description of the urban system in Eastern Norway today

Norway is a vast, rugged and mountainous country, and is in most accounts referred to as sparsely populated. However the statistical figure of 13,7 persons per square kilometre conceals substantial internal differences. Large tracts of the country are uninhabitable, due either to unfavourable terrain, climate or altitude. 40% of the area is forested, whereas only 4% are considered arable and the population, though scattered, is concentrated on a single per cent of the total area. If we look at average population density within areas defined as urban settlements, the number of inhabitants pr. $km^2$ climbs to 1 585, or 115 times the national total. The population is mainly concentrated along the coast and the main river systems. The current rate of urbanisation is approaching European average. 64 per cent of the Norwegian population live in urban areas of more than 2 000 inhabitants, and a total of 74 per cent of the population live in what is referred to as «continuously built-up areas» or urban settlements (Statistics Norway 1999).

### A1. WHAT IS AN URBAN AREA? AN OPERATIONAL DEFINITION OF URBAN SETTLEMENTS IN A NORWEGIAN CONTEXT.

The concept of a town or city has historically been related to royal privileges, and a city was only a city through special status granted by the sovereign. This concept is long since obsolete, as towns and cities have become functional urban settlements constituted through their position in an economic, functional and geographical division of labour. As a consequence, Statistics Norway presented a new definition of urban settlements in relation to the 1960 census. An urban settlement is here defined as "an area with more than 200 inhabitants as a rule living no more than 50 metres apart" (Statistics Norway 1960), not counting recreational areas, sporting grounds, industrial sites or natural obstacles. Residential clusters that are functional parts of the settlement may be included if the distance does not exceed 400 metres. Through this physical definition, urban settlements are separated from administrative entities such as municipalities. While urban settlements in some cases may straddle administrative borders, in other cases the urban area

constitutes but a fraction the total area, thereby making administrative entities largely unsuitable as units for analysis of urban systems as such.

Still one may argue that urban settlements have not been given proper recognition, as administrative entities have been the basic units for statistics, planning and administration. Traditionally urban settlements were revised every ten years as part of the general census, and borders manually drawn on paper maps, thus robbing the concept of urban settlements of some of its inherent dynamic. However, in the last few years a new methodology to delimit urban settlements has been developed by Statistics Norway, combining public registries with high-definition satellite images to distinguish urban from rural areas. Through the application of this GIS (Geographical Information System) planners and administrators may reappraise the dynamics of the concept. In this paper, though, I will have to use figures for administrative entities as a proxy where data for urban settlements are not available.

## A2. URBAN SETTLEMENTS IN EASTERN NORWAY – KEY FIGURES

According to the definition presented in A1, there were 361 urban settlements in Eastern Norway in 1998, and a total of 890 settlements for the country as a whole. Most settlements in Eastern Norway are small, as only 4 out of 10 have more than 1 000 inhabitants. The larger settlements contain the lion's share of the population, however. While three fourths of the population in the region live in settlements of 1 000 inhabitants or more, with Oslo being by far the largest, a mere 4,7% live in the 208 settlements with less than 1 000 inhabitants. Oslo is the only settlement with more than 100 000 inhabitants, and dominates all of Eastern Norway through having a full third of the total population in the region. I will return later to the dominant position held by the capital.

**Table 1. Population in urban settlements and rural areas in Eastern Norway 1998**

| Size class | Number of settlements | Population | % of total population |
|---|---|---|---|
| > 100 000 inh. (Oslo) | 1 | 750 404 | 34,6 % |
| 100 000 – 10 000 inh. | 22 | 543 747 | 25,1 % |
| 9 999 – 1 000 inh. | 130 | 337 616 | 15,6 % |
| 999 – 200 inh. | 208 | 102 528 | 4,7 % |
| Rural areas | | 436 264 | 20,1 % |
| Eastern Norway | 361 | 2 170 559 | 100,0 % |

Source: Statistics Norway

Figure 1 displays all urban settlements in Eastern Norway with more than 2 500 inhabitants, 68 settlements in all. The circles are proportional, and illustrate how Oslo is by far the largest urban settlement in the study area as well as in the country, with 750 404 inhabitants. Several other characteristics of the urban system in Eastern Norway are also clearly visible. The geographical distribution of settlements form a somewhat lopsided triangle, referred to by Selstad (1999) as «the inter-city triangle», as Lillehammer, Skien and Halden are the respective corners of the area served by InterCity railway lines in Eastern Norway.

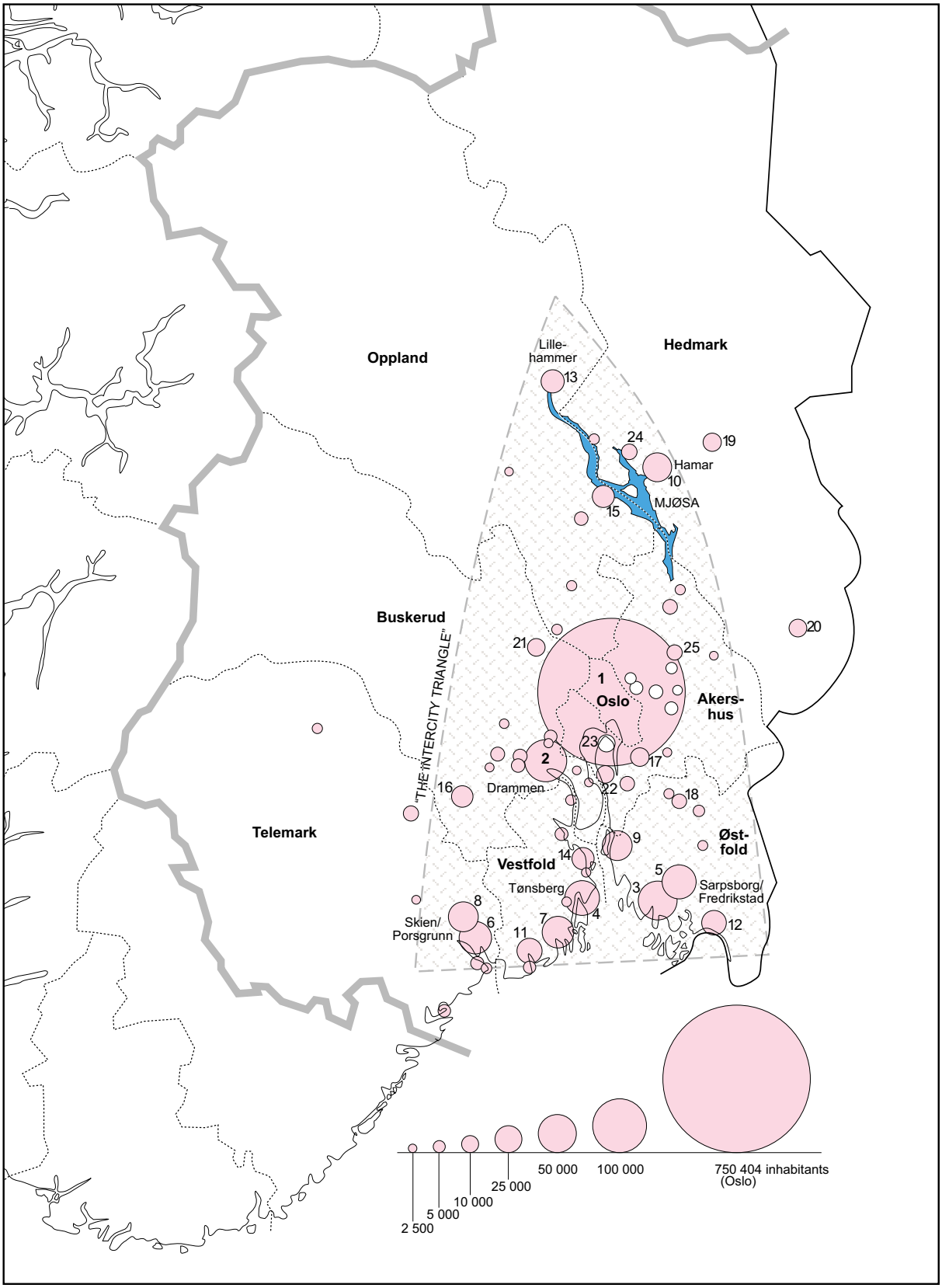


**Figure 1. Spatial structure and urban settlements of 2 500 inhabitants or more (1998) in the study area. Numbers refer to rank in table 4.**

Metropolitan Oslo apart, there are several urban agglomerations or conurbations in the study area, with Sarpsborg/Fredrikstad and Skien/Porsgrunn in Østfold and Telemark respectively

being the most pronounced. Drammen in Buskerud also has several smaller settlements in close proximity, but rather than being the focal point of a conurbation in its own right, Drammen is part of metropolitan Oslo. North of Oslo a number of settlements are located around central and northern parts of Lake Mjøsa, and though calling this a conurbation may seem farfetched, hope is that local co-operation may produce synergies to combat the massive influence of Oslo. The cities in Vestfold are located as pearls on a string along the coast, yet are not perceived as a conurbation. Although the area serves as an integrated labour market through extensive inter-city commuting, the area has a more «suburban feel» through local emphasis on residential qualities.

