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**Project Acronym:** ENCOMAR-TRANSPORT



**Project title:**

**ENHANCED CO-OPERATION BETWEEN EU MEMBER STATES AND  
ASSOCIATED CANDIDATE STATES IN MARITIME RESEARCH ON  
TRANSPORT**

**Instrument:** Specific Support Action

**Thematic Priority:** Integrating and strengthening the European Research Area

**Final publishable activity report**

**Final Plan for using and disseminating knowledge**

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## **Publishable final activity report**

### ***Project objectives***

The Specific Support Action ENCOMAR-TRANSPORT “Enhanced co-operation between EU member states and associated candidate states in maritime research on transport” started in April 2005 and finalised in October 2006 after 19 months. The project was funded by the Sixth Framework Programme and launched to support the integration of the new EU member states, applicant countries, Russia and Ukraine in research on maritime transport, thereby helping to jointly use R&D potentials and resources and to promote a culture of innovation throughout the enlarged European Union and neighbour countries.

ENCOMAR-TRANSPORT had two general strategic objectives:

- to support the integration of the Associated Candidate States, Russia and Ukraine into the European Maritime Research Area, thus supporting EU policies and the formation of ERA and
- to support the goals defined in the maritime part of the Sustainable Surface Priority of the 6th Framework Programme, in particular to strengthen European competitiveness through scientific and technological excellence.

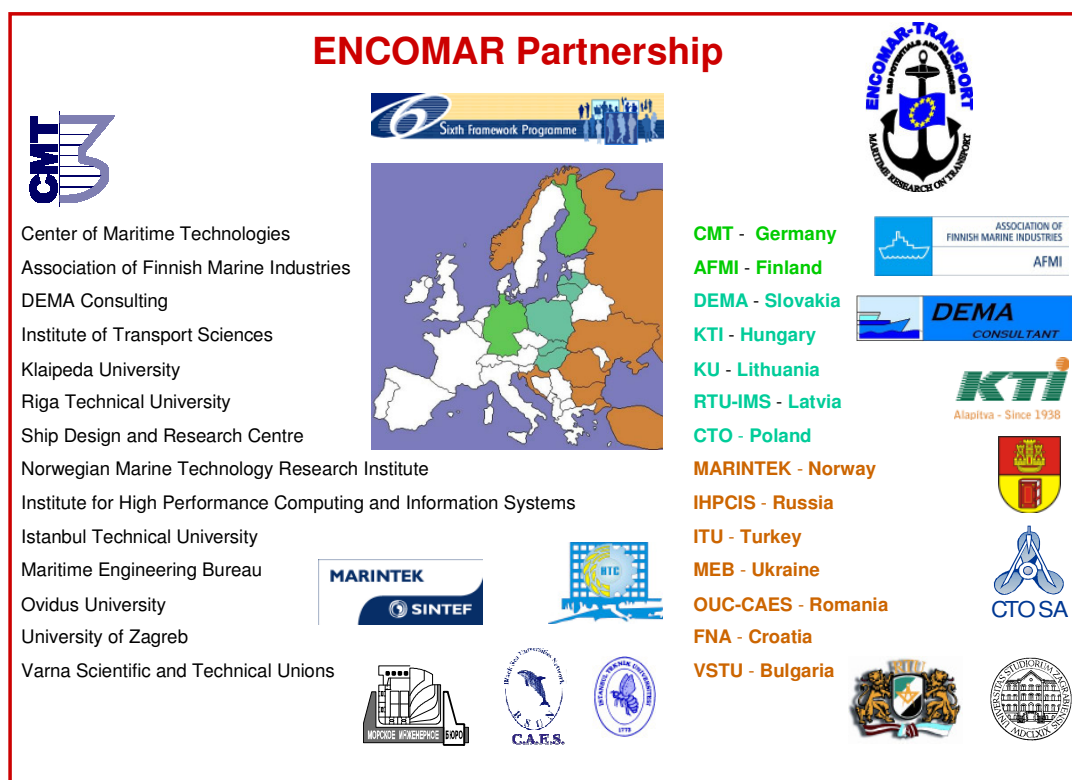
In detail, ENCOMAR-TRANSPORT had the following objectives:

- Increasing awareness of the maritime potentials of the “new” EU member states, applicant countries, Russia and Ukraine in research and industry
- Creating a Network of Maritime R&D contact points providing a basis for a sustainable infrastructure for maritime R&D co-operation.
- Inform about potentials and activities of European research in the new European member states, applicant countries, Ukraine, Russia and Turkey
- Inform the research community and industry in the EU member states about the potentials of new partners from countries not yet integrated in European research activities.



