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Building Iceland's Future

Several hundred construction workers, from China, Malaysia, Italy, Poland and other countries participate in the building of the dams and tunnels for the new hydro-power station Kárhafnjúkar in Eastern Iceland.

Photo: Odd Iglebaek



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Nordic Centre for Spatial Development

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Elections, regions and energy

On 31st March there was a municipal referendum in Hafnarfjörður outside Reykjavík. The question was whether the aluminium production company *Alcan* should be allowed to carry through with their plan to construct a number of new plants doubling their production capacity. By a small majority the inhabitants of the local community voted 'no' to *Alcan*'s plans.

In Iceland's parliamentary election, some six weeks later, it was the *Vinstri graenir* (The Left-Green Party) who enjoyed the largest gains in terms of votes, progressing from 8.8% in 2003 to 14.3% in 2007, and from five seats to nine.

One reason for the party's progress is their opposition to the construction of more aluminium smelters in Iceland. On the other hand, it could have more to do with their strong 'environmental' stance in relation to the building of large dams and hydro-power stations. Or finally perhaps it could be that their support for democracy at the grass-roots level gained them votes from disillusioned voters moving from other parties.

There is, in other words, more than one theory to explain the growth of The Left-Green Party. This is also underlined by the fact that the new *Íslandsbreyfingin* (the Iceland Party), who also fought for environmental protection, although on a right-wing platform, did not manage a breakthrough. They received 3.3% of the votes which was not enough, under the specific rules of the electoral system, to gain any seats in the parliament.

The most surprising thing about the election was perhaps however that the process of establishing a new government eventually ended up with a coalition of the two largest parties in the Parliament: *Sjálfstaedisflokkur* (The Independence Party also known as The Conservative Party) and *Samfylkingin* (The Social Democratic Alliance).

Together the two parties gained 63.4% of the votes and 43 of the 63 seats in Parliament. The Independence Party has 25 seats, an increase of three on the previous election. The Social Democratic Alliance, on the other hand, were reduced from 20 to 18 seats.

The new prime minister comes from the Independence Party, while the Social Democrats hold the posts of foreign minister, minister of industry and minister of environment.

Iceland's previous government was also a coalition though the Independence Party's partner there was *Framsóknarflokkur* (The Progressive Party). The Progressive Party were the big electoral losers however with the voters this time round. Their setback saw them fall from 12 to 7 seats and in percentage terms from 17.7% to 11.7%. As such they became a political liability for the governing Independence Party.

Energy and environment are important themes in Icelandic politics, as is regional development. At present, there is enthusiasm in Reydarfjörður for the new *Alcoa* aluminium smelter which opens there next year. Whether this will last, remains however to be seen. Discussion is currently taking place in a further two communities, namely Husavík and Helgúvík, in respect of similar solutions. In Dyrafjörður a debate is also taking place in relation to the site of an oil-refinery.

The need to secure local jobs remains a major factor behind these types of initiatives. From an Icelandic environmental perspective both the additional smelter projects have a distinct chance of being realised. The major reason for this is that it will not be necessary to construct more large dams or hydro-power stations to supply the electricity needed to service them. New installations and construction will be on a smaller scale and in water systems which have already been exploited. In addition, in respect of the Husavík development, there are plans to produce the electricity

needed through modern geothermal methods.

Greenland could also, in near future, join the club of countries supplying hydro-power electricity to the heavy energy consuming industries. On the 23rd of May a Memorandum of Understanding was signed between the international aluminium producer *Alcoa* and the Government of Greenland to this effect. Three communities in Greenland; Nuuk, Sisimiut and Maniitsoq will compete to secure the new industrial plant.

In total, there is talk of six hundred new jobs being packaged with the proposed aluminium smelter in Greenland. In Reydarfjörður on Iceland the figure of eight hundred jobs is mentioned. In terms of production volumes the two smelters are very similar in size.

Greenland has a population of 57 000. Iceland has 300 000. In both countries, and particularly in Greenland some immigration, internally or from abroad, is likely to be needed in order to secure the necessary workforce.

In *Journal of Nordregio* No 1 2007 we posed the question whether the power-intensive industries would leave Norden? Just a few days after our publication, it was announced that the Swedish paper company *Rottneros* planned to move their energy-consuming plants at Utansjö Bruk to South-Africa. Here, the company expects to be able to buy electricity at 0.15 SEK per kWh compared to the expected 0.40 SEK in the Nordic market, their spokesman says. ■

By Odd Iglebaek



The article on Nordic commuting to work in the same issue carried my name under it. That was a miss-print. The article was produced by research assistant Jobanna Roto and researcher Jörg Neubauer, both of Nordregio.



The new Alcoa Fjaardal aluminium smelter in Reidarfjörður is planned to start full production by 2008. Here on a cold May-day 2007. Photo: Odd Iglebaek

Creating a new 'Klondike' spirit

Eastern Iceland: – Many say it feels a rerun of the 'Klondike' experience with many people here getting very rich very quickly, says Helga Jónsdóttir. She is the mayor of Fjardabyggd, the municipality where the American aluminium-producer *Alcoa* is now building a new smelter. – At the same time, I would underline that Icelandic society is changing, we are getting more modern and more international, and that goes for all of us.

It is almost the middle of May. The weather is grey and there is a flurry of snow in the air. In Reidarfjörður the administrative centre of the municipality of Fjardabyggd it is however nice and warm inside the new shopping mall. The offices of the administration are located on the floor above. So notwithstanding the winter-storms, you only need to go down one flight of steps to get your daily dose of fresh fruit or vegetables. Considering that everything is imported, and the market is so small, it is fascinating to note that the selection and quality of produce available is as good as that in many of the high-street super-markets in Europe's capitals. Prices are not all that much high either.

A bit further along the fjord the new aluminium smelter is under construction. Two approximately 1 km long production halls are sited in parallel to the shore. Hundreds of people from all over the world, though most are Poles, work

full shifts here to get the job done. It is the US-based company *Bechtel* that is in charge of construction. They also arrange for the necessary labour. – Everything is going more or less according to plan and we have had no major accidents, says Hilmar Sigurbjornsson, PR-officer of *Alcoa Fjaardal*, the actual name of the production plant. – And if everything continues to go well, the new smelter will be able to run at full capacity with a yearly production of 364 000 tonnes of aluminium by the summer of 2008, he adds.

Fjardabyggd has approximately 6000 inhabitants plus 1600 guest-workers. – This has not however created any problems whatsoever, underlines Helga Jónsdóttir. There are weekly flights directly from neighbouring Egilstadir to Warsaw. In fact some of the permanent citizens in the municipality also come from Poland. They originally settled in Iceland to work like so many others in the fishing-industry. In total there are currently some 18 000 foreigners living in Iceland. Their share of the population has grown from around 2% in the past to a current high of some 6%. Less than one third of these foreigners however work in the construction industry. The majority are to be found in the health sector, hotel and catering and cleaning-companies.

A few years ago Fjardabyggd consisted of four separate municipalities, one in

each fjord:

– Now we are building tunnels like the Norwegians, and soon we will all be within driving distance of each other, explains Helga Jónsdóttir. – But maybe the best thing is that people are no longer at the mercy of local 'chiefs' for jobs. Now people can find work outside 'their' fjord and still return to their families in the evening, without having to negotiate with the lords of the fisheries, she explains.

The new aluminium smelter in Reidarfjörður will need a staff of 400 when it is up and running: – Thus far some 230, mostly local people, have signed on, but I do not think it will be a problem to attract the rest. What however could be a problem is the cost of housing. Prices has gone up by 20-30% in just a couple of years and will soon reach the levels of Reykjavik, explains Helga Jónsdóttir. She also reckons that there will be a need for another 400 new jobs in her community in addition to the 400 in *Alcoa Fjaardal*: – And that means a greater likelihood of attracting



Helga Jónsdóttir, mayor of Fjardabyggd.
Photo: Odd Iglebaek

schools and services, so it is definitely an exiting time to be here, she adds mentioning that she has previously worked both in Reykjavik and with the World Bank in Washington DC.

The neighbouring municipality is *Fljótsdalsbæjad*. It consists of the town *Egilsstaðir* with some 2600 inhabitants and a hinterland with an additional 800 inhabitants. Even though it is small, it is in many ways the capital of Eastern Iceland. It has an airport with several daily flights to Reykjavik. The flights take one hour compared to the 10-12 or more it takes to drive. The distance is much the same, some 620 km, whether you take the northern or the southern route, and the road surface can be quite rudimentary in places. In *Egilsstaðir* however it is prosperity that rules; the town has two good restaurants and a small golf course and has long been a hub for rich international salmon-fisheries. Mayor Eiríkur Bj. Björgvinsson, however, underlines that there are social problems here, and that he appreciates that the new economy provides better opportunities to solve them than was previously the case.

Some 600-700 metres above sea-level, on a windswept mountain plateau, there are complex housing several hundred construction workers. Many of them come from China, others from Malaysia, Italy or Poland. They are all here to finalize construction of the dams and tunnels for the new hydro-power station named *Kárahnjúkar*. The main building-company is Italian *Impregido*.

The man who flies in to check on the installation of transformers in the huge 35 meter high mountain cave called the turbine-and generator hall has a wife and a young son at home, that is just outside New Delhi. His name is Rakesh Chakraborty and he works for the French, or was it Swiss, company *Areva*. Rakesh's last job was in Morocco.