**Table 2. Population, rate of urbanisation and changes 1990 – 1998**

| | 1990 | | | 1998 | | | Change 1990-1998 | |
|---|---|---|---|---|---|---|---|---|
| County | Inhabitants in urban settlements | Inhabitants in all | Percentage in urban settlements | Inhabitants in urban settlements | Inhabitants in all | Percentage in urban settlements | Increase in urban population | Overall population change |
| Østfold | 186 628 | 238 296 | 78,3 % | 194 322 | 243 585 | 79,8 % | 4,1 % | 2,2 % |
| Akershus | 352 331 | 417 653 | 84,4 % | 393 652 | 453 490 | 86,8 % | 11,7 % | 8,6 % |
| Oslo | 453 374 | 461 190 | 98,3 % | 497 450 | 499 693 | 99,6 % | 9,7 % | 8,3 % |
| Hedmark | 91 590 | 187 276 | 48,9 % | 95 909 | 186 118 | 51,5 % | 4,7 % | -0,6 % |
| Oppland | 87 689 | 182 578 | 48,0 % | 92 938 | 182 162 | 51,0 % | 6,0 % | -0,2 % |
| Buskerud | 166 333 | 225 172 | 73,9 % | 175 054 | 232 967 | 75,1 % | 5,2 % | 3,5 % |
| Vestfold | 154 866 | 198 399 | 78,1 % | 165 586 | 208 687 | 79,3 % | 6,9 % | 5,2 % |
| Telemark | 116 525 | 162 907 | 71,5 % | 119 078 | 163 857 | 72,7 % | 2,2 % | 0,6 % |
| Total | 1 609 336 | 2 073 471 | 77,6 % | 1 733 989 | 2 170 559 | 79,9 % | 7,7 % | 4,7 % |

Source: Statistics Norway

Table 2 shows urban and total population in the eight counties of Eastern Norway in 1990 and 1998 as well as changes in the period. In all counties the urban population was growing faster than the total population, but the picture is not uniform. Oslo and Akershus have by far the most people and the highest urbanisation rates. Hedmark and Oppland are the least urbanised counties in the region, both barely topping the 50% -mark in 1998. Even though urban population has increased in the two counties, both have experienced declining total population from 1990 to 1998. Out-migration has been particularly pronounced in the most remote, rural areas, leading demographers to speak of an «Ageing Belt» stretching across northern Hedmark and Oppland westward into Sogn og Fjordane county. Here rural communities have experienced population decreases in excess of 10% over the past ten years.

The rate of urbanisation in Eastern Norway as a whole was 5-6% above national average in both 1990 and 1998. However, only Akershus and Oslo have had urban population growth rates above national average (8,6%) in the period. Akershus, Oslo and Vestfold have also had total population increases above national average (4%) and population in the region as a whole has increased slightly more than national average.

**Table 3. Population increase 1990 – 1998 in Eastern Norway**

| County | Increase in urban settlements | Overall increase | Share of urban increase | Share of overall increase |
|---|---|---|---|---|
| Østfold | 7 694 | 5 289 | 6,2 % | 5,4 % |
| Akershus | 41 321 | 35 837 | 33,1 % | 36,9 % |
| Oslo | 44 076 | 38 503 | 35,4 % | 39,7 % |
| Hedmark | 4 319 | -1 158 | 3,5 % | -1,2 % |
| Oppland | 5 249 | -416 | 4,2 % | -0,4 % |
| Buskerud | 8 721 | 7 795 | 7,0 % | 8,0 % |
| Vestfold | 10 720 | 10 288 | 8,6 % | 10,6 % |
| Telemark | 2 553 | 950 | 2,0 % | 1,0 % |
| Total | 124 653 | 97 088 | 100,0 % | 100,0 % |

Source: Statistics Norway

However, examining growth rates horizontally (county by county only) does not give the full picture of population change in the region. If we read the table vertically and look at share of total increase in the region (table 3), Oslo and Akershus have had 69% of the growth in urban population and 75% of the overall growth. As the two counties have the highest growth rates this is not entirely an effect of sheer size alone, but an illustration of how population growth in the region is concentrated to the centre both in real number and percentages.

So far, I have argued that there are substantial inequalities within the region between central and more peripheral areas. If we are to define Eastern Norway as a coherent region, it is as a functional urban region at a high level of aggregation. As already mentioned Oslo dominates Eastern Norway through being the largest city, and the region comes across as a series of lower-level functional regions trying to cope with being overshadowed by the metropolitan area of the capital. Figure 2 illustrates the imbalance in the urban system.

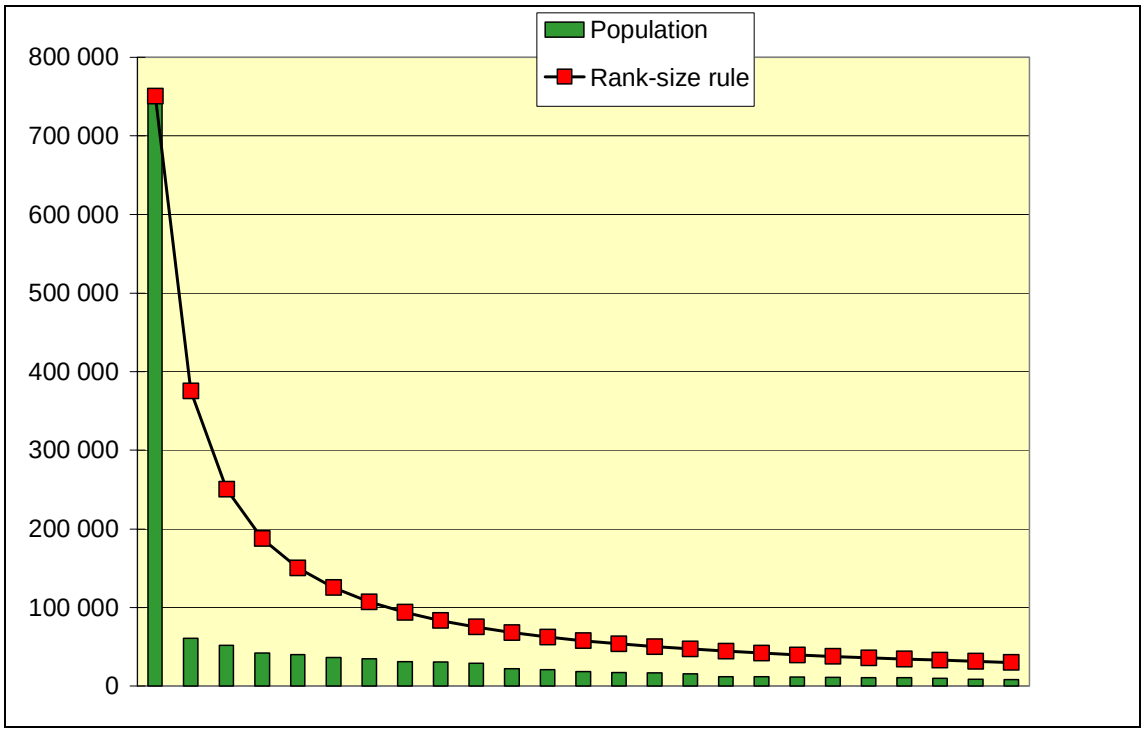


**Figure 2. Population in the 25 largest urban settlements in Eastern Norway 1998 (after Selstad 1999)**

In 1941 G.K. Zipf postulated the rank-size rule in an attempt to explain the relationship between settlement rank and size (Daniel & Hopkinson 1991). Stating that the population of a settlement ranked $n^{th}$ will be $1/n$ the population of the largest settlement, the rank-size rule has been applied to evaluate the degree of balance in national urban systems. In figure 2 we have applied the rule to the urban system of Eastern Norway, clearly illustrating Oslo's extreme primacy in the urban system. One may argue that the rank-size rule cannot be expected to fit a capital region, but if applied on the national urban system, the outcome would be analogous if not as imbalanced, thereby underlining Oslo's dominance in a national context as well.

Table 4 gives an overview of the population development in the 25 largest settlements in Eastern Norway from 1960 to 1998. As we can see, all settlements enjoyed high growth rates in the 1960s, whereas the picture was more differentiated for the 1970s and 1980s. Through the 1990s all settlements were back on the positive side, with Oslo being among the biggest gainers percentagewise.

**Table 4. Population in the 25 largest urban settlements in Eastern Norway 1960-1998**

| | | Population | | | | | Growth rates | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | **Urban settlement** | **01.11.60** | **1.11.1970** | **1.11.1980** | **03.11.90** | **01.01.98** | **1960-1970** | **1970-1980** | **1980-1990** | **1990-1998** |
| 1 | Oslo | 581 179 | 645 413 | 642 954 | 685 530 | 750 404 | 11,1 % | -0,4 % | 6,6 % | 9,5 % |
| 2 | Drammen | 50 169 | 56 521 | 56 863 | 58 717 | 61 045 | 12,7 % | 0,6 % | 3,3 % | 4,0 % |
| 3 | Fredrikstad | 45 228 | 51 141 | 51 284 | 50 179 | 52 033 | 13,1 % | 0,3 % | -2,2 % | 3,7 % |
| 4 | Tønsberg | 31 641 | 36 374 | 36 788 | 38 333 | 41 627 | 15,0 % | 1,1 % | 4,2 % | 8,6 % |
| 5 | Sarpsborg | 31 888 | 36 449 | 39 889 | 39 772 | 39 885 | 14,3 % | 9,4 % | -0,3 % | 0,3 % |
| 6 | Porsgrunn | 25 257 | 32 613 | 35 304 | 35 172 | 36 319 | 29,1 % | 8,3 % | -0,4 % | 3,3 % |
| 7 | Sandefjord | 23 935 | 28 660 | 31 370 | 32 718 | 34 514 | 19,7 % | 9,5 % | 4,3 % | 5,5 % |
| 8 | Skien | 27 807 | 29 592 | 28 151 | 29 328 | 30 825 | 6,4 % | -4,9 % | 4,2 % | 5,1 % |
| 9 | Moss | 21 328 | 27 430 | 29 665 | 29 363 | 30 651 | 28,6 % | 8,1 % | -1,0 % | 4,4 % |
| 10 | Hamar | 18 263 | 25 138 | 27 022 | 27 569 | 28 792 | 37,6 % | 7,5 % | 2,0 % | 4,4 % |
| 11 | Larvik | 16 933 | 19 202 | 18 840 | 20 594 | 21 748 | 13,4 % | -1,9 % | 9,3 % | 5,6 % |
| 12 | Halden | 18 929 | 20 650 | 20 740 | 20 156 | 20 909 | 9,1 % | 0,4 % | -2,8 % | 3,7 % |
| 13 | Lillehammer | 11 901 | 13 743 | 15 416 | 16 754 | 18 506 | 15,5 % | 12,2 % | 8,7 % | 10,5 % |
| 14 | Horten | 15 804 | 17 246 | 16 678 | 16 043 | 16 903 | 9,1 % | -3,3 % | -3,8 % | 5,4 % |
| 15 | Gjøvik | 13 302 | 14 781 | 15 681 | 15 514 | 16 795 | 11,1 % | 6,1 % | -1,1 % | 8,3 % |
| 16 | Kongsberg | 9 817 | 11 813 | 14 199 | 15 032 | 15 907 | 20,3 % | 20,2 % | 5,9 % | 5,8 % |
| 17 | Ski | 5 453 | 9 773 | 10 733 | 11 299 | 11 833 | 79,2 % | 9,8 % | 5,3 % | 4,7 % |
| 18 | Askim | 7 210 | 8 413 | 10 302 | 11 330 | 11 734 | 16,7 % | 22,5 % | 10,0 % | 3,6 % |
| 19 | Elverum | 5 566 | 7 391 | 9 913 | 10 680 | 11 464 | 32,8 % | 34,1 % | 7,7 % | 7,3 % |
| 20 | Kongsvinger | 4 108 | 6 393 | 10 289 | 10 784 | 10 826 | 55,6 % | 60,9 % | 4,8 % | 0,4 % |
| 21 | Hønefoss | 10 490 | 12 219 | 11 316 | 10 582 | 10 681 | 16,5 % | -7,4 % | -6,5 % | 0,9 % |
| 22 | Drøbak | 3 719 | 5 588 | 7 111 | 8 508 | 10 602 | 50,3 % | 27,3 % | 19,6 % | 24,6 % |
| 23 | Nesoddtangen | 1 930 | 5 944 | 6 720 | 9 212 | 10 148 | 208,0 % | 13,1 % | 37,1 % | 10,2 % |
| 24 | Brumunddal | 4 099 | 5 559 | 7 103 | 7 876 | 8 345 | 35,6 % | 27,8 % | 10,9 % | 6,0 % |
| 25 | Jessheim | 2 252 | 4 379 | 5 528 | 6 392 | 7 977 | 94,4 % | 26,2 % | 15,6 % | 24,8 % |
| | Total | 988 208 | 1 132 425 | 1 159 859 | 1 217 437 | 1 310 473 | 14,6 % | 2,4 % | 5,0 % | 7,6 % |