## Contractors involved

Figure 1 shows the partner organisations and counties covered by the ENCOMAR-TRANSPORT partnership, which reaches from far north, central to south-east Europe.



**Figure 1: ENCOMAR-TRANSPORT partnership**

ENCOMAR-TRANSPORT brought together 14 partners from 14 countries. Four of these partners, CMT as the project co-ordinator, AFMI, MARINTEK and CTO were representing countries with experience in European maritime transport research. Ten of these partners represent countries with very limited or no experience in European maritime transport research. Five of the partners are universities, six partners are maritime research organisations, two partners are associations and one consultancy. All partners were responsible for disseminating information about European maritime transport research in their country and to enable a broad participation of research and industrial actors in those countries, in particular encouraging the participation of SMEs.

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## Approach and work structure

In Figure 2 the overall work plan is shown. Activities started with the analysis of maritime potentials and Awareness Workshops, Brokerage Events and the preparation of expressions of interest started in 2006.

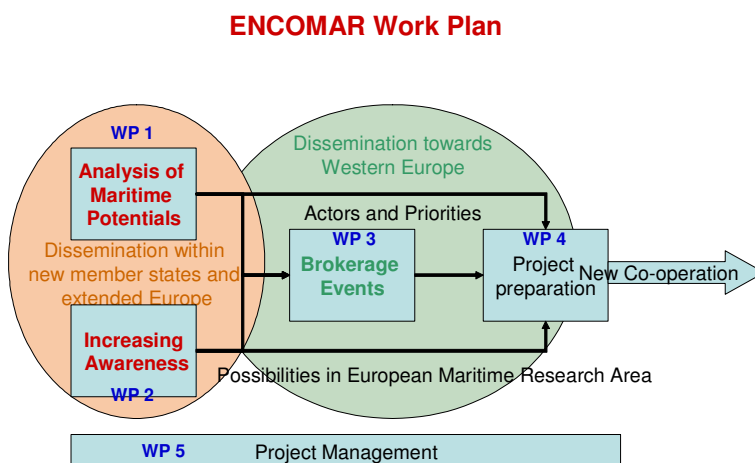


Figure 2: Overview of ENCOMAR-TRANSPORT work plan



The approach to tackle the major project objectives was the identification of the main maritime actors and potential of each country executed by the each partner for their country. In order to increase awareness about the potentials of European maritime research, nine workshops were conducted on national level by the ENCOMAR-TRANSPORT partners to disseminate information about European maritime transport research in their individual countries. This was to enable a broad participation of research and industrial actors in those countries, in particular encouraging the participation of SMEs. Four Brokerage Events have been organized and managed by AMFI, MARINTEK, CMT and OUC-CAES. These events were organised to give potential “new” actors the opportunity to present their interests, potential, needs, skills and services towards the EU research community and maritime industry. Brokerage events took place in Budapest, Oslo, Hamburg and Rostock and were dedicated to four different thematic priorities. Three of the events were organised in conjunction with larger events, the SMM in Hamburg and conferences in Oslo and Rostock-Warnemünde. Three research fields with high potential for the integration of new EU member states, applicant countries, Russia and Ukraine were identified and expressions of interest were prepared, forwarded to Waterborne and described in more detail. Last but not least, project management was responsible for the efficient administration of the project and to promote and stimulate the establishment of contacts with other relevant external research projects and overall dissemination activities, and preparing the ENCOMAR-TRANSPORT website.



Website: <http://encomar.net/>

## *Work performed and results*

### **Creation of a Network of Maritime R&D National Contact Points in new member states, associated candidate countries, Russia and Ukraine**



**Figure 3: ENCOMAR-TRANSPORT kick-off meeting, 15 April 2005 in Hamburg**

Each ENCOMAR-TRANSPORT partner succeeded to become accepted in their country as maritime contact points for the countries Germany, Finland, Norway, Poland, Lithuania, Latvia, Russia, Croatia, Hungary, Slovakia, Bulgaria, Romania, Ukraine and Turkey. The experienced partners, Center of Maritime Technologies e.V. (CMT) in Germany, Association of Finnish Marine Industries (AFMI) in Finland and Norwegian Marine Technology Research Institute (MARINTEK) in Norway already were maritime contact point before the start of ENCOMAR-TRANSPORT. MARINTEK is also actively involved in development of the “Norwegian Maritime Cluster” with the Research Council of Norway and the Norwegian Maritime Industry. In this setting, the knowledge and possibility for cooperation between Maritime Industry in Norway and the East-European Countries will in the future represent an extended arena for cooperation.