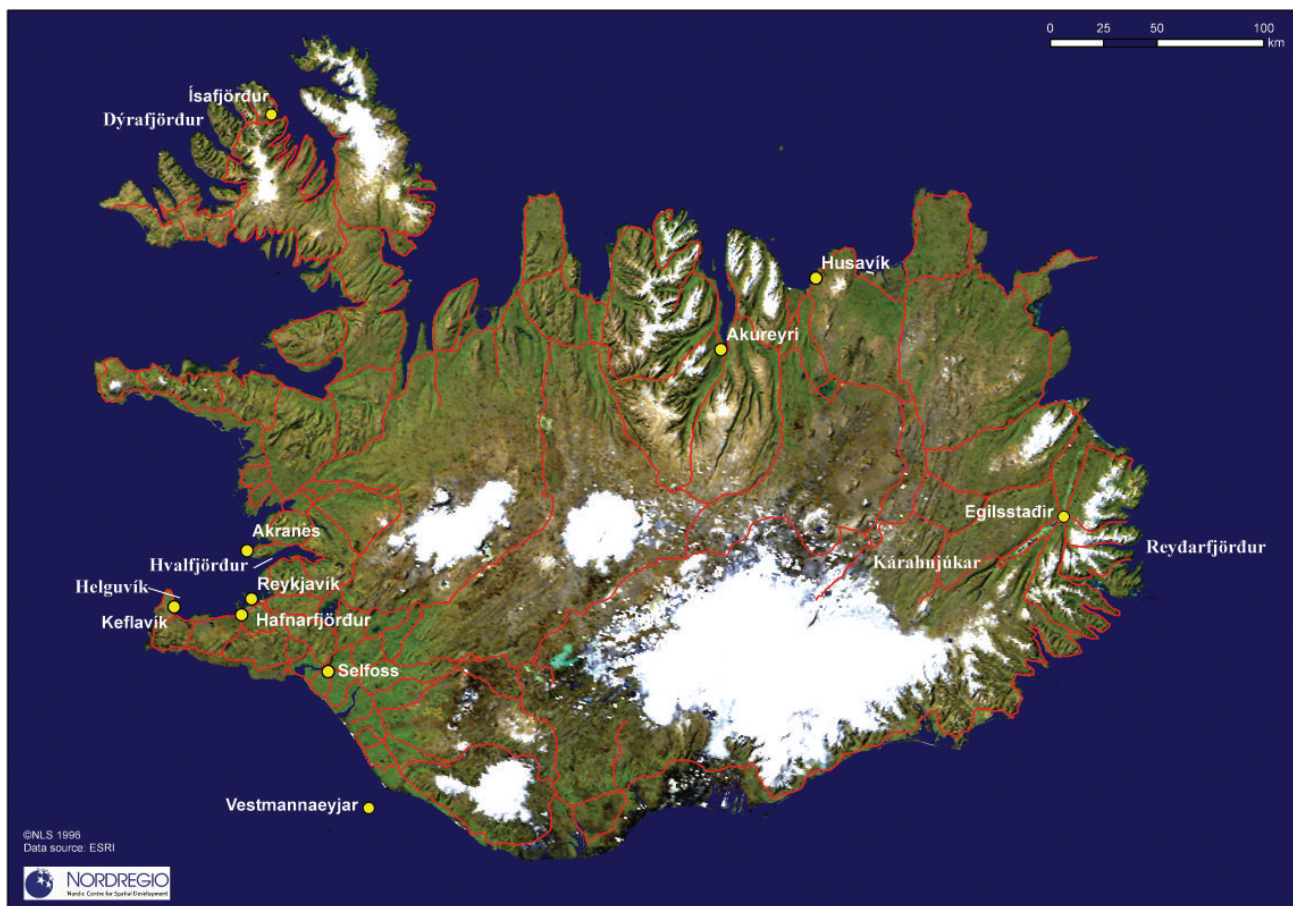
Definitively then an international community exists up here in the mountains, with, at present, some 1800 workers involved in the construction process. From late next year and onwards however it will dwindle to 20 on a permanent basis. That is the staffing needed to run the new power station.

Kárahnjúkar is expected to cost a total of 1.2 billion US-dollars, while the new

Fjarðaal aluminium smelter in *Reyðarfjörður*, which it will serve with electricity, is of the same scale, i.e. 1.3 billion US-dollars. There are many differences between the two projects. One such difference it that while there have been no major accidents during the construction process in *Reyðarfjörður*; four lives were lost during construction at *Kárahnjúkar*. That is the sad part of the Klondike-story in Eastern Iceland. It should also be noted that it was representatives from *Landsvirkjun*, the owner of *Kárahnjúkar* who provided this information. They also mentioned that all four worked for Icelandic companies.

There are more communities in Iceland interested in aluminium planters and waiting for similar industries to arrive. First in line is *Húsavík* up north and *Helguvík* near *Keflavík*. In *Dýrafjörður*, to the far north-west, 'private interests' have started to talk about an oil-refinery, which, if not based on Icelandic oil then possibly on imports from Russia, this could potentially signal another 'Klondike experience'. ■

By Odd Iglebaek



Roads, topography and possible future industrial sites at Iceland.



*Man and nature: Constructing overflow channels for the new dam at Kárahnjúkar.
Photo: Odd Iglebaek*

In harmony with the environment?

Up on the eastern plateau, just a few kilometres north of the 1838-metre high Snæfell (Snowcap), one of the highest mountains in Iceland, the country's largest artificial lake is gradually being filled. It can contain up to 2100 giga-litres of water, and Kárahnjúkastifla, the largest of the eight dams making up the lake, will have a height close to 200 metres while, in addition, being 730 metres long.

Many people look on this massive construction as a real thing of beauty. Others are of the opinion however that it should never have been built: – Nature should be kept intact, they say. Their argument could be based on principle, or it may be that they retain an interest in the wilderness-based tourist industry. They could also be reindeer hunters. There are some three thousand such animals up there on the plateau.

In Norway and Sweden some 60-70% of the available natural waters-resources have already been used to build dams and hydropower stations.

– With the Kárahnjúkar now being close to completion, the figure for Iceland will reach 26%, says Ragnheidur Ólafsdóttir at *Landsvirkjun*, Iceland's state-owned power-company:
– If we fulfil the plans to double electricity-production from the 2008 level up to 30 TWh/annually our catchment areas for hydro-power will expand by

35% she adds.

Some people might argue that this is not much while others are of the opposite opinion. In any case the new government of Iceland has decided to pause for reflection in respect of hydro-power. They will spend the coming two years drawing up a framework plan for energy and the environment. This promise can be seen in the new government's political declaration under the chapter: "In harmony with the environment", where they also declare that Iceland should become "a world environmental leader".

In the same paragraphs they also make it clear that the catchment areas of Jökulsá á Fjöllum will be added to the Vatnajökull national park while Langisjór will not be touched for harnessing purposes. Enlargement of the Þjórsárver nature reserve will also be guaranteed to cover the distinctive wetlands of the area, particularly famous for geese.

Linked to the debate on the environment, is the discussion on the ownership of the land: Should it be common or private? In the new government's declaration one particular clause notes that "priority will be given to resolving the dispute over the ownership of natural resources".

– But this issue is not however related to that of the rights to harness nature for energy-purposes, that will remain a deci-

sion of state, explains Þórunn Sveinbjarnardóttir, the new Minister for the Environment. – The current issue of note is more a debate on 'private versus common' ownership of the wilderness in general, and of course we, as social-democrats, want to keep it common. That is also the opinion of the majority of the population of Iceland, she adds.

She also says that the paragraph beginning: "The time is ripe to unleash the power of private initiative so that the full potential of expertise and 'know-how' can be realised in overseas expansion by energy companies" deals primarily with the export of 'know-how' and with conducting international business in relation to the production of geothermal energy.

One further issue linked to the expansion of the production of electricity in Iceland is that of what to do with it? For example: Should it be sold for export? In the government declaration this theme is not specifically mentioned, but the government is, apparently, open to such future developments: – I cannot however provide any details as to how and when, says Einar Karl Haraldsson, political advisor to Össur Skarphéðinsson, Iceland's new Minister of Industry. Mr. Haraldsson is, like his minister, a member of the Social Democratic Alliance. ■

By Odd Iglebaek



The new dam at Kárahnjúkar is gradually being filled. Photo: Odd Iglebaek



The vanguards of Iceland? School-children participate in the opening of the Reykjavik Arts Festival. Photo: Odd Iglebaek

Iceland to be “Vanguard of nations”

“The achievements and prosperity of recent years have created opportunities for even further advances and Iceland should remain in the vanguard of nations with the highest living standards.”

It was after their electoral victory on the 23rd of May 2007 that the chairman of the Independence Party, Prime Minister Geir H. Haarde, and the chairman of the Social Democratic Alliance, Ingibjörg Sólrún Gísladóttir, published the policy statement quoted above. The occasion was that the two largest parties in the country had negotiated a political ceasefire, and together they plan to govern the country for the coming four years. – I think most people received this news with relief, comments Dennis Johannesson, a Reykjavik-based architect and sometime political activist.

Together the new government has 43 of the 63 seats in the *Altinget*, the Icelandic Parliament. – Therefore they

constitute a clear majority, and thus have the ability to really achieve things, if the political will is there, adds Johannesson.

How low is low?