Source: Statistics Norway

## A3. A FUNCTIONAL TYPOLOGY OF URBAN SETTLEMENTS

The definition of urban settlements in A1 only takes into consideration the physical distribution of dwellings, and is not sensitive to the various functions a settlement may serve in respect to other settlements as well as to a rural hinterland. Thus, we need a more functional, system-oriented definition when discussing urban systems and urban networking.

How then do we differentiate functionally between different kinds of urban centres? Professor Peter Sjøholt (Sjøholt 1997) at the Institute for Geography at the University of Bergen has presented a typology of urban centres developed with the Nordic context in mind. Sjøholt proposes a fourfold typology, based on the scope of services the centres may offer. His taxonomy consists of i) diversified service centres, ii) regional service centres, iii) specialised service centres and iv) production centres. Production centres may in turn be subdivided into production centres combined with specialised services and one-sided production centres. As scope and scale of services provided in the respective centres are the key variables in the typology, more diversified centres are placed above less diversified ones in the table. However, this should not necessarily be taken as implying the superiority of service centres over production centres.

According to Sjøholt, diversified service centres are both production and consumer oriented, but mainly production oriented. Regional service centres are mainly consumer oriented, whereas specialised service centres have above average activities in one or two service sectors while scoring below average in manufacturing industry. Production centres in turn play a key role in manufacturing, hence having location factors above average in this industrial category. The following table shows how Sjøholt defines the urban centres in Eastern Norway. Please note that this table does not include all settlements mentioned in table 4.

**Table 5. Classification of centres in Eastern Norway 1980 and 1992 (After Sjøholt 1997:319-20)**

| | 1980 | 1992 |
|---|---|---|
| **Diversified service centres** | | |
| *National* | Oslo | Oslo |
| **Regional service centres** | | |
| | Hamar<br>Lillehammer<br>Elverum<br>Kongsvinger | Tønsberg<br>Skien<br>Hamar<br>Lillehammer<br>Elverum<br>Kongsvinger |
| **Specialised service centres** | | |
| | Tønsberg<br>Skien | Askim |
| **Production centres** | | |
| *Comb. with specialised services* | Drammen<br>Fredrikstad<br>Moss<br>Larvik<br>Sandefjord<br>Hønefoss<br>Horten | Drammen<br>Fredrikstad<br>Sarpsborg<br>Gjøvik<br>Larvik<br>Moss<br>Sandefjord<br>Brumunddal<br>Hønefoss<br>Horten |
| *One-sided* | Sarpsborg<br>Porsgrunn<br>Gjøvik<br>Brumunddal<br>Halden<br>Kongsberg<br>Askim | Porsgrunn<br>Halden<br>Kongsberg |

As we can see, there have been changes in the hierarchy of centres from 1980 to 1992. Contraction in traditional industries and growth in the service sector has forced restructuring upon most of the one-sided production centres. Askim is a chief example, turning from a one-sided production centre into a specialised service centre in the course of the 1980s, as employment in industry was virtually eradicated through a plant closure. An interesting observation from a geographical standpoint is that the regional service centres as defined in the table are all located at quite some distance from Oslo, thereby escaping the gravitational pull of the capital area. The centres located in closer proximity to the capital are all placed in the lower tiers of the table, as they are less capable of sustaining independent, specialised services.

## B. The history of urbanisation in Eastern Norway

Three processes have been instrumental in shaping and developing the present urban system in Eastern Norway; industrialisation, urbanisation and the construction of infrastructure.

## B1. EARLY INDUSTRIALISATION AND URBANISATION IN EASTERN NORWAY

The history of urbanisation in Eastern Norway is mainly related to the industrialisation of the region over the last two centuries. Only Tønsberg, Skien and Oslo have been in continuous existence since medieval times, whereas the medieval sees of Hamar and Borg (present-day Sarpsborg) fell into decay, and were only re-established as cities after 1830. Before the start of the 19th century cities were of limited importance to the largely self-sufficient agrarian society, even though a number of mercantilist trading points had been established by royal decree and given urban status.

The mercantilist production system in Eastern Norway concentrated on the extraction and export of raw materials and export of lumber from break-of-bulk points at the mouths of major rivers. Norway's position in the division of labour within the Danish realm was as a supplier of raw materials, and gave rise to little urbanisation and industrialisation. However, these «layers of investments» (Massey 1995) have been of importance for later rounds of urbanisation, as many of the present urban settlements in the region have evolved from mercantilist trading posts.

Around 1800 the first wave of industrialisation hit Eastern Norway, inspired by the English industrial revolution. The fledgling industrialisation did not gain momentum, however, until steam-engine technology was introduced in Norway around 1830. At this time Oslo was the largest city in the region, having 15 000 inhabitants, but as the city combined rapid industrialisation with assuming new responsibilities as capital the population soared to 100 000 by 1875. While textile production was the leading sector of the first wave of industrialisation, transportation and mechanical industry now became the leading sectors. In this period Norway established itself as a major seafaring nation and a rudimentary network of railroads were developed. In the course of the 19th century the population in Norway almost tripled despite the emigration of 750 000 people to America.

Selstad refers to the period between 1880 and 1930 as being the «process revolution», as the development of new production processes were the driving forces of industrialisation. In the traditional lumber-exporting cities, pulp and paper factories were replacing sawmills and more advanced electrotechnical and electrochemical industries were established, powered by hydroelectric energy. Whereas energy-intensive process industries mostly located in cities other than Oslo, Oslo became the workshop of the region, producing machinery for other industries. By 1930 Oslo had quadrupled its population to reach 400 000 inhabitants. Already at this stage the urban settlement extended beyond the administrative borders of the city.

## B2. POST-WAR URBANISATION

Urbanisation in both Eastern Norway and the country as a whole came to a grinding halt in the 1930's, but regained its momentum after World War II. Reconstruction combined with more general trends of Fordist mass production to create a post-war boom lasting until around 1970. In this period, Oslo exploded, not only in terms of population but even more so in terms of size. Suburbs and housing projects were built on the perimeter of the old city, catering among other things to increased demands for comfort and higher standards of living.

However, urbanisation was not only strong in the biggest cities, but also in smaller urban settlements. Rationalisation in the agricultural sector provided a steady supply of people seeking employment in industry or, increasingly, in the growing service sector. The consequence was

wholesale centralisation at all geographic levels from national through regional to local, but the bigger cities were no longer in the forefront.

In the 1970s the centralisation processes were temporarily suspended, on the regional level at least, and a number of factors were responsible. Traditional industries all over the country hit hard times, giving rural households few incentives to move as there were no jobs to move to. At the same time local public employment increased through the development of a decentralised welfare state, providing incentives to move rather to the local centre, thereby perpetuating local centralisation. Other factors, such as «the green wave», were of more symbolic importance, but in sum lead researchers and politicians alike to claim that the settlement pattern was consolidated.

The 1970s were only a temporary reprieve, as centralisation hit new highs in the boom-days of the mid-1980s. In the period from 1980 to 1995 metropolitan Oslo regained its position as the fastest growing urban settlement in Eastern Norway. However, growth rates were highest in the surrounding communities to the southeast and southwest, and not in the inner-city areas.

## B3. PRESENT-DAY TRENDS AND FUTURE SCENARIOS

Oslo is the capital of Norway, by far the country's largest city, and as illustrated in figure 2 a primate city in both a national and regional context. In comparison to the 750 404 residents within the Oslo urban settlement the country's second largest city, Bergen, has a continuous urban settlement of 200 243 inhabitants. The second largest city in Eastern Norway is Drammen (61 045 inh.) in Buskerud, to the southwest of Oslo. The zone of influence exerted by Oslo stretches south on both sides of the Oslofjord well into Østfold and Vestfold as well as north to Mjøsa. The very size and growth potential of Oslo is regarded as a regional problem in its own right, as it overshadows the rest of Eastern Norway. Not even the largest of the other cities are capable of competing with the capital, giving rise to highly unbalanced growth in the region.

