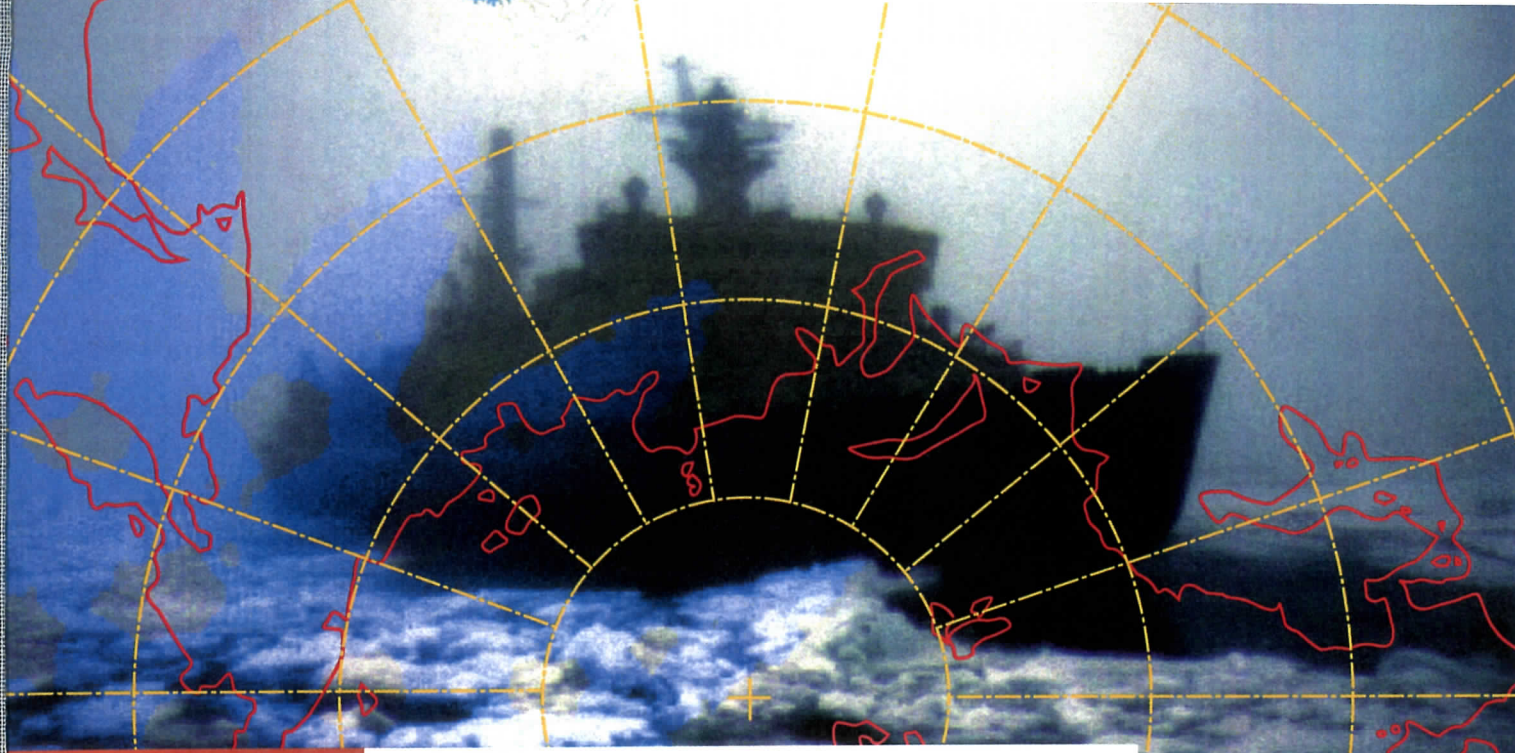

INSROP WORKING PAPER
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Russian Administration of the Northern Sea Route - Central or Regional?

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INSROP International Northern Sea Route Programme

Central Marine Research & Design Institute, Russia

The Fridtjof Nansen Institute, Norway

Ship and Ocean Foundation, Japan

International Northern Sea Route Programme (INSROP)

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Sub-programme IV:	Political, Legal and Strategic Factors
Project IV.2.5:	Russian Administration of the Northern Sea Route - Central or Regional?
Supervisors:	**Yury Ivanov and Arild Moe**
Title:	**Russian Administration of the Northern Sea Route - Central or Regional?**
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FOREWORD - INSROP WORKING PAPER

INSROP is a five-year multidisciplinary and multilateral research programme, the main phase of which commenced in June 1993. The three principal cooperating partners are **Central Marine Research & Design Institute (CNIIMF)**, St. Petersburg, Russia; **Ship and Ocean Foundation (SOF)**, Tokyo, Japan; and **Fridtjof Nansen Institute (FNI)**, Lysaker, Norway. The INSROP Secretariat is shared between CNIIMF and FNI and is located at FNI.

INSROP is split into four main projects: 1) Natural Conditions and Ice Navigation; 2) Environmental Factors; 3) Trade and Commercial Shipping Aspects of the NSR; and 4) Political, Legal and Strategic Factors. The aim of INSROP is to build up a knowledge base adequate to provide a foundation for long-term planning and decision-making by state agencies as well as private companies etc., for purposes of promoting rational decisionmaking concerning the use of the Northern Sea Route for transit and regional development.

INSROP is a direct result of the normalization of the international situation and the Murmansk initiatives of the former Soviet Union in 1987, when the readiness of the USSR to open the NSR for international shipping was officially declared. The Murmansk Initiatives enabled the continuation, expansion and intensification of traditional collaboration between the states in the Arctic, including safety and efficiency of shipping. Russia, being the successor state to the USSR, supports the Murmansk Initiatives. The initiatives stimulated contact and cooperation between CNIIMF and FNI in 1988 and resulted in a pilot study of the NSR in 1991. In 1992 SOF entered INSROP as a third partner on an equal basis with CNIIMF and FNI.

The complete series of publications may be obtained from the Fridtjof Nansen Institute.

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SUMMARY OF PROJECT IV.2.5: RUSSIAN ADMINISTRATION OF THE NSR - CENTRAL OR REGIONAL?

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The ultimate goal of this paper is to reveal the possible directions in development of the central and regional administrative bodies of the NSR under conditions of political and economic reforms in Russia.

In this connection, the paper first gives a brief analysis of the NSR management in the Soviet period, current status of the NSR management and shipping management practiced by foreign Arctic States.

A retrospective analysis of the NSR management in the Soviet period shows that successful accomplishment of the most difficult tasks in development of the NSR became feasible due to the establishment of centralized management based on State ownership of all the NSR elements.

The uncontrolled process of privatization (since 1991) of the shipping companies servicing the NSR broke the central management system of the NSR. Decisions by the RF government basically concerned particular matters of delivering goods to the North and did not set forth the principles of the NSR management under conditions of market relations.

The legislative basis of the new administrative system of the NSR has been formed by the Constitution of the RF (1993) and the Decree of the President of the RF (1993) in conformity with which the ice-breaking, rescue and salvage and hydrographic fleet, port facilities, hydrographic bases, hydrometeorological service and means of radio communication are Federal property. These objects will be managed centrally at all times.

The regional administrative bodies of the NSR will be formed as the new finance and economic relations are introduced and traffic volume increases, with the active participation

of RF subjects and industrial enterprises in the Arctic. This is confirmed by foreign experience (Canada).

The idea of founding a regional Arctic stock shipping company may become reality when the annual traffic volume through the NSR exceeds 20 m t and the rate of ice-breaking fee will be not more than 5 USD for 1 GRT. Under these conditions the Company may be profitable and renovated.

At all stages of the NSR development the State will retain the NSR as an integral national marine transport line meeting the internal and external interests of Russia. In compliance with the UN Convention on the Law of the Sea (Article 234), 1982, the State will adopt laws and rules concerning regulation of the Russian and international shipping along the NSR and marine environment protection.

Contents

Abbreviations:

AARI	- Arctic and Antarctic Research Institute
ASC	- Arctic Shipping Company
CHEM	- Centre of Hydrometeorology and Environmental Monitoring
DHEM	- Department of Hydrometeorology and Environmental Monitoring
FESCO	- Far East Shipping Company
HB	- Hydrographical Base
HDHS	- Head Department of Hydrometeorological Service
HONSR	- Head Office of the Northern Sea Route
MAP	- Marine Administration of Port
MCA	- Ministry of Civil Aviation
MMM	- Ministry of Merchant Marine
MOH	- Marine Operations Headquarters
MSC	- Murmansk Shipping Company
NSR	- Northern Sea Route
NSRA	- Northern Sea Route Administration
NWSR	- NorthWest Sea Route
PSC	- Primorsk Shipping Company
RF	- Russian Federation
ROM	- Regional Body of Operative Shipping Management
Rosgidromet	- Federal Service of Hydrometeorology and Environmental Monitoring
Rosmorflot	- Service of Merchant Marine
RRG	- Repair - Rescue Group
SARP	- Salvage and Repair Party
SHD	- State Hydrographic Department

INTRODUCTION

The problem of Russian central or regional management of the NSR was raised by Norwegian researchers in the Project IV.2.5. It arose in the course of transition to market relations as a results of spontaneous privatization of various elements of the NSR, shipping companies in particular, which, in its turn, broke the process of gradual reforming of the NSR administrative system.

The position of the State regarding the management of the NSR is as follows: the NSR which is the only Russian marine transportation system in the Arctic cannot function on the basis of market competition and shall remain the State monopoly. Regulation and coordination of the interests of all organizations and enterprises, which take part in the shipping along the NSR shall also remain within the sphere of State responsibilities, the latter being the guarantor of legislative, organizational and material support rendered to the NSR. The NSR, managed and controlled by the State, is to yield profit to the State budget, as is the case with the Suez, Panama and Kiel canals.

The Arctic subjects of the Russian Federation form their position regarding the management of the NSR on the basis of their national interests. If these are not co-ordinated with the transport tasks of the State in the Arctic, the NSR will be divided into national sections without any general management and unable to function as an integral transport system.

The juridical and organizational measures taken the State to retain the management of the NSR are being put in practice at present.

The problem of the NSR management is being considered depending on the prospects in the development of Russian and international shipping, foreign systems of Arctic shipping regulation being taken into account too.

In the period of forming the economy of the Russian Arctic zone and restoration of previous volumes of coastal and transit transportations along the NSR the problems of the Arctic shipping management are solved by taking the following steps:

- expansion of the NSRA functions regarding the State control over expedient exploitation of the NSR and development of MOHs which are regional bodies of the NSR administration;

- allocation of powers in the system of the NSR management between the Government of the Russian Federation and the Government of the RF Arctic subjects in conformity with the Constitution of the Russian Federation (articles 71 and 72);
- establishment of the legislative basis for conclusion agreements between the Ministry of Transport and the Ministry of Finance in the one hand and stock companies (shipping companies) on the other, regarding the matters of cargo transportation and ice-breaker leading along the NSR;
- co-ordination with the Ministry of Economics and the Ministry of Transport of the tariffs and dues for the leading of vessels along the NSR.

In the period of stable development of the Russian Arctic economic zone an intensive transit and regional shipping along the NSR may be expected.

New methods of sea transportation, which constitute an integral part of the industrial-transport-export process in the development of any deposit, will be worked out in the course of exploitation of natural resources on the coastal Arctic territories of the RF subjects and the adjoining continental shelf of the Barents and Kara seas. The management of shipping in these local processes will be local too.

Transit transportations of containerized and bulk cargoes to the ports of Europe, Asia and North America will be developed along the NSR in the same period.

The regulation of shipping servicing these cargo-flows will be fully controlled by the central administration of the NSR.

On the whole, the structure of the future administrative system of the NSR will consist of a combination of central, regional and local elements meeting the interests of the State, the RF Arctic subjects, industrial and transport organizations and enterprises.

Possible changes in the status, structure and functions of the NSR Administration, which is the State administrative body for the NSR, are being considered with regard to the intensity of the Russian and international shipping development. The internal vertical and horizontal ties of its elements are being analysed in this paper, with the NSR Administration taken as the

central element of the NSR administrative system: allocation of responsibilities, on the central and regional levels, represent vertical ties and co-operation in the matters of navigational, hydrographic and hydrometeorological support, to ensure safety of navigation and prevent environmental pollution by ships, are horizontal ties.

The external ties of the NSR administrative systems, on the regional level, with the organs of power of the RF Arctic subjects and those of local self-government include the matters of sea port development, maintenance of navigational aids and hydrographic equipment, means of communication, search and rescue arrangements and environmental monitoring.

Suggestions on the improvement of legislative and normative basis of the NSR administration are considered in the final section of the paper.

The results obtained in the course of the research conducted in accordance with the sub-programmes INSROP III and IV have also been taken into account in this paper.

1. The NSR Administrative System in the Soviet Period.

1.1. The NSR Administrative System in Its Initial Period

National economic interests formed the basis for the development of the NSR as a permanently functioning seaway. The tasks of the original administrative bodies were complex ones and included transport, economic and scientific activities in the North. The NSR management was centralized on the Government level.

The Committee of the Northern Sea Route become its first administrative body (1920), the original task of which was to organize Kara sea expeditions and exchange of commodities with foreign countries. Later on the Committee was reorganized into a commercial and industrial transport enterprise, a kind of a stock company.

In 1928 the North-Siberian State stock company for industry and commerce, "Komseverput", was founded within the framework of the Peoples' Commissariat for Foreign and Home Trade. Its tasks were the following: development of industry and commerce and exploitation

of sea and river routes in the western region of the soviet Arctic. In 1931 the stock company was reorganized into the All-Union association of the same name, which consisted of the central administration in Moscow and there territorial administrative bodies in Sverdlovsk, Irkutsk and Yakutsk. The All-Union association "Komseverput" executed administrative functions on the territory adjoining the NSR from the Kolguev island in the west to the basin of the Kolyma river in the east. Several organizational bodies were also functioning on the same territory; they were responsible for economic, cultural and scientific activities in the North. Every attempt undertaken by the "Komseverput" to play the part of a consolidating centre failed.

1.2. Experiment to Establish General Administration of the NSR

In the early thirties the political situation changed abruptly owing to a threat of war on the part of Germany in the west and Japan in the east. The strategic importance of the Northern Sea Route which could be used as a transit transport artery rose immensely. Its complex development had to be commenced without delay. The forming of a united administrative body responsible for all economic activities in the North (The Head Office of the Northern Sea Route - HONSR) was begun at once. However, owing to the fact that main efforts were primarily aimed at solving economic and social problems, the system of the NSR administration was not paid due attention and the existence of the HONSR began to contradict the economic structure which was developing in the North at that time: various departments and organizations started to take part in exploiting natural resources of the region (coal, gold, timber etc.).

Therefore, the only task which faced the HONSR in 1939 was to make the Northern Sea Route function regularly and ensure an uninterrupted link with the Far East. Ice-breakers and ice-class transport vessels, a number of sea and river ports, the Arctic and Antarctic Research Institute (AARI), hydrometeorological stations and polar aviation were integral parts of the HONSR.

The viability of the HONSR was proved during World War II (1941-1945). Special Government Decrees were issued to organize every Arctic navigation. Prompt measures

which depended on the changes in war and ice situations along the NSR could be taken in good time due to the centralized management of all operations.