The newly established contact points which form the sustainable ENCOMAR-TRANSPORT network in some cases are now officially nominated national contact point coordinator for the thematic area of transport in other cases their role remains informal but will be supported, as e.g. Marine Engineering Bureau (MEB) in Ukraine,

Institute for Transport Sciences (KTI), the National Navigation Contact Point in Hungary as well as Ship Design and Research Centre (CTO S.A.), the national maritime contact point in Poland, and Klaipeda University in Lithuania will be maintained as a regular organizational unit with the following main activities:

- Dissemination of the information on the forthcoming 7th EU Framework Programme;
- Dissemination of the information on the workshops;
- Support in the process of matching the partners, finding and joining a proper consortium;
- Consultation in the scope of the method of filling in the documents related to the process of the project application preparation;
- Dissemination of the information on the projects implemented within the framework of the Thematic Areas of the 5th and 6th EU Framework Programmes in order to create conditions for implementation of results of these projects or initiation of co-operation on the commercial basis;
- Informational support concerning formal and financial issues resulting from the participation in the EU project;
- Informational and practical support related to the participation of small and medium-size companies acting in the field of the maritime industry within the framework of EU Framework Programmes.

The Maritime Contact Point RTU-IMS in Latvia, which was established within the ENCOMAR-TRANSPORT project, has been recognized by the Latvian Ministry of Science and Education, who have nominated Dr. Kaspars Kalniņš to become a national contact point coordinator for the thematic area of transport. Therefore, RTU-IMS will maintain and coordinate the following activities related to upcoming FP7 activities:

- Participation in the project 'EUROMAR-Bridges', initiated within ENCOMAR-Transport consortium. The project's follow up will assure sustainability for further maritime transport-related research coordination in Latvia's transport cluster.
- Extension in research on innovative shipbuilding production technologies for all-steel laser-welded sandwich panels by participation of RTU-IMS in project De-Light.



- As a National Contact point in transport priority, RTU-IMS will disseminate information on the forthcoming 7th EU Framework Programme to the established national actors in the maritime cluster
- Consulting and assisting new partners in project application and document preparation from the experience gained at RTU-IMS in the 5th and 6th EU FP.
- As a National Contact point RTU-IMS will organise national workshops for raising the awareness to the upcoming FP7.

Either more informal or officially nominated the established network of maritime contact points in the overall ENCOMAR-TRANSPORT network will sustain and provide the link to the maritime sector in their country and contribute to much wider participation of their country in upcoming FP7 activities.

### **Collection and dissemination of information on maritime actors, strategies and research priorities**

This work was lead by CMT and aimed at analysis of the maritime key actors and potentials in each country represented in the project and the identification of research activities in the sector and research priorities for future joint research. The work was achieved in a structured approach by providing a questionnaire at an early stage. All partners have than prepared an extensive national maritime key actor's analysis and identified research interests and priorities. This was finally compiled in comprehensive report – MARITIME POTENTIALS IN THE NEW EU MEMBER STATES, APPLICANT COUNTRIES, RUSSIA AND UKRAINE – OVERVIEW ACTORS AND POTENTIALS. This report was disseminated to the national Shipbuilding Associations and to CESA. The 14 partners in ENCOMAR-TRANSPORT have provided an extensive description of the maritime key actors, shipyards, ports, shipping companies and universities and identified the research priorities of their countries. The information gathered and analysed in the document is based on the knowledge and investigations of the partners in the ENCOMAR-TRANSPORT project and provides support to all maritime actors in Europe who are looking for co-operation partners.

The ENCOMAR-TRANSPORT project prepared the description of the maritime cluster in the enlarged European Union and strategic neighbours to provide baseline information for the better integration of the new member states and applicant countries in the European maritime cluster and to



enhance co-operation within industry and in research. This analysis for the first time provides an extensive description of the maritime cluster of new EU member states, associated states (NMA) and “strategic neighbours”, namely Germany, Finland, Norway, Poland, Lithuania, Latvia, Russia, Croatia, Hungary, Slovakia, Bulgaria, Romania and Turkey and thereby creates mutual knowledge about the maritime key actors, shipyards, ports, shipping companies, universities and other public, and industrial bodies. This is considered a prerequisite for joining forces and enhanced co-operation and the integration into the European Maritime Research Area, thus supporting EU policies and the formation of ERA.

While the integration of new member and associated states might not have a prime impact on worldwide shipping operations, a better integration of the new EU member states, associated states (NMA) and “strategic neighbours” (like Russia and Ukraine) into European waterborne research is found important to solve Europe-wide transport problems and to increase the competitiveness of the European industry.