Consequently a key issue for planners and politicians alike in the region is how to distribute the growth more evenly without choking it. In a sense it boils down to what kind of urban system is desired in Eastern Norway in the future: a centralised system totally dominated by Oslo or a polycentric system where the larger conurbations may alleviate some of the pressures on the capital? Lending an ear to the European Spatial Development Perspective (ESDP), regional policymakers are most favourable to the latter.
The growth pattern of the capital provides in itself an incentive for a more balanced regional development. As nearby recreational areas are rigorously protected against urban encroachment, urban growth in the Oslo area has been directed along transport corridors going respectively to the northeast, southeast and southwest of the city. Such corridor growth leads not only to «growing pains» in the expansive areas, but also to an increasing dependency on private car use. Such a growth pattern is considered unsustainable with reference to ESDP, and consequently undesirable.

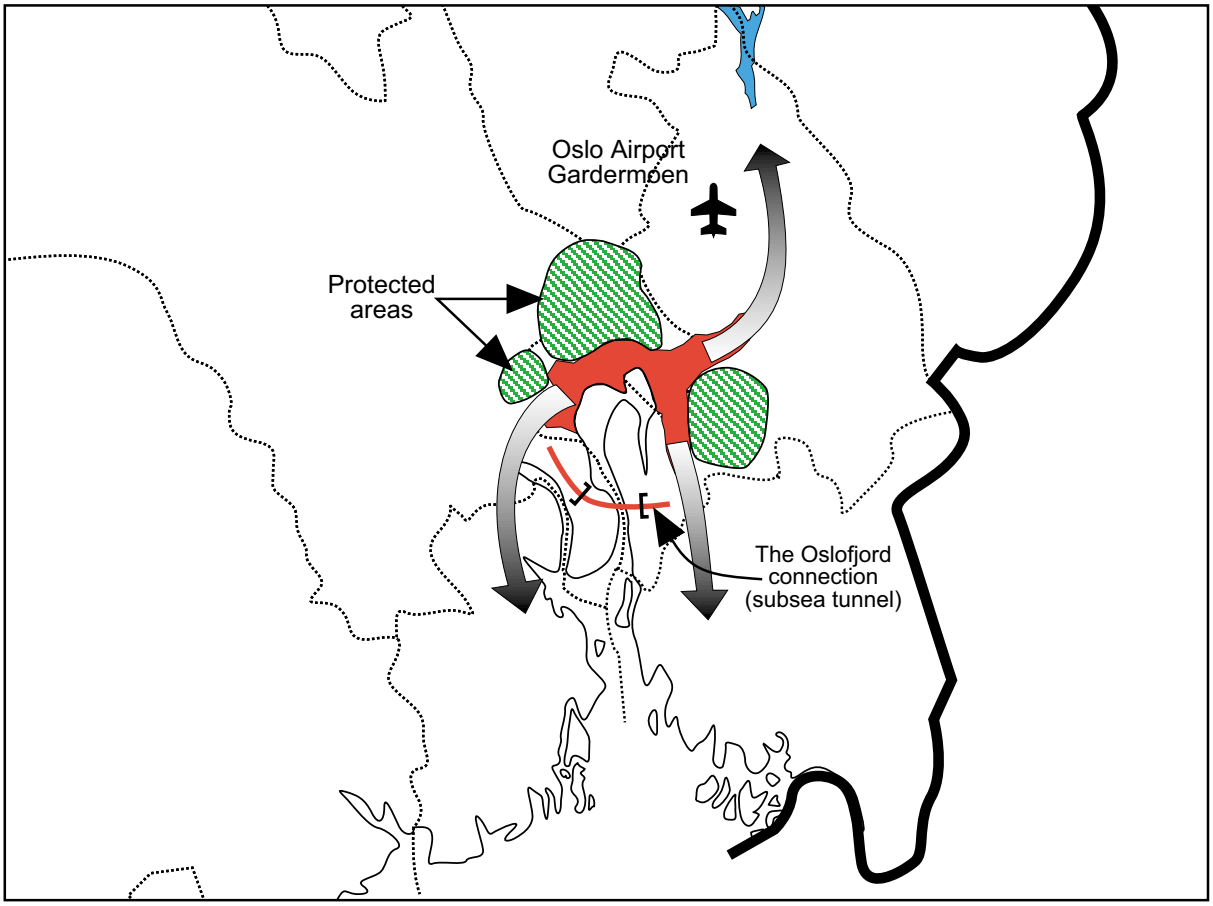


**Figure 3. Main growth axes and important infrastructure projects**

The Eastern Norway County Network, which is a co-operative body constituted by the eight county administrations in Eastern Norway, recently published a SWOT-analysis for the region (Østlandssamarbeidet 1999). The analysis was conducted as part of BSR Interreg IIC-programme no. 21 «Metropolitan Areas; Regional Systems of European Capital – Strategies for a Sustainable Development». With the achieval of a more balanced regional development being the basic objective, the major challenges identified in the SWOT-analysis were related to industrial restructuring propelled by growth in the service sector and increasing use of ICT, to urbanisation causing «growing pains» in expansive areas and contractive problems in rural areas, and to the increasing importance of infostructure[1] as the most important infrastructure in the region. Other issues, such as improving public transportation to discourage private car use, maintaining the competitive edge for trade and industry in a globalising world, and preserving environmental qualities were also emphasised.

In a report commissioned as part of the project and already quoted in this paper, geographer Tor Selstad at Østlandsforskning presents two scenarios for future urban system development in Eastern Norway (Selstad 1999). His trend scenario (superimposing present trends on the future) is one of an Oslo-dominated urban system, where most of the impetus to growth has been funnelled into metropolitan Oslo. The alternative scenario is one of a polycentric urban system, where careful and determined planning has curtailed growth in the centre while stimulating viable conurbations on the perimeter. Which scenario will be closer to the truth is very much a question of political priorities on local, regional and national level.

[1] The term «Infostructure» refers to the various kinds of infrastructure required by the information society, e.g. broadband networks, mobile communications etc.

## C. Rural areas in Eastern Norway

Communities on the perimeter of the Eastern Norway-region are currently experiencing declining population figures and an ageing population. The young are moving to the cities, leaving the older generations behind. The reasons to leave may vary; rationalisation and contraction in traditional sectors along with increased levels of education make it difficult or undesirable for some to find employment back home, whereas others are attracted by the bright lights of the big city and all it has to offer.

This tendency towards marginalisation of the periphery is most evident in northern parts of Hedmark, Oppland and rural parts of Telemark, where several municipalities have lost in excess of 10% of the population over the past ten years through out-migration. This way, urban centres sap the very lifeblood out of the rural communities, as they attract the potentially most dynamic, competent and creative cohorts of the population. The ones that stay behind are left to face declining employment in private sector and increased care-taking responsibilities for the ageing population.

# Part II – Large and important cities

## A. Selection of cities for further study

Part I has described the urban system in Eastern Norway, given key figures, presented a functional typology of urban settlements, and provided a historical backdrop for the urbanisation of the region. Part II will focus on the large and important cities in the region, mainly the settlements in Sjøholt's typology, as presented in table 5.

## B. Mapping and interpreting major activities

### B1. PRODUCTION

### B1.1. Activities in key settlements

Eastern Norway has traditionally been the industrial heartland of Norway, but processes of de-industrialisation and growth in the service sector have to a certain extent offset this status. In this section I will use Sjøholt's typology as presented in A3 to differentiate between the various urban settlements to be included in the further analysis.

**Diversified service centres** are both production and consumer oriented, but mainly production oriented:

Oslo dominates Eastern Norway, and is a diversified service centre on a national scale. While being the workshop of the country in the early years of this century, Oslo is today more thoroughly de-industrialised than the rest of both region and country. However, Oslo is still among the most important industrial settlements in the country through the effect of sheer size. Oslo has also to a great extent served as a node for the diffusion of new industries and services to other parts of the country. Present-day Oslo is dominated by the tertiary and quarternary sectors, hosting both substantial public and business administrative functions as well as all kinds of complementary services.

**Regional service centres** are mainly consumer oriented, and many have substantial administrative responsibilities:

Tønsberg is the administrative centre of Vestfold county and a major commercial centre in the area. Previously important sectors such as shipyards and shipping have declined, but various branches of industry are still important to the area. Tønsberg has a surplus in employment opportunities, attracting commuters from a wide area.

Skien houses the county administration of Telemark, and is the leading commercial centre in the county. Skien has been and still is a centre for pulp and paper, but also has important food and beverage industry. Forms the Grenland agglomeration along with neighbouring Porsgrunn, an

agglomeration rich in industrial traditions and one of the most thoroughly industrialised areas in the country.

Hamar is the administrative centre of Hedmark, and is located in one of the best agricultural regions in the country. As a consequence Hamar has significant agricultural industry as well as food and beverage industry.

Lillehammer is the county administration of Oppland, and came to world fame through hosting the 1994 Winter Olympics. In addition to some forestry industry, Lillehammer has some manufacturing industry, a large military facility and is the commercial centre for a large area. As industrial employment has declined sharply, the city's main functions are commercial and administrative. Lillehammer also has a regional college and a social science research foundation.

Elverum provides consumer oriented services for an extensive rural hinterland in Østerdalen, but is dominated by forestry industry, hosting both production and administrative facilities. In addition Elverum has food and beverage industry, pharmaceutics and some construction industry. Military activities, part of a regional college and health care are important sources of public employment.

Kongsvinger was designated as growth pole by public authorities in the 1970s, but as the growth-pole policy was diluted through political bickering on a national scale, the initiative had limited effect. A concept for state-owned industrial parks was first implemented at Kongsvinger, and is home to a wide range of industries. A section of Statistics Norway was relocated to Kongsvinger as part of a state-sponsored campaign to spread the growth in public administration to places outside the capital in the 1980s. Present-day Kongsvinger is dominated by consumer oriented services, but also has some light industry.

