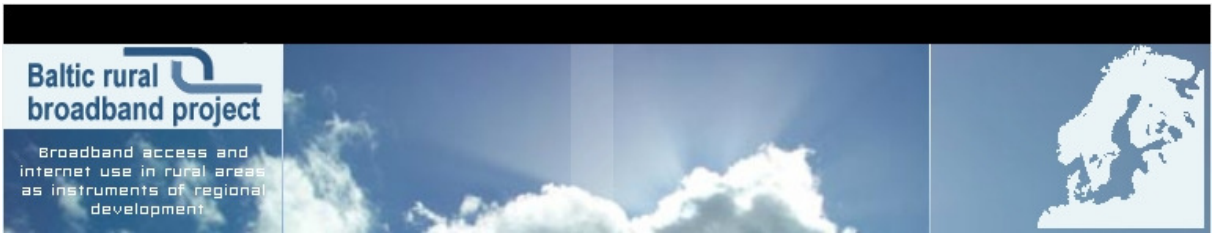


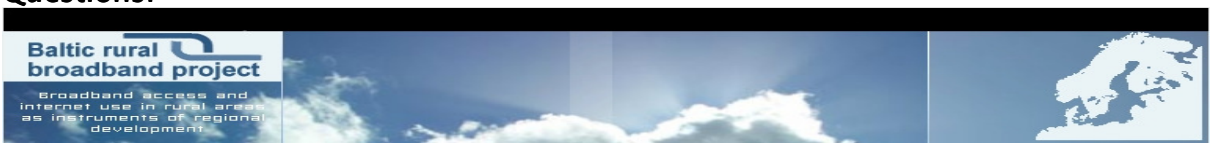
Baltic Rural Broadband Project

Baseline Situation

Rogaland / NORWAY

2007

Questions:



Chapter 1: Facts about the region

1.1: Demographic Information

Question 1.1.1: Structure of Population

The total population of Rogaland County is 404,566 inhabitants (2007), about 8.6 per cent of the population of Norway. The southern region of Dalane comprises four municipalities; Eigersund (13,594 inhabitants), Bjerkreim (2507 inhabitants), Lund (3120) and Sokndal (3266 inhabitants).

The Municipality of Stavanger has the highest population density in Norway, and even exceeds Oslo with its 1554 inhabitants per square kilometre. However, the same statistics for Rogaland County as a whole is only 44 persons per square kilometre, and for the Dalane region – a scarce 12 persons per square kilometre.

Question 1.1.2: Geography

The area of Rogaland County covers 9,325 square kilometres, some 2.9 per cent of Norway's total area. Stavanger is the largest town and the administrative centre in the county. There are 2102 islands in the county and the mainland coastal line is 1553 kilometres, a total of 2293 kilometres if islands are included as well. The flat land of Jæren, south of Stavanger, was cleared of stones and has been one of Norway's most important agricultural areas since the end of the 19th century. Local entrepreneurs industrialised the production of farming equipment, creating what is still a leading industry in Rogaland.

1.2: Economy

Question 1.2.1: Industry/Workforce

Rogaland is the most important region for oil and gas exploration and development in Norway. There is also a well developed industrial cluster related to the petroleum industry, with special know-how in deep well technologies.

Rogaland is one of the most important agricultural counties in Norway, measured in gross-product and man-years.

The seafood cluster including fish farming is well developed. Egersund (city-center of Dalane-region) and Karmsund ports are of national importance both for landing fresh fish and exports of frozen fish. Stavanger and Karmsund ports are important ports for exports and industrial purposes.

Service sectors, such as finance, hotel and restaurant services, wholesale, retail, and the public sector are also well developed.

Question 1.2.2: Economic power/Financial strength

Rogaland equals Oslo, Helsinkinki and Copenhagen areas in financial strength according to statistics. This is due to the cluster of petroleum industry and a related cluster in finance services and funds.

Question 1.2.3: Employment/Unemployment

Rogaland is the most important region for oil and gas exploration and development in Norway. There is also a well developed industrial cluster related to the petroleum industry, with special know-how in deep well technologies.

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Service sectors, such as finance, hotel and restaurant services, wholesale, retail, and the public sector are also well developed.