The new government’s initial policy statement draws attention first and foremost to economic policy. In the country both spending and investment are high, but what worries many is that the Central Bank has responded to this by maintaining headline interest rates at around 15 %. Thus export-industries with high levels of domestic costs, such as for example the fishing industry, find it increasingly difficult to maintain profit levels in international markets. Similarly, household with short-term loans, face growing problems in meeting their borrowing requirements. The government is well aware of the debate, and therefore clearly states that they “aim” is to keep interest rates “low”. The problem is however that it is rather difficult to pin down exactly how low ‘low’ is. In fact no figures are given.

In order to sustain the substantial growth the country has experienced in recent years the government makes it very clear that “expansion abroad” is central to maintaining Iceland’s high standard of living. They also say that they want to create “optimum conditions” to assist Icelandic companies in their quest for international expansion. They state that Iceland’s business sector will be increasingly knowledge-based, and that cooperation between industry and Iceland’s universities is the key to improved business performance and innovation.

On the whole, the government seems keen to support a wide variety of trades and industries. Culture and the arts are also mentioned specifically. Similarly there are plans to boost the hi-technology sector.

In respect of Iceland’s more traditional trades and businesses the government notes that a review of the agricultural

system will be undertaken with the aim of liberalizing it, improving the position of farmers and reducing prices to consumers. Regarding fisheries a study will be made of the experiences reported to date of quota systems.

Nourish the banks!

In recent years *Lansbankinn*, *Glitnir* and *Kaupthing Bank*, the largest banks in Iceland, have all gone international and have apparently done very well. The impression here is that it is very popular among politicians as well as the media to mention this, particularly to foreigners: – See what they have achieved, in London 2000 people are now working in Icelandic Banks, a senior parliamentarian from the Independence Party, underlined to your correspondent. The new government also states that they will try to ensure that “companies expanding abroad will continue to realise the benefits of being headquartered in Iceland.”

Are they afraid of the opposite?

Perhaps, at least we are told that: – It is for this reason that we have decided to create a double data-link system to the continent. We need two. To have one in reserve, so that the banks do not risk losing their market-contacts, explains Einar Karl Haraldsson. He is the political advisor to the Social Democratic Alliance’s Össur Skarphéinsson, the new Minister of Industry. – Approaches from *Yahoo* and *Google* to establish major servers in country make such investments interesting, Haraldsson adds.

Interestingly enough, in the governmental declaration, the new submarine cable is not to be found in the chapters dealing with business and economics. Rather it is under “Harmonised residence and employment”, the regional paragraph. Here it is also stated that it is not only the banks, but “everyone in Iceland” that should “be allowed the opportunity to take advantage of the revolution in data transmission”.

Spreading public jobs?

The regional chapter also underlines the fact that public sector work that can be performed irrespective of place of residence “shall be identified”. Improved transport is necessary in order to achieve demographic balance and reduce transport costs.

As for most governments proposals to reduce taxes are popular. In Iceland, there are several suggestions in this respect. Our guess is that at the very least the one on higher personal tax-free allowances will be implemented. There are special chapters on more “Focused Government administration” as well as one on a “Child-friendly society”.

Vanguard also in education...

Turning to education, the government once more turned to the “vanguard internationally” goal. It is also interesting to note here that more emphasis will be placed on freedom of choice for students and individually-based study programmes. Among other things the goal here is to reduce the secondary school drop-out rate. Artistic and vocational training will also be stepped up at all levels of schooling.

In respect of international politics it is also worth noting that the new government “regrets the conflict taking place in Iraq and wants to contribute to peace in Iraq and the Middle East.” While in concrete terms Iceland has specifically mentioned that it hopes to contribute through midwife-assistance to the area.

Finally the government states that: “Iceland should aim for leadership in the campaign against marine pollution and in global work to counter climate change.”

The government does not promote, or expect to see, changes in Iceland’s relationship with the European Union. ■

More info at:

<http://eng.forsaetisraduneyti.is/news-and-articles/nr/2646> or www.mfa.is

By Odd Iglebaek

Iceland's new government.



Geir H. Haarde,
Prime Minister



Ingibjörg Sólrún Gísladóttir,
Minister for Foreign Affairs



Björn Bjarnason,
Minister of Justice and
Ecclesiastical Affairs



Árni M. Mathiesen,
Minister of Finance



Jóhanna Sigurðardóttir,
Minister of Social Affairs



Þorgerður Katrín Gunnarsdóttir,
Minister of Education, Science
and Culture



Össur Skarphéinsson,
Minister of Industry and Nordic
Co-operation



Einar Kristinn Guðfinnsson,
Minister of Fisheries and Minister
of Agriculture



Þórunn Sveinbjarnardóttir,
Minister for the Environment



Kristján L. Möller,
Minister of Communications



Björgvin G. Sigurðsson,
Minister of Commerce



Guðlaugur Þór Guðlaugsson,
Minister of Health

Greenland goes for aluminium smelter

For the first time in history Greenland may get a major industrial plant. This is the likely outcome of the agreement between the Greenland Home Rule Cabinet and the international aluminium company *Alcoa Inc* of 23rd of May this year.

On that date the two partners agreed to sign a Memorandum of Understanding (MOU) which entails cooperation on a feasibility study for the construction of an aluminium smelter with a 340 000 metric-ton-per-year capacity in Greenland, according to press-releases. In comparison, the new *Alcoa Fjaardal* site in Reidarfjörður in East Iceland, described on pp 4-5 of this issue of the *Journal of Nordregio*, will have a production capacity 364 000 tonnes annually.

The MOU also encompasses a hydroelectric power system and related infrastructure improvements, including a port. The exact size and cost of the overall venture will be determined when the project plan is finalized.

Studies on site selection, environmental issues, engineering assessments and other aspects will commence this summer. If project proves viable, construction work on hydroelectric power system could be expected to begin in 2010 and for the smelter itself by 2012. The smelter could then commence operations by the end of 2014, according to official statements.

– *Alcoa* has a disciplined growth strategy, as aluminium demand is strong and consumption is expected to grow significantly over the next decade. We have nearly 120 years of experience in developing and operating aluminium smelters around the world in a sustainable manner, sensitive to the environment, and valued by the communities in which *Alcoa* operates, said *Alcoa* Chairman and CEO Alain Belda, in a comment on the agreement:

– We will bring our technology and management capabilities to this venture to ensure the development of a highly-competitive, environmentally-friendly smelter that adheres to our stringent val-

ues and delivers sustainable development, he added.

– The aluminium industry offers an excellent opportunity that we may in Greenland exploit our hydropower resources for the benefit of occupational and business development, was the key message from Greenland's Minister of Trade, Labour and Vocational Training, Siverth K. Heilmann.

– At the same time the project is in full accordance with the Cabinet's long-term goal of replacing hydrocarbon-based energy production with hydropower, one of the reasons being concern for the global environment.

– I have visited smelters in different parts of the world, and through personal experience learned about *Alcoa's* consideration for the environment and commitment to ensuring that any future smelter in Greenland will also become an asset to the local community, socially and educationally, as well as economically, notes Heilmann.

At some time during the process, the Norwegian based *Norsk Hydro* was also discussed as a potential partner in transforming Greenland's society through the production of aluminium.

The reason why *Alcoa* was chosen as the partner in preference to other interested aluminium companies, was explained by Siverth K. Heilmann:

– *Alcoa* has shown its determination to invest considerable resources in the development of this project together with us. Simultaneously, they have been ready to meet Greenland's requirements as to the pace of the project development, the environmental process, efforts in training and education etc.

Preferred sites for the proposed smelter will be collaboratively identified by *Alcoa* and the Greenland Home Rule Government. The three municipalities of Nuuk, Sisimiut and Maniitsoq, which have all selected potential locations, support the project, and will take active part in the continued work. Final recommendations will go to the Greenland Home Rule Government for ratification.

Upon completion, this development project would represent one of the largest investments in Greenland's history, would stimulate economic growth and manufacturing diversity, create up to 600 direct, stable jobs, and contribute to increasing Greenland's overall productivity and ability to support itself economically.

Greenland stretches across an area of 2 166 086 km². More than 80 percent of the country is covered by the massive ice cap. The present-day population is 57 000, mainly of Inuit origin, Greenland has a modern sea-going fishing fleet and emerging tourism and mining industries. Extensive oil exploration activities off Greenland's West Coast will soon also be underway. *Alcoa* has, in total, 122 000 employees in 44 countries. ■

Iceland's electrical potentials

Below the surface Iceland is a country with enormous resources of heat. Through modern advances in technology this heat can be transformed into electrical power. Continuous precipitation similarly creates significant opportunities to produce electricity based on hydro-power. Iceland, however, has relatively little industrial capacity to use more electricity. As such then three choices seem to be available. More energy-consuming industries should be constructed in Iceland; cables should be laid on the sea-bed to facilitate electricity for export; or, alternatively, the resources should be left untapped. On the following pages we will take a closer look at the potentials involved. ▶

Transporting electricity from the hydro-power station at Kárahnjúkar to Iceland's third aluminium smelter *Alcoa Fjarðaál* in Reydarfjörður.
Photo: Odd Iglebaek

Iceland's possible geothermal and

Iceland's production of electricity last year amounted to 10 TWh having almost doubled in just 10 years. Next year it will be closer to 15 TWh. According to official estimates there is future potential for 50 TWh annually or maybe even more (see figures 1 and 3 below).

