The Arctic 2030 Project: Feasibility and Reliability of Shipping on the Northern Sea Route and Modeling of an Arctic Marine Transportation & Logistics System

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A Letter of Intent for Joint Cooperation was signed on the 14th of September 2012 between CHNL and the IAL of Youngsan University.

The joint project is in line with MOU between Norway and South-Korea signed on the 12th of September 2012 “promoting joint projects in maritime transport in areas in which the two sides have common interest.”

The MOU’s paragraph 4.4 states that “each side will bear its own expenses accompanied with the bilateral joint projects unless otherwise jointly decided by the two parties.”

The Norwegian part funded by:

NORWEGIAN MINISTRY OF FOREIGN AFFAIRS

The Arctic 2030 Program
3rd Arctic Shipping Seminar on Sustainable Uses of the NSR

Ulsan, South-Korea, November 2014
Project Partners

Norway:
Centre for High North Logistics (CHNL)
Department of Marine Technology at the Norwegian University of Science & Technology (NTNU)
DNV GL's Arctic Operations & Technology
Norwegian Shipowners’ Association

South Korea:
Institute of Arctic Logistics (IAL) of the Youngsan University in Busan, South-Korea

Russia:
FSUE Rosatomflot in Murmansk, Russia
Project Goals & Objectives

- Comprehensive analysis of the current commercial transport and logistics operations, operational efficiency, cargo base, costs, infrastructure needs, security and safety of transit shipping along the NSR
- Provide the needed data for assessing the feasibility and reliability of using this alternative shipping route in the future by commercial shipping companies
- Provide Norwegian and South Korean commercial shipping and support industries – and major service providers for the oil and gas industry and logistics operators - with critical data and information on current transport and logistics operations on NSR
- Shipping industry can better assess their involvement in future transport and infrastructure development projects and investments in the Arctic and along the NSR
WP1: NSR’s Legislation, Tariff System & Insurance

**Task:** a) Evaluation of the current Russian NSR legislation, tariff system, and overall NSR governance and management system; b) Assessment of vessel and cargo insurance in Arctic waters; and c) Evaluation of international maritime legislations relevant to Arctic shipping including survey of possible impacts of a new mandatory IMO Polar Code on NSR future development.

**Deliverables:** Interim report and seminar with comments and clarification of existing regulations and fees for navigation on the NSR
**WP2: NSR’s Maritime Transport Infrastructure**

**Task:** a) Assessment of ports and terminals along the NSR; b) Evaluation of Russian icebreaking and ice-pilotage services; c) Analysis of the availability of ice class cargo ships in different segments and sizes for possible use on the NSR; d) Evaluation of Russia’s SAR and oil spill response facilities and available technologies on the NSR; and e) Evaluation of Russia's current NSR’s navigational aids and communication system.

**Deliverables:** Interim report and seminar on NSR navigation and current marine transport and logistics system and analysis of future NSR infrastructure needs
WP3: Sea Ice and Operational Conditions for Ships

**Task:** a) Analysis of dynamic changes in sea ice cover and thickness as well as in other operational conditions on the NSR for the years 2008-2016 during the current navigational season (July-November), and how ice conditions relate to Russia's admittance criteria for ships to enter the NSR water area; evaluation of same conditions for the remaining months of the year; and b) Analysis of Russian’s long-term forecasts for sea ice in the Arctic as well as sea ice forecasts from other sources.

**Deliverables:** Interim report and seminar providing recommendations for planning transit passages along the NSR depending on sea ice conditions and other operational conditions.
WP4 Cargo Base

**Task:** Potential cargo for transport along the NEP/NSR - analysis of cargo types, port locations, volumes and market prices. a) Collection of data regarding the distribution of cargos transported through the ports of the Barents Sea-Kara Seas, Norwegian Sea, Baltic and North Seas eastwards to Asian markets; and b) Collection of data on possible cargo transport westwards on the NEP/NSR from various Asian ports to the European market.

**Deliverables:** Interim report and seminar highlighting potential cargos that could be transported along the NSR by location, type and volume - both eastwards from Europe to Asia and westwards from Asia to Europe - and analyzing likely transport flows and future traffic scenarios.
**WP5: Cost-Benefit-Risk Analysis**

*Task*: a) Detailed SWOT and cost-benefit-risk analyses of advantages and challenges of marine transport on NSR vs. Suez/Cape based on various scenarios and for different types of cargos and vessel sizes, including LNG, liquid cargos, dry bulk cargos, heavy equipment, vehicles, and containers.

*Deliverables*: Interim report and seminar for commercial shipping on the economic feasibility, safety and reliability of marine transport on the NSR compared to Suez/Cape
**WP6 Future Arctic Marine Transport and Logistics System**

**Tasks:** a) Identifying the main structural and design characteristics of a new transport and logistics infrastructure for reliable and safe cargo transport; b) GIS maps highlighting various components of the whole transport and logistics system; c) Estimating the cost of various infrastructure components and assessment of different funding mechanism in financing long-term capital-intensive infrastructure projects crossing borders within the Arctic.

**Deliverables:** Interim report and seminar suggesting a new Arctic marine transportation and logistics system and funding mechanism to finance large-scale and long-term infrastructure projects.
**WP7: Dissemination of Project Results**

*Deliverables:* Six interim reports and a final project report (book); 6 seminars and participation in a number of international conferences; information disseminated on CHNL’s website including NSR IO’s website and ARCTIS Knowledge Hub
Welcome to ARCTIS!

The ARCTIS Database, developed by the Centre for High North Logistics (CHNL) in North Norway, is a gateway to know-how for businesses, governments, and the research/educational community on shipping, transportation infrastructure, logistics and non-living resources in the Arctic.

Online Database

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Marine Transport and Logistics
Arctic Sea Routes
People, Industries and Institutions
Maps and Charts
Arctic Ice Conditions, Geography and Climatology
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Project’s Results

- Both the Norwegian Shipowners’ Association and the Korean Shipowners’ Association are interested in future possibilities for transport on the NSR but repeatedly have stated that more information is needed about actual operational conditions and risks, the Russian regulatory framework, and the overall cost effectiveness and reliability of transport.

- This study will provide such critical data so companies can make informed decisions about their business activities and operational challenges in the Arctic. The study will also contribute to the development of more efficient and sustainable Arctic marine infrastructure and logistics solutions, by highlighting what kind of infrastructure is needed based on specific Arctic conditions.