Rogaland had as of summer 2007 2.1 % unemployment, The public employment agency had at the same time a list of 15000 vacant jobs in the region. The import of workers from Poland, Estonia, Finland, Latvia, Lithuania, Germany, Netherlands, and Scotland is high compared with the number of people in the region.

Question 1.2.5: Costs of living

Costs of living are regarded as similar to Oslo and Copenhagen. Central parts of Rogaland County have a high cost of living. 500 square meter ground for a new house cost typical 140,000 Euro. A new house cost typical 4000 Euro per square meter in addition to the ground. The rural parts of the county have a significant lower cost of living.

1.3 Infrastructure

Question 1.3.1: Educational institution

The Rogaland region have 1 full university, 3 university colleges, 32 high schools providing both academic and vocational topics, and more than 200 primary and secondary schools. There is a 95 per cent coverage of kindergarten.

Question 1.3.2: Traffic & Transport

Rogaland is second only to Oslo in Norway regarding international traffic connections. The transport is well developed due to petroleum industry.

Question 1.3.3: Situation of living

Central parts of Rogaland County have a high cost of living. 500 square meter ground for a new house cost typical 140,000 Euro. A new house cost typical 4000 Euro per square meter in addition to the ground. The rural parts of the county have a significant lower cost of living.

1.4 Cultural analysis

Question 1.4.1: Skills tradition

Both former industries and present petroleum industries have a high emphasis on skilled workers. That means that many trades in Rogaland are dominated by skilled workers, not by academics

Question 1.4.2: Educational level

	Primary school	Upper secondary school	University and college – lower degree	University and college – higher degree
Total	32,8	42,4	19,3	5,5
16-19 years	88,4	11,6	0,0	0,0
20-24 years	30,0	54,3	15,5	0,2
25-29 years	20,2	40,4	32,8	6,6
30-39 years	19,1	43,2	28,5	9,2
40-49 years	27,2	42,5	23,5	6,9
50-59 years	25,0	48,1	20,4	6,5
60-66 years	31,4	47,0	15,9	5,7
> 67 years	47,3	40,8	8,9	3,0

1.5 Political climate

Question 1.5.1: Political mainstream

Public administration in Norway has a structure with the following elements: central government, county government and municipal government.

The administration of Rogaland County is located in Stavanger, and is responsible for county policies within the following fields: Secondary education, cultural affairs, communications, dental care, economic development and regional planning, including the development of the road system.

Statistics show without doubt that implementation of broadband is a high priority political issue in Norway, and that the area where users may connect covers a significant part of the country in terms of percentage of population. As parts of Norway are very low populated, these undeveloped areas still holds a significant percentage of the country in terms of square kilometre.

The public national documents referred to shows that it is a stated priority to invest approximate NOK 500 million to implement Broadband to all households in 2007 in Norway. An estimate of present status varies from 80 per cent to 95 per cent. It is reasonable to assume that this effort will provide infrastructure to more than 98 per cent within the year. The remaining houses and farm can be assumed to be so remote from common infrastructures that GSM or satellite will be more beneficiary in the near future.

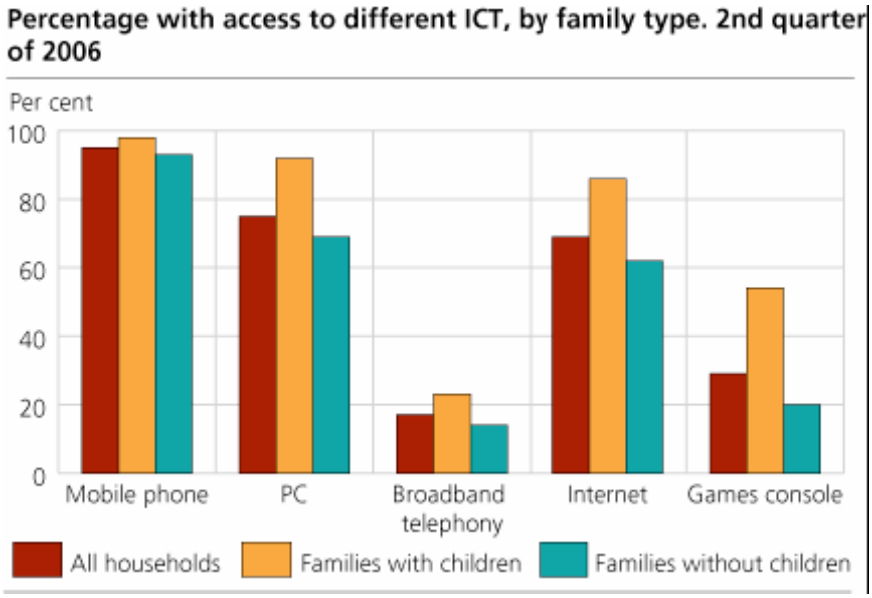
Chapter 2: Baseline situation ICT and broadband