In the port-war period a number of the HONSR responsibilities were delegated to other Ministries and Government bodies (polar stations and AARI - to the Head Department of Hydrometeorological Service (HDHS), polar aviation - to the Ministry of Civil Aviation (MCA). In 1964 the HONSR was closed down and its functions were delegated to the Head Department of Shipping of the Ministry of Merchant Marine (MMM), which became responsible for Arctic shipping. The results of those changes were fully negative.

1.3. Establishment of the NSR Administration

Efforts to restore centralized management of the Arctic shipping were undertaken in 1967 after the commencement of the Arab-Israeli war and closing the Suez canal. At the same time the Soviet Union made an attempt at opening the Northern Sea Route for international shipping. In 1971 the Northern Sea Route Administration (NSRA), with the rights and responsibilities of a head department, was established the framework of the Ministry of Merchant Marine. The provision on the NSRA was adopted by the Decree of the Soviet of Ministries of the USSR in 1971 .

The NSRA was established in order to ensure safety of Arctic navigation and prevent pollution of marine environment and Northern coast of the USSR. The main tasks of the NSRA were to effect State control over the expedient utilization of the NSR and organize Arctic shipping. In the course of its activities the NSRA developed relations with shipping companies, organizations and departments which were operating in the Arctic.

In 1990, in accordance with the Provision on the NSRA, the Ministry of Merchant Marine worked out and proclaimed the duties of the Marine Operations Headquarters on the NSR (MON). Before that time the Marine Operations Headquarters had been established and charges with their duties by the shipping companies which delivered cargoes to the Arctic and owned ice-breaker fleet. As a result of prolonged periods of Arctic navigation and commencement of all-year-long navigation in a number of regions it become inevitable to convert MOHs into official organization [2]. The official duties of the MOHs show their role

in the management of marine operations on the NSR. The MOHs are now established by the Murmansk and Far East shipping companies, their permanent bases being in the port of Dikson (western region of the NSR) and the port of Pevek (eastern region of the NSR). By 1985, when the traffic along the NSR had become more intensive, the MOH of the western sub-region of coastal shipping and the MOH of the central sub-region of coastal shipping and the MOH of the central sub-region of coastal shipping were organized in the ports of Amderma and Tiksi correspondingly.

The MOH staff consists of groups of ship's masters experienced in ice navigation, an exploitation-operational group, scientific-operational group from AARI (hydrologists, weather forecasters, specialists in ice air-reconnaissance), representatives from hydrographic service of the MMM and MCA, specialists in SAR operations.

The NSRA is the central administrative body which is to co-ordinate the operations of the Murmansk and Far East shipping companies and the MOHs aimed at preparing and effecting Arctic navigation.

As a result, a complicated two-level inter-departmental administrative system was established - the NSRA-MOH (Fig.1). Geographical zones of responsibilities allocated to the MOHs of the western and eastern Arctic regions by the Regulations for Navigation on the Seaways of the NSR [2], MOH zones in the western and central sub-regions are stipulated in the Guide to Navigation through the NSR [3].

The Ministry of Merchant Marine was at the head of the NSR administrative system. The main administrative body, except the NSRA, was the Head Department of transport, port and fleet operations. The Hydrographic Enterprise was charged with hydrographic and navigational support of shipping along the NSR seaways, having Arctic territorial hydrographic bases for the purpose. Other department of the MMM were responsible for rescue operations in emergency and reliability of radio communication. Thus, one can see that there was no united organizational body responsible for taking decisions on all matters connected with the Arctic shipping.

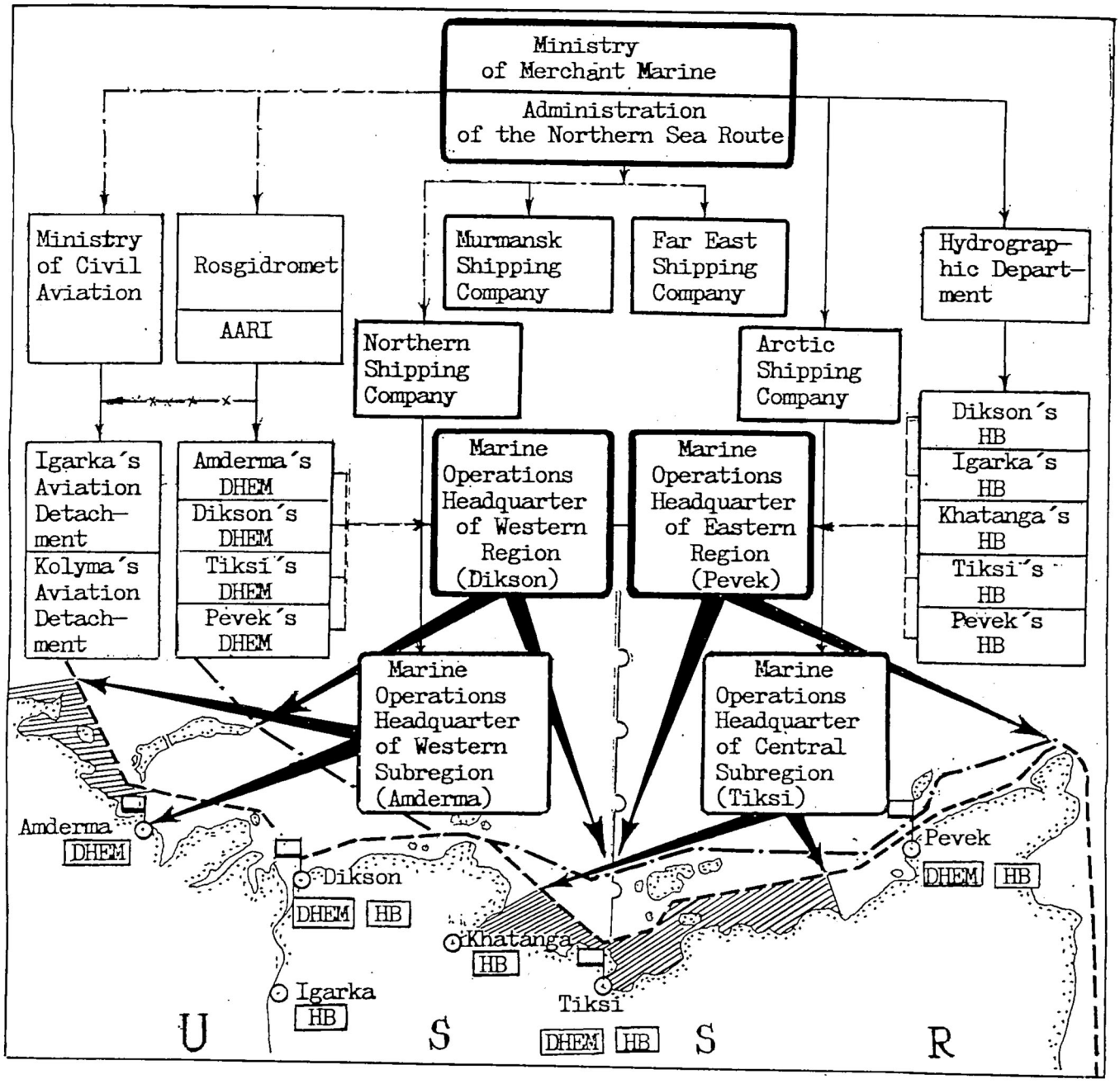


Fig.I. Structure of Administration of the Northern Sea Route in the 70-80s years

Seaways of the Northern Sea Route:

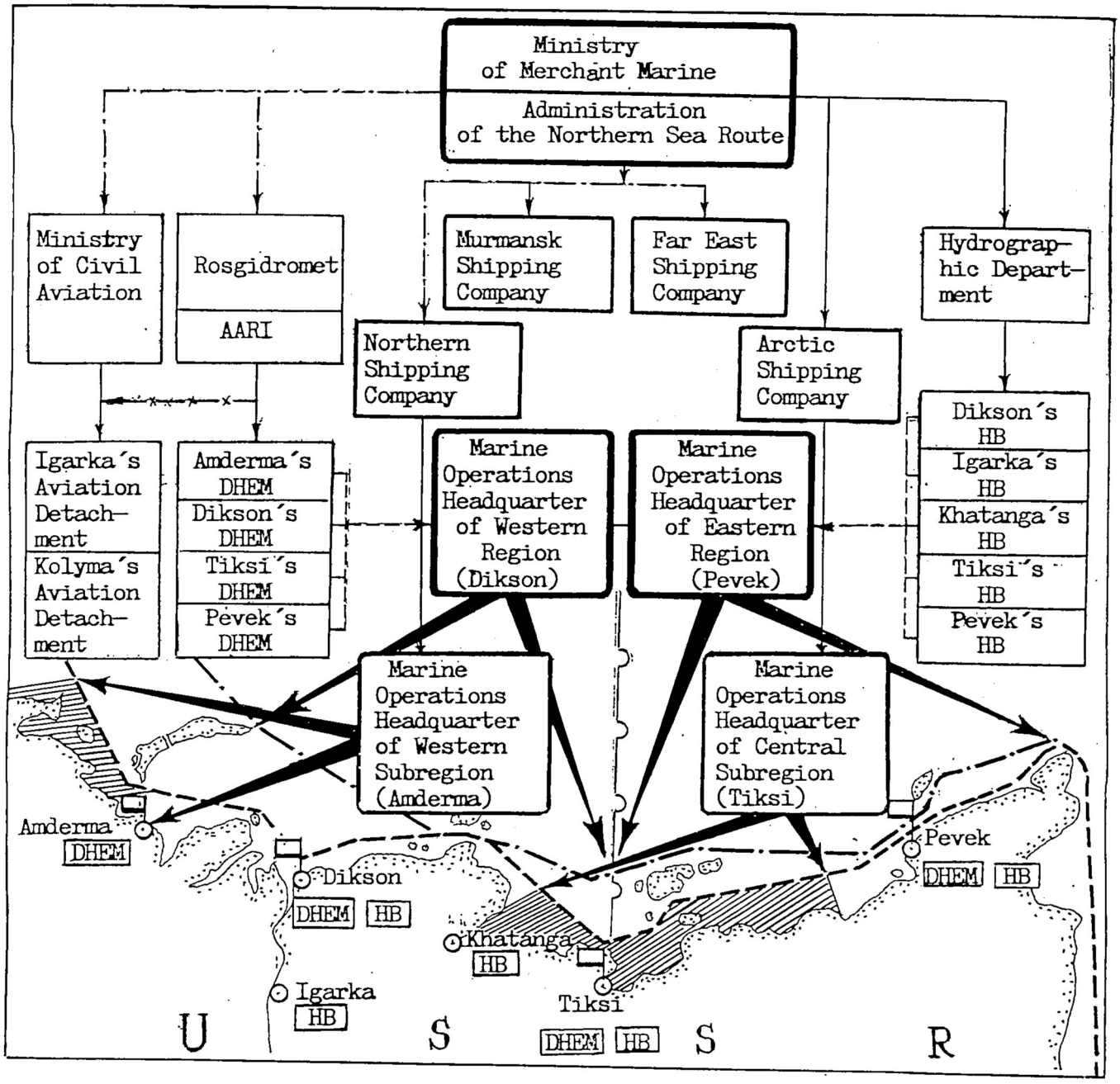
- Traditional coastal
- High-leatitudinal

Functional relations:

- Subordination
- Control, co-ordination
- Information about ice, meteorological and navigation conditions
- Leasing of ice reconnaissance aircrafts
- Marine Operations Headquarter

Abbreviations:

AARI – Arctic and Antarctic Research Institute
DHEM – Department of Hydrometeorology and Environmental Monitoring
HB – Hydrographial Base



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The Head Department of Hydrometeorological Service established the Arctic, Antarctic and marine administrative board to effect scientific and operational management in the Arctic. The Arctic territorial department and AARI were functioning under its guidance. The Technical Department was responsible for the functioning of the Arctic radio centres. On the whole , the HDHS was fully responsible for hydrometeorological support of shipping and air operations in the Arctic and, partly, for radio communication. Aircraft and helicopters of the Ministry of Civil Aviation carried out ice reconnaissance one leasing conditions. The aircraft of the Igarka and Indigir-Kolymsk aviation groups took part in the above operations. The ice-breaker-born helicopters were dispatched by the Leningrad and Far East department of the MCA. The latter had no special organizational body to render air assistance to shipping in the Arctic. Hence, one can see that there was no general organization responsible for the development and management of the NSR system in the 70s. Nevertheless, the establishment of the NSR appeared to be very important to further develop and manage the Arctic shipping.

Conclusion: the above retrospective analysis of the development of the NSR administrative system in the Soviet period proves that the successful realization of the first, most difficult, tasks in the development of the NSR became feasible due to the establishment of centralized management on the State level.

Originally, in the 2Os, the central administrative body was organized on the principles of a stock company. It directed industry and trade (foreign trade included), developed sea and river transport routes. It consisted of the central administration in Moscow and three territorial departments.

In the 30s, for the first time in the world practice, a special united administrative body had been established to plan, organize and perform Arctic navigations. It was also charged with inappropriate economic responsibilities (geological reconnaissance, coal mining etc.) which later on proved to be a wrong practice. The status of the HONSR was lowered to the NSR level within the framework of the MMM, and it became responsible for the control and co-ordination of navigation only.

The above administrative modification made organization of the safety of shipping along the NSR more complicated, while the ecological control became less effective (pollution of

marine environment and the northern coasts by ships is now under the control of the MMM itself), administrative links of the MMM with the HONSR, MCA and the Ministry of Water Economy became weaker.

The establishment of regional administrative bodies (MOHs) which are directly responsible for ice operations in the western and eastern regions of the NSR proved to be useful. The MOHs fulfilled the plans of marine operations, recommended best routes for sailing in ice, effected ice-breaker leading and pilotage, formed ice convoys, ensured safety of ice navigation, kept under control positions of all vessels under way and the NSR traffic in general, ensured due reception of all kinds of information (ice, meteorological and navigational) by vessels sailing in their regions of responsibility.

On the whole, the NSR management in the Soviet period was based not on economic principles but on administrative ones, and the plans of developing the northern territories and those of Arctic navigations had to be fulfilled at any price, i.e. State financing was unlimited.

2. Modern Structure of the NSR Administrative System

Today, in the period of transition to market economy, new organizational and economic relations have influenced the structure of the NSR considerably.

The Directorial boards of the shipping companies and their basis ports which have become stock companies include a Representative of the RF State Property Committee as the Government remained the holder of 25,5% of their shares. The ice-breaker fleet still remains the State property, and is operated by the Murmansk and Far East shipping companies.

The State system of material and technical support and transport economic links have ceased to exist, and that, in its turn, has affected the process of cargo deliveries to the northern regions. The State is now making arrangements to co-ordinate the interests and render material support to the organizations and enterprises which participate in the NSR shipping.

The RF subjects lying on the coasts adjoining the NSR have displayed a keen interest in its problems. In connection with the above the matter of allocation of powers in the NSR administration is nowadays settled on the Governmental level (the RF and its subjects).

Economic relations of the State Hydrographic Department of the Ministry of Transport, Rosgidromet and the Federal Aviation Service with the users of navigational, ice and hydrometeorological information in the system of the NSR administration (MOHs, shipping companies) are now being established.

Sea-going and river craft take part in transport processes along the NSR. Traffic of river craft along the NSR is performed in compliance with the "Regulations for Navigation on the Seaways of the NSR".

Thus, the adaptation of the administrative system to new economic conditions requires taking new juridical, organizational and economic steps of the part of the State, RF subjects and stock companies. The process has not yet been completed, and the modern structure of the NSR administrative system may be described as follows.