This 50 TWh *per annum* is divided into 30 TWh for hydro-power and 20 TWh for geothermal: – The mixture is however somewhat uncertain, particularly since a number of hydro-power installations may be deemed environmentally undesirable. On the other hand, it is likely that the figure of 20 TWh annually for geothermally produced electricity is an underestimate, explains Thorkell Helgason, director at Iceland's National Energy Authority.

– So far ideas exist in respect of further expansion to 28-30 TWh annually by 2015. This expansion, if realized, would occur via a combination of hydro-stations and several geothermal installations, says Helgason.

But if Iceland decides to expand to 50 TWh a year that would indicate a production of electricity more than three times the 2008 level. In official plans no

dates given as to when such goals should be achieved. In the table below the *Journal of Nordregio* has assumed 2025. One should note how ever that the after the currently ongoing expansion power production will nevertheless only amount to perhaps one-third of our assumed 2025-figure.

Included in these predictions is the building of the two new aluminium

Possible future for electricity production and consumption in Iceland (figures in TWh/a)

Year	2007	2008	2015	2025
Total yearly electricity production	10	15	30	50
Small industry private/public buildings	3	3	3	3
Power-intensive industry	7	12	22	22
Available electricity for export or other uses	0	0	5	25
No. of aluminium smelters	2	3	5-6	5-6

Sources: Orkustofnun, Landsvirkjun, Orkuveita Reykjavíkur, estimates by Journal of Nordregio

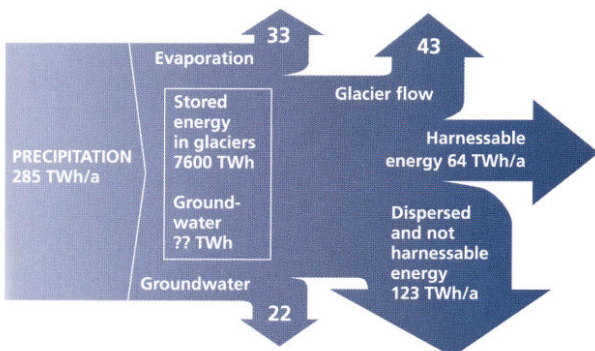


Fig 1. Hydropower derived from precipitation in Iceland.

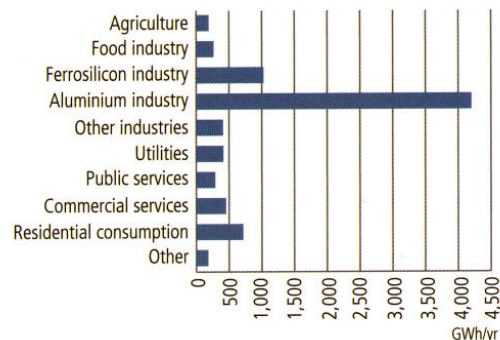
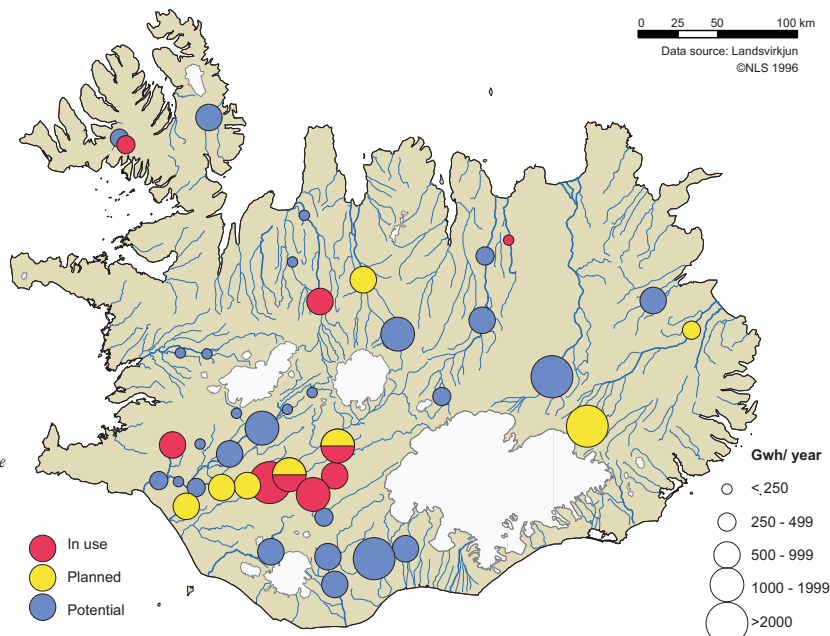


Fig 2. Electricity consumption in 2005.

Hydropower potential

Map of hydro-power potentials is produced by Nordregio based on similar produced by Landsvirkjun, Iceland's state-owned national power company.



Source: Energy in Iceland, published by the National Energy Authority / Ministry of Industry and Commerce, Reykjavik, September 2006.

hydro-power energy fields

plants, at present under discussion. One is to be located in Husavik, on the north coast. The site for the other is in Helguvik, a few kilometres west of the international airport at Keflavik. The possible expansion that *Alcan* wants to undertake at the exiting aluminium smelter in Straumsvik/ Hafnarfjörður could also be included here. Altogether we should thus calculate for the consumption of three new plants to be 10 TWh per year, giving a total domestic consumption of 25 TWh annually.

On *Orkustofnun's* list of possible new plants to supply this new aluminium production, 14 of the new/up-graded hydro-power units and 19 geothermal units currently exist. Of the 33 in total, 21 are in South Iceland and 12 in the northern part of the country. – But there are currently no plans for any more large

hydro-power plants like that now being finalised at Kárahnjúkar, Helgason underlines.

The electricity not consumed by the heavy industry sector in Iceland has for many years reached around 3 TWh annually. – This will only increase in line with population growth, i.e. slowly, underlines Helgason. – as Iceland already has one of the highest household energy consumption rates in the world.

In other words, if the new industrial plants, or similar facilities, are readied for production by 2015 and the production of electricity has been expanded to provide some 25 TWh a year, this would leave Iceland with another 25 TWh of power potential for other uses such as direct export every year.

In comparison, it can be noted that a large Swedish-based nuclear power-station like Forsmark (I+II+III) has an annual production 24-25 TWh. Similarly the new ocean-cable very recently installed between Norway and the Netherlands can, if the electricity only flows in one direction, transport up to some 6 TWh per year. So in order to send 25 TWh of electricity from Iceland to the European market every year four such cables would be needed.

However Dr. Helgason, does not subscribe to this vision and says that the a political debate on the pros and cons of direct export of electricity has not yet taken place in Iceland. ■

By Odd Iglebaek

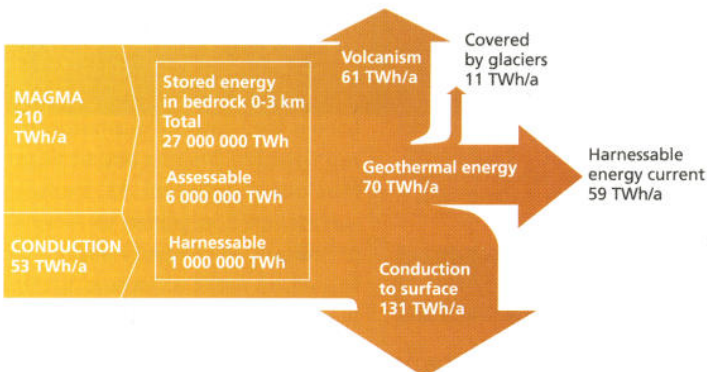


Fig 3. Terrestrial energy current through the crust of Iceland.

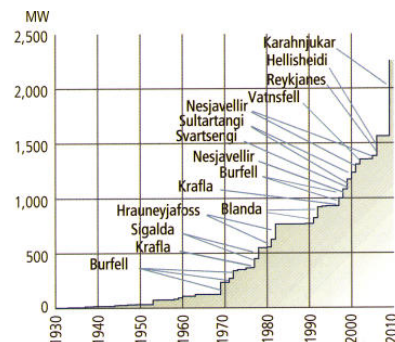
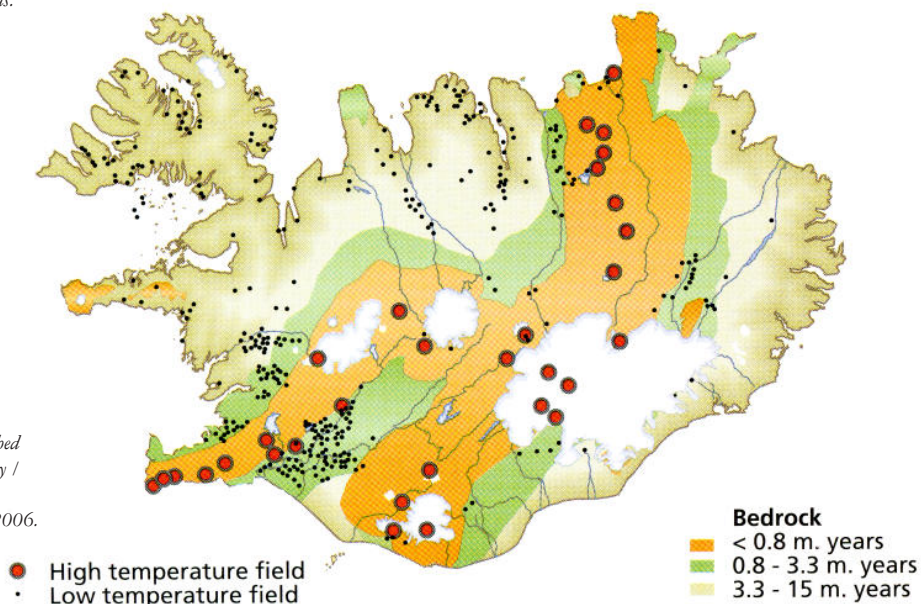


Fig 4. Total installed capacity of hydro and geothermal power plants in Iceland.