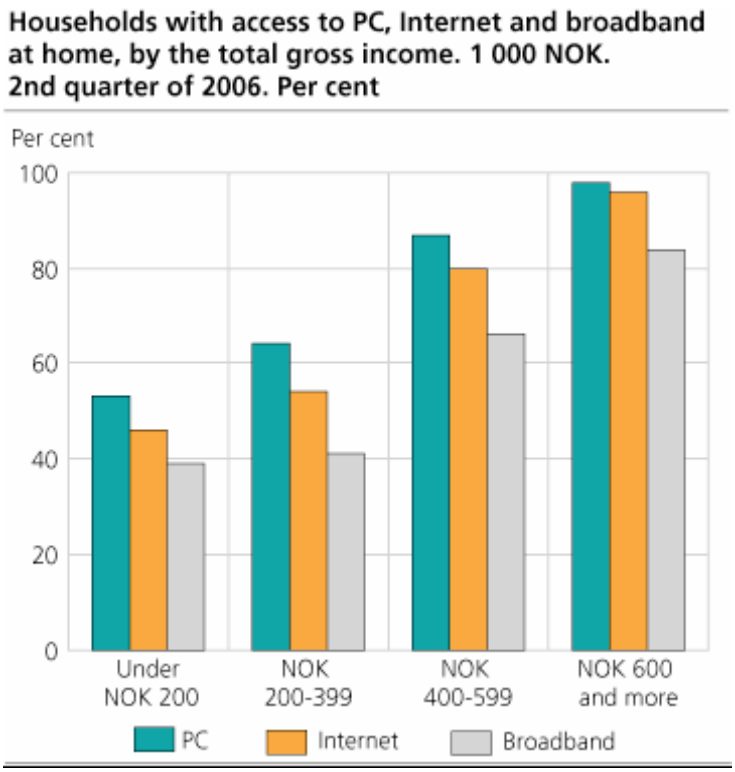
2.1: ICT access and use

Question 2.1.1: The ICT-sector/definition

Rogaland have few ICT software development companies. Most of the ICT industries are providers and service for other trades.

Question 2.1.2: ICT-use by population





Both graphs show figures for Norway in total.

Question 2.1.3: ICT-use in schools

All schools at all levels in Rogaland use ICT as a tool both in class and as communication between home and school, and between university and students.

Question 2.1.4: ICT-use by enterprises

2 Business broadband subscriptions. Subscription by transmission capacity and county. 1st quarter of 2007

	Broadband subscriptions (larger than 128 kbit/s)	Transmission capacity						
		> 128 kbit/s = < 384 kbit/s	> 384 kbit/s = < 512 kbit/s	> 512 kbit/s = < 704 kbit/s	> 704 kbit/s = < 1 Mbit/s	> 1 Mbit/s = < 2 Mbit/s	> 2 Mbit/s = < 8 Mbit/s	> 8 Mbit/s
The whole country	**133 915**	**11 148**	**7 558**	**1 887**	**16 662**	**28 894**	**64 862**	**2 904**
01 Østfold	6 458	446	542	71	788	967	3 615	29
02 Akershus	16 476	657	764	209	1 960	3 788	8 885	213
03 Oslo	30 899	5 871	1 269	286	3 685	6 786	12 396	606
04 Hedmark	3 981	109	332	20	473	773	2 229	45
05 Oppland	3 823	77	224	42	358	915	2 144	63
06 Buskerud	5 873	165	331	111	637	917	3 635	77
07 Vestfold	5 593	323	387	56	689	965	3 110	63
08 Telemark	3 578	119	230	87	412	665	1 973	92
09 Aust-Agder	1 906	82	180	26	216	375	994	33
10 Vest-Agder	3 352	96	239	27	637	705	1 565	83
11 Rogaland	10 925	756	454	355	1 767	3 281	4 047	265
12 Hordaland	10 875	560	532	81	1 622	2 316	5 536	228
14 Sogn og Fjordane	2 531	59	135	33	234	668	1 273	129
15 Møre og Romsdal	6 548	423	363	85	513	1 635	3 179	350
16 Sør-Trøndelag	5 804	197	353	88	896	1 181	2 996	93
17 Nord-Trøndelag	2 359	66	156	34	220	466	1 233	184
18 Nordland	7 177	792	553	186	727	1 390	3 252	277
19 Troms Romsa	3 175	182	275	70	312	538	1 751	47
20 Finnmark Finnmárku	2 139	160	181	18	264	485	1 014	17
Unspecified	443	8	58	2	252	78	35	10