2.1. The Status of the NSR Administration

The NSRA is the NSR central administrative body co-ordinating activities of the shipping companies and Marine Operations Headquarters in the course of preparation and carrying out Arctic navigations. The NSRA had been established as a State special independent service, and the corresponding Provision was approved by the Council of Ministers of the USSR, the Head of the NSRA being nominated by the above body. However, this Provision contradicted the fact that the NSR had been established as an administrative body within the structure of the MMM.

Nowadays the NSRA is an administrative body within the central structure of the Merchant Marine Service of the RF Ministry of Transport (Fig.2), though its official functions have remained as before. It should be noted. however, that its operational and administrative function in the system of regulating transportation processes along the NSR have lost their priority. The main task facing the NSRA today is co-ordination of activities in the sphere of

solving juridical, organizational, normative and economic problems arising in the course of the NSR management on the Federal, regional and departmental levels. The NSRA is also to co-ordinate the programmes of the Arctic marine transportation system, taking into account the expected volumes of transportations and new economic relations.

The State arrangements regarding safety of navigation along the NSR and possible financing of them, as well as the control over the fulfillment and payment for the State-made orders, also remains in the sphere of the NSR responsibilities.

2.2. The Status of the Marine Operations Headquarters

The MOHs are operative bodies directly responsible for Arctic marine operations along the NSR. Originally (since 1933) the MOHs consisted of small groups specialists, on board of ice-breakers, which included, as a rule, the chief of operations, a hydrologist and a weather forecaster. Later on the staff of the groups became more numerous, and the groups got the status of Marine Operations Headquarters.

Since 1941 the MOH of the Arctic western region has been located in the port of Dikson, and the MOH of the eastern region founded its main base in the port of Pevek in 1952.

In the mid-80s intensification of traffic along the NSR reached its peak, and there arose necessity to establish the MOH of the western sub-region of coastal navigation in the port of Amderma and the MOH of the central sub-region of coastal navigation in the port of Tiksi.

The MOH were formed by the shipping companies: the Murmansk shipping company - in the port of Dikson, the Far East shipping company - in the port of Pevek, the Northern shipping company - in the port of Amderma and the Arctic shipping company - in the port of Tiksi. Various department took part in the manning of MOHs which consisted of specialists from the Rosgidromet (AARI, DHEM), the Rosmorflot (HB, RRG) and the MCA. As a rule the MOHs were in operation in the period of summer navigations, and their functions have not been changed since 1976.

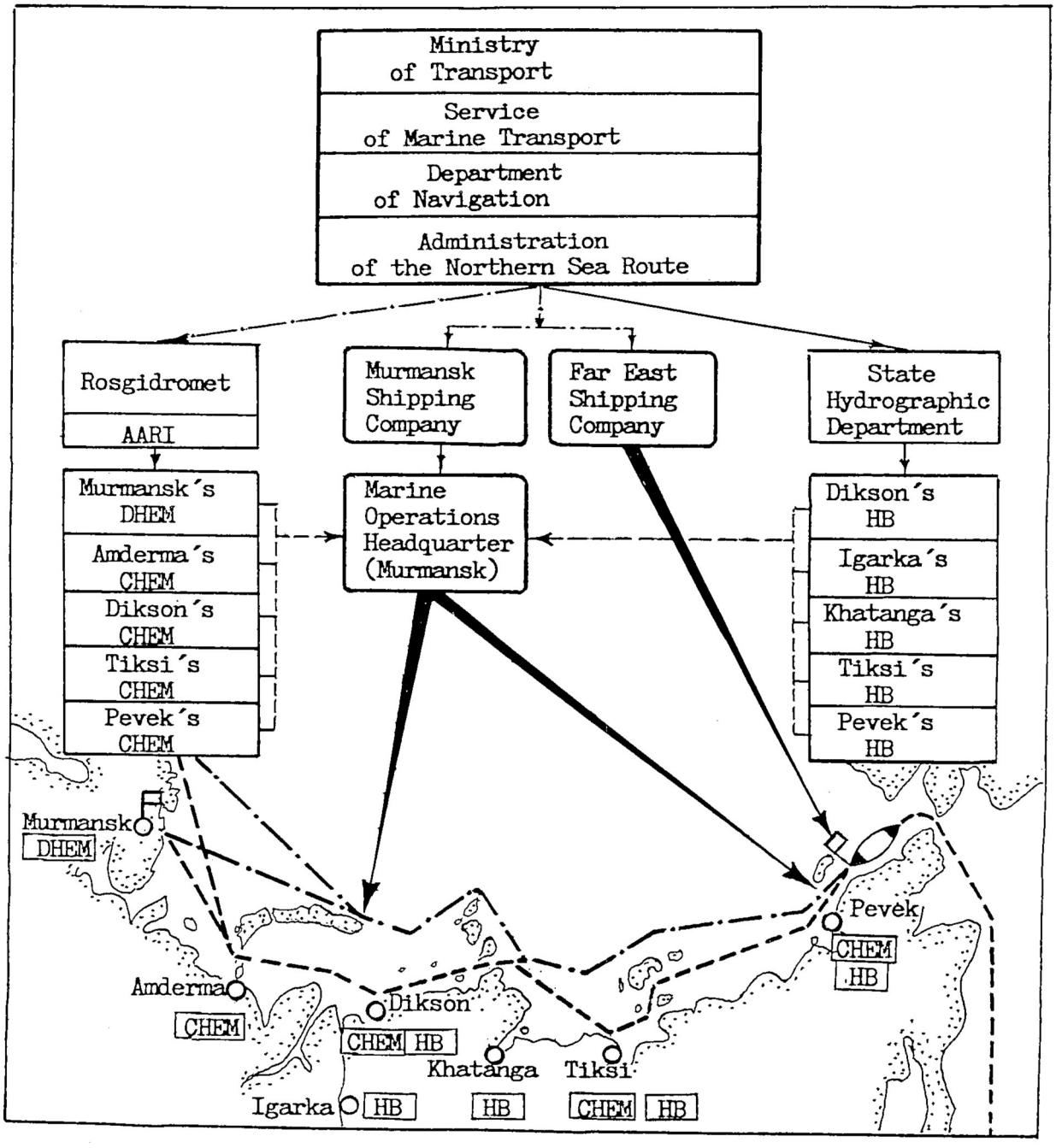

Fig.2 Structure of Administration of the Northern Sea Route in the 1997

Seaways of the Nortern Sea Route:

— — — — Traditional coastal
— · — · — High-latitudinal

Functional relations:

———— Subordination
— · — · — Control and co-ordination
– – – – – Information about ice, meteorological and navigation conditions

– Marine Operations Headquarter in the port of Murmansk
– Variant of placing of the Marine Operations Headquarter on icebreaker

Abbreviations:

AARI – Arctic and Antarctic Research Institute
CHEM – Center of Hydrometeorology and Environmental Monitoring
DHEM – Department of Hydrometeorology and Environmental Monitoring
HB – Hydrographical Base

Nowadays, owing to decreasing volumes of transportations- by 100% in the western region and by 400% in the eastern region, the MOH in the port Amderma discontinued its activities. The MOH of the western region has been moved to the port of Murmansk (Fig.2). In 1996 the MOH of the eastern region functioned on board the ice-breaker "Ermak". In the years to come this MOH, with a less numerous staff, will be located either on board an ice-breaker of the Far East shipping company or in the port of Pevek.

The above trend in provisional limitation of MOH activities weakens their former main role, i.e. territorial closeness to the sources of information required by the NSR traffic participants (ice, hydrometeorological and navigational). At the same time modern cosmic means of navigation, radio communication and observation of ice situation will make up for the decrease in the number of MOHs in the Arctic due to application of modern means of communication and satellite system.

2.3. The Status of Hydrometeorological and Navigational-hydrographic Organizations Servicing the NSR Traffic

Hydrometeorological and navigational-hydrographic support of traffic is not the main task facing the NSRA at present. Hydrometeorological information was supplied by the territorial departments of hydrometeorology and environmental monitoring, while the territorial hydrographic bases supplied navigational and hydrographic information.

The Department of hydrometeorology and environmental monitoring (DHEM) were founded in 1979 on the basis of the regional centres of hydrometeorological service (CHEM).

Today the Rosgidromet, owing to a curtailment of the budget funds, has completed the transformation of its former administrative system in the Arctic: from "Rosgidromet-DHEM-CHEM" to the system "Rosgidromet-CHEM" [4] , i.e. the intermediate body - DHEM has been closed down. Further changes in the Rosgidromet system will include separation of hydrometeorological tasks of the Federal level, which are to be financed from the Federal budget (75%), from those of the regional level, which will be financed for the account of the RF subjects (25%).

The Centres of hydrometeorology and environmental monitoring (CHEM), remaining responsible for the tasks of the former (DHEM), will carry out, within their zones of responsibility, monitoring of marine environment and supply vessels with general meteorological information: weather forecasts, storm warnings, ice situation reports (Fig.2). The above information is transmitted by radio centres to navigators in the periods stipulated in the "Directions on Radiocommunication for Arctic Navigation along the NSR". The CHEMs supply MOHs and other organizations functioning in their zones of responsibility with specialized hydrometeorological and ice information to be used for solving particular tasks of shipping and industry for contract payment.

The Centre of ice and hydrometeorological information (Centre "Sever) is functioning on the basis of the AARI (St.Petersburg). The above Centre compiles and distributes information for the account of the State budget. The information includes long-term general ice and hydrometeorological forecasts:

- annual preliminary forecast - in January;
- forecast for the first half of Arctic navigation - in March;
- forecast for the second half of Arctic navigation - in August.

The Centre supplies sea and river shipping companies and other organizations, engaged in the Arctic transportation, with specialized monthly and weekly forecasts and complex ice charts for special payment.

To compile ice and meteorological forecasts the Centre "Sever" uses observations made by means of cosmic systems (Russian - "Okean" and "Meteor" and foreign - NOAA, "Radarsat" and ERS) and obtained on polar stations (Fig.3). The information obtained by means of ice air-reconnaissance has had a limited use during the last two years owing to shortage of finance for leasing aircraft. On the whole, The Centre "Sever" is potentially able to supply all Arctic users with ice and hydrometeorological forecasts.

Hydrographic bases (HB) along the NSR retained their staff (Fig.2) and functions: hydrographic operations (taking of soundings), positioning and maintenance of navigational

aids, preparation of warnings on changes in navigational situation, proclaimed by MOHs, control over pollution of marine environment by ships, pilotage in the rivers of Enisey, Khatanga, Anabar and Kolyma.

The pilot fees in rivers are determined in accordance with the "Rates of Fees and Dues in Commercial Sea Ports of the Russian Federation" approved by the RF Ministry of Economics on 1995 and proclaimed in the Order of the SHD [5].

However, HBs, owing to limited budget financing, have provisionally discontinued hydrographic research in the Arctic seas. Control soundings in the NSR areas of limited depths are still going on. Navigational aids are put into operation in accordance with the proclaimed regulations. To ensure navigational and hydrographic safety of traffic along the NSR the SHD spends extra finance received for the operations carried out in accordance with the contracts made with Russian and foreign organizations.

2.4. The Status of Shipping Companies

The status of the shipping companies carrying out transportations along the NSR is considered in this paper only with regard to the management of the NSR shipping.

The main volume of transportations along the NSR is carried out by the Murmansk and Far East shipping companies which use for the purpose modern transport vessels of ULA and UL ice-class. The above shipping companies are also the operators of the ice-breaker fleet which remains Federal property[6,7]. In accordance with the Government Decree [8] the shipping companies receive an annual financial support from the Federal budget to reimburse the expenses which cannot be covered by the income drawn as a result of ice-breaker operations.

The rates of ice-breaker fees for leading along the NSR in coastal shipping are stipulated in the Price List No. 11-01; the RF Ministry of Economics is charged with the indexation of rates. The rates of ice-breaker fees for leading foreign and foreign-chartered vessels along the NSR are determined in accordance with the contracts made with the Murmansk and Far East shipping companies, with the basic rates being stipulated in the Price List No.11-01 [9,10,11].

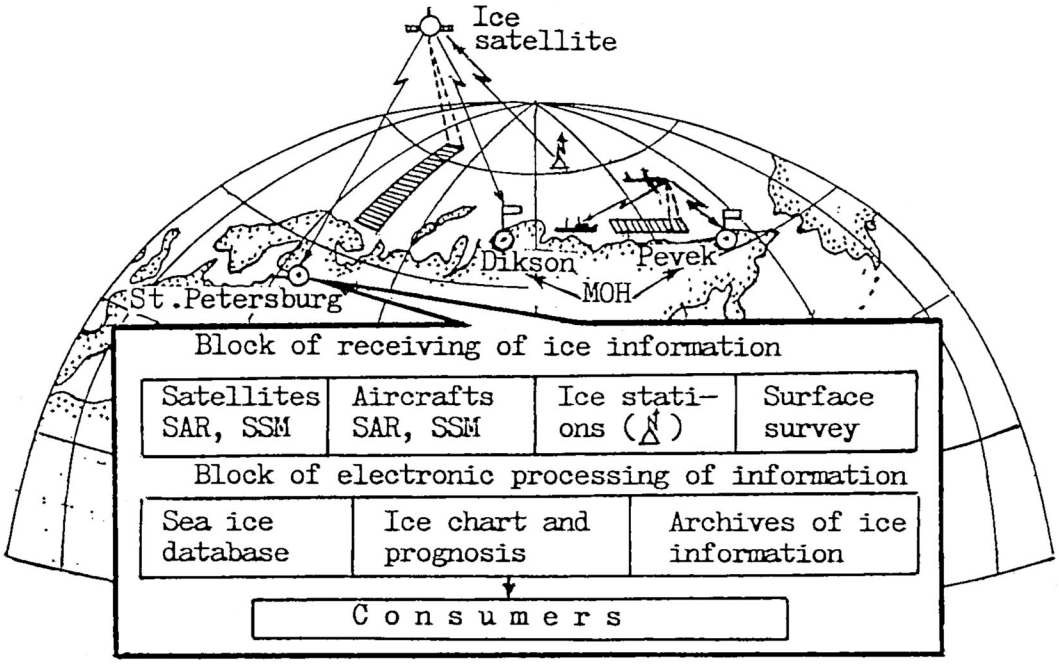

Fig.3. Russian Ice Center "North" (SAR–Synthetic apertura radar; SSM – Special sensor microwave)

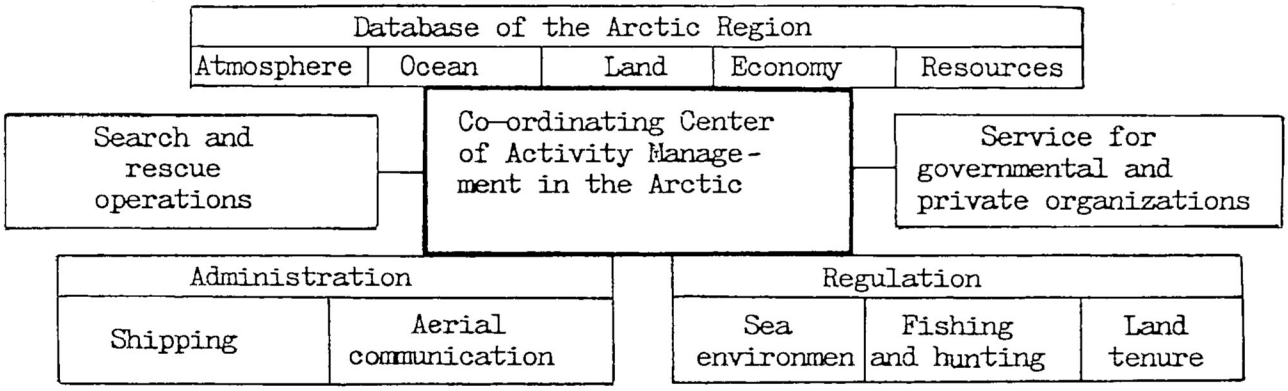

Fig.4. Canadian Project "Co-ordinating Center of Activity Management in the Arctic" [I5].