Geothermal fields

Map of Iceland's geothermal fields.



Source: *Energy in Iceland*, published by the National Energy Authority / Ministry of Industry and Commerce, Reykjavik, September 2006.

Large potentials below the surface of Iceland. Here is Hellisheidi, the new geothermal power-station in south-west Iceland.
Photo: Odd Iglebaek



Will drill deeper and also off-shore

In the near future Iceland hopes to increase her geothermal electricity production based on the heat from deep boreholes. With current methods geothermal wells in Iceland are drilled, at most, 3 km into the earth, and on average 2.5 km down. Here temperatures reach 200-300 degrees Celsius, explains Thorkell Helgason, Director General of Orkustofnun, Iceland's National Energy Authority.

A single well has the capacity of 5-10 MW, or enough to serve approximately 700-1400 typical Nordic houses during wintertime. Through the so-called Icelandic Deep Drilling Project (IDDP), a joint Icelandic energy consortium established in 2000, it is hoped to increase production from each new borehole up to 50 MW. In other words enough to provide energy for 7000 houses.

The new type of drilling raises many technical challenges. One is simply to drill 4-5 km deep, a second is that the temperature here would be 450-600 degrees, which is very hot. Thirdly, the steam pressure here would be no less than 230-260 bars, which is also very high.

Around Reykjavik surplus-heat from the geothermal power-stations is used for heating buildings, pavements, streets and swimming-pools, but in areas away from the population-centres new uses are needed in order to get full use of the exploited geothermal energy. One idea, currently being discussed, is to build large green-houses for certain types of plants for export. Major advantages could be gained as compared to warmer areas, where vermin and insects can be problematic. Iceland as such is almost sterile in comparison.

Also off-shore

Oil and gas in Icelandic waters? – We do not yet know whether this is the case but we are rather optimistic, says Kristinn Einarsson. He is the projector coordinator at Orkustofnun.

Later this summer the Icelandic authorities will announce the procedures to be used for those seeking to apply for licenses to explore various parts of the country's seabed. The Ministry of Industry will decide on the basic modal-

ities in respect of how and when.

– We will start at the Jan Mayen ridge, which we think is an area with definitive possibilities judging by the geophysical conditions, Einarsson explains.

In terms of oil-and gas-exploration it is relatively deep water here: 1 000-1 500 metres to the ocean floor. This is deeper than the Russian field Stockman or Norwegian resources in the Barents Sea, but in terms of distance from shore it is about the same. – In the Gulf of Mexico however, experience of drilling to such depths is common, adds the representative from the National Energy Authority.

Einarsson says that large parts of the Icelandic seabed are covered with lava: – This makes seismic sampling somewhat difficult since these volcanic layers generally act as mirrors, and thus we generally have to operate here with a degree of uncertainty.

It is then possible that ten years from now Iceland will start to produce oil or gas based on off-shore drilling. Or perhaps, they at least could have a refinery, based on imports from Russia. Some private interests have announced such plans for the second option at Dýrafjörður in the far north-west of the country.

New ocean-cable?

Sometime thereafter a new ocean-cable could be in operation, connecting the electrical system of Iceland with that of the United Kingdom, and thereby also with the European continent, if not

directly to the continent itself. Iceland would by then have entered a new era as an energy-exporter.

– A 580 km long cable, the longest so far, has already been laid between Norway and the Netherlands. So the technology already exists, explains director Thorkell Helgason.

He notes also that a similar connection between Iceland and Scotland would be 1000-1200 km in length, depending on the landing point, and some 1700 km if directly to the European mainland: – I do not think that distance will be the problem. It is more a question of cost. A cable like this will carry the same price tag as the hydro or geothermal power-stations supplying the cable. Therefore to successfully export electricity, we must get double the price of what we get inside Iceland, if we want to break even. However, he adds, direct export of electricity is like exporting a raw material and creates very few new permanent jobs in Iceland.

A potential submarine cable will not only be a means to expand the harnessing of Iceland's energy resources. – An additional advantage will come with the increased potential is a connection to the European grid, which might become useful when we have dry years. That would be welcomed as a safety-valve for both industries and households, Helgason underlines. ■

By Odd Iglebaek



Thorkell Helgason (Ph.D) the director at Iceland's National Energy Authority. Photo: Odd Iglebaek

Fewer, but more powerful, municipalities?

Iceland has a two-tier system, consisting of local and national levels of government. No formal regional level exists. This particular solution is largely explained by the settlement structure and the population size to landmass ratio, which have rendered regional and territorial governance issues marginal. Some of the main challenges for the future, including depopulation and further concentration in the capital area, do however require structural solutions.

Iceland's local authorities' share of public spending is relatively small while the State takes responsibility for many of the costly functions handled by local or regional authorities in other Nordic countries. The larger role played by the central government in Iceland can be attributed to the size and disparate territorial distribution of the population. The degree of centralisation and concentration to the capital, Reykjavik, is also a major factor here.

The differences between municipalities are considerable, with geographical size ranging from 2 to 8 884 km² and population from 38 to 113 730. The number of municipalities had decreased from 124 in 2000 to 79 at the time of the local elections in 2006.

This decrease in numbers is even more marked when viewed within the wider context of Iceland's municipal history: at its highpoint in the 1950s there were a total of 229 municipalities on the island. The major share of the municipalities' work continues to entail the management of primary education.

The fragmented local authority structure has however also led to municipalities joining forces voluntarily, in order to deal with particular service-provision needs, such as care for the elderly, waste management, and co-operation in the fields of culture, sport and public transport (where applicable, i.e. in the capital area and in Akureyri and Isafjordur).

Roads and transport are areas where inter-municipal collaboration is the norm, and where regional plans have already been drafted as stipulated by the

Planning and Building Act No. 73 from 1997. Additionally inter-municipal co-operation already takes place in respect of some social service provision.

Public debate has reflected a range of similar concerns to those emerging from the Danish structural reform process, i.e. restructuring local authorities to make them strong enough to adopt new responsibilities. Increased decentralisation has, in part, been supported in order to render clearer the division of tasks between central and local government.

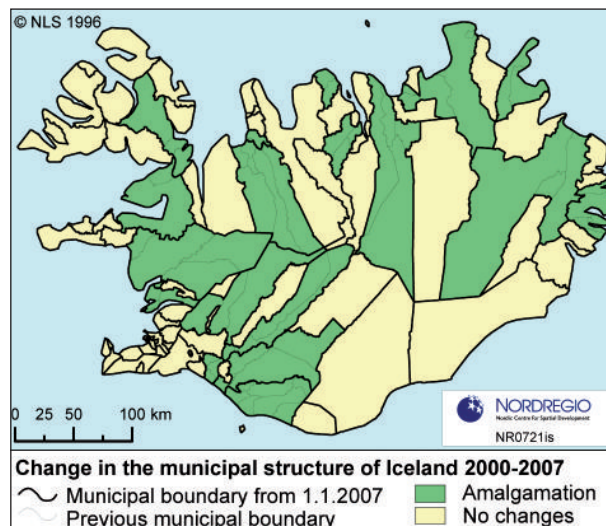
The increase in the local level share of public consumption also remains a significant goal. The services that have been considered suitable for decentralisation have therefore included issues that in many cases come under the ambit of 'local level responsibility' in the other Nordic countries, e.g. basic healthcare services or care for the elderly. While healthcare is not really discussed as a candidate for restructuring in terms of the redistribution of responsibilities, a measure of debate has occurred, and plans to transfer care for the elderly to the municipalities have been drawn up.

The 2005 referenda on municipal mergers did not achieve the kind of mandate hoped for by those proposing further mergers. Instead of the 16 mergers proposed, the referendum resulted in only one amalgamation taking place. The process was subsequently put 'on

ice' either to be revisited in the future in the context of a more 'top-down' style amalgamation process, or as a variation of the Finnish and Danish processes, i.e. 'voluntary' mergers or forced co-operation (leading gradually, it is hoped, to mergers as co-operative ties and where functional interdependence can be strengthened). This issue has however been somewhat superseded by national issues in the context of the general election campaign of May 2007.

The victory margin of the sitting governing coalition (the Independence Party and the Progressive Party) in the May elections was extremely narrow. The Independence party and the opposition Social Democrats subsequently however decided to form a new majority government with 43 of the 63 seats in the Parliament. This also means that the municipal question will now probably re-emerge in the near future. If the previous Social Democratic position on this matter, i.e. supporting a minimum size of 1000 inhabitants per municipality is anything to go by, changes are likely to occur. ■

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The article above is based on the chapter: *The reform process in Iceland*, published in Neubauer, J. et al.: *Regional Development in the Nordic Countries 2007*. See: www.nordregio.se

Challenges for good water status

Clean water is a vital every-day life resource and one that is often taken for granted in the Nordic countries. The highly polluted nature of the Baltic Sea reminds us however that measures need to be taken to guarantee continuing future access to clean water in the Baltic Sea Region.