Explanation of symbols

2.2: Broadband access and use

Question 2.2.1: Definition of broadband

Most broadband providers in Rogaland deliver 6 Mbit/s in 2007 for basic users.

Question 2.2.2: Overview of broadband access providers

Telenor is the incumbent telecommunications operator in Norway. The major operators include Telenor, NextGenTel, Chello, Bluecom and Catchcom. NextGenTel and Bluecom are currently reselling Telenor's lines and are also in the process of building their own networks. Chello is a cable operator.

Question 2.2.3: Overview of broadband users

The number of broadband subscriptions was 1,336,000 at the end of the first quarter of 2007, an increase of 267,000 since the end of the first quarter of 2006. Nine out of ten subscribers have a transmission capacity larger than 1Mbit/s. Only two municipalities have less than 20 private broadband subscriptions per 100 households. At the end of the first quarter of 2007, Norway had 1,202,000 private broadband subscriptions, a 25 per cent increase since the first quarter of 2006. In the same period, the number of business broadband subscriptions increased by 27 per cent to 134,000. 87 per cent of the private broadband subscriptions have a transmission capacity larger than 1 Mbit/s. 54 per cent exceed 2 Mbit/s.

The most central municipalities have the highest number of broadband subscriptions relative to the number of households (64 per cent), while this figure is 48 per cent in the remote municipalities. Only two municipalities have less than 20 private broadband subscriptions per 100 households. One year ago, 30 municipalities were in this situation. In the first quarter of 2007, 32 municipalities had between 20 and 35 private broadband subscriptions per 100 households, compared with 163 municipalities last year.

Question 2.2.4: Available Technologies

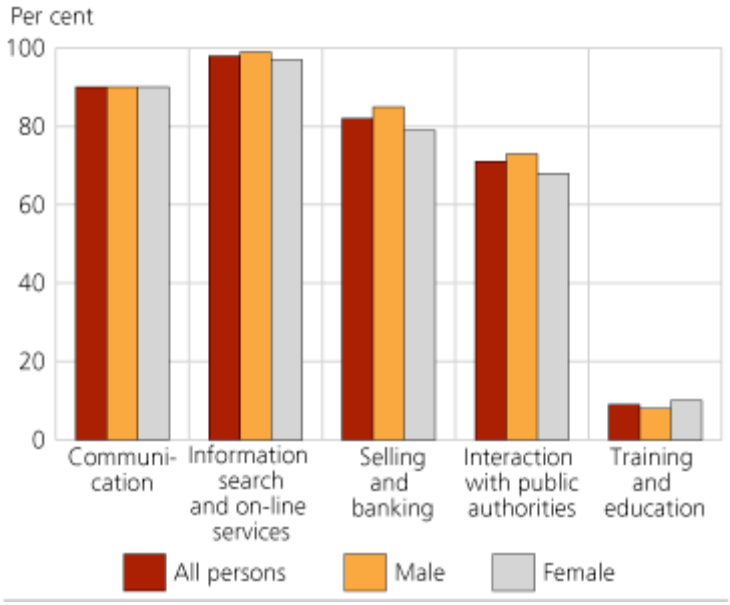
The majority of broadband connections in Norway are DSL. The initial DSL take-up was relatively slow but now it has been completely overtaken by cable broadband. In March 2005, the broadband penetration rate stood at 34.8 per cent and the broadband subscribers increased by 62 per cent from March 2004.

Norway's topography is more suitable for wireless access and is the leader in EU, with a wireless broadband market share of 1-2 per cent. It is estimated that around 45 percent households in Norway will have a broadband connection by 2008. Some operators launched VoIP trials in Norway in the first quarter of 2004.