The reduction of traffic congestion on European roads and a shift towards more environmentally friendly modes of transport requires the further development of short sea shipping and inland navigation and their inclusion into inter modal transport chains.

NMA play a significant role in that. As an example, the Danube is one of the main European transport corridors which is currently used by only a small portion of its capacity. Short sea shipping on the Baltic is getting increasingly important, e.g. in the transport of Russian natural resources to Europe.

Ships connecting NMA and Russia with the rest of the world often move through European waters, such as the Baltic and Mediterranean seas. They thus have a significant impact on safety and environment. Close cooperation with the NMA is necessary to avoid hazards for European citizens. Moreover those countries are potential allies in international regulatory bodies.

Owners from NMA and Russia own and operate a significant share of short sea and inland waterway ships. Many of those vessels are old and need to be replaced in the coming years. Russia has recently launched a 20 billion EUR worth programme for the production of new ships for gas transport from Russia to Europe. NMA are therefore an important emerging market for European shipbuilders and equipment manufacturers. Close cooperation is needed to assure a high safety and environmental standard for new ships.



To reduce cost in ship production and to increase competitiveness on the world market, European shipbuilders increasingly cooperate with shipbuilders in the NMAS in one way or another. Countries like Poland, Croatia, Romania, Bulgaria, Ukraine and Turkey have a shipbuilding capacity which is coming close to the EU-15 capacities in GT. Turkey is one of the market leaders in Europe on ship scrapping. A better integration of the NMAS therefore bears a large potential also for European shipbuilders.

Last but not least, NMAS have a number of highly qualified and specialized universities and research facilities, which provide good value for money. Cooperation with them allows for cross fertilization with European researchers and bears significant potentials for the European industry.

Based on the analysis three priority areas for future joint research have been identified. Those priority areas were taken forward within ENCOMAR by preparing expressions of interests for future joint research and addressed during the Brokerage Events.

### **Inform about potentials and activities of European research on national/regional level by executing Awareness Workshops and other networking and dissemination activities**

This work was led by AFMI and aimed at increasing awareness about European research, establishing national networks of maritime transport actors and informing on the possibilities provided by the European framework programmes. According to the project plan, three regional Awareness workshops should be organised. Already at the kick-off meeting the project partners decided to organise national workshops with some international participation or to achieve the goals by visiting and contacting national actors individually.

In order to increase awareness about the potentials of European maritime research, in total 9 national Awareness Workshops have been conducted at national level and the ENCOMAR-TRANSPORT partners disseminate the information in their individual countries. This is to enable a broad participation of research and industrial actors in those countries, in particular encouraging the participation of SMEs.

In total 9 Awareness Workshops were organised:

Mediterranean: in the countries *Romania, Turkey, Croatia, Bulgaria*

East-Central: in the countries *Poland, Hungary, Slovakia*

Russia and Baltic: in the countries *Latvia, Lithuania*.

The Awareness Workshops had been organised by the representatives of the host countries with assistance from experienced actors from the old EU member states. This procedure ensured that the specific needs, languages and cultural particularities of the countries have been taken into account, ensuring broad dissemination.

The workshops informed about the 6FP, the organisation of maritime research in the frame of the European Research Area, ongoing research activities as well as formalities for participation of partners from applicant countries and neighbours of the European Union. The discussions reflected European research possibilities in the concrete priority areas for joint activities identified in WP 1.



**Figure 4: Awareness Workshop, 13 December 2005 in Zagreb**

The general objectives of the mentioned Awareness Workshops organized at the national level of the particular partner's state were as follows:

- to improve the knowledge about maritime research activities at the European level;



- to increase awareness on how the maritime research is organized in FPs of European Union;
- to break the mentality barriers in order to activate the participation of New Member States and Candidate Countries in European joint maritime research initiatives by providing up-to-date information on such possibilities;
- to bring procedures related to participation in FPs down to the people by presenting them in friendly oriented forms;
- to promote Candidate Countries and New Member States participation in EU FPs – it is strictly connected with WP3 devoted to “Brokerage Events” - working together for the benefits of European maritime industries;
- to stimulate the international co-operation by showing the added value and gathered.

Knowledge presented by experts coming from “Old” Europe – deep experienced partners of the consortium: CMT from Germany, MARINTEK from Norway, AFMI from Finland and “fresh” member of EU, i.e. CTO S.A. from Poland having experience within FP 5 & 6. In the light of the aforesaid, Information and Dissemination related activity is the major task of the specific support action ENCOMAR-TRANSPORT within the domain of Awareness Workshops.