In this context, the European Union's Water Framework Directive (WFD), adopted in 2000, can be welcomed as a potential source of help. The overall objective here is to achieve "good water status" for all waters in Europe by 2015 through the integrated management of river basins. The major policy instruments here are the establishment of river basin districts (RBD) and the development of river basin management plans (RBMP).

All EU member states in the Baltic Sea Region (BSR) have undertaken, with varying levels of success and intensity, to implement the WFD; the macro-process has also – as it was indeed designed to do – had an influence on non-EU member states in the area. Preliminary study of WFD implementation delivers the following findings:

The WFD demands a stronger integration between water management and spatial planning. This request is based on the fact that a lot of land-based activities cause water pollution. The introduction of the WFD into national legislation has thus far however not had a significant impact on the level of integration between water management and spatial planning.

The relationship between the RBMPs and spatial plans will be of great importance for the future integration of spatial planning and water management. The likely nature of this relationship will however become much clearer when RBMP drafting is completed in 2008. The mismatch between the geographical boundaries of the spatial planning units and the RBD, the difference in timing between the RBMPs and spatial plans and a general lack of resources, i.e. time

and money may all however hamper the desired synergy between water management and spatial planning. In some countries, moreover, a number of the legislative elements designed to facilitate integration are still not in place. Notwithstanding this however, a number of joint instruments are under development to improve the situation.

One obvious link between spatial planning and water management is the existence of protection zones. In addition, Environmental Impact Assessment is an area where water management and spatial planning can expect further integration.

A further major challenge in respect of WFD implementation is however the demand for trans-national cooperation. This is of great importance in the BSR since all countries share at least one river basin with a neighbouring country. Here each national water management and spatial planning system should endeavour to find ways to cooperate more effectively.

In general, WFD implementation appears to have initiated and intensified cooperation on water resources. International RBDs have been defined, agreements have been signed and commissions or working groups have been set up to deal with WFD issues. Without doubt however, further integration between the spatial planning and water management sectors is needed in order to achieve a "good" water status by 2015. ■

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A river basin is defined as:

"the area of land from which all surface run-off flows through a sequence of streams, rivers and, possibly, lakes into the sea at a single river mouth, estuary or delta"

A river basin district is

"the area of land and sea, made up of one or more neighbouring river basins together with their associated groundwater's and coastal waters, which is identified under Article 3(1) as the main unit for management of river basins".

TRABANT

TRABANT (Transnational River Basin Districts on the Eastern Side of the Baltic Sea Network) is an Interreg IIIB Baltic Sea Region project led by the Finnish Environment Institute. The INTERREG IIIB BSR programme's specific feature is to promote joint solutions to joint problems through transnational co-operation and by funding projects that include an analysis of the economic, social, spatial and environmental potential of the BSR. The overall objective of the TRABANT project is to contribute to enhancing the 'good water status' of the Baltic Sea and its surroundings, while also supporting the wise management of waters in transnational river basin districts within this area. The project was launched in 2005 and has 13 partners in total. In the study The Water Framework Directive in the Baltic Sea Region Countries - vertical implementation, horizontal integration and transnational cooperation WFD application in Belarus, Denmark, Estonia, Finland, Germany, Latvia, Lithuania, Norway, Poland, the Russian Federation and Sweden, and its connection with spatial planning, have been further investigated.



Iceland has currently a high number of temporary workers particularly in the construction industries. Photo: Odd Iglebaek at Kárabnjúkar

Viewpoint

How to get the 'good' immigrants

More jobs in the upper echelons of the labour market must be opened up to immigrants in order to attract so-called 'good' immigrants. This requires higher mobility and substitution between the various segments of the labour market and fundamental changes in the economic structures of the Nordic countries. Furthermore, the economic gain from a presumptive highly-skilled immigrant must be relatively higher for choosing a Nordic country relative to other countries (e.g. the USA, the U.K. or Germany). A structural change in the economy must be promoted, not obstructed. This, however, is likely to remain a difficult political proposition unless Nordic voters more generally are willing to support change. The longer we wait, the more valuable time will be lost in attracting 'good' immigrants.

After the recent EU-enlargements of 2004-07 the volume of labour migrants has not been as large as expected to the Nordic countries. The growth rate for labour migration, since 2004, has nevertheless increased particularly for Norway

and Iceland, while labour migration to Sweden and Finland continues to stagnate. The volume of labour migrants to the Nordic countries nevertheless remains relatively small.

Ongoing structural changes in the economies of the Nordic countries have culminated in a process of de-industrialisation. The new 'knowledge-driven' service economies in the Nordic regions thus now need highly educated labour, while the immigrants entering the Nordic labour markets are, generally, low-skilled labourers.

From where will new labour migrants come?

In all Nordic countries labour migrants from the new (post-2004) EU members constitute a minority of all labour migrants; the majority of labour migration to the Nordic countries come from other Nordic countries, the 'old' EU/EES countries and from outside the EU/EES. Table A below lists the five major 'sender-countries'. Most immigrants to the Nordic countries are however Nordic

nationals returning to their home country.

There are three major regions in the world where significant population growth will occur in the coming 50 years, namely, India, Western Asia and North Africa. Of all the countries listed in table A, only Iraq is situated in such a region.

Motives for migration

There are several motives for migration. Getting a job, becoming a refugee, getting married or family reunion, adoption, and studies are the most common motives. Over the last decade, lifestyle migrants have also become more common.

Only a small part of the total volume of immigration to the Nordic countries is related to labour immigration; e.g. 4.6 per cent in Denmark and 8.0 per cent of all immigrants to Sweden were labour immigrants in 2005.

It is clear that labour migrants want to work and they want to make money. Beautiful wildernesses, less pollution or

sparsely populated regions do not attract labour migrants, though such things are of interest to lifestyle migrants.

Where do they work?

Agriculture and forestry are sectors which attract a relatively large share of labour migrants, as do construction and the labour-intensive manufacturing sector. Service jobs in the industrial cleaning, hotel and catering and transport sectors have also attracted many labour migrants. Many low-skilled immigrants moreover continue to pick up employment in “3D”-jobs (dirty, dangerous, and degrading). The share of seasonal and temporary work is also high.

Are these patterns new? The little information available indicates that, in the early 1970s, most intra-Nordic migrants had been engaged in unskilled manual labour before emigrating, and that such people generally also had a relatively low educational status. The share of unemployed among these emigrants was higher than the share of unemployed in the total population. When they arrived at their country of destination they usually picked up jobs in the labour intensive manufacturing industry, the construction sector, or in the hotel and catering sector, namely, in “3D”-jobs natives did not want to take.

A segmented labour market?

According to segmented labour market theory immigrants are willing to do the “3D”-jobs at wages no natives would

accept. Immigrants will become a complementary work force in labour intensive manufacturing or in the lower segment of the person-oriented service sector. Thus, the wage structure for native labour will not be affected – immigrants do not take up those kinds of jobs.

Ongoing structural change in the economy has however resulted in immigrants following the vacancies available in the lower labour market segment. In consequence, labour immigration obstructs structural change in the economy as stagnant trades and sectors are kept going due to the continuing availability of cheap migrant labour. This will undoubtedly slow economic growth.

How to attract “good” immigrants?

In the Nordic countries highly skilled immigrants are needed mostly beyond the metropolitan areas. If we are to assume that labour migrants are predominantly attracted by the prospect of attaining work we must be prepared to pay competitive wages relative to other possible destination areas to make it profitable for them to chose a Nordic country in which to relocate. Such economic incentives are the most effective tools for shaping desired outcomes. So, if the greatest need for labour is in the rural and peripheral parts of the Nordic countries, wages must be offered to make it attractive for labour to choose these areas. This may not only attract immigrants, in addition, natives may also begin to return.

Despite the demand for highly skilled labour, most vacancies open to immigrants are in the “3D”-job sector. This, in combination with a compressed wage structure, high taxes and an undercurrent of xenophobia, often sees highly-skilled migrants choose other countries. The perceived ‘language barrier’ and the often cold climate do little to improve this situation.

Attracting ‘good’ immigrants probably requires significant changes in the economic structures of the Nordic countries, in particular the breaking down of the segmented labour market. Though this will not be a simple task. As such, the abandonment of the ‘Nordic ideal’ of a compressed wage structure and high taxes -politically highly controversial – may therefore be necessary. As the new and the old societal structures continue to clash across the Nordic countries the increasing levels of perceived xenophobia generated by this basic uncertainty over what the future holds will however continue to ensure that ‘good’ immigrants chose other countries. The longer we wait before we start tackling these problems, the longer it will take to begin to attract ‘good’ immigrants. ■

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Table A Gross immigration by country of birth to the Nordic countries in 2005. (Nordic citizens are excluded since no work permit is needed)

	Denmark Country	%	Finland Country	%	Iceland b Country	%	Norway Country	%	Sweden Country	%
Returning Natives	22 469 ^b	42,8	n.a.	n.a.	9 951	42,4	8 793	21,9	11 066	17,0
	Europe non									
1	Germany	7,2	EU/EES	4,8	Poland	6,6	Poland	8,1	Poland	5,4
2	USA	6,9	Sweden	4,5	Denmark	6,3	Sweden	6,7	Denmark	5,4
3	The U K	6,6	Russia	2,4	Sweden	2,2	Germany	4,3	Iraq	4,7
4	Sweden	6,6	Estonia	2,4	Norway	2,1	Denmark	3,8	Finland	4,3
5	Norway	5,7	Germany	1,1	Germany	1,8	Iraq	3,5	Norway	3,7
	Other countries	24,2		n.a.		40,6		51,7		59,5

Source: National Statistics Offices

Table B The share of labour migrants in the Nordic countries in 2005

	Denmark	Finland	Iceland	Norway	Sweden
Labour immigrants	4,6	5-10	n.a.	26,6	8,0

(Data refers to country of citizenship)

Source: National Statistics Offices

Swedish climate-change uncertainty

There is currently a great deal of uncertainty in Sweden over municipal obligations in respect of climate change. Indeed juridical guidelines on municipal obligations in this area remain extremely vague. Nevertheless, a number of state-sponsored stimulus measures have been forwarded with a view to stimulating municipal engagement in this area. Such measures include the Local Investment Programme (LIP) and the Climate Investment Programme (KLIMP).