According to the recent 'OECD broadband report 2006', the share of xDSL services is around 81 per cent with number of operators providing broadband services, reaching 18 as of March 2006. Norway also crossed the 21 per cent mark for overall population accessing broadband services where the average for 20 OECD countries is 13.6 per cent only.
Fixed-line penetration was around 73 per cent as of March 2006 with a subscriber base of around 3.36 million.

Question 2.2.5: Applications

Purposes of Internet use. 2nd quarter of 2006. Per cent



Question 2.2.6: General conditions/Legislation

Use and implementation of internet and broadband are encouraged by national and regional authorities. Main issues under debate regarding legislation are owner's rights/ copyright, and how to deal with unauthorised use and copies.

Basic legislation for the moment is that copying for your own home is ok as long as you own a users license (as employed etc) Copying for sale or other commercial purposes is strictly prohibited.

All hardware for private users has a two year warranty automatically as long as sold in Norway. Skilled work has normally 5 years warranty.

Chapter 3: Broadband strategies

Question 3.1 Objectives

It is stated on a national level in Norway and repeated at county and municipality levels that all people shall have a possible broadband access within short time. The timeframe differs from place to place, but it is a common decision from all political parties that all shall have possibility for access.

As a consequence of this common understanding there have been and are several implementation and utilization projects running all over Norway. Due to early investments in the petroleum sector, Rogaland have been ahead of most counties in implementation rate. And as a consequence, the discussion is much more on how to utilize broadband for public support, regional development, knowledge distribution, and the welfare of the citizens.

The public national documents referred to shows that it is a stated priority to invest approximate 500 million Norwegian kroner to implement Broadband to all households in 2007 in Norway. Estimates of present status vary from 80 - 95 per cent. It is reasonable to assume that this effort will provide infrastructure to more than 98 per cent within the year. The remaining houses and farm can be assumed to be so remote from common infrastructures that GSM or satellite will be more beneficiary in the near future.

HøyKom is a Norwegian implementation program (in operation since 1999) designed to increase the use of broadband in Norway.

- A programme promoting public sector innovation in Norway
- A political instrument for ICT policy and for making the public agencies more efficient and service-oriented at all levels
- Funded by the government over the national budget – EUR 15 million allocated in 2007

Scope of the program:

- Primary schools, secondary schools
- Local and municipal authorities
- Libraries and museums
- Hospitals, health and welfare institutions
- County administrations
- Colleges and universities
- County or region hospitals
- Central government bodies
- National public services, as for instance the National Mapping Authority

3.2 Measures

Inter-communal co-operation and application sharing

The BRB partners Ryfylke IKS and DalaneRaadet are organisations created for inter communal co-operation and the generation of regional development. As such they have accepted to develop organisations for common support of common systems and structure in each of the two areas. The questions are not if, but how to finance and how to get access to people with necessary knowledge to run, support and utilise the broadband systems. Both

Ryfylke and Dalane are in a development and utilisation process of the installed broadband structure.

Citizen Services and e-government
Both Ryfylke and Dalane have in the same way as most Norwegian counties a process running on how to improve service for citizens and how to involve people in e-government

Broadband use in the education sector
All schools in Rogaland County from primary school to university are using the "ItsLearning" content management system based on broadband access. This includes also most public and private post education providers. (Some of these use competing systems) In addition administrative common systems are used, but these vary with the level of education.

For the BRB project, the University of Stavanger is preparing several e-learning demonstration packages to use autumn 2007. These are programs that partly have been developed and are used for education and commercial purposes, or it is programs that are under development according to specifications of university or other customers. The programs will be tested and run with course participants both from Norwegian BRB partners, and the possibility to participate in these courses will be offered to all BRB partners. These programs with various topics are much more automated and utilize the broadband much more than the ordinary content management systems which in principle only move the manual course to an internet platform.

E-solutions for businesses
The utilisation of broadband for businesses varies a lot. Most companies in the petroleum sector have utilised it ac common tools for more than 10 years. Public organizations uses it same way as schools. SME's varies a lot from traditional companies with almost no computer and no internet to companies with extensive use. This depends on the age of the employees and the type of trade.

Broadband use in the health sector
Rogaland health sector is using broadband both internally and to communicate with hospitals and experts in other regions. All new medical data are on common databases.