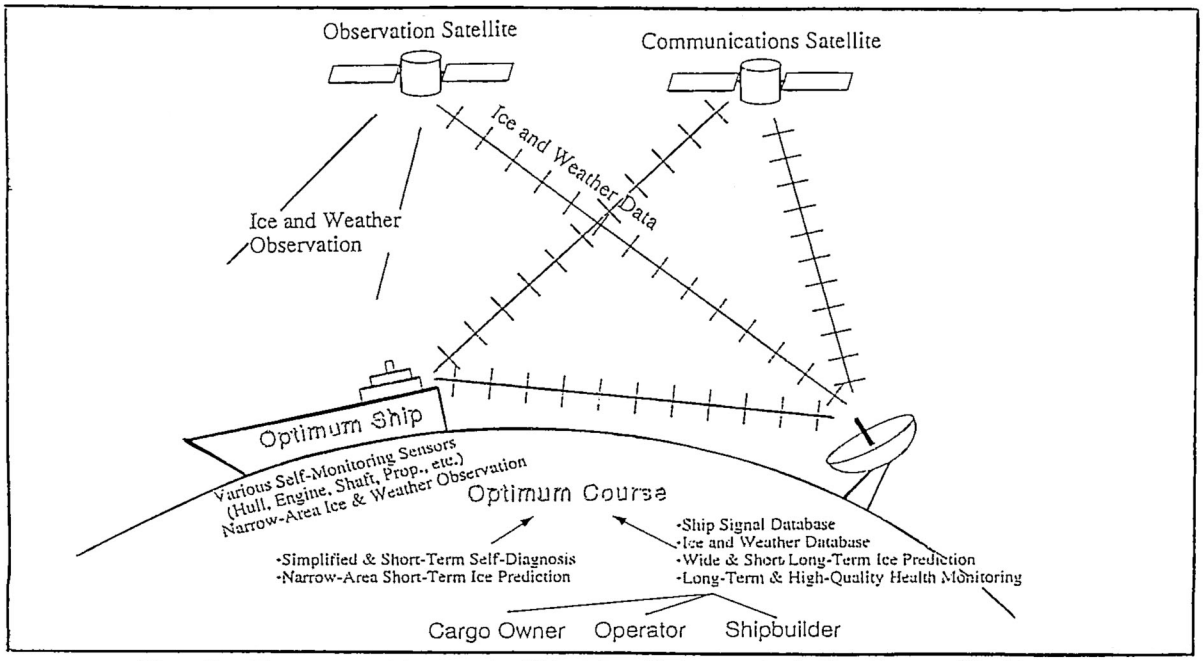

Fig.5. Japanese Project "Highly Integrated Hardware/Software Network of Safe and Efficient Ice Navigation in the Future" [I9].

The Murmansk shipping company (basic port - Murmansk) effects all-year-long navigation in the south-western basin of the Kara sea (Yamal, Dudinka), transports coastal cargoes from the west to the port of Pevek, performs transit transportations along the NSR. The shipping company itself regulates traffic on the Dudinka line in the period of winter navigation; in summer time traffic is guided by the MOH in the ports of Dikson or Murmansk. Other shipping lines, transit ones included, are serviced by the MOHs in the ports of Dikson and Pevek. In prospect the Murmansk shipping company is to become a united shipping company fully specializing in Arctic transportations with one MOH. Ice-breakers which are operated by the Far East shipping company are to be transferred to the Murmansk shipping company for the purpose [12].

The Far East Shipping company (basic port - Vladivostok) effects delivery of general cargoes to the eastern region of the Arctic (as far as 125° E) from the ports of Primorje, Magadan and Coal from Beringovsk, export of timber from the port of Tiksi to the ports of Japan, and transportation of containerized cargoes from Chukotka to the ports of Primorje and Magadan. Ice-breaker leading is effected by diesel-electric ice-breakers operated by the shipping company. In the periods of heavy ice situation in the eastern region of the Arctic atomic ice-breaker of the Murmansk shipping company also participate in leading vessels. The MOH in the port of Pevek was charged with the regulation of traffic in summer navigation. Today, owing to low intensity of traffic and shortage of finance, the shipping company is planning to transfer the MOH from the port of Pevek on board an ice-breaker operating in the region.

The Northern shipping company (basic port - Arkhangelsk) effects export transportations of timber the port of Igarka, serves the container line Arkhangelsk-Dudinka, delivers supplies to unequipped settlements on the coast and the islands of the Kara sea and Laptev sea.

As the volumes of transportations decreased threefold, nowadays they are carried out only in summer, which is the most favourable period for ice navigation with regard to safety of navigation.

The Arctic shipping company (basic port - Tiksi) is the only shipping company with the status of the State shipping company. It effects transportation of cargoes to the Republic of Sakha

(Yakutia) to the ports of Tiksi, Khatanga, Zeleny Mys and Pevek, exports timber from the port of Tiksi to the ports of Japan.

The Primorsk shipping company (basic port -Nakhodka) delivers oil-products by tankers to the ports of the eastern Arctic region from the basic port: Vladivostok, Nakhodka and Arkhangelsk, carries out transshipment of liquid cargoes from large tankers, on the Kolyma river bar, in the ports of Pevek and Cape Shmidt, on board the "Partizan" - class tankers. Safety of tanker navigation is ensured by the general system of the NSR management.

The Arctic Shipping Service company (port of Murmansk) is engaged in chartering foreign tankers for coastal transportation of oil-products to the points of the western and eastern Arctic regions. 10-12 foreign-flag tankers and reefers carry out transportation in this area every year. In accordance with the Decrees of the RF Government a number of Arctic ports (see special list) become open for foreign vessels in the period of summer navigation [13].

2.5. The Status of Arctic Ports

The port of Igarka is the only one constantly open for foreign vessels along the NSR, other ports are opened by special Decrees of the federal Government [13]. Rates of dues and fees in the Arctic ports are applied and indexed by the RF Ministry of Economics [5].

The port of Dikson is owned by the Russian stock company "Norilsk Nickel". The port serves all-year-round navigation on the Dudinka-Murmansk Line.

The port of Dudinka is owned by the Russian stock company "Norilsk Nickel". The port exports commodities produced by the Norilsk works.

The port of Igarka is owned by the Igarka transshipment enterprise. It is situated in the river Enisey at a distance of 363 miles from its mouth. The port is accessible for vessels drawing up to 7 metres. Timber in packages is delivered from Lesosibirsk on board river lighters and loaded on sea-going vessels in the roads or from the local piers. Traffic capacity of the port is up to 750,000 tons per annum.

The port of Tiksi is owned by the Republic of Sakha (Yakutia). The port carries out transshipment of cargoes from sea-going vessels on board river craft proceeding up the rivers Lena and Yana and back, in the open roads.

The port of Pevek is administered by the RF Ministry of Transport. It carries out transshipment of cargoes to the local population and Chaun district enterprises, and those for the port of Zeleny Mys.

The port of Cape Shmidt is owned by the Russian Corporation "Almazzoloto". Cargo-handling operations are carried out in the roads. Ice piers are no longer constructed as they were often destroyed by coast shingle during storms.

Arctic port Harbour masters (irrespective of ownership) follow the directions of MOHs with regard to due handling of vessels in their ports.

Conclusion: the research into the modern system and structure of the NSR management shows that, in the period of transition to market economy, the State has increased its influence in the sphere of regulating legislative, normative, organizational and economic relations of all elements in the NSR system.

Temporary limitations in the State financial support rendered to ice-breaker fleet, the State hydrographic enterprise and Rosgidromet resulted in discontinuance of activities of the regional NSR administrations. At the same time, at the lower administrative level ("Shipping companies -MOHs") there appeared a new trend of centralization of the NSR administration in the Murmansk shipping company and establishment of the united MOH in the port of Murmansk.

To ensure stable development of economy and vital needs of the local population in the Russian Extreme North and solving the NSR problems the State commenced in 1966 allocation of powers between the Federal bodies and those of the RF subjects in the sphere of social and economic development of the Russian northern regions,
expedient exploitation and management of the NSR included.

3. Management of Shipping in the Arctic Practiced by the Arctic States

A short review of administrative systems for regulating the Arctic shipping put into practice by the Arctic States hag been made to use the experience of these States for improvement and development of the Russian system of the NSR administration in the conditions of market economy [14].

3.1. Canadian System

The management of shipping in the Arctic regions of Canada is aimed at solving two problems: (1) to prevent unregulated navigation of foreign vessels in adjoining waters and (2) delivery of supplies to the regions and transportation of raw materials from them.

In order to fulfill the first task the Canadian sovereignty and jurisdiction have been expanded over the adjoining sea basins and waters of Canadian straits (expansion of territorial waters from 3 to 12 miles, adoption of the Law and Regulations for preventing pollution of the Arctic waters by vessels in 100-mile zone). Planning the development of oil and gas fields on the shelf of the Beaufort sea in the 80s, the Canadian Government considered creation of a Co-ordination centre for co-ordination of all Arctic activities (Fig.4). With regard to the management of shipping the Centre was to regulate and control traffic, issue permits to enter "zones of control", introduce traffic priority schemes, effect ice-breaker leading and pilotage [15].

The second task was to deliver cargoes (300000 tons per annum). It was fulfilled with the State support. The stock shipping company "Canarctic" was founded to transport zinc and lead ores from the deposits Polaris and Nanisivik. The company constructs ice-breaker and ice-class transport vessels (bulker "Arctic") for its own needs. Ice-breaker leading of vessels engaged in delivery of cargoes is carried out by the Coast Guard ice-breakers free of charge; ice-breakers (8 in number) are sponsored by the State. Ice-breakers owned by private companies (6 in number) effect leading in accordance with contracts. Canada links the prospects of international shipping along the North West Sea Route (NWSR) with the development of oil and gas fields in the Beaufort sea. At the same time

Canada is planning creation of an appropriate system of commercial regulation of foreign shipping through the straits of the Canadian Arctic Archipelago. Up to now the Canadian legislation stipulates transportations to the Archipelago regions by Canadian flag vessels only.

3.2. USA System

American system of Arctic shipping management is primarily aimed at protecting the geopolitical interests of the USA, the economic ones being of secondary importance. Abiding by their theory of "free shipping", the USA insist on the right of "innocent passage" through the Canadian and Russian Arctic straits. However, nowadays they have been forced to enter bilateral agreements with Russia and Canada on regulating the Arctic shipping.

In the national interests the American system of Arctic shipping management is aimed at delivering supplies to Northern Alaska (mostly to oil and gas fields of Prudhoe Bay). Lighter and towboat system consisting of ice-class lighters and pusher towboats is in operation to transport supplies (40000 tons per annum). Coast Guard ice-breakers (3 in number) do not take part in these operation.

The USA Law on Shipping of 1984 limits the State interference in commercial activities of shipping companies.

The USA Laws on Ports and Ships Safety of 1978 and on Prevention of Pollution of Marine Environment by Oil of 1990, and other legislative acts have set up standards for ships (double hull, special construction requirements), safety regulations and the provision permitting transportation of cargoes to the regions of North Alaska on board
USA flag vessels only.

3.3. Norwegian System

Norwegian system of shipping management protects fishing in the zones round Jan Mayen island and Spitsbergen Archipelago and confirms the Norwegian sovereignty over Spitsbergen in accordance with the Paris Treaty of 1920. Control and patrolling in the fishing zone and protection of continental shelf resources is effected by the Norwegian Coast Guard. Ice-class

patrol boats are used for the purpose. The States which signed the agreement on Spitsbergen possess equal rights to carry out shipping, industrial and mining activities, transact commercial business, as well as be engaged in scientific investigations. Transportation of coal (300000 tons per annum) from the Norwegian coal pits on Spitsbergen is carried out by the commercial company "Sture Noshke" [18].

Norway has initiated an important international legislative precedent - creation of a national sea route - "Inderleia". It leads along the Norwegian coasts in the skerries, most part of which is within the Norwegian inland waters. This route, being of coastal character, is not used for international shipping through its special legislative status may serve as a juridical basis for working out a system of fees and dues in case it is used for the development of international shipping.

The non-profit International Nansen Centre for environmental and remote sensoring in Bergen transmits information and forecasts regarding ice and hydrometeorological situations for the ice-covered regions. The Centre used the observations made by the cosmic systems ERS and SSM/1 and those from meteorological ground stations. Transmission of the information to mariners is carried out by the cosmic system of radio communication - INMARSAT. This Centre transmitted ice information to the Russian transport vessel "Kandalaksha" which performed a scientific-commercial voyage from Yokohama to Kirkenes on August 1-28, 1995 [19] in accordance wit the INSROP programme. Having analysed the scientific data received in this voyage, the Japanese experts, participants in the above expedition, suggest an integrated system of ensuring safe and effective ice navigation in future (Fig.5).

3.4. Danish (Greenland) System

The Danish system of shipping management protects fishing in the waters of Greenland, delivery of supplies to the island, export of non-ferrous metals and tourism. Greenland intensified its efforts to regulate fishing after it had received the right of self-governing (1979). Greenland owns its trawler fleet (10 in number) and exports fish products to the European market. Delivery of supplies to the island is served by 4 Danish ice-breakers. Ice-breaker operations are sponsored by the State. Export of lead and zinc ores (20000 tons per annum) from Moarmorilic is carried out by bulkers of European shipping companies.

The State assigns finance to back low tariffs on marine and air service linking Greenland with the parent State, Norway, Faeroes and Canada. "Inner" transportations are subsidized from the Danish (35-40%) and local (40-45%) budgets. Danish Kingdom owns 60% of the shares in the Independent Credit Fund for National Shipbuilding. When the construction of ice-breakers and other vessels is ordered through the above fund, the State ensures 70% of the contract value at the annual rate of 2%.

3.5. Systems of Sweden, Finland and Iceland

These three States which have no Arctic territories do not take part in commercial use of the Arctic sea routes. Attention is drawn, however, to the practice of Sweden and Finland in ice-breaker support rendered to shipping in their waters. Swedish ice-breaker fleet is financed by the State. The modern ice-breaker "Oden" is owned by several private timber companies and is leased by the Shipping Department of Sweden. Finland possesses 8 ice-breakers which are owned by the State Marine Department. The ice-breakers are financed by the State. Fees received for ice-breaker operations enter the State Treasury.

Finland with its powerful ship-building industry is sparing to resume its close economic relations with Russia which traditionally placed orders for building ice-breakers and ice-class transport vessels with Finish ship-building enterprises.

Iceland, with regard to Arctic shipping, is mainly interested in regulation of fishing in its fishing zone. Its legislative acts are aimed at limitation or prohibiting of foreign fishing in its zone.

Conclusions which may be drawn from the above review of foreign systems of Arctic shipping management are the following (Table 1).