**Specialised service centres** have above average activities in one or two service sectors while scoring below average in manufacturing industry:

Askim in central Østfold is a formerly one-sided production centre once dependent upon rubber industry producing footwear and tyres. While the footwear production relocated to Southeast Asia in the 1970s, a series of international mergers and acquisitions in the tyre industry lead to the plant being shut down in 1991 and the production equipment shipped off to China. Sjøholt based his classification on data from 1992, a time when Askim was trying to get to grips with their new reality, and has since then evolved into a centre of commerce for central Østfold with substantial commuting to Oslo.

**Production centres** play a key role in manufacturing, but specialised and consumer oriented services are becoming increasingly important:

Drammen has long traditions for industry, and as many other cities in the region pulp and paper have been important. Today Drammen has a diverse industrial structure, as well as extensive roll-on-roll-off harbour facilities. Almost all cars imported to Norway pass through Drammen harbour. The city also hosts administrative facilities for Buskerud county, as well as hospital and regional college.

Fredrikstad has together with nearby Sarpsborg been one of the main industrial agglomerations in Eastern Norway, and even though employment in industry has declined, it is still above national average. Fredrikstad has a significant food and beverage industry as well as electrotechnical and mechanical industry.

Sarpsborg is also based on pulp and paper industry, from which the company Borregaard developed into one of the country's largest industrial conglomerates, specialising in chemical industry. Mechanical and manufacturing industry is also of importance in Sarpsborg.

Gjøvik by Lake Mjøsa is dominated by mechanical industry in addition to being a commercial centre for the region to the northwest of Mjøsa. Other important industries are production of car parts at nearby Raufoss, forestry products and agricultural products.

Larvik is dominated by pulp and paper industry, but also has a notable stone industry. In addition the city has important harbour facilities with daily ferry connections to Denmark, as well as some mechanical and food and beverage industry.

Moss is yet another settlement dominated by pulp and paper industry, giving rise to the infamous «reek of Moss», as the cardboard plant in earlier days made the entire city smell of hydrogen sulphide. The smell is gone but pulp and paper is still important. In addition Moss has successful industries specialising in manufacturing and specialised garments (Helly-Hansen). Ferry across the Oslofjord to Horten.

Sandefjord was formerly a powerhouse in Norwegian shipping and whaling, and even though shipping is still of some importance manufacturing, chemical industry and the service sector are most important. Sandefjord has daily ferry connections with Strömstad in Sweden.

Brumunddal is to a large extent built around a factory producing various forestry products, but owes most of its recent growth to restructuring in agriculture and the increased importance of the service sector.

Hønefoss is dominated by forestry and construction industries, and also hosts several military facilities. The Norwegian Geographical Survey was relocated to Hønefoss in the 1980s as part of the campaign to spread the growth in public administration.

Horten is a former one-sided production centre that has gone through a successful restructuring after the shutdown of the Norwegian Naval shipyard in the late 1980s. Since then Horten has developed an expansive hi-tech industry, based in part on the know-how and competence of previous Navy suppliers. Ferry to Moss.

Porsgrunn is part of the Grenland industrial agglomeration, and is dominated by a huge electrochemical complex at Herøya where Norsk Hydro produces fertilisers, and a similar petrochemical facility at Rafnes. In addition Porsgrunn has manufacturing, cement, and tableware industry, and houses Norsk Hydro's industrial research centre.

Halden is located on the border to Sweden, and has its industrial basis in pulp and paper. However in the last few years Halden has asserted itself as a hi-tech city, fuelled (literally) by the city's nuclear research facility and telecom industry.

Kongsberg is another former one-sided production centre that has gone through a restructuring following the closure of state-owned industry. Kongsberg was highly dependent upon the city's armaments factory, which, ironically, was established by royal decree in the early 19$^{th}$ century to replace the employment of the city's ailing silver mines. Over the years the factory evolved into an industrial conglomerate, so that when the mother company folded in the late 1980's the local production system was capable of spawning a number of successful companies, many of them specialising in ICT and hi-tech. The defence section itself was restructured and privatised, and is currently thriving.

## B1.2. Research and development

In modern economies research and development are becoming increasingly important, both as ways of gaining new knowledge for existing industries and by serving as incubators for prospective entrepreneurs in new and emerging industries. Research and development functions are usually located in central areas in connection to corporate headquarters or educational institutions, and Eastern Norway is no exception. Table 6 gives an overview of the distribution of employment in research and development in the region and in the country as a whole. Please note that the table shows figures for administrative, not functional, entities.

**Table 6. Employment in research and development, man-years[1], 1997.**

| | Real numbers | | | | Per cent | | | |
|---|---|---|---|---|---|---|---|---|
| Regions | Total | Commer-cial R&D | R&D institu-tions | Univer-sities & colleges | Total | Commer-cial R&D | R&D institu-tions | Univer-sities & colleges |
| Oslo | 8 001 | 3 042 | 2 347 | 2 612 | 32,1 % | 29,2 % | 31,4 % | 37,0 % |
| Rest of Eastern Norway | 6 888 | 4 350 | 1 939 | 599 | 27,6 % | 41,8 % | 26,0 % | 8,5 % |
| Rest of Norway | 10 046 | 3 018 | 3 177 | 3 851 | 40,3 % | 29,0 % | 42,6 % | 54,5 % |
| Total | 24 935 | 10 410 | 7 463 | 7 062 | 100,0 % | 100,0 % | 100,0 % | 100,0 % |

[1] The term "man-year" is equivalent to 1750 hours, which is the normal workload over a year.
Source: Norwegian Research Council
(http://www.forskningsradet.no/bibliotek/statistikk/indikator_1999/tabelldel/a-2-14.html)

The table clearly shows that Oslo is the single most important centre for research and development in both the region and the country, having a third of all national R&D employment or somewhat more than half the R&D employment in the region. The picture is more diverse, however, when we look at different kinds of R&D.

The number of man-years in commercial R&D are significantly higher in the rest of Eastern Norway than in Oslo itself, but this can be explained through the location of a number of commercial R&D facilities within metropolitan Oslo, but outside the administrative entity. Clusters of such activities can be found in several locations in metropolitan Oslo, with Kjeller and Lysaker being prominent examples. Among other important commercial R&D facilities outside Oslo is the nuclear research facility in Halden and Norsk Hydro's industrial R&D facility in Porsgrunn. It is worth mentioning that as the Norwegian Technical University is located in Trondheim, a significant technical R&D cluster is based outside the Eastern Norway region, rivalling the capital region as national leaders in technical R&D.

If we look at R&D institutions, the distribution of employment is in both regional and national terms similar to that of the total. R&D employment in universities and colleges is a different story, with Oslo having the lion's share of such employment in Eastern Norway, while at the same time being outscored by the remainder of the country in national terms. Oslo's prominence in the region can be explained as a by-product of the structure of higher education in the region, with a number of regional and junior colleges specialising in educating teachers, nurses, engineers etc, while at the same time having very little R&D activity. Also, a number of regional research institutions have been developed in conjunction with regional colleges, but the work conducted here falls into the "R&D institutions"-category. In national terms, the University of Oslo is the largest academic institution in the country, but the other three universities as well as technical and business schools elsewhere in the country combine to account for more R&D employment.

### B1.3. Tourism

Oslo is the chief tourist attraction in the region, with a great number of museums and historical buildings. Oslo is also a major transit point for tourists en route to other parts of both region and country. The coastline along the Oslofjord, and particularly the coast of Vestfold, is a very popular recreational area for vacationers from within the region.

## B2. DISTRIBUTION

The typology of urban settlements in Eastern Norway in part I, B2, gives an overview of the hierarchy of service providers in the region. Oslo is the main, if not only, provider of higher-order services. Oslo is also the focal point of most distributive networks and is the main harbour in the region. In addition, a substantial number of area extensive logistics facilities have been established along the major north-south transport corridor through Østfold and Akershus.

All of the settlements in the typology are important centres of retail trade, but inner-city areas have in many cases faced stiff competition from shopping malls outside the urban centres. Located on extensive plots with ample parking, these shopping malls are based on private car use. In an attempt to reduce private car use in compliance with international environmental treaties, the Ministry of the Environment issued a moratorium stopping all further developments of car-based shopping malls outside the largest cities.

The distribution of public services in Eastern Norway, and in the country as such, is based on a general principle of equal access for all, regardless of place of residence. Due to long distances, this has lead to the development of a decentralised system of most kinds of public services. Of course, specialised services have to be centralised, but all municipalities are required by law to maintain a certain level of utilities, primary education and health care. Whereas primary health care is a municipal responsibility, secondary care (i.e. hospitals) is a responsibility for the counties.

## B3. CIRCULATION

Eastern Norway has a simple topography by Norwegian standards, thereby facilitating the construction of adequate infrastructure. This provided little advantage in the days of seaway travel, but as overland transportation has developed road- and rail-networks have become a comparative advantage for the region at least in a national context. When compared to other European countries, however, the region comes up short, having to rely on single-track railways and single carriageway main roads.

### B3.1 Road and railways

Oslo is the hub of the transportation system in Eastern Norway, as all major roads and railway lines pass through the capital. The present-day geographical division of labour in Eastern Norway can to a certain extent be explained through regional infrastructure. The E6 going north–south on the east side of the Oslofjord is the main artery for road transportation in and out of the region, and accordingly transport-intensive businesses have located in this area. The southwestern side of the Oslofjord is seen as having higher residential and recreational qualities, and although intersected by a secondary artery, the E18, industries here are somewhat more knowledge

intensive. With the forthcoming completion of the Öresund-connection, there is no reason to believe that traffic along the eastern corridor will decrease in the years to come.