### **Information of research community and industry in the “old” EU member states about the potentials of partners from “newcomers” via Brokerage Events**

This work was led by MARINTEK and had the objective to inform research community and industry in the EU member states about the potentials of partners from ACC, Russia and Ukraine. Expert workshops were executed in the Member States focussing on the following 4 thematic priorities: “Inland Waterways and Danube corridor transport” 12 May 2006 in Budapest, “Ports and ship operation” linked to the Conference on Safety in ship operation, 14-15 June 2006 in Oslo, “Ship design” linked to the SMM 26 September 2006 in Hamburg, “Ship production” linked to the a workshop in 25 October 2006 in Rostock.



**Figure 5: ENCOMAT-TRANSPORT consortium, 12 May 2006 visiting Mahart in Budapest**

*Brokerage Event on Ship Design*, with AMFI as responsible partner for the workshop, gathered 28 representatives from shipping companies, shipyards, equipment suppliers, universities and research institutes. This meeting was held during the SMM Exhibition in Hamburg 28 September 2006.

The main issues for further discussion between the participants were:

- The requirements of shipyards in distributed design and manufacturing
- Data models for digital data exchange between design offices, shipyards, etc.
- Ship design for arctic conditions



**Figure 6: Merja Salmi-Lindgren chairing Brokerage Event Ship Design, 28 September 2006 in Hamburg**

*Brokerage Event on Shipping*, with MARINTEK as responsible partner for the workshop. This event was arranged in connection with the Maritime ICT Forum Shipping Conference, Oslo 14- 15 June 2006, with a focus on ICT and ship safety. On the first day, 40 participants from shipping companies, classification societies, software application suppliers, training institutions and research institutes attended the presentations and discussions. On the second day, a more in-depth discussion was held between ENCOMAR partners and selected Norwegian companies. A representative of the Interreg III – Safety Umbrella Operation also joined the meeting. The following potential areas of interest for cooperation were discussed:

- Risk-based approaches
- Hull – construction – stability / rules / condition monitoring
- Inspections / vetting
- Navigation – weather / operational
- Emergency handling on board



- Crisis management – procedures / ICT
- Evacuation – systems procedures
- Rules and regulations – inland waterways / deep sea shipping

*Brokerage Event on Ship Production* was managed by CMT and was held on 25 October in connection with “The First European Conference on Production Technologies in Shipbuilding”, held on 26-27 October in Rostock. Some 30 participants attended the event. Topics of interest included:

- Production technologies
- New developments in laser welding technologies
- Production planning – simulation tools

*Brokerage Event on Inland Waterways* was managed by OUC-CAES and the arrangement was held in Budapest 12 May 2006. About 30 participants attended the workshop.

The main areas of interest at this workshop were:

- The potential of efficient inland waterway transport
- Inland waterways - infrastructure
- Climate change and transport regularity
- Setting up a research agenda for “Enhancing inland shipping on the Danube”.

### **Involving partners in proposal preparation of FP6 Call 3B**

The kick-off meeting of the project was held 15 April 2005 in Hamburg right at the time when FP6 Call 3B was published.

At the start of ENCOMAR-TRANSPORT the final FP6 call in the Transport priority was just launched. Therefore, right at the beginning efforts were made to involve ENCOMAR countries in FP6 proposals, which were quite successful.



ENCOMAR countries in FP6 Call 3B proposals												
Country/proposal	EUROMIND	EUROMAR	DE-LIGHT	EFFORTS	MOWAT	CREAT3S	CABOTO	SIMCO2SHIF	Improve	ApplyCrash	INTERIM	Total
Poland	x	x	x	x	x	x	x					6
Lithuania	x	x						x				3
Latvia		x	x									2
Russia		x										1
Slovakia		x										1
Hungary		x										1
Bulgaria		x									x	2
Croatia		x	x						x	x		4
Romania	x	x	x	x	x	x	x				x	8
Turkey		x				x	x					3
Ukraine		x										1

**Table 1: Involvement of ENCOMAR-TRANSPORT partners in FP6 Call 2B proposals**

The direct involvement of ENCOMAR-TRANSPORT partners in FP6 CALL 3B proposals is listed in figure 1. Not all of those proposals passed the evaluation procedure.

## Launching of EUROMAR-BRIDGES

The continuation and sustainability is ensured by the new project with acronym EUROMAR-BRIDGES, which was prepared as follow-up of ENCOMAR-TRANSPORT