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Economic opportunities in the Arctic 6 Sep 2012

From commodities to emerging opportunities

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Honored members of the Arcticparl, your Excellencies!

First of all, my sincerest thanks to the Arcticparl for providing this opportunity to meet you all and to give a presentation.

I will approach the topic from a maritime, and more specifically, from a Finnish maritime perspective - bearing in mind the requirement of sustainable development in the arctic. There are three key elements in my paper, namely the Finnish icebreaking know-how, the arctic opportunities and public-private partnership.

Close to 90% of the Finnish foreign trade (90 million tonnes annually) is being transported via sea routes.

In this perspective, Finland, just like Iceland, is actually in island. The shoreline is restricted by the Baltic Sea, namely the Gulf of Finland in the south, the Sea of Archipelago in the southwest and the Bay of Bothnia in the west and northwest.

The Baltic Sea freezes every year. Conditions vary a lot from one year to another. The minimum ice coverage is approximately 50 000 square kilometers, when only the northern areas are covered by ice. On a harsh winter, the whole Baltic Sea receives an ice cover and we face a maximum area of 400 000 square kilometers.

Due to the needs of Finnish and international trade, a year-round maritime and harbor infrastructure has been developed. There are more than 60 commercial ports in Finland and 23 of them are kept open on an all-year round basis. All these ports may have ice coverage during the winter. The harbors and icebreaker services have been a commodity for the country.

The first formal icebreaker, namely the “Murtaja” (translation “Breaker”) was commissioned as early as 1890 with steam engines by the Swedish dockyard “Mekaniska Verkstad Ab”. Soon, in 1895, the Senate of Finland set up a committee to solve the questions of winter navigation. In 1898, the second icebreaker, namely the “Sampo” was commissioned being the first European vessel equipped with a bow propeller. Its’ steam engines generated 3000 horsepowers and the dockyard was British Sir W.G. Armstrong, Withworth & Company.

Various additional vessels were taken into service in the 1920’s and 1930’s. The first diesel-electric icebreaker, namely the Sisu (translation “Gutts”) in 1939 was the first totally Finnish-built icebreaker. It had a diesel-electric propulsion system.

This was the start of the icebreaker evolution in our country. That evolution is to be considered as a series of innovations.

As expressed earlier, due to the geographical facts and industrial development, icebreaking became a commodity for our country. Icebreakers were, and still are, needed to assist the commercial vessels to and from the 23 Finnish winter ports to keep the country going. This need began to create an industry in Finland. Icebreaker design, building and operational know how started to build up rapidly. Today, the current icebreaker fleet of Tellus consists of approximately 100 vessels, - which of approximately 60 have been designed and built in Finland. We can say, that the Baltic Sea has been a laboratory basin for this development.

Today, this development and experience of this commodity, gathered during a period of more than 100 years can now be enhanced and developed in the arctic areas.

Willing or not, we are facing the fact, that the meltdown in the arctic has broken the records this year. If we look into the heating scenarios made during the past 10-20 years, the development has been quicker than predicted even in the fastest scenarios. There are two maritime business areas emerging from this development: The possibilities to use the northern seaways to shorten the transportation times between Europe and the Asia-Pacific and the opportunities to use the natural resources which were previously blocked by ice or glacier cover. Some meteorologistics claim, that we might see an ice-free summer on the north pole already within the next 10-20 years.

“We estimate that by 2040, the world will need 30% more energy than it did in 2010. The Arctic is a critical component.” says Ms. Kathy Pepper from one of the energy majors in the world. I would estimate that this development will be even faster. The attempts of finding new and renewable energy sources have until now succeeded only to a limited extent. According to U.S. Geological Survey estimates The Arctic has huge oil and gas reserves - 90 billion barrels of oil and 1,670 trillion cubic feet of natural gas – a significant amount of the remaining reserves.

How can the Finnish maritime and other industries enhance and support this development in a sustainable way? I will start with an example of the Finnish petroleum industry.

The Fininish - owned petroleum company St1 has seven bio ethanol plants in Finland, a refinery in Sweden and a total of around 1200 retail stations in Finland, Sweden and Norway. What difference does it make? Well, their bioethanol production is totally based on biowaste – not to any growable resource like corn for instance.

Facing the fact, that arctic oil and gas reserves will be enhanced in a growing manner – having experiences already from four previous decades - we have chosen to give our best efforts to support its sustainable development. We are bringing the Baltic Sea Ice Laboratory experiences to support safe operations in the arctic with the following solutions:

-arctic ship design know-how
-arctic ship-building experience
-icebreaking operations know-how
-ice management
-oil spill response
-low emission engine technical solutions including conversions

We will now move ourselves into the solutions of the issues in question.

Let’s start with the opportunities of Arctia’s current fleet. Today, we operate eight icebreakers. Two of them are currently being chartered to the Beaufort and Chukchi Seas for ice management tasks to safeguard a drilling operation from ice floes, berg bits, icebergs or ice fields. One of our vessels has been converted to an oil recovery icebreaker with the biggest recovery capacity (2033 cubic meters) on the Baltic Sea. Technical plans of conversions for three additional vessels are ready. This resource could serve the forthcoming agreement between the member states of the Arctic Council prepared by the Council’s Oil Spill Response Task Force.