Certain elements of foreign management systems may appear applicable in the NSR administrative system from the point of view of their commercial and legislative aspects. The length (3660 miles) and geographical conditions of both, the NSR and NWSR, are comparatively equal. Both lead along the Arctic coasts in the inner waters of Russia and the

USA-Canada correspondingly. Until quite recently only Canada and USA flag vessels performed voyages along the NWSR.

There has been no system of dues and fees for foreign vessels which needed pilotage, ice-breaker leading or assistance when calling at ports because international shipping was poorly developed in those regions. Ice-breakers rendered necessary support to the national shipping only. And today ice-breakers, built and maintained for the State account, effect leading of national flag vessels free of charge. State-owned ice-breakers are operated by the Coast Guard (Canada and the USA) or State administrative bodies (Sweden, Finland). Special attention should be paid to Canadian experience in centralizing the management of shipping. The idea of establishing the Head Office of the NSR in the USSR had been applied in Canada in the pre-war years, and a similar body - the Coast Guard was organized. Its main task was to co-ordinate the activities of sea-going transport, air ice-reconnaissance, hydrographic and scientific organizations in the Arctic.

Delivery of cargoes to Arctic regions (Greenland) is financed by the State (30-35%) and local authorities (40-56%). The development of international commercial sea ways is promoted by the State budget finance backing low tariffs on marine communication system.

Ice-breakers owned by Canadian private companies were built in the 70-80s to develop Arctic oil fields in the sea of Beaufort. At the same time Canada considered establishment of Co-ordination centre for management and regulation of all kinds of activities in the Canadian Arctic.

The private shipping company "Canarctic", with its own ice-breakers and transport vessels was founded to transport zinc and lead ores from Canadian mines in the Arctic.

Co-operation of the Arctic States in the work of the Ice centres of the USA (Fairbanks, Alaska), Sweden (Kiruna) and Canada (Ottawa), which accumulated ice information obtained from ERS and RADARSAT satellites, helped to supply vessels navigating in the Arctic with ice and hydrometeorological information. The International Nansen Centre of environmental monitoring and remote sensoring (Bergen, Norway) is functioning for the same purpose.

Table 1. Routines of Arctic States in Arctic Shipping Administration

Characteristics of seaways and administration	Canada	USA	Norway	Denmark (Greenland)
Length of Arctic seaways (miles)	2910 (Canadian part of the NWSR)	750 (American part of the NWSR)	930 (Seaway "Indreleia") 540 (Tromsø-Spitsbergen)	1150 (Western coast) 1680 (Eastern coast)
Annual cargo transportation volume (thousand tons)	650	40 (Towards Alaska)	300 (From Spitsbergen)	200 (From Greenland)
Legislative acts for regulation of Arctic shipping	Law and Regulations on prevention of Arctic waters against pollution from ships	None	1920 Treaty of Spitsbergen	None
Agencies of the administration and support of Arctic shipping	Coast Guard: Ice Center (Ottawa); Regional center (Flobisher Bay)	Coast Guard; Ice Center (Fairbanks); Regional Service (Anchorage)	Coast Guard; Nansen Environmental and Remote Sensing Center (Bergen)	None
Number and ownership of ice-breakers	8 (Coast Guard) 6 (Private oil companies)	3 (Coast Guard) 1 (shipyard)	None	4 (State)
Shipping companies in the Arctic	Joint stock company "Canarctic"	None	None	None
Cargo ships for Arctic transportation	Ice classified bulk carrier "Arctic"	Barge-tugboat system	Bulk carriers chartered	European bulk carriers chartered
State support of Arctic shipping	State budget for cargo delivery for the NORAD system	-	State support for coal production and transportation from Spitsbergen	State support for cargo delivery to Greenland (tariff compensation)

4. What NSR Administrative System Will Russia Choose, Central or Regional?

That is the question the Norwegian researchers have suggested for discussion with regard to a new Russian system of the NSR management. They proceeded from the assumption that the NSR administrative system will remain centralized, and suggested, therefore, to consider the role of future regional administrative bodies in the regional utilization of the NSR, creation of aids to navigation and solution of other specific regional problems, including prevention of marine environment pollution. They also suggested to delimit the above tasks between central and regional administrative bodies and define relations of the NSR Administration with local and regional government bodies as to the ways of the NSR development.

The authors of this paper believe that further efforts should be made to improve the administrative system of the NSR. In connection with the above and the results expounded in sections 1-3 of the paper the following matters are considered in this section:

- goals and tasks of the NSR administrative system for the period of 1998-2005 and the years to come after 2005 on the central and regional levels;
- central administrative bodies of the NSR;
- regional administrative bodies of the NSR.

It is emphasized that the process of the development of the NSR administrative system will be implemented in the period of political and economic reforms undertaken in Russia to transit to market economy.

The NSR will remain an integral national marine transport line in the Arctic, and the State will render financial support to the development of ice-breaker and transport fleet, ports, systems of communication, navigation, hydrometeorology and rescue operations.

The RF subjects will take part in the management of the NSR, being charged with powers delegated to them by the Federal authorities.

There are normative, economic, administrative and operative methods of the NSR management.

The normative methods include working out and adoption of Federal and regional normative acts (regulations, guides, sailing directions and other nautical publications, freight rates, ice-breaker and port dues and fees, etc.).

Economic methods include State investments and financial support (partial reimbursement of transportation tariffs for cargo deliveries to northern regions, more effective use of the State block of shares), and are aimed at intensification of activities of all participants in the transportation process.

Administrative methods include State control over the expedient utilization of the NSR, nomination of State representatives to the Directorial Boards of stock companies (shipping companies), establishment of State marine administrations in sea ports.

Operative methods are those which are aimed at direct operative regulation of ice-breaker leading of vessels along the NSR sea ways.

4.1. Tasks of the NSR Administrative System

The tasks of the NSR administrative system are to organize and carry out transportation of expected volumes of cargoes along the NSR, ensure safety of navigation and prevent pollution of marine environment and the Russian Arctic coasts.

4.1.1. Tasks of the NSR Administrative System to be Performed in the Initial Period of Economic Stabilization in the Russian Arctic (1998-2005)

The foremost task of the NSR administrative system in the initial period of stabilization of the Russian Arctic economy is to determine the expected cargo-flows and ensure due delivery of cargoes vitally needed for restoration and further development of the economy of northern territories in the market conditions. Another task of the NSRA is to develop transit cargo transportations along this route.

The above tasks will be fulfilled in the prevailing economic conditions: decrease in the volumes of cargo transportations along the NSR stopped in 1995, restoration of economic

activities and gradual increase in the volumes of cargo-flows will be supported by the State (fiscal, credit, investment and customs arrangements) in the traditional northern regions. These steps are aimed at reaching the volume of transportations achieved in mid-80s, when the annual volume of cargo transportations exceeded 6 mill tons [21]. The volume of transit transportations is expected to become 300000 -500000 tons per annum. The ice-breaker and transport fleet, operating in the Arctic at present, is capable of fulfilling this current task before the year of 2005. Today there are 6 atomic and 7 diesel-engine liner ice-breakers, 17 ULA and over 100 UL ice-class transport vessels to be employed for the purpose. The main tasks will be fulfilled in the traditional western and eastern regions of the Arctic.

The task of the NSR administrative system in the western region is based on the assumption that up to 70% of the expected cargo transportations along the NSR will be carried out in this region (Table.2), of which the Murmansk shipping company will perform 60% (Table 3.). Its annual cargo turn-over may increase to 3-4 mill tons and will exceed the total volume of cargo transportations in foreign Arctic by 200-300%. The Murmansk shipping company will effect ice-breaker leading along the NSR as far as Cape Shmidt. The same shipping company will perform the main volume of transit transportation along the NSR (up to 300000-500000 tons per annum).

The task of the NSR administrative system in the eastern region is to meet the requirements of the growing cargo-flows from the east (up to 1.5 mill tons). The Arctic, Far East and Primorsk shipping companies will take almost an equal part in the delivery of cargoes to the region (Table 3). The ports of Pevek and Tiksi will account for almost an equal cargo turn-over (up to 700000 and 800000 tons per annum correspondingly; see table 4). The port of Tiksi is planned to serve the Republic of Sakha (Yakutia), and the port of Pevek will meet economic needs of both the Republic of Sakha and the Chukot autonomous region. It becomes, therefore, necessary to solve the problems of establishing regional operative bodies (where, the responsible authorities and the principles of such establishment) of the administrative system in the eastern Arctic.

Table 2. Forecast of cargoflow shares in Arctic regions

Arctic region	Shipping companies	Share of the region %	Ratio of transportation volumes 2005/1995
Western region (to meridian 125° of E.L.)	MSC NSC foreign tankers	70	2,9
Eastern region (from 125° of E.L.)	ASC FESCO PSC	25	5,9
Transit	MSC	5	3,0

Table 3. Forecast of shipping company share in cargo transportation along the NSR

Shipping company	Share of the company	Ratio of transportation volumes 2005/1995
MSC	60	3,0
NSC	11	2,5
ASC	9	11,8
FESCO	10	2,7
PSC	7	9,0
Foreign tankers	3	2,0

Table 4. Forecast of Arctic port turnover

Port	Location of the port on the area of the RF	Port share, %	Ratio of transportation volumes 2005/1995
Amderma	Nenets AO	2	14,0
Dikson	Taymyr AO	2	5,6
Dudinka	Taymyr AO	44	1,8
Igarka	Krasnoyarsk Kray	13	2,5
Khatanga	Taymyr AO	1	0,4
Tiksi	Sakha Republic (Yakutia)	15	5,5
Zeleny Mys	Sakha Republic (Yakutia)	7	4,3
Pevek		13	2,2
Schmidt Mys	Chukchi AO Chukchi AO	3	4,2

Secondary tasks, facing the NSR administrative systems, are to ensure safety of navigation, prevent pollution of marine environment and the northern coasts of Russia by ships, organize ice-breaker leading, pilotage, navigational and hydrographic services and radio communication. Co-ordination of economic relations with the users of the NSR is being continued in the above spheres. The problems to be solved are: regulation of ice-breaker fees for ice-breaker leading; commercial relations with the users of hydrometeorological information; introduction of new navigational and hydrographic techniques and methods to ensure safety of navigation of sea-going vessels and river craft (establishing a network of differential stations of global satellite navigational systems). Solution of the above problems will require stable budget financing.

4.1.2. Tasks of the NSR Administrative System in the Period of Stable Economic Development of the Russian Arctic (after the year of 2005)

Stable development of the Russian Arctic should be understood as the period of harmonious development of industry, social sphere and environmental protection [22]. The main task, facing the NSR administrative system the period is to increase the volumes of cargo-flows in order to further contribute to the economic development of the Arctic zone and meet the vital requirements of the RF Extreme North subjects and its population.

Additional tasks to be fulfilled by the NSR administrative system are to organize large-scale transit and export-import cargo transportations along the NSR and ensure State control over the vessels navigating along the NSR seaways.

The above tasks may be performed under the following conditions:

- the ice-breaker and Arctic transport fleet will be replenished with new ice-breakers, ULA and UL ice-class transport vessels in accordance with the Program of restoration of the Russian commercial fleet for the period of 1993-2000 [23].
- in the sphere of regional cargo transportations in the western region of the Arctic to work out new transport and technological schemes of oil export from marine terminals of the Timan-Petchorsk oil-field, liquefied natural gas from the Kharasavey field terminal and oil and gas condensate from the Ob Bay field.

The total volume of marine hydrocarbon transportations is planned to reach the annual level of 20 mill tons of oil, 21 mill tons of liquefied natural gas and 5 mill tons of casing head gas [24];

- development of regional marine transportations in the eastern region of the Arctic: coal from Zyrjansk (Kolyma river) and Beringovsk pits, scraps, mineral fertilizers and timber from the eastern regions of Russia. Marine import transportations include equipment, fuel and victuals from the States of the Pacific basin. The total volume of export-import transportations is expected to reach 1-3 mill tons per annum;
- development of large-scale international transit along the high-latitudinal and coastal routes of the NSR, the annual total volume being 5-6 mill tons in the eastern and 2-3 mill tons in the western directions correspondingly [25].

The existing cargo-flows will suffer considerable changes. Not only the traditional shipping companies but other Russian and foreign companies engaged in exploitation of natural resources on the Arctic shelf and in the coastal zone of the Russian Arctic will also take part in the international transit-cargo transportation process using specialized vessels (tankers, bulkers, container-carriers).

As the future volumes of cargo transportations have not yet been accurately determined, the structure of the NSR administrative is here considered theoretically only.

The structure of the NSR administrative system takes into account future interests of the State in the Arctic, regional authorities responsible for the direct regulation of transport operations being considered too. They are to be formed by the RF subjects and shipping companies. Local control bodies, to regulate transportation of oil- and gas-products on the "terminal-consumer" lines are suggested to be formed in the areas of oil- and gas-fields development in the Russian Arctic.

The secondary tasks of the NSR administrative system will remain as before and include safety of navigation and prevention of marine environment pollution by ships. Ways of automatization and centralization of the administrative system are now being investigated. Modern cosmic systems of observation, navigation, communication and tracking will be developed for the purpose.

4.2. Tasks of the Central and Regional Bodies of the NSR Management

The tasks of the NSR administrative system are based on the cardinal principle - the NSR is an integral national transport system in the Russian Arctic. The NSR administrative system includes central and regional administrative bodies.

In the period of market economy the spheres of authority and ownership determine the system of the NSR administrative system and its structure (subordination, co-ordination, control).

In conformity with Article 71 of the RF Constitution of 1993 the Federal property and its management, the Federal transport (the NSR included), means of communication, information, meteorological service, customs regulation, the Federal taxes and fees are under the authority of the State.

Land ownership, allocation of the Federal property, exploitation of nature (environmental protection), establishment of local self-government system, co-ordination of international and foreign economic relations of the RF subjects are under the joint jurisdiction of the RF and its subjects (Article 72 of the RF Constitution).

The normative acts [8, 26-28] stipulating the structure of the NSR central and regional administrative structure have been issued to elaborate Articles 71 and 72 of the RF Constitution.

4.2.1. Tasks of the Central Bodies of the NSR Administrative System

The history of the NSR development shows that in its initial period, when Russia was engaged in solving important problems of economic development of the Arctic zone, the managerial system of shipping was highly centralized (establishment of the HONSR). Nowadays Russia is to solve another important problem - stabilization of the Arctic zone economy, which, however, will be done in absolutely different economic conditions (transition to market economy).

Today the central administration is charged with the management of the State enterprises in the NSR system, co-ordination of the interests of the State, stock and private enterprises operating the NSR. It should also take into account the growing interests of the RF subjects in the management of the NSR.

The provisions of the Decree issued by the RF President in 1993 [26] determine the sphere of State powers in the NSR system: the Federal property includes ice-breakers, salvage and hydrographic fleet, port installations, hydrographic bases, hydrometeorological service, traffic regulation system and means of communication used in the system of transport regulation. The management of the State enterprises activities (navigation, hydrometeorology, communication) in the NSR system is centralized (Fig.6). The NSR Administration is charged with co-ordination and control over the activities of the State enterprises. The tariff rates for the NSR are formed and practiced by the Government. The Government regulates the investment process: it creates conditions for attraction of Russian and foreign investments to stimulate transformation of the NSR into an international transport artery.