Through the 1990s several major infrastructure investments have been made in central parts of the region north of Oslo. In relation to the Winter Olympics at Lillehammer in 1994 both roads and railway lines through the area were given major facelifts. The construction of the new airport at Gardermoen, which was opened in 1998, has been another substantial public investment scheme in the region. Other parts of Eastern Norway have not been as fortunate, as traffic overload causes both gridlock and numerous accidents. The E18 through Vestfold and Telemark is notoriously bad in that respect, as the traffic load is far greater than the capacity of the single-carriageway road. As most of the long haul road transportation generated in this area has to pass through Oslo enroute to the main markets, this adds further to the gridlock. The sub-sea Oslofjord tunnel (see figure 3) is to be completed in 2000, but due to limited access road capacity regional authorities expect it to be of limited significance. In order for trade and industry in the region to be able to keep abreast with the competition, a further upgrading of infrastructure is therefore deemed to be of crucial importance by both local and regional authorities.

In 1999 the Ministry of Transportation and Communications published a National Transportation Plan outlining plans and investments in the years to come. To lobby its cause the Eastern Norway County Network produced a report summarising the infrastructural needs of the region. In what was referred to as the Eastern Norway package, the network proposed a 6 billion EURO rail-and-road development scheme to alleviate some of the pressure on infrastructure in Eastern Norway. A significant amount of the funds in question were allocated to developing collective means of transportation, as public transportation is being emphasised by central authorities to comply with international environmental agreements. As for the development of adequate roads, a major proportion of the revenue needed was to be collected through user-payment.

### B3.2 Air travel

Oslo Airport Gardermoen, some 45 km north of Oslo, was opened in 1998 to replace Fornebu just outside the capital as the main airport for civil aviation in Eastern Norway, and serves as the major hub for flights to and from Norway. In Norway air travel is quite common between domestic destinations, and as the handling capacity increased sharply when the new airport opened, price wars broke out between the major carriers, which in turn lead to an even sharper increase in domestic air travel. The only other major airport in the region is privately-owned Torp by Sandefjord, which has profited from dissatisfaction with the long travel distance to the new airport for people living to the southwest of Oslo, and is currently establishing itself as the region's number two airport. The apparent success of Torp airport has proved to be of great importance in developing commercial activities in the region.

### B3.3 Ports

More than 90% of both imports to and exports from Norway are transported by sea, and Eastern Norway plays an important part in the national system of commercial ports. The main ports in the region are Oslo, Drammen, Grenland/Larvik, Sarpsborg/Fredrikstad, Moss and Halden. As mentioned above, Oslo is the hub of the transportation system in Eastern Norway, and is the country's most important import harbour, dominated by containerised goods. In addition to having clearly national functions, Oslo is also the main port for the area around and to the north of the capital. Grenland is the most important export harbour in the region, and is dominated by bulk cargoes to and from the industry in the area. The various ports in Østfold are also predominantly oriented towards bulk cargoes and export activities.

The increasing use of containers in maritime transportation and the subsequent demand for adequate handling space has given rise to political debate on the future port structure in Eastern Norway. In order to develop the residential and aesthetic qualities of Oslo's waterfront, some have called for the removal of all container handling from the inner parts of the Oslofjord, but such drastic measures have been rejected in a government White Paper. Continued container handling in Oslo is recommended as the port is closely integrated with other logistic facilities, thereby minimising the need for expensive and polluting transportation between harbours and warehouses.

The White Paper also stresses the need to maintain a balanced port structure in the region, as this would best serve the needs of all commercial actors in Eastern Norway. A three-point solution for future port development is therefore recommended, with Oslo/Drammen, Grenland/Larvik and Sarpsborg/Fredrikstad being proposed as focal points for inter-municipal co-operation.

## B4. CONTROL

Eastern Norway is made up of eight counties and a total of 143 municipalities. The counties have responsibilities for regional public services such as hospitals, secondary education and public transportation, and were initially no more than associations of municipalities. As the public sector in general increased both in terms of scope and scale of services, the counties were formalised and democratised through the introduction of specific legislation and a popularly elected body. However, the counties have a somewhat limited influence, and many of the problems they are addressing have implications for larger regions. Table 7 gives an overview of counties, administrative centres and largest settlements.

**Table 7. Counties, administrative centres and largest cities**

| County | Administrative centre | Largest settlement |
|---|---|---|
| Østfold | Sarpsborg | Fredrikstad |
| Akershus | Oslo[1] | Ski |
| Oslo[1] | Oslo[2] | Oslo[2] |
| Hedmark | Hamar | Hamar |
| Oppland | Lillehammer | Lillehammer |
| Buskerud | Drammen | Drammen |
| Vestfold | Tønsberg | Tønsberg |
| Telemark | Skien | Porsgrunn |

[1] The Akershus county administration is located in Oslo for practical reasons
[2] Oslo has administrative responsibilities of both county and municipality

Municipalities have a wider scope of responsibilities than counties. The municipalities are providers of primary education, social and geriatric care, public utilities etc, and are also responsible for physical planning and regulation. This last point gives room for possible conflicts of interests and co-ordination problems with the counties, as counties are responsible for regional planning, but must rely heavily on municipalities to implement regional plans. A problem common to both is that their autonomy has been limited as more and more tasks are devolved to them by way of national directives, and that their own financial basis is insufficient to keep up with added responsibilities. Thus, local and regional government must rely on transfers from the state treasury, thereby relinquishing local and regional autonomy.

The administrative borders of the counties are artefacts from the time of Danish rule, and correspond poorly to present spatial structures. Consequently, politicians have started debating a wholesale revision of the county structure to create more potent instruments of regional administration and development. Municipality borders have been more subject to change. The number of municipalities increased sharply early in the 20th century to almost 700 for the country as a whole, but has since then been reduced through a number of reforms and mergers to the present day number of 435 municipalities. However, municipality borders are invoked with significant symbolic values, and a further reduction in the number of municipalities is not a political issue at present.

Even though local and regional self-governance is regarded as important, Oslo is for all practical purposes both the political, administrative and commercial fulcrum of the region. Private and public headquarters are to a large extent located within the Oslo urban settlement, even though a number of them are placed on green sites outside the Oslo administrative entity. As mentioned, a state-sponsored campaign in the 1970's attempted to relocate the growth of some public services to areas other than the capital, but with a few exceptions this campaign has been of limited effect. Ironically, while commercial enterprises relocate to modern facilities on the perimeter of the city, public functions are becoming increasingly dominant in the centre.

## B5. REPRODUCTION

### B5.1. Population dynamics

If we analyse population dynamics in Eastern Norway at county level, we will see that the predominantly rural counties of Hedmark, Oppland and Telemark were experiencing natural decreases in population in 1998. Hedmark had the highest natural decrease, with a birth deficit of 504 persons or –2,7 per 1000. The remainder of the region had a birth surplus, but the general trend is one of decreasing birth rates as smaller cohorts are reaching fertility. However, all counties in the region had overall population increases due to a substantial surplus in cross-border in-migration. Migrations are examined in more detail in section D1.

If we move closer and analyse population dynamics at municipality level, the general trend is one of natural decline in the most rural areas and an increasing birth surplus as we move closer to the centre. This may sound odd, as it is a basic demographic postulate that rural families have more children than do urban families. However, in some rural areas there are simply too few families in childbearing age to offset the natural decrease. As would be expected, in the most urban centres the fertility rates are lower than in the surrounding suburbs and residential areas.

### B5.2. Health care

Like the other Scandinavian welfare states, Norway has a comprehensive public health care system. Primary health care, ranging from GP physicians to geriatric care, is devolved to the municipalities. Hospital services are the responsibility of the counties, and are organised within a three-tier hierarchy, topped off by state-run special hospitals for those particular needs. The bottom two levels, being local and county hospitals, are present in all counties, and most settlements mentioned in section B1 have such hospitals. The counties are then aggregated in health care regions, each with a regional hospital, and Eastern Norway is divided into two such regions. Region 1 consists of Østfold, Akershus, Oslo, Hedmark and Oppland, whereas Buskerud, Vestfold and Telemark constitute Region 2, along with Aust-Agder and Vest-Agder.

However, both regions have their regional hospitals in Oslo, making the capital the sole centre for advanced health care in Eastern Norway. The clustering of advanced health care in Oslo is made even more pronounced through hosting several state-run specialised hospitals.

## B5.3. Education

Norway has a high level of education in the population, and this may in part be explained through several decades of determined efforts to create a decentralised system of education. Equal opportunities regardless of social or geographical origin have been cornerstones in developing the system of education. When compared with the OECD average, Norway has a significantly higher percentage of the working population with higher education, with 29 per cent compared to the OECD average of 22 per cent. Norway also scores above OECD average when looking at the percentage of the population currently under education, as do the other Nordic countries.

Oslo has, not surprisingly, the highest percentage of university or college graduates in both the region and the country, as we can see from table 8. Hedmark, Oppland and Østfold are at the other end of the spectrum, having the lowest percentages of residents with higher education.