Hundreds of drill leases have been admitted within the arctic and subarctic areas. However, the ice management vessel fleet is existing only to a very marginal extent. One drill site usually requires a minimum of two ice management vessels. So for instance twenty (20) sites would require forty (40) vessels - which do not exist for the time being.

We foresee the question of financing these expensive efforts. Who is responsible of icebreaking and ice management in the arctic countries? The arrangements vary from each other in the arctic countries. In the United States and in Canada the responsible body is Coast Guard. Private sector is responsible for responding their needs themselves. In Russia, there are two state-owned companies providing the services. In Sweden, state and private resources are used in parallel. In Finland we have a commercial model on a contractual basis with the authorities.

An icebreaker is a huge investment of 80-150 million Euros. The price tag may also be much higher if the question is on a nuclear-powered vessel (estimate 1,2 bn Euros in Russia) or high-tech research with possible military elements (estimate 850 million dollars in the United States). These types of amounts are a big request from any government to its taxpayers. What alternatives do we have - if any?

In an arctic panel July this year organized by the Finnish Embassy in Washington, we suggested the public-private partnership model in financing the new icebreaker fleet. Instead of taking a huge amount of money from the taxpayers' pockets at once, a financing model based on a long-term contractual basis provides an opportunity to divide the cost for a longer timeframe. This could be for instance like 20-30 years, depending on the term of the contract. In this model, the annual cost would be like 5-10 million Euros and the private investors would bear the burden of finding the required cash for the investments. The risk of the residual value
will usually be carried by the owner. Hence the total amount required during the whole period is much less, than a direct taxpayer investment.

What about the sustainability then? Let us discover the current resources and the newbuildings complementing each other. I will take an example of Arctia's actions in this development.
Once we were requested to charter our two icebreakers to the Alaskan Arctic area of the Beaufort and Chukchi seas, we had to evaluate the emission levels of the vessels against the forthcoming authorities' and customer regulations. The areas to cover included the sulphur emissions, the nitrogen oxides emissions and the small particulars emissions. The vessels' pollution levels exceeded the limits required.

Together with our Finnish engine provider Wärtsilä we started a project and were able to reduce the sulphur emissions by exchanging the heavy fuel oil to ultra low sulphur diesel oil with some technical changes. The emission reduction was huge: 99,5% from 3000 ppm to 15 ppm. Furthermore, a new urea based cleaning system has reduced the nitrogen oxide emissions by approximately 90% and the small particulars emissions were cut to half. The question, whether conversions can be made to meet the targets, has been solved in Arctia's fleet. Once this can be done by converting the older engine systems, the newbuildings can be built on a sustainable manner, too. Here we have a sustainable solution of converting the rest of the fleet with oil recovery equipment and the before mentioned new exhaust techniques!

I would foresee, that the Arctic Council's forthcoming agreement on oil spill response in the arctic areas gives the member states new challenges of meeting the response requirements. So – let us remember, that the current capacities can be converted to partially meet those demands with an economical manner with the previously described conversions of the current icebreaker fleet for oil combating purposes. This type of conversion is probably worth 10% of a similar new vessel! – and Arctia has already more than 100 oil-combatting-trained seamen.

Your Excellencies!

Let me take this opportunity to provide the Arcticparl and the Arctic Council with two practical recommendations:

1) Study the opportunities of public – private partnership in icebreaking investments – and make use of it
2) Enhance the current fleet capacity with exhaust and oil combating and emission conversions to mitigate the risks in a spill situation for the best of the Arctic

I will conclude my presentation by pointing, that the arctic community is phasing many opportunities which simultaneously are giving a birth to a plethora of challenges.

As described - we have not been sitting and waiting, but finding the solutions instead.

Copies of this paper are available from the organizers during the event.

Annex

Short biography of the author and speaker

Mr. Tero Vauraste, 44, is President and CEO of Arctia Group. He has joined the company in 2009. His educational background includes MSc in Risk, Crisis and Disaster Management from Leicester University and Naval officer exam from Finnish Naval Academy. He has worked as a vessel master and in several other positions in Finnish Coast Guard. Prior to joining Arctia he has years of experience from top management positions within the traffic service cluster including car rental, aviation, security and safety.

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Arctia Group in short

Arctia Group provides icebreaking, ice-management and oil combating services. The annual turnover is approximately 70 million Euro. There are 300 professionals and eight (8) icebreakers serving the customers. The parent company is owned by the Finnish State. On the Baltic Sea we assist annually 1000-4000 vessels to/from Finnish harbors and we keep oil recovery capacity of European Maritime Safety Agency EMSA. Our multipurpose icebreakers operate globally to assist mainly the energy cluster with icebreaking, ice management, underwater and various other offshore related services in the arctic and other areas.