State regulation of the activities of stock companies (shipping companies and ports) on the NSR is effected in conformity with the RF Government Decree "On the Measures for Improvement of the NSR Management" of 1994 [8]. In accordance with this Decree stock companies (the Murmansk, Far East and Northern shipping companies) were trusted with confidential management of the ice-breaker fleet, which is not liable to privatization, for a period of 3 years [6]. Shipping companies are to organize and perform cargo transportations and ice-breaker leading of vessels along the NSR in accordance with the State annual contracts [7]. The expenses born by shipping companies and the port of Arkhangelsk to maintain the ice-breaker fleet not covered by the operating income are reimbursed from the Federal budget.

State Representatives in the Directorial boards of stock companies regulate co-operation of the activities of the RF Ministry of Transport and stock companies (shipping companies) in the matters of forming and realization of the State transport policy and control over effective use of the Federal block of shares [30].

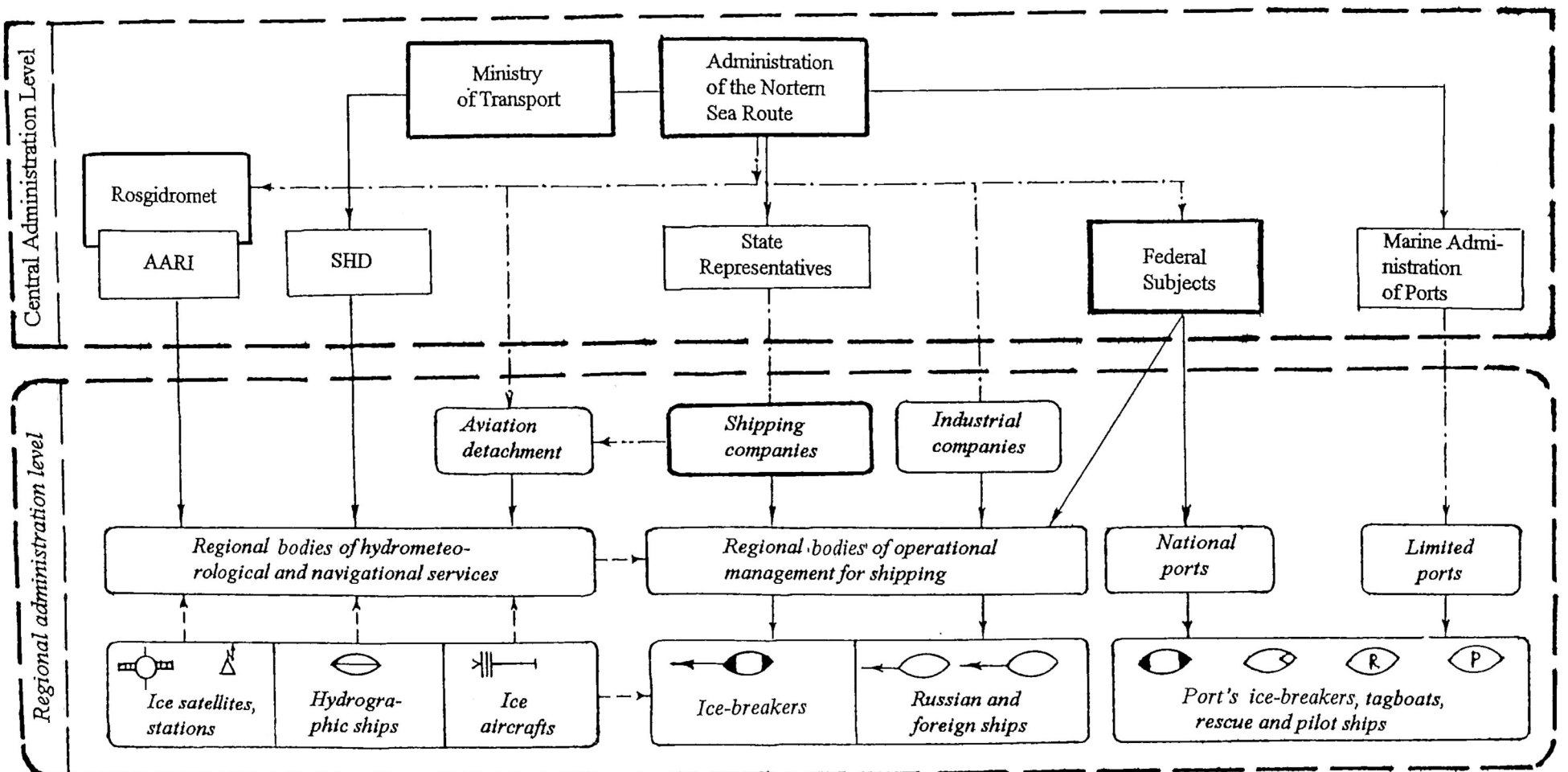

Fig.6. Central and Regional Bodies of Administration of the Nortern Sea Route on the Stage of Stabile Development of the Russian Economy in the Arctic

Functional relations:

——→ - Subordination

—·→ - Control and co-ordination

– – → - Information about ice, meteorological and navigation conditions

—··→ - Leasing of ice reconnaissance aircrafts

AARI - Arctic and Antarctic Research Institute

SHD - State Hydrographic Department

State regulation of port activities on the NSR is effected in conformity with the RF Government Decree "On Organization of the Management of sea Ports" of 1993. In accordance with this Decree the State administrative bodies (Marine Administration of Port) have been established in stock companies (sea ports) on the basis of the property not liable to privatization. They are responsible for the State transport policy to be pursued in sea ports. Arctic sea ports are the property of the RF subjects and have not been turned into stock companies up to now.

Allocation of powers between the RF and its subjects is effected on the State level. "The Agreement" with the Republic of Sakha (Yakutia) has been signed recently [27]. The project of an "Agreement" with the Yamal-Nenets Autonomous Region has been prepared [28]. The RF Ministry of Transport has made the "Agreement" on co-operation with the Republic of Sakha (Yakutia) in the development of the republican transport complex (1997).

Thus, it becomes evident that normative, economic and administrative methods have been applied to organize the NSR administrative system on the central level.

4.2.2. Tasks of the Regional Bodies of the NSR Administrative System

Direct operative regulation of leading vessels along the NSR is effected on the regional level (Fig.6).

Vertical ties between the administrative bodies on central and regional levels are formed on the principle of subordination.

Horizontal ties between the regional administrative bodies have been established to obtain ice, meteorological and navigational information as well as recommendations on the choice of the best ice route and methods of ice-breaker leading and pilotage.

Payments for services rendered to vessels by the regional administrative bodies (MOH) in the course of leading along the NSR shall be collected in accordance with the rates duly adopted.

Ice, meteorological and navigational information may be obtained on contract terms.

Delimitation of powers between the RF and its subjects on the regional level is based on the following principles [27,28]:

- the Northern Sea Route is an integral national transport system of the RF;
- to meet the needs of the NSR regions adjoining the coasts of the RF subjects the central and regional administrative bodies jointly work out long-term programmes of the development and effective functioning of the NSR aimed at: financing the infrastructure of sea ports; creation of up-to-date navigational and hydrographic equipment, means of communication, search and rescue and environmental monitoring systems; creation of new generations of transport means for the NSR;
- financial support of the development of port infrastructure, hydrographic operations, systems of aids to navigation, as well as distribution of the profits, received for utilization of the NSR regions adjoining the coasts of the RF subjects, are to be based on the principles of State participation.

It should be emphasized in conclusion that, on the whole, the tasks of the central administrative bodies will remain unchanged as they are based on the provisions of the RF Constitution. The tasks of the regional administrative bodies will change depending on the development of Russian and international shipping along the NSR.

4.3. Central and Regional Administrative Bodies of the NSR

The NSR central and regional administrative bodies are formed in accordance with the tasks they are to perform.

4.3.1. Central Administrative Bodies of the NSR

The RF Ministry of Transport, the NSR Administration, the State representatives in the stock shipping companies and the Marine administrations of ports are the main bodies which directly manage the shipping along the NSR.

The RF Ministry of Transport, in conformity with the new Provision determining the spheres of its activities (1997) [29] forms and puts into practice the State transport policy; carries out

economic reforms, institutional and structural transformation with regard to the transition of transport enterprises and organizations to market relations.

The main functions of the RF Ministry of Transport are: to work out normative acts, Federal and inter-governmental programmes of transport development; to improve and develop the transport administrative system; to take part in foundation of stock companies and privatization of the Federal property; to work out tariffs; to regulate investments on the State level; to co-ordinate delivery of cargoes to northern regions and export-import transportations meeting the State needs; to effect the State control over expedient utilization of the NSR and to establish the system of customs and border-guard control in the sea ports open for foreign shipping.

The duties and responsibilities of the RF Ministry of Transport determine the functions of the subordinate administrative bodies which will effect the management of shipping in the period of economic development of the Russian Arctic (Fig.6).

The NSR Administration, besides the functions stipulated in the Provision [1], will be charged with the following duties:

- to work out the tasks in legislative-normative and organizational-economic spheres of the NSR management on the Federal, regional and departmental levels;
- to co-ordinate programmes of the Arctic shipping development with regard to the expected volumes of cargo transportations along the NSR and new economic relations between the participants in transport operations;
- to take part in the preparation of annual agreements with shipping companies on cargo transportation and ice-breaker leading operations on the NSR;
- to co-ordinate the activities of shipping companies and Marine Operations Headquarters in preparation and carrying out of the Arctic navigations;
- to co-operate with the State Representatives and the Marine Administration of Ports in the matters of the State transport policy regarding the activities of stock companies (shipping companies and ports);
- to prepare State plans of cargo deliveries to the North and effect control over execution and financing of these plans;
- to ensure safety of navigations along the NSR;

- to find potential foreign clientele interested in commercial utilization of the NSR, to consider applications and supply foreign applicants with the information on leading foreign vessels along the NSR, to work out, together with shipping companies, reasonable rates of ice-breaker and pilot fees for leading foreign vessels and those of Russian flag chartered by foreign affreighters along the NSR;
- to take part in the establishment of the State insurance and guarantee system for the NSR transportations.

The rates of fees for leading vessels along the NSR shall meet the following requirements:

- the income drawn by shipping companies for leading vessels along the NSR shall not be lower than the expenses incurred during the above process;
- the saving received by foreign vessels performing Europe-Asia-North America transportations through the NSR shall be higher than those received for transportations carried out through the traditional southern sea way.

However, these requirements cannot be met in the situation of twofold decrease in the volume of current cargo transportations through the NSR. During the last two years the rates of fees for leading vessels along the NSR rose from $ 5 to $ 22 for 1 GRT [11], but even such rates do not cover the expenses incurred by the ice-breaker fleet. Further increase of the rates will make transit operations on the NSR unprofitable.

In the future, depending on the increase in the volumes of cargo transportations along the NSR to 6-7 mill tons per annum, the rates of fees may become $ 5 and less. The said level of fees will make international transit through the NSR economically profitable.

The Russian system of sea risks insurance will be developed depending on the expansion of international commercial shipping along the NSR. Special attention will be paid to the insurance of the shipowners' civil liability for environmental pollution (P&1). The shipowners whose vessels do not have insurance coverage or the latter is invalid for the high-latitudinal areas of navigation may be offered the services of the Russian P&1 POOL.

The State Representatives in the Directorial boards of stock companies (shipping companies and ports), the shares of which are the Federal property, perform their duties in conformity

with "The Provision on the Marine Transport Department Officials - Members of the Directorial Boards of Stock Companies" of 1995 [30], and the Decree of the Soviet of Federation of the RF Federal Assembly of 1997 [31].

The State Representatives who implement the State transport policy regarding the NSR shall effect control over the activities of stock companies (shipping companies and ports), co-ordinate all decisions taken by the Directorial boards of stock companies regarding transportations along the NSR, volumes of transportations, calculation of estimated transportation and ice-breaker support costs, indexation of tariffs, port dues etc. The State Representatives effect control over the effective use of the Federal block of shares.

The Marine Administration of ports perform their duties in stock ports as the State administrative bodies. Their duties are stipulated in the Provision on the Marine Administration of Port 1994 [32]. The Marine Administration of port bear responsibility for the Federal property: commercial piers, port towboats, ice-breakers, pilot service and means of radio communication. They from their relations with port commercial organizations (forwarding, stevedoring etc.) on leasing terms. The State Representatives in the Directorial boards of stock companies, who are functionaries of the Marine Administration of Ports, effect control over the activities of their stock companies.

The main duties of the Marine Administration of Port are to ensure safety of navigation and prevent pollution of the port area and waters. Port dues bring the main part of the income received as a result of the Marine Administration of Port activities.

The Marine Administrations of Port are in operation in the NSR basic ports - Murmansk, Arkhangelsk, Nakhodka and Vladivostok. The united Marine Administration of Port of the Chukot Autonomous Region is being organized at present.

The Rosgidromet, the State hydrographic enterprise, the Federal Air Service and the RF subjects are also the elements of the central administrative level (Fig.6). They run the management of their regional bodies responsible for the shipping along the NSR.

4.3.2. Regional Administrative Bodies of the NSR

Regional administrative bodies include the operative bodies and those which render support to the shipping along the NSR.

The functions, structure, location and geographical sphere of the activities of the regional operative bodies will change depending on:

- redistribution of the NSR cargo-flows as a result of large-scale exploitation of natural resources on the Arctic coast and the shelf of the Arctic seas;
- working out of new schemes of regional and transit cargo transportation;
- increase in the volumes of export-import cargo transportations in the interests of the Federal Arctic subjects;
- development of the means of automatization and centralization of management with application of up-to-date cosmic systems of observation, navigation, communication and tracking of shipping along the NSR seaways. In connection with the above the development of these regional bodies is considered separately for the periods of stabilization and stable development of the NSR.

The tasks of the regional bodies regarding organization of shipping (navigation, hydrometeorology, communication) will remain unchanged during all periods, improvements of and changes in relations with the users of their information being provided for.

4.3.2.1. Regional Bodies of Operative Management

In the period of restoration of the previous (1987) cargo-flows the regional bodies of operative shipping management (ROM) may have two structures. In the first one the management of shipping is effected by one ROM formed in the port of Murmansk. Practicability of this kind of structure was proved during the navigation period of 1997.

As it had been mentioned in section 2.2., location of MOH in the port of Murmansk was caused by a number of reasons of which more of transportations along the NSR were also taken into consideration.

The other structure is aimed at regulation of more intensive cargo-flows on the NSR (Table 2-4), and takes into account the experience of the former MOHs (Fig.1).In accordance with this structure ROMs of the western and eastern Arctic regions will be located in the ports of Dikson and Pevek, with the regional subordinate body of the central sub-region of coastal navigation located in the port of Tiksi. The ROM in the port of Dikson will be formed by the Murmansk shipping company, the one in the port of Pevek - by the Far East shipping company and one more in the port of Tiksi - by the Arctic shipping company.

The zones of ROM responsibilities in the western and eastern regions of the Arctic are separated by the meridian 125°E.

The zone of responsibility of the central subordinate body includes the coastal route on the Khatanga-Pevek stretch. The ROM of the eastern region is to effect control over the activities of the above subordinate body.

ROMs and their subordinate bodies of the NSR administrative system will be formed depending on the increase in the volumes of transportations along the NSR.

Shipping companies - operators of ice-breakers (MSC, FESCO) are to cover the expenses incurred by the ROMs operating in the ports of Dikson and Pevek. Partial coverage of expenses for the maintenance of the ROM in Pevek will be made by the Chukot Autonomous region as this ROM is mostly responsible for the transportation of cargoes consigned to the region.

Expenses incurred by the ROM in the port of Tiksi are jointly covered by the Arctic shipping company and the Republic of Sakha (Yakutia).