**Table 8. Highest completed education in population, age 16 or older, October 1, 1997**

| | Persons, age 16 or older | | | | | Per cent* | | | |
|---|---|---|---|---|---|---|---|---|---|
| County | Total | Primary school | Secondary school | University or college | Unavail. or none completed | Total | Primary school | Secondary school | University or college |
| Østfold | 196 629 | 54 458 | 105 416 | 32 164 | 4 591 | 100,0 | 28,4 | 54,9 | 16,7 |
| Akershus | 352 681 | 65 509 | 179 749 | 96 563 | 10 860 | 100,0 | 19,2 | 52,6 | 28,2 |
| Oslo | 412 269 | 70 375 | 176 243 | 132 512 | 33 139 | 100,0 | 18,6 | 46,5 | 35,0 |
| Hedmark | 151 396 | 47 156 | 77 938 | 23 276 | 3 026 | 100,0 | 31,8 | 52,5 | 15,7 |
| Oppland | 148 161 | 43 300 | 79 454 | 22 675 | 2 732 | 100,0 | 29,8 | 54,6 | 15,6 |
| Buskerud | 186 795 | 48 397 | 99 126 | 34 166 | 5 106 | 100,0 | 26,6 | 54,6 | 18,8 |
| Vestfold | 165 959 | 36 978 | 91 858 | 33 222 | 3 901 | 100,0 | 22,8 | 56,7 | 20,5 |
| Telemark | 131 748 | 35 300 | 72 268 | 21 426 | 2 754 | 100,0 | 27,4 | 56,0 | 16,6 |
| Total Eastern Norway | 1 745 638 | 401 473 | 882 052 | 396 004 | 66 109 | 100,0 | 23,9 | 52,5 | 23,6 |
| Country total | 3 500 909 | 823 963 | 1 835 169 | 734 142 | 107 635 | 100,0 | 24,3 | 54,1 | 21,6 |

* Excluding “Unavailable or none completed”
Source: Statistics Norway 1998

Table 8 also shows that besides Oslo, Akershus and Vestfold counties have the highest percentages of graduates from higher education. The primacy of Oslo is even more pronounced when looking at persons with the longest university or college educations, of which one out of four for the nation as a whole live in Oslo. As Akershus also takes a significant bite of the national total, the two counties combine for more than 40% of the national total. This may increase even more in the future, as figures are even higher among the younger cohorts. Another interesting observation is that Oslo has a high number of persons whose educational status is classified as «unavailable or none completed». This refers mainly to immigrants from Africa and Asia, who make up a notable ethnic community in the capital.

**Table 9. Students enrolled in higher education**

| Regions | Students | Per cent |
|---|---|---|
| Oslo | 49 200 | 27,5 % |
| Rest of Eastern Norway | 30 416 | 17,0 % |
| Rest of Norway | 99 171 | 55,5 % |
| Total | 178 787 | 100,0 % |

Source: Norwegian Social Science Data Services' Database for Higher Education (DBH)

When looking at the number of students enrolled in higher education, it is clear that Oslo is the major national and regional centre for higher education. However, the relative importance of Oslo is somewhat less significant than in earlier days. Until 1946 Oslo had the country's only university, but as the number of people seeking higher education increased, universities were established in Bergen, Trondheim and Tromsø as well. Table 9 shows that Oslo still hosts more than a quarter of all students enrolled in higher education nation-wide, whereas the region of Eastern Norway accounts for 45% of the national student body. If we exclude the rest of Norway, Oslo has 62% of all students enrolled in higher education in Eastern Norway.

## C. Major planning, development and policy issues.

In Norway urbanisation processes have been regarded with considerable ambivalence, and the homestead or small farm still holds great symbolical value. As a consequence the government has repeatedly stated as an objective for regional policymaking to «maintain the central characteristics of the settlement pattern in its current state and to develop robust regions in all parts of the country» (St.meld.nr. 31 (1996-97), my translation). While focusing much attention on peripheral regions and their problems, urban areas have been regarded by policymakers as being the main culprits, responsible for the problems of the periphery. Regional policy has in many ways been rural policy, whereas urban areas have not been given priority as subjects of regional policy in their own right.

This is not to say, however, that policymakers and planners have been oblivious to the problems of urban areas. Initiatives have been taken to improve living conditions, improve physical surroundings and reduce social segregation in urban areas, to mention but a few. As problems of urban sprawl, land use conflicts, pressures on infrastructure, pollution and emerging social polarisation became ever more obvious, developing «sustainable urban areas» became a political priority. In order to achieve this goal, land use and transportation planning were co-ordinated and a set of national planning guidelines carved out. Also, representatives from the six largest cities in the country and nine ministries under leadership of the Ministry for the Environment, have set up the Major Cities Forum to address problems related to urban structure and transport patterns, city centres and qualities of life and housing (Schulman 2000).

In Norway less than 4% of the area is considered arable. Calculations by Statistics Norway have shown that urban areas (as defined on page 3) cover 0,7% of the total area, and conflicts between agriculture and urban sprawl are ripe. As a consequence, central authorities are emphasising the need to consolidate and densify the current urban areas, thereby reducing urban encroachment on valuable agricultural lands and recreational areas. As Eastern Norway comprises both some of the best agricultural lands in the country as well as being the most densely populated region, such considerations are highly relevant.

The government has also underlined the need to develop an urban structure that facilitates increased use of public or non-polluting means of transportation. As already mentioned, Norway subscribes to the general principles in the ESDP (European Spatial Development Perspective), meaning that various facets of the concept of sustainable development are emphasised in regional planning. Also, local and regional planning are seen as important means of democracy, in which the public at large may voice their opinions with respect to future development.

## D. Interaction and interdependence within the urban system

### D1. MIGRATION

Eastern Norway has in the last 50 years had a steady influx of movers from other parts of Norway, but there have been significant differences within the region. The two counties of Oslo and Akershus have been the main recipients of the in-migration, whereas more peripheral areas themselves have yielded migrants to the central areas. The 1970s proved a notable exception, as the centralisation processes were suspended in the years of economic recession, as was shown in section B2, part I.

However, a tendency of regional redistribution is visible in the official statistics, as Oslo in the past couple of years has had net out-migration, whereas Akershus has been subject to substantial in-migration. Table 10 shows how Oslo lost almost 4000 people to Akershus in 1998 alone. This is both a spillover- and life-cycle-effect, as there are fewer residential opportunities within the administrative borders of Oslo than in neighbouring Akershus. Oslo is for all practical purposes full to the brim, and further urban sprawl has to continue into neighbouring municipalities, where one may find affordable housing for growing families. The figures should not be taken as meaning that people are leaving a dilapidated inner city for a better life in suburbia, as various inner city areas are being redeveloped (gentrified) into trendy residential areas, but such opportunities are limited to the more affluent.

The counties of Østfold and Vestfold have both had relatively larger migration gains than Akershus. The winner regions in both counties are the larger urban areas within commuting distance to Oslo, so that residents may enjoy lower property prices while being able to continue working in the centre or possibly even telecommuting from home. Vestfold is particularly renowned for high residential qualities, and is underway to becoming the «Costa Geriatrica» of Eastern Norway as retirees from central areas settle permanently in their summerhouses. The municipality of Tjøme south of Tønsberg is a case in point, having had a 15% increase in population over the past ten years.

**Table 10. Net domestic migration[1] between counties and regions 1998.**

| | Total | Østfold | Akershus | Oslo | Hedmark | Oppland | Buskerud | Vestfold | Telemark |
|---|---|---|---|---|---|---|---|---|---|
| Østfold | 1 738 | . | | | | | | | |
| Akershus | 2 897 | -606 | . | | | | | | |
| Oslo | -1 248 | -454 | -3 883 | . | | | | | |
| Hedmark | 354 | -37 | 246 | -151 | . | | | | |
| Oppland | -213 | -23 | 85 | -65 | -81 | . | | | |
| Buskerud | 1 113 | -17 | 546 | 136 | -11 | 81 | . | | |
| Vestfold | 1 401 | 3 | 320 | 126 | 24 | 25 | 149 | . | |
| Telemark | 173 | 20 | 62 | -191 | -2 | 24 | -1 | -16 | . |
| Eastern Norway | 6 215 | -1 114 | -2 018 | 4 192 | -128 | 214 | -587 | -663 | 104 |
| Rest of country | -6 215 | -624 | -879 | -2 944 | -226 | -1 | -526 | -738 | -277 |

[1] Table reads horizontally as follows: Buskerud «lost» 17 migrants to Østfold, but «won» 546 from Akershus. Eastern Norway «won» 4 192 migrants from Oslo, whereas the rest of the country «lost» 2 944 migrants to Oslo.

Source: Statistics Norway

The table above does not include cross-border migration. Norway has had net in-migration from abroad to all counties through the 1990's, offsetting domestic deficits. Neighbouring countries and major trading partners have traditionally been the main suppliers of immigrants, but since the mid-1960s there has also been a steady stream of immigrants coming from countries in Asia and the third world. Table 11 below shows net immigration figures for the counties of Eastern Norway in 1998. Oslo and Akershus have the highest figures, accounting for more than half the net immigration, while the other six counties are clustered at 7-8 % with the exception of Hedmark. When looking at cross-border migration it is worth mentioning that a number of the immigrants are refugees or have been granted political asylum, and are settled in communities across the country as part of national plan to integrate them into the Norwegian society. Oslo is the only city in Eastern Norway with a notable ethnic community, where around 10% of the population are first or second generation immigrants from Africa or Asia.

**Table 11. Net immigration 1998**

| | **Net immigration** | **% of Eastern Norway total** | **% of overall total** |
|---|---|---|---|
| Østfold | 590 | 8,6 % | 4,3 % |
| Akershus | 1 643 | 24,1 % | 11,9 % |
| Oslo | 2 156 | 31,6 % | 15,6 % |
| Hedmark | 349 | 5,1 % | 2,5 % |
| Oppland | 506 | 7,4 % | 3,7 % |
| Buskerud | 548 | 8,0 % | 4,0 % |
| Vestfold | 505 | 7,4 % | 3,7 % |
| Telemark | 530 | 7,8 % | 3,8 % |
| **Eastern Norway** | **6 827** | **100,0 %** | **49,4 %** |
| **Rest of country** | **13 823** | | **100,0 %** |

Source: Statistics Norway

Cross-border migration figures are available at national level only. In 1998 Norway had a net immigration of 13 823 persons, of which almost 2 out of 3 were European, and some 45%

citizens of countries of the BSR. Immigrants from Asia were another major group, accounting for approximately 30% of the total. Of the BSR countries Sweden alone accounted for almost 50% of the BSR total, and more than ¼ of the overall total. The other Nordic countries along with Germany and Russia were other major suppliers of immigrants. However, as only limited parts of Norway, Germany and Russia are considered part of the BSR, these figures do not give the whole story on migration between Eastern Norway and the BSR.