Various networks for climate change work already exist, the two most influential are The Swedish Eco-Municipalities *Sveriges Ekokommuner* (SEKOM) and The Swedish Network of Municipalities on Climate Change *Klimatkommunerna* (KK), whose purpose is to increase municipal-level interest in and recognition of environmental- and climate change issues through the exchange of knowledge and experience. Currently, however, only about one third of Sweden's municipalities are members of, or participate in other ways in, these networks.

Sweden's municipalities engage in a whole range of approaches to dealing with climate change. Some municipalities see climate change issues permeate their overall work while others do no more than the law obliges them to. A large number of municipalities claim that they have environmental goals, specific climate work plans and programmes on climate change currently either 'in the pipeline' or coming up for decision.

The most active municipalities tend to be located near water. This is the only easily identifiable geographical pattern discernable from the data collected.

Among the most common concrete measures on climate change mentioned are eco-cars, district heating, establishing energy plans, courses in eco-driving among municipal employees and energy consultation for firms and private people.

Other measures mentioned include different types of KLIMP- and LIP-proj-

ects, where experienced KK consultants help smaller municipalities to become more involved with climate change issues and begin to plan their general work in a climate-conscious manner. Many are also talking about private corporate initiatives within the municipality, mostly in the sense of projects within the biogas- and ethanol manufacturing sector. Al Gore's film "An Inconvenient Truth" has, in addition, often been heralded as being part of a broader information campaign in this respect.

One further and very interesting observation in relation to the data collected is that membership of the KK or SEKOM networks does not in itself however guarantee that a municipality will be on the 'cutting edge' in respect of their approach to climate change work.

Another interesting finding here is the existence of a paradox when it comes to small municipalities and their climate change work. Some smaller municipalities claim that they are simply unable to play an active and concrete role in respect of climate change related issues because they are too small and thus lack the necessary resources. While others say that it is the very fact that they are small that gives them the opportunity to carry out such work as they are not hindered by an overbearing level of bureaucracy.

The survey has shown that a specific pattern is evident among suburban and commuting municipalities mostly in the Stockholm and Malmö areas. Such municipalities often display a lower level of engagement in respect of climate change issues than the average municipality. In-transit traffic, or through-traffic, an issue for which such municipalities claim not to have the resources to affect, is usually highlighted here as the major cause of their poor performance.

A further issue among the most inactive municipalities relates to the perceived 'lack of political will' to address climate change issues. In relation to the interviews conducted in the context of this project the need for clearer goals was often expressed. The national environmental quality objectives are criticized by some for being too abstract and

not specifically applicable to their municipality. "*Mest skrik och ganska lite,*" ("Lots of shouting and not much else") is one comment often received in relation to the national environmental goals.

The tendencies and trends identified here correspond to the notion that the explanatory factors are to be found in social processes at the local level. The importance of further study within the field is underscored by the fact that the effects caused by climate change place higher demands on society to adapt. The big challenge is then to get municipalities to act now.

This survey differs from similar research previously undertaken since we have adopted a qualitative approach on an otherwise typically quantitatively researched topic. Prior research has also tended to focus on a smaller population than was the case here.

The results of the survey perhaps unsurprisingly did not provide an entirely positive picture of the level of activeness among the municipalities in their work on climate change but did clearly show the challenges they are confronted with. The purpose of the survey has not primarily been to focus on the causes behind the various municipal responses to climate change work though we have undoubtedly gained a general picture of the possible factors behind any explanation. ■

By Fredrik Ernborg, Johan Nilsson and Per Francke, all students of Human Geography at Stockholm University.



Per Francke

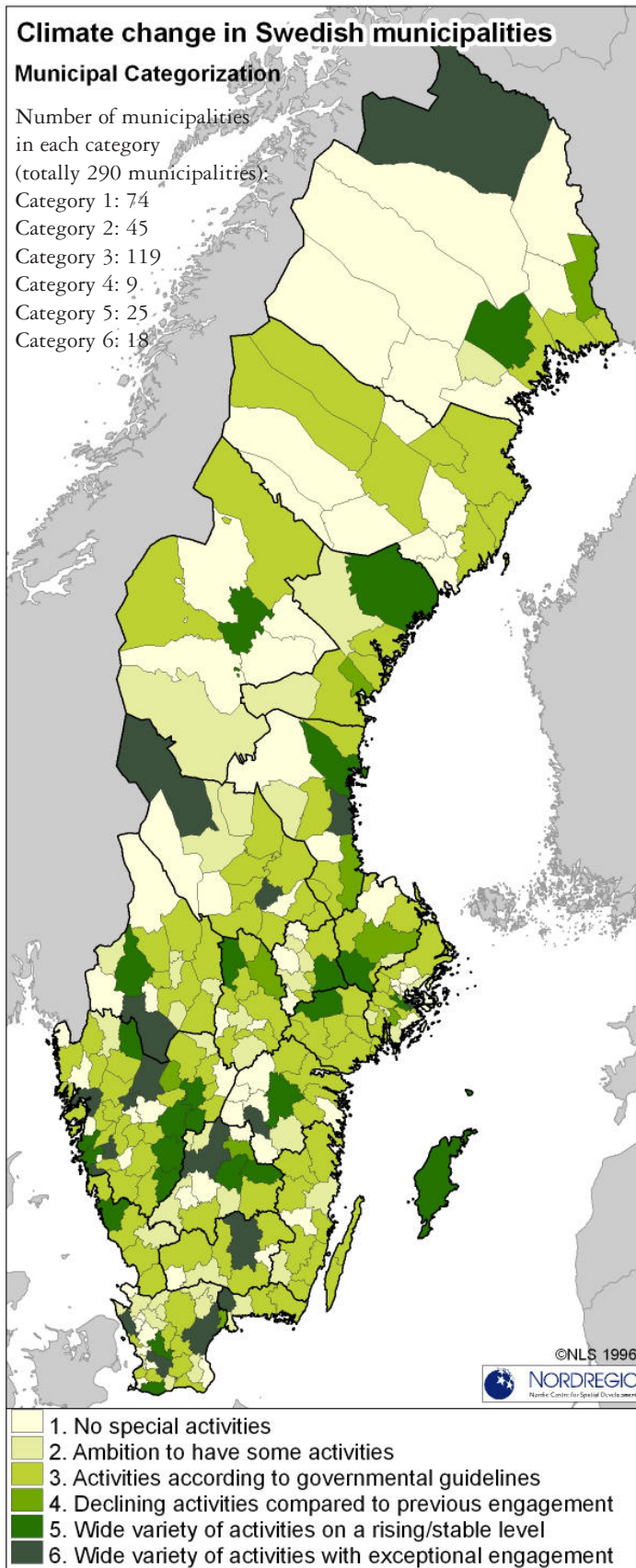


Johan Nilsson



Fredrik Ernborg

All municipalities included

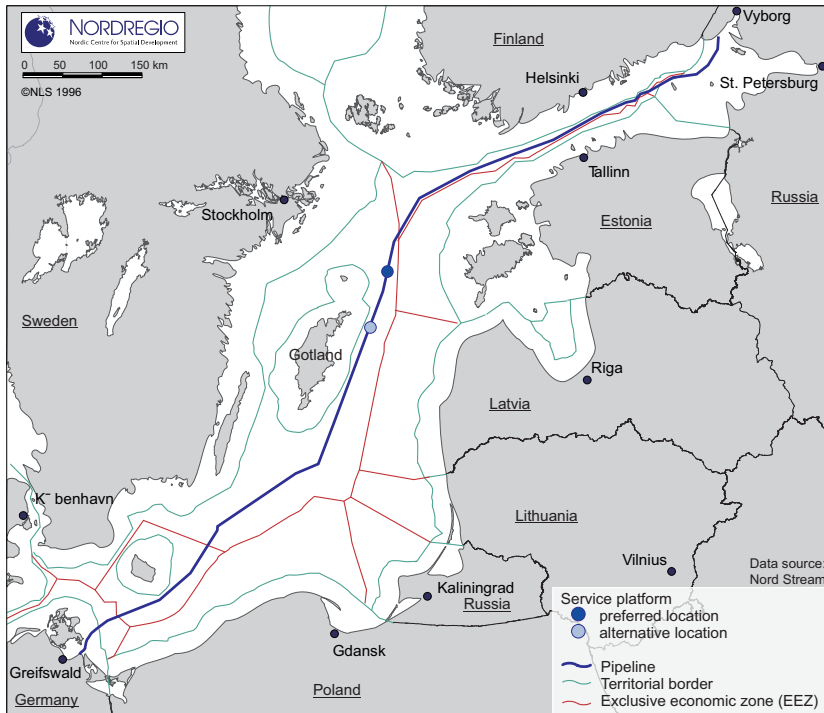


In the early spring of this year three students from the Department of Human Geography at Stockholm University, working with *Nordregio* Senior Research Fellow Richard Langlais, conducted a telephone-based survey on Swedish municipal climate change-related work, with a response ratio of 100 percent. A full presentation of this study will soon be available in the form of a Working Paper produced by *Nordregio*.