The NSR Administration is to co-ordinate the work of the ROMs and shipping companies connected with preparation and carrying out Arctic navigation. The same administrative body, together with shipping companies, is to work out the Provision on ROM, co-ordinate it with the parties concerned and submit to the RF Ministry of Transport for adoption.

The staff of the ROMs in the ports of Dikson and Pevek include specialists in marine operations, State ice pilots, Scientific-operative Group from the AARI (hydrologists, synoptics), representatives of navigational and hydrographic services. The ROM in the port of Tiksi consists of a reduced number of personnel.

The main duties the ROMs are responsible for are the following: safety of navigation during marine operations and fulfillment of other assignments received from the shipping companies and the RF Ministry of Transport; the choice of the safest, in the particular ice situation, routes; organization of ice-breaker leading and pilotage; organization of ice convoys; constant control over the positions of the vessels proceeding along the NSR; control over the schedule of traffic and handling vessels in ports; prevention of distress situations on the NSR.

In the period of stable economic development of the Russian Arctic (after 2005) cordinal changes in the NSR regional administrative structure may be expected. They will be caused by the development of new forms of marine activities, such as:

- marine export of oil and gas from the fields on the coast and shelf of the Barents and Kara seas;
- international transit of containerized and mass bulk cargoes through the NSR;
- growing volumes of State cargo deliveries to the northern regions, development of export-import transportations meeting the needs of the RF subjects.

In every new transport technological system industrial and shipping enterprises will contract their own specialized ice-class vessels, as well as their own operative systems of management of cargo-flows on the lines "terminal-consumer". Shipping companies may be expected to lose their monopoly in the NSR transportations.

At the same time the State, regional, stock and private operators of cargo-flows will continue to require ice-breaker, hydrometeorological, navigational, hydrographic, search and rescue support, as well as radio communication, all of which will remain under the Federal authority.

In the above situation the administrative structure of the NSR will be based on market relations, new marine technologies and means of radio communication. Motions brought

forward by the RF State bodies of power and those of the RF subjects will be taken into consideration.

The Republic of Sakha (Yakutia) experts the NSR to become a large Arctic stock company, with its Head Office to be located in Yakutsk [35].

The idea of founding the Arctic stock shipping company has been supported by the NSR Administration [36]. Its status and structure look quite realistic. The future Company is to include: State ice-breaker fleet, the State hydrographic enterprise and a special enterprise to maintain vessels equipped with nuclear power-plants. The Company will be based on joint capital: Federal, regional (the RF subjects) and stock. Oil and gas enterprises of the western Siberia and Arctic shelf, the "Norilsk Nickel" concern, enterprises of mining and metallurgical industries of the North-East may become its shareholders. Later on foreign capital, foreign shipping companies, interested in the NSR transit transportations, and ship-building enterprises specializing in construction of ice-breakers and ice-class transport vessels, in particular, may invest their capital in the Company.

The ports of Dudinka, Igarka, Tiksi, Zeleny Mys and Pevek will become stock companies, with their capital belonging in equal shares to the Russian Fund of the State property, the Arctic shipping company and the enterprises which serve the above ports. The smaller ports such as Amderma, Dikson, Khatanga and others may get the status of "independent subdivisions" of the Arctic shipping company. Bearing in mind the exceptional social importance of transport for the RF subjects, it will be necessary to stipulate the rights of the local authorities, as regards organization and development of the above ports, in the constituent documents of the above subdivisions [35].

The main duty of the Arctic shipping company will be direct regulation of all marine operations along the NSR. The NSR Administration plans to locate the Head Office of the above company in the Arctic, though not necessarily on Yakutsk. The volume of transportations in the western region of the NSR exceeds that in the eastern region threefold (Table 2), and navigation on the Murmansk-Dudinka line is going on all-year-long. These are the reasons why the Head Office of the Company must be located in one of the ports of the NSR western region (e.g. Murmansk) and its branch office may be based in Yakutsk.

Regional administrative bodies of the Company may have their offices in the ports of MOH traditional location.

The ROMs in the ports of Tiksi and Pevek will act in the interests of both the Republic of Sakha (Yakutia) and the Chukot Autonomous region. The Company administration and the above RF subjects will render financial support to the ROMs.

The relations of the Company with the territorial organs of hydrometeorological service (DHMS), in order to ensure safety of navigation, will be strictly commercial. Leasing of ice-reconnaissance helicopters will be paid by the Company.

The profits of the Company will consist of the ice-breaker and pilot fees, freightage and effective use of the block of shares owned by the Company.

Owing to high costs of the construction and operation of the Arctic transport the Company will, in order to ensure the normative level of profitability, prepare projects of documents, to be adopted by the RF Government, regarding both - direct State financial support rendered to the Company and indirect measures: preferential taxes and rental charges, protection transport and energy tariffs etc.

The NSR Administration will, as it had always done before, effect control over the implementation of the State transport policy on the NSR. The control will be effected by the State representatives in all stock companies engaged in the Arctic cargo transportations, the Arctic shipping company included.

On the whole, the above structure of the NSR administrative system is not yet final and may suffer various modifications in the future. More definite forms of it may appear after the year of 2005.

4.3.2.2. Regional Bodies of Shipping Support Services

Regional bodies of hydrometeorological (DHEM), navigational, hydrographic (HB) and SARP services will be restored in their previous structural forms and charged with conventional responsibilities and duties.

DHMS and HBs will remain the State-owned organizations. General hydrometeorological and navigational information will be rendered to the users free of charge. Specific hydrometeorological data, to be used for solving particular navigational problems, is to be paid for. This information (medium-long-term and urgent) for the period of Arctic navigation is rendered to the users on the terms of contracts made by shipping companies with DHEM and AARI.

Regional bodies of hydrometeorological service (DHEM) will use up-to-date cosmic, air and ground hydrological equipment to correctly assess hydrometeorological conditions in the Arctic. Maximum automatization of the methods of collecting and processing the received information will cut the expenses for the maintenance of the hydrometeorological system. The RF subjects may take part in financial support rendered to the regional hydrometeorological organizations regarding environmental monitoring.

The regional DHEM, together with the Ice centre "Sever" are to carry out marine environmental monitoring and supply mariners with general and specific current and long-term information.

General current information includes weather charts (every 3 hours), complex ice charts (every 2-3 days) and ice synopsis (every 10 days).

General short-term forecasts include daily and 3 day weather forecasts, ice situation forecast for the period of three days and storm warnings.

General currents ice information is transmitted to mariners in chart facsimile form and texts with navigational recommendations and co-ordinates of the best ice routes.

Specific ice forecast for the periods of 1-3 and 8-10 days is compiled by the Scientific-operative group of MOH with special regard to the data indicated in the ice passports of vessels navigating along the NSR in the above periods.

Regional bodies of navigational and hydrographic services (HB) will be developed depending on the expected economic needs and commercial utilization of the NSR. Services on the NSR are to be developed in accordance with the program worked out in conformity the RF Government Decree "On Arrangements Aimed at Utilization of Satellite Navigational System GLONASS for Civil Purposes". The programme includes:

- development of 12 DGPSS stations to fix ships' positions on the NSR with an accuracy of 10 metres. At present 4 DGPSS station have been put in operation in the Kara sea, the rest 8 stations will commence functioning after 1998 (Fig.7);
- working out of IMO adopted marine information electronic-cartographic system for ice-breakers. transport, hydrographic, geological survey and other specialized vessels and pilot stations charged with leading of sea-going vessels in the rivers Enisey, Khatanga, Anabar and Kolyma.

The Arctic HBs using 15 hydrographic vessels, ground transportation means and aviation are charged, in their zones, with positioning and maintenance of aids to navigation on the NSR sea ways, preparation of coastal warnings on changes in navigational situation, and leading of sea-going vessels in the rivers Enisey (363 miles), Khatanga (192 miles), Anabar (65 miles) and Kolyma (95 miles).

Regional bodies of salvage service (SARP) are functioning under the authority of the RF Ministry of Transport. Salvage and Repair Parties are stationed an board ice-class salvage tugs (in the ports of Dikson and Pevek) and on board ice-breakers operating on the NSR sea ways. The NSR regions are covered by the Global Sea Salvage Distress System - GSSDS [33]. Emergency radio stations keeping watch on distress and salvage frequencies will be located in the ports of Murmansk, Arkhangelsk, Tiksi, Pevek, Cape Shmidt and Providenia. COSPAS-SARSAT system station (fixing positions and flags of vessels, aircraft and other mobile objects in distress) will be located in the port of Arkhangelsk.

NAVTEX stations will also function in the GSSDS system (transmission to mariners, proceeding in coastal waters, of navigational warnings and meteorological information in print-out English) in the ports of Murmansk, Arkhangelsk, Amderma, Dikson, Tiksi, Yanrangay (Kolyma river) and Providenia. Navigational and meteorological information for far-lying sea areas in the GSSDS system will be transmitted from the ports of Murmansk, Arkhangelsk, Amderma, Dikson, Pevek, Cape Shmidt and Providenia.

Regional radio centres on the NSR will use the international system of marine satellite communication "INMARSAT" and the Russian system of marine satellite communication "OCEAN". Both systems are based on geo-stationary satellites. The "INMARSAT" cover-up zone has a gap in the western area of the Laptev sea. The "OCEAN" system can be used for operative communication in the above NSR region. Ground stations of the "INMARSAT" and "OCEAN" systems are located in the radio centres of Murmansk, Arkhangelsk, Dikson, Khatanga, Tiksi, Pevek, Providenia, Nakhodka and Vladivostok. The above systems of marine satellite communication function on commercial basis.

A vessel proceeding along the NSR shall be equipped, besides the conventional means of radio communication, with shipboard satellite communication station, recording and facsimile reception facilities, including those for reception of hydrometeorological charts, and VHF station to maintain communication with aircraft, helicopters and vessels in the convoy.

The regional system of traffic tracking is being worked out at present. The system will ensure full coverage of the NSR regions. The main element of the system will be its Centre. Colour displays in the Centre will show ships' positions and their code letters, as well as navigational situation: coast line, islands (islets), marine installations, navigational dangers (obstructions) etc. The information (code letters, ship's position, meteorological conditions) is transmitted to the Centre through the system of marine satellites by the ship's automatic transmitters linked with shipboard receivers of the satellite navigational system "Kurs".

The participation of the RF subjects in rendering services to the NSR shipping is limited by the powers delimited to them (see section 4.2.2.). In the course of economic development of the RF Arctic subjects they will be able to take part in rendering financial support to the NSR

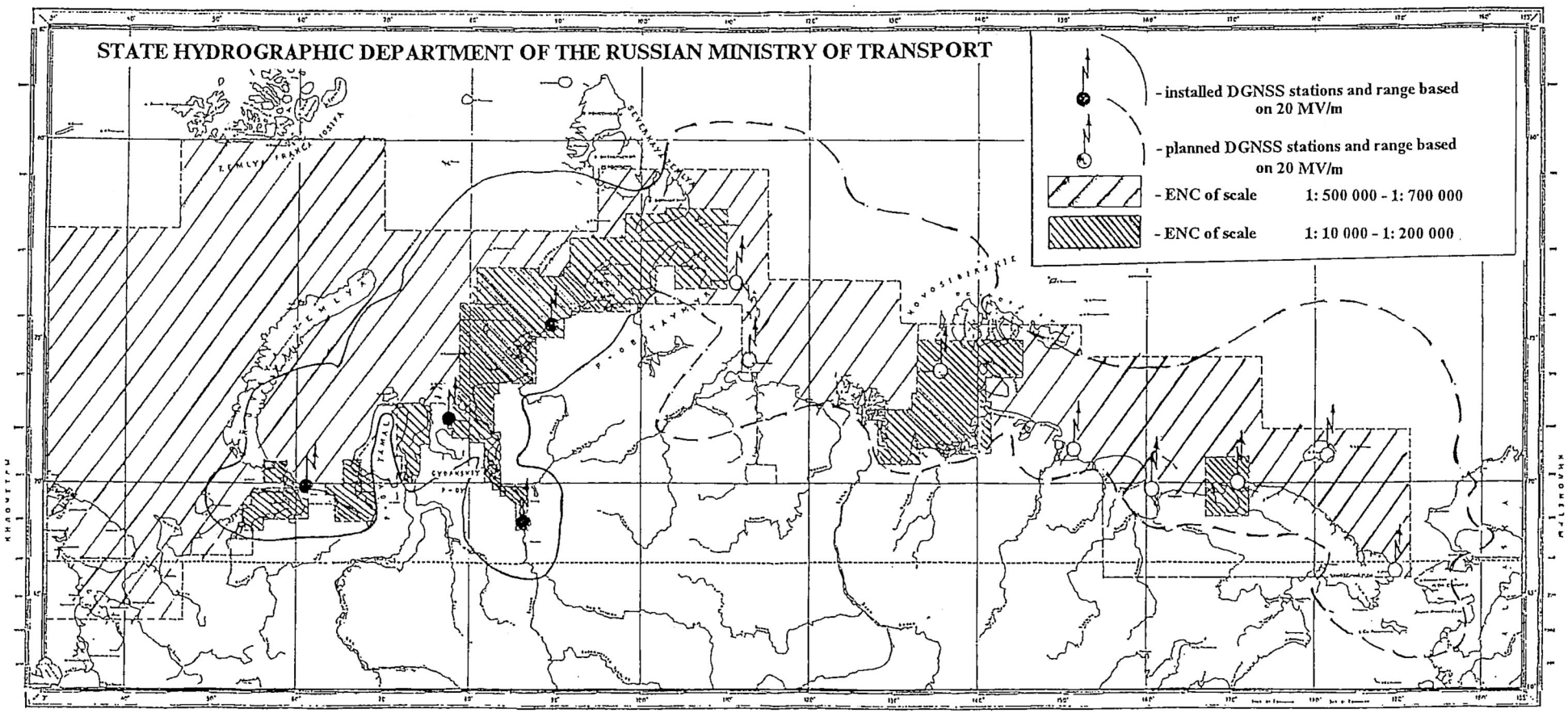

Fig.7. Scheme of installed and planned Differential Global Navigation System Stations (DGNSS) and borders of Electronic Navigation Charts (ENC) along the Northern Sea Route (on January 1, 1998)

regions adjoining their coasts. Co-operation of the RF subjects with the Federal authorities will be stipulated by "Agreements" in the following spheres:

- The RF Ministry of Transport - to work out and put into practice regional programmes of transport development on the NSR and its element: ports, communication and SAR means [27,28];
- The Rosgidromet - to delimit tasks to be performed by territorial DHMS regarding hydrometeorology and environmental monitoring, on Federal and regional levels, and finance the for the account of the RF subjects budget (25%) [4];
- The State Hydrographic Department - to finance development of up-to-date aids to navigation, carry out hydrographic research on the NSR, take measures to prevent marine environment pollution by ships;
- The Ministry of Foreign Economic Relations - to render assistance to the RF subjects in finding foreign partners interested in the NSR transportations and foreign trade organizations - suppliers of the goods to be transported [34].

On the whole, the development of the NSR normative - organizational - economic structure will contribute greatly to the establishment of an integral system of economic relations between the NSR enterprises, clientele, the State and territories and building of an adequate NSR administrative system.

Economic effectiveness of the future NSR administrative system will result in cutting transport expenses by not less than 10% due to possibility of choosing optimum and safe ice routes to proceed along the NSR sea ways, and an increase in the speed of transportation by I knot.