**Table 12. Net immigration 1998 from BSR countries, excluding Norwegian citizens**

| | Net immigration | % of BSR total | % of overall |
|---|---|---|---|
| Denmark | 258 | 4,2 % | 1,9 % |
| Estonia | 18 | 0,3 % | 0,1 % |
| Finland | 726 | 11,7 % | 5,3 % |
| Germany | 870 | 14,0 % | 6,3 % |
| Latvia | 29 | 0,5 % | 0,2 % |
| Lithuania | 36 | 0,6 % | 0,3 % |
| Poland | 130 | 2,1 % | 0,9 % |
| Russia | 541 | 8,7 % | 3,9 % |
| Sweden | 3591 | 57,9 % | 26,0 % |
| **BSR total** | **6 199** | 100,0 % | 44,8 % |
| **Total** | **13 823** | | 100,0 % |

Source: Statistics Norway

Norway has had a formal moratorium on labour immigration in effect since 1975, but with a number of loopholes. Firstly, a Nordic common labour market has been in effect since the 1950s. Secondly, Norway is part of the common European labour market through the EEA-agreement (European Economic Area). This is a problem in relation to the non-EU BSR countries, as work permits are issued only to «personnel in special demand». This has resulted in a two-tier recruitment pattern, where Norway on the one hand recruits highly skilled, especially medical personnel, and on the other hand seasonal workers to do low-paid manual labour in agriculture. However, in light of the growing need for labour in Norway, proposals have been heard in the public debate to liberalise regulations. A working group commissioned by the Department of Local Government and Regional Development is currently assessing the problem.

## E. Cross-border interaction with other countries, cities and regions in the BSR

### E1. HISTORICAL TRADE RELATIONS WITH THE BALTIC SEA REGION

Norwegian relations with the BSR have been up and down through history. Even though Norwegian vikings concentrated most of their «efforts» on Western Europe, relations to the Baltic Sea Region were considered of vital important. Two of Norway's most famous kings of the age, Olav Tryggvason and Olav Haraldsson (St. Olav), both had close ties to Tallinn, the former as a slave and the latter as a saint.

As Norway fell into decay following the Black Plague in the mid-14$^{th}$ century, the Hanseatic League took over much of the trade between Norway and Europe. Bergen on the western coast was the focal point of interest for the Hanseatic League in Norway, as it was the break-of-bulk point for fish coming from northern Norway. The cities of Eastern Norway were of lesser importance to the Hansa, but exported some lumber and pelts.

The duchy of Courland, the present-day Kurzeme region in Latvia, had substantial economic interests in Norway in the mid-17th century. In addition to leasing the island of Flekkerøy outside Kristiansand as a port-of-transit for ships enroute to colonies in Africa and the Caribbean, Duke Jekabs of Courland in 1664 struck a favourable deal with the Danish-Norwegian king Fredrik III to mine for silver, lead, copper and iron in Norway (Ministry of Foreign Affairs 1997).

In the 19th century trade with the BSR had another upturn, which lasted until World War II and the emergence of communism on the eastern shores of the Baltic. Trade with the communist BSR states was very limited, but has been increasing steadily after the transition.

## E2. MODERN-DAY RELATIONS

The figures in the following section are national aggregates, meaning that the BSR regions of Norway, Germany and Russia may not be identified. Thus, the figures here presented have to be treated with some caution. Exports to the BSR totalled some 104 billion NOK in 1999, or almost 30% of the total export revenue. Imports from the BSR totalled 111 billion NOK, or 42% of the total import revenue.

Norway is among the world's leading oil exporters, with oil revenues accounting for almost one third of the country's total export revenues in 1999. With the exceptions of Sweden and Germany, none of the countries in the Baltic Sea Region are major buyers of Norwegian oil and gas. Norwegian trade with countries on the southern and eastern shores of the Baltic Sea has traditionally been modest. Although the political changes in the former Eastern Bloc have brought down barriers to trade, Norwegian exports to Estonia, Lithuania, Latvia, Poland and Russia accounted for less than 2% of the total export revenue in 1999, whereas imports accounted for less than 4% of the revenue (Statistics Norway 1999).

**Table 13a. Imports from other countries of the BSR, Norwegian total.**

| | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | Change 1993-1999 |
|---|---|---|---|---|---|---|---|---|
| Denmark | 12 704 | 14 231 | 15 740 | 17 136 | 17 757 | 18 803 | 18 238 | 44 % |
| Estonia | 112 | 229 | 273 | 283 | 469 | 660 | 646 | 475 % |
| Finland | 5 596 | 7 016 | 8 166 | 7 946 | 8 154 | 9 535 | 9 220 | 65 % |
| Germany | 23 167 | 26 759 | 28 837 | 30 107 | 34 151 | 38 075 | 34 112 | 47 % |
| Latvia | 156 | 150 | 504 | 357 | 238 | 367 | 404 | 158 % |
| Lithuania | 22 | 118 | 180 | 130 | 190 | 335 | 401 | 1 756 % |
| Poland | 804 | 948 | 1 094 | 1 273 | 1 729 | 1 972 | 2 480 | 208 % |
| Russia | 2 452 | 4 377 | 3 775 | 3 734 | 4 983 | 4 495 | 5 299 | 116 % |
| Sweden | 24 185 | 28 852 | 32 101 | 37 857 | 39 537 | 41 677 | 40 166 | 66 % |
| **Total** | **69 198** | **82 680** | **90 670** | **98 824** | **107 207** | **115 919** | **110 966** | **60 %** |

Source: Statistics Norway

**Table 13b. Exports to other countries of the BSR, Norwegian total.**

| | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | Change 1993-1999 |
|---|---|---|---|---|---|---|---|---|
| Denmark | 9 944 | 11 552 | 13 381 | 14 515 | 17 276 | 17 252 | 16 983 | 71 % |
| Estonia | 20 | 82 | 173 | 192 | 365 | 407 | 282 | 1 324 % |
| Finland | 5 778 | 7 378 | 7 306 | 7 171 | 7 181 | 8 206 | 8 109 | 40 % |
| Germany | 29 472 | 29 522 | 33 637 | 35 597 | 37 264 | 37 598 | 40 312 | 37 % |
| Latvia | 23 | 112 | 179 | 469 | 717 | 593 | 327 | 1 353 % |
| Lithuania | 24 | 109 | 199 | 345 | 411 | 390 | 288 | 1 126 % |
| Poland | 2 249 | 2 343 | 2 285 | 2 212 | 2 501 | 2 582 | 2 977 | 32 % |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Russia | 682 | 872 | 1 206 | 1 776 | 2 419 | 2 005 | 1 370 | 101 % |
| Sweden | 19 731 | 23 165 | 26 156 | 29 177 | 30 106 | 29 791 | 33 015 | 67 % |
| **Total** | **67 922** | **75 133** | **84 523** | **91 454** | **98 240** | **98 822** | **103 663** | **53 %** |

Source: Statistics Norway

As we can see from the tables above, Sweden and Germany are by far Norway's leading trading partners in the BSR, whereas the most substantial increases in trade have been with the three Baltic States. When looking at the different kinds of goods traded, a few things are worth mentioning. Norway is a major exporter of fish, crude oil and natural gas, and none of these products are produced in Eastern Norway. When looking at imports from the BSR, there is a duality where Norway imports a wide range of products from Denmark, Germany and Sweden, whereas imports from the other BSR are centred on fewer, and in most cases more labour-intensive products. Finland is a bit of an odd case, as more than 10% of the export to Norway is in telecommunications (i.e. Nokia mobile phones!). The main products from the Baltic States are clothing and some manufactured goods, and from Poland ships, who account for more than 20% of the export total. Norwegian imports from Russia are mostly raw materials, such as fish landed from Russian trawlers, lumber and metals.

# Part III – Summary and main results

## A. The urban system in Eastern Norway

In this paper we have discussed the urban system of Eastern Norway. We have demonstrated that while having almost half of Norway's total population, the region is thoroughly dominated by Oslo. The dominance of a single metropolitan area results in a highly unbalanced urban system where the impetus of growth is being channelled towards the centre at the expense of the smaller urban settlements. Consequently a key issue for planners and politicians in the region is how to distribute the growth more evenly without choking it. The question is what kind of urban system is desired in Eastern Norway in the future: a centralised Oslo-dominated system or a polycentric, ESDP-inspired system where the larger conurbations may alleviate some of the pressures on the capital?

## B. What are key issues addressed by regional and national planning authorities?

For years Norway has given priority to regional policies facilitating a robust development in all parts of the country, and much attention has been focused on peripheral regions and their problems. Urban areas have not been prioritised as subjects of regional policy, but saying that they have been neglected would be incorrect.

However, there is a growing awareness about urban problems, such as urban sprawl, land use conflicts, pressures on infrastructure, pollution and emerging social polarisation. This has resulted in a planning and development strategy aimed at creating «sustainable urban development». Ways to achieve this is through developing public transportation networks and developing the residential qualities of the urban settlements. Further, since only a small area of Norway is arable and since arable land often is situated close to cities, conflicts between agriculture and urban development are ripe. As a consequence national policy emphasises the need to densify current urban areas to create more compact settlements, thereby reducing urban sprawl. Thus, high priority has been given to public transportation in urban areas.

## C. Eastern Norway's position in a future division of labour in the BSR

A Norwegian proverb says «It's hard to make predictions, and particularly about the future», and this goes for Eastern Norway's position in a future division of labour in the BSR as well. The role of the region is very much contingent upon the future development of the European Union, with respect to both Norway's status of affiliation and the coming expansion of the EU into the BSR.

Norway, and by that Eastern Norway, has traditionally been highly Western-oriented with limited trade relations to the east. However, Norwegian investors have found business opportunities in

both niches and more mainstream sectors. Norwegian investors may be small fish in a big pond, but may yet be able to contribute to the development of the BSR.

Norway is by all standards a high-cost country, and will have to make use of the competitive advantages at hand, such a highly skilled workforce, modern and efficient production processes. According to Michael Porter, who recently visited the country, Norway should focus on core competencies within existing industries such as petroleum, seafood, shipping and metals, rather than try to develop new sectors. Today these industries export mainly raw materials or semi-processed goods, but may in the future become exporters of competence and know-how, Porter claims (Dagens Næringsliv, Dec. 7, 1999).

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