The study is the first step in a larger project designed to understand municipal response on the climate change issue. The purpose of this phase of the study was to identify those municipalities with the highest levels of activity and to ascertain how concrete their work is. The person in charge of climate change issue-related work in each municipality was sought in order to ask a few basic questions regarding their work.

The survey is based on the methodology of Grounded Theory. As such, the goal has been, as far as possible, to minimize the impact of the researchers' own preconceived notions. While conducting the interviews, a so called "citizens perspective" was adopted, in other words what would happen if a regular citizen was to call the switchboard and ask for the person in charge of climate change-related issues? Since we were determined to get a response from all municipalities, we made more than one thousand telephone calls. This has resulted in a total response ratio of 100 percent, which in this context must be considered somewhat unique.

In our efforts to reach the correct person to interview we were connected to a variety of different people. This underscores the existence of an important characteristic, namely that a specific person in charge of climate change-related issues only existed in a handful of municipalities. In some municipalities we ended up interviewing janitors in charge of indoor climate-control working for the municipality and in one case a person working in a greenhouse growing vegetables for local schools. Although in most cases the person we ended up interviewing was either an *Agenda 21* coordinator or an Environmental controller. ■



Facts on NEGP

Constructor: Nord Stream AG
<http://www.nord-stream.com>
Shareholders:
 OAO Gazprom (51%), Wintershall AG (24.5%),
 E.ON Ruhrgas AG (24.5%)
Estimated investments: Min € 5 billion
Gas capacities: 55 bcm per annum
 (2 pipelines with 27.5 bcm capacity each)
Pipeline length: 1198 km
Max. water depth: 210 m
Project duration: 2005 to 2010 for first pipeline,
 until 2012 for second pipeline
Pipeline diameter: 1.22 m
Design pressure: 220 bar
Wall thickness: 30-45 mm

Who is afraid of the NEGP – and why?

The North European Gas Pipeline (NEGP) project in the Baltic Sea is a perfect metaphor for the current state of EU-Russian relations – a mix of positive and negative impulses. It has however also revealed severe intra-EU tensions.

Russia and Germany in particular are behind the project on the basis of a September 2005 agreement made between President Vladimir Putin and the then Chancellor Gerhard Schröder.

The company *Nord Stream*, registered in Switzerland, was established to implement the project, in cooperation with the Russian state-owned company *Gazprom*, which retains a 51% majority stake-holding in the enterprise. The fact that Schröder himself became the Chair of its Shareholder Committee was perhaps meant to give authority to the project, though retrospectively, it has only obscured the project's image in terms of transparency.

A European project or a Russo-German pact?

Nord Stream is currently advertising the NEGP as a major Russian-EU infrastructure project. Indeed, for those supporting the project, it supposedly brings

increased energy safety by adding capacity and an additional transit route. For others however it signals a decline in energy security as it adds to the EU's energy dependence on Russia. Some go even further and interpret it as a tool for Russia to play-off EU Member States against each other, and as a particular expression of the growing bilateralism in Germany's relations with Russia.

Poland in particular has complained to anyone that will listen that Germany did not consult it before taking the decision. Should a new gas pipeline be needed, Poland would have preferred an onshore pipeline through its territory, which it claims would have been, economically, more logical.

The underlying reason for this criticism is that current gas pipelines to Western Europe go through either the Ukraine or Belarus and Poland. The current Polish threat analysis – shaped by the Polish leadership's mistrust of both Russia and Germany – is that the NEGP will make it possible for Russia to cut off gas supplies to Poland in political crisis situations. Enabling it to by-pass (and thus 'isolate' Poland) while still feeding Germany with gas.

In April 2006 the Polish Defence Minister, Radek Sikorski, went as far as to state, according to the news agencies, that "Poland has a particular sensitivity to corridors and deals above its head. That was the Locarno tradition, and the Molotov-Ribbentrop tradition. That was the 20th century. We don't want any repetition of that."

The Kremlin reacted by characterising the Polish attitude as "hysterical" while the German government called it an "absurd comparison".

The Baltic Sea gets a new island

The two parallel pipelines are to be built on the seabed beginning close to the Russian town of Vyborg and ending near the German town of Greifswald. It is planned to locate a 900m² service platform close to the Swedish island of Gotland.

Although the pipeline does not go through the territorial waters of any third country, it does transverse the so-called exclusive economic zones (EEZ) of Finland, Sweden and Denmark.

According to international law, the EEZ is subject to a specific legal regime. This does not however mean that a coastal

state could easily, that is, for political reasons, veto the NEGP. All states enjoy such freedoms as laying submarine cables and pipelines in each other's EEZs and placing equipment there associated with the operation of these infrastructures. Yet in so doing, such states "shall have due regard to the rights and duties of the coastal State and shall comply with the laws and regulations adopted by the coastal State".

It is worth noting here that *Nord Stream* has consciously avoided running the pipeline route through the EEZs of any of the three Baltic States or of Poland, even though this would obviously have made for a shorter route. This clearly signals that *Nord Stream* does not trust these countries to not invoke the EEZ regulations for politically motivated decisions.

In muddy waters

The EEZ issue however guarantees that the affected coastal states' formal environmental permission is needed. *Nord Stream* aims also to comply with the 1991 Espoo Convention on Environmental Impact Assessment in a Trans-boundary Context, although Russia itself has not ratified this treaty. *Nord Stream* has promised to complete its Environmental Impact Assessment by the fall of 2007.

In general then it seems that the environmental risks lie in the construction phase rather than the operational phase. The major areas of concern here have focussed on bird-life habitats, fishing stocks, and on the fact that the seabed is already highly contaminated. As such, the envisaged construction work could disturb these pre-existing harmful sediments spreading them into the environment and making the water even more polluted.

One specific issue here is that of the chemical and conventional munitions on the seabed, dumped there during and after WW's I and II. In its 1994 report, HELCOM identified that about 40 000 tonnes of chemical munitions lay on the seabed. The conclusion was that "the risks connected to the recovery of chemical munitions are high. The Group therefore recommends that chemical munitions from the Helsinki Convention Area are not recovered."

According to *Nord Stream*, the NEGP route has been planned so that it does not cross the known dump sites, while more detailed investigations of this issue by the company itself will be conducted in 2007.

An object for terrorists, or an espionage base?

The military dimension of the NEGP was first brought up by Russia itself. President Putin said in a TV interview in October 2006 that the Russian fleet's "role is to protect our economic interests in the Baltic Sea region [...] Protecting the Northern European Pipeline, which brings energy resources to our Western European customers, is one of our most important priorities."

As *Nord Stream* has spoken out strongly against any speculation that the pipeline, or the platform, would make a plausible object for terror attacks, it has nevertheless remained somewhat unclear about what kind of threat Russia and/or the company is preparing to deal with.

Putin's statement however raised concerns in Sweden in particular that the Russian navy will reactivate its patrolling activity close to the Swedish coastline, where the service platform is to be erected. According to *Nord Stream*, the platform is needed for "maintenance and service of the pipelines, including launch and reception of testing and diagnostic equipment, control of gas parameters, and placement of isolation equipment (valves)".

A new dimension to such concerns was added by a 2006 report from the Swedish Defence Research Agency, written by Robert Larsson. It speculated that the platform and the pipeline itself "could be used as sensor platforms and by that serve intelligence purposes and give Russia a competitive intelligence edge in the Baltic Sea." The object of this intelligence and early warning would be Sweden, the Finnish Navy, or NATO submarines and surface vehicles in the area.

According to media reports in November 2006, the then Swedish Minister of Defence Mikael Odenberg agreed: "The Russians will be able to exploit it as a platform for intelligence collection. This is a problem." Commander Emil Svensson from the

Swedish Navy added: "It's technically possible and wise of them [The Russians] to do so."

In an interview to Swedish Radio in February 2007, Russian Ambassador to Sweden Alexander Kadakin commented on this ongoing Swedish debate rather undiplomatically. He noted that, "I cannot understand what kind of an idiot could report to his superior such a thing", and if Russia wanted to spy on Sweden, no platform is needed as "it is already possible for us today, with satellites in real time, to read the number plate of each any in Stockholm."

Confidence building needed

While official Russian reactions have not helped in confidence building, *Nord Stream* has nevertheless tried to downplay the ongoing flood of military speculation. There have also been signals emanating from *Gazprom* that the company's policy is to use private security forces in protecting its oil and gas transports, rather than relying on the Russian navy.

Nord Stream's technical director Dirk von Ameln in turn announced, at the beginning of June 2007, that the Swedish Coast Guard would be the only authority to protect the platform against possible threats, and other Swedish authorities would be "more than welcome" to inspect it.

Undoubtedly however a further raft of confidence building and transparency measures will be needed to turn this Russo-German project into a truly European one. ■

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Participants in the seminar: Policy for Good Governance, Helsinki, 2006 Photo S. Brockett

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