The following are the conclusions which may be drawn from section 4 of the paper:

- The former system of the NSR centralized management in which the State was the only owner of all elements of the NSR structure has gone forever.
- The future system of the NSR management will become a combination of central and regional administrative bodies based on various kinds of property.
- In the period of adaptation of the NSR new administrative system to market economic relations the role of the central administration, in the sphere of legislative-normative-organizational activities, will become more appreciable.

- In the period of stable development of cargo-flows along the NSR (Over 6-7 mill tons per annum) the role of the NSR regional administrative bodies will become more important. These bodies will be formed in the course of introduction of new financial and economic relations, and the RF subjects and Arctic industrial enterprises will take an active part in the process.
- The idea of organizing the Arctic stock shipping company (Canadian experience) may be put in practice as soon as the volume of transit and regional cargo transportations exceeds the annual level of 20 mill tons, with ice-breaker fees not exceeding $ 5 for 1 GRT. In these circumstances the Arctic marine transport system based of Federal, regional (subjects of the Federation), stock and foreign capital may reach full recoupment and renovation.

In the course of all periods of the NSR development the State will continue to consider the NSR as an integral national sea way.

In conformity with the UN Convention on the Law of the Sea of 1982 (Article 234) the State "will adopt and observe non-discriminating acts and regulations to prevent marine environment pollution by ships in ice-covered waters within the exclusive economic zone and effect control over their execution. The NSR shipping and protection of marine environment from pollution by ships will be taken into consideration in these acts and regulations, for which purpose reliable scientific data will be used.

Conclusions

1. In the Soviet period successful accomplishment of the most difficult tasks in the development of the NSR became feasible due to the establishment of centralized management based on the State ownership of all the NSR elements.

   In the period of transition to the market economy the initiated privatization of shipping companies servicing the NSR broke the central management system of the NSR. The legislative basis of the new administrative system of the NSR has been formed by the Constitution of the RF (1993) and the Decree of the President of the RF (1993) in conformity with which the icebreaking, rescue and salvage, hydrographic fleet, port facilities, hydrographic bases, hydrometeorological service and means of radio communication are the Federal property. These objects will be managed centrally at all times.

   The Arctic ports are transferred into the possession of the RF subjects.

2. The adaptation of the NSR administrative system to the new economical conditions and to ever increasing cargo flows through the NSR requires taking normative and legal, economical and organizational measures on the part of the State , RF government, RF subjects, joint-stock companies.

3. The main principle of the central management of the NSR proceeds from the position of Russia: to develop the NSR as an integral national marine transport line in the Arctic.

   The regulatory function of the State within the NSR administrative system will be performed by the Ministry of Transport of the RF (NSR Administration) through the State Representatives in the joint-stock transport agencies and Marine Administration of Ports.

4. At the regional level, delimitation of powers in the system of the NSR management is taking place between the RF government and RF subjects as this relates to improvement of the infrastructure of sea ports; finance backing of work aimed at creation of novel facilities to ensure safety of navigation along the NSR and a new generation of transport means for the NSR.

5. The regional administrative bodies of the NSR will be restored as the volume of traffic along the NSR increases. As before, these bodies will be formed by the shipping companies, possibly, with participation of the RF subjects.

   Coordination of activities of the shipping companies and territorial administrative bodies of the NSR will be provided by the NSR Administration.

6. In the period of stable development of the Arctic economic zone under the conditions of new finance and economic relations on the NSR the new regional administrative bodies will be formed with the active participation of the RF subjects and industrial enterprises in the Arctic.

   The RF subjects may take part in financial support rendered to the regional bodies of hydrometeorological service.

   The idea of founding a Arctic stock shipping company (Canadian experience) may be put into life when the annual traffic volume through the NSR will exceed 20 m t. At such a level of traffic the Arctic marine transport system can be profitable. At the regional level the Company will establish its own, and in collaboration with the RF subjects, regional shipping management bodies. The functions of these bodies will be defined with consideration for the State and regional interests.

7. The State supervision of rational utilization of the NSR will be effected, as before, by the NSR Administration through the State Representatives in the joint-stock companies: participants of the transportation process on the NSR.

8. The Russian management of the NSR will advance in full conformity with the provisions of the UN Convention on the Law of the Sea, (Article 234) 1982 ratified by the RF Federal Law No.30-F3 of 26 February, 1997. Other international legal standards for Arctic environment protection will be also taken into account. One of the most important tasks of the Russian management of the NSR will be to ensure safety of the Russian and international shipping and to prevent pollution of the marine environment and the northern coast of the RF caused by shipping.

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Review of INSROP Discussion Paper **IV.2.5 Russian Administration of the Northern Sea Route - Central or Regional?**

1. The paper was quite difficult to follow in places, and in others the meaning was ambiguous. It has evidently been translated from the Russian by a non-native English speaker. Having a reasonable command of Russian, I would probably have found the Russian version much easier to follow.

2. My understanding of the purpose of the paper is that it was supposed to discuss the relative advantages and disadvantages of the Northern Sea Route being administered centrally or regionally. After providing a good deal of background, the paper comes on to this central topic on p. 24. But the future division of functions seems to me to be declared rather than argued. A certain degree of centralization is taken to be non-arguable (see for example the bottom of p. 28), arising inevitably from the nature of Russian national interest, central government decrees and policies (see middle of p. 29 - p.30 and p. 31 onwards), and the way things have always been when a certain magnitude of developmental tasks has to be undertaken (see the top of page 29). Because of these constraints, arrangements for the stabilization period necessarily comprise an essentially centralized system with regional branches. The potential for alternative ways of doing things is not really explored.

3. A somewhat similar comment relates to the desire of the Sakha Republic, once the current transition period has given way to a "Stage of Stable Economic Development" (p. 38) to focus Arctic development around a large joint-stock Arctic Shipping Company, headquartered in Yakutsk. The authors suggest that "experts agree, mainly" with the idea of establishing the company, but disagree concerning details beyond that. Once again the future status and nature of the company seem to be declared rather than argued in any depth.

4. Leaving aside the question of whether the paper fulfills its apparent mission, I find it informative on both past and present administrative arrangements for the Northern Sea Route. There are a few gaps, but they may be covered in other discussion papers in the series, with which I am not familiar. For example:

a. Neither in the sections on foreign practice, including Canada's, nor in those on Russia, is there any mention of sovereignty questions -- the kind of question which arose in connection with the voyage of the *Manhattan* some years ago;

b. There is virtually no discussion of freight tariff subsidies, which in Soviet times were important in building up traffic along the Northern Sea Route and in determining the division of traffic between maritime and river vessels. The future expected extent of port-operation and icebreaker-operation subsidy would also have been worth discussion. Nor are such questions discussed in the sections on foreign practice.

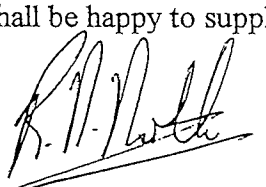
c. Following on from the previous point, without some knowledge of what assumptions are being made for the future with regard to tariff policies, it is difficult to judge the realism of the traffic forecasts contained in the paper. They seem quite optimistic

as far as traffic into and out of the North by way of the Northern Sea Route is concerned, expecting as far as I can tell a return to levels of the early-middle 1980s. But past experience would suggest that unless a considerable subsidy is to be applied, as much traffic as feasible would probably switch to the rivers. Canadian experience might suggest a switch to smaller amounts of supply traffic, moving more by air than before. There seem to be considerable expectations regarding oil and gas exploration and exploitation, but recent developments in the Caspian region make one wonder just how urgently oil and gas companies are going to be drawn to the Arctic basin. In sum, there is not enough material within the paper to enable the reader to assess the realism of the traffic forecasts provided.

d. On p. 28 there is a mention of the Program of Renewal of the Russian Merchant Marine, on which the replacement of icebreaker and ice-capable vessels seems to depend. It is my understanding that the monies actually made available through this program have been far below those nominally allocated. There is no mention here of any problem with the Program.

In sum, I found the discussion paper useful and informative, but within much tighter constraints than I expected after reading the title and introduction. It could profitably be expanded to include some of the additional topics I have mentioned, or at least to indicate where discussion of those topics could be found among the other discussion papers.

I hope you find these comments of some use. If you wish for more detailed comments I shall be happy to supply them.



Robert N. North
Associate Professor and Acting Head
Department of Geography
University of British Columbia

Authors' Answers

15 July, 1998

To: Prof. Robert N.North
Department of Geography
University of British Columbia

Dear Prof. Robert N.North,

Thank you for your comments on the paper IV.2.5.
Referring to the questions posed by you we would like to supply some explanations:

1. To gain a better understanding of the paper its English translation has been improved by the State Marine Academy.

2. The purpose of the paper is not to compare advantages of the central or regional administration of the Northern Sea Route (NSR). The previous central administrative system based on State ownership of all element of the NSR has gone never to return. The future administrative system of the NSR is formed by integration of the central and regional bodies based on the various forms of ownership. This is not a declaration but an objective process of the economic reforms in Russia in conformity with the Constitution of the Russian Federation, 1993.

Considering your comments, the reasoning for establishment of central and regional administrative bodies of the NSR is given in the new sections of the paper: 4.3.1 and 4.3.2.

3. The Sakha (Yakutya) Republic has suggested an idea of founding a Joint-Stock Arctic Shipping Company without any well-grounded reasons. The NSR Administration has studied the status and structure of the Company only conceptually, as one of the versions of the future administrative system of the NSR.

4a. The sovereignty questions of the Arctic States, including Canada and Russia have been addressed in the INSROP Project IV.2.2 «Political Aspects of International Shipping along the Northern Sea Route», 1997.

4b. The tariff policy of Russia along the NSR has been presented in the INSROP Project III.07.1 «The NSR Tariff Structure of Fees», 1995. Considering your comments section 4.3.1 of the paper gives an estimate of the level of fees to be levied upon the foreign vessels for leading them along the NSR which will make the transit through the NSR economically profitable.

The mechanism of compensation for the costs for delivery of goods to the Russian North is in its forming stage. During 1997 navigation a part of costs for delivery of petroleum products and fuel has been compensated from the Federal budget, for delivery of provisions (commodities) at the expense of the RF subjects.

4c. The potential traffic through the NSR (oil, gas, fertilizers, metal, coal, timber) has been explored in a number of the INSROP Projects under Sub-Programme III «Trade and Commercial Shipping Aspects», in particular, in the Project III.01.1 «The Significance of the NSR for Regional Development in Arctic Areas of Russia», 1995.

4d. The delay in building of ice-breakers and transport vessels for the NSR results from the reduction in the amount of the Federal financing for the Program of Renewal of the Russian Merchant Marine for 1993-2000. In the same time, activity of such joint-stock companies as «Lukoil Arctic Tanker» and «Arctic Shipping Service» in building of the Arctic fleet is being enhanced. Similar practice exists in the foreign Arctic States (in Canada: the Joint-stock shipping company «Canarctic»).

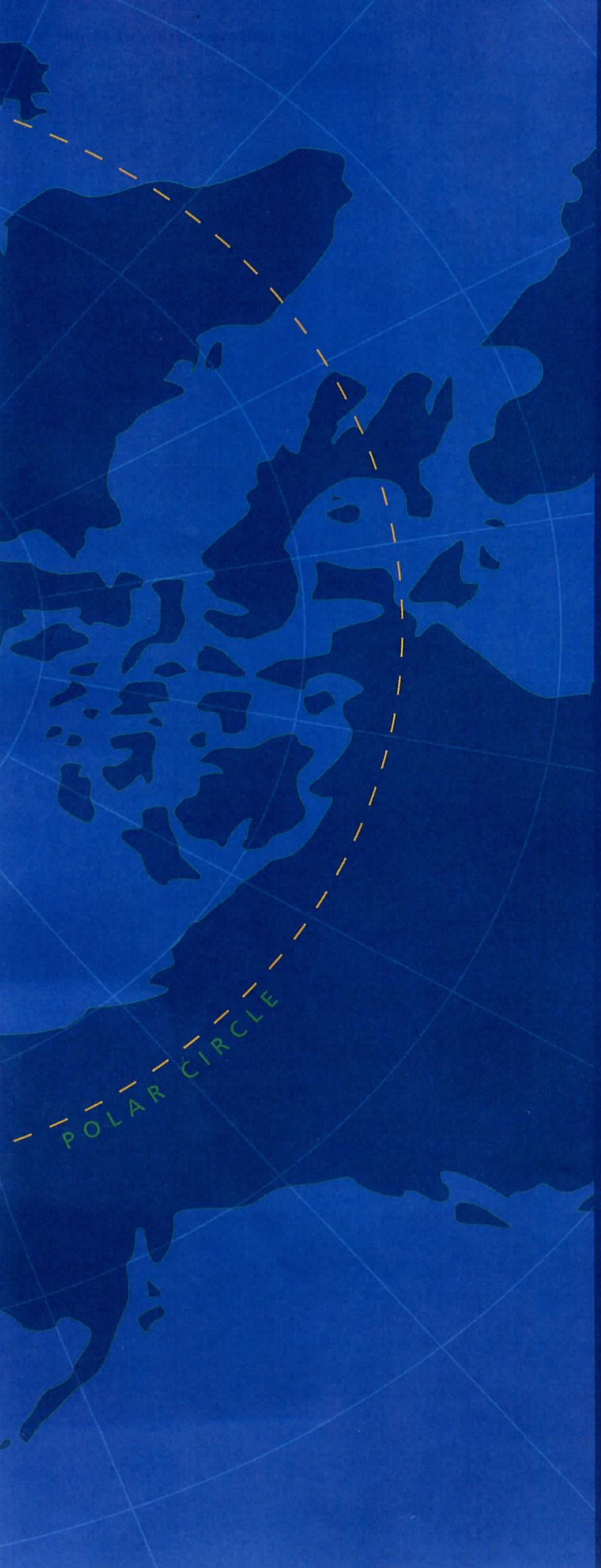
On the whole, the revised version of the paper does, in our view, correspond to a greater extent to the goals of Project IV.2.5.

Sincerely yours

Y.Ivanov

A.Ushakov

A.Yakovlev



The three main cooperating institutions of INSROP

Ship & Ocean Foundation (SOF), Tokyo, Japan.

SOF was established in 1975 as a non-profit organization to advance modernization and rationalization of Japan's shipbuilding and related industries, and to give assistance to non-profit organizations associated with these industries. SOF is provided with operation funds by the Sasakawa Foundation, the world's largest foundation operated with revenue from motorboat racing. An integral part of SOF, the Tsukuba Institute, carries out experimental research into ocean environment protection and ocean development.

Central Marine Research & Design Institute (CNIIMF), St. Petersburg, Russia.

CNIIMF was founded in 1929. The institute's research focus is applied and technological with four main goals: the improvment of merchant fleet efficiency; shipping safety; technical development of the merchant fleet; and design support for future fleet development. CNIIMF was a Russian state institution up to 1993, when it was converted into a stock-holding company.

The Fridtjof Nansen Institute (FNI), Lysaker, Norway.

FNI was founded in 1958 and is based at Polhøgda, the home of Fridtjof Nansen, famous Norwegian polar explorer, scientist, humanist and statesman. The institute spesializes in applied social science research, with special focus on international resource and environmental management. In addition to INSROP, the research is organized in six integrated programmes. Typical of FNI research is a multi-disciplinary approach, entailing extensive cooperation with other research institutions both at home and abroad. The INSROP Secretariat is located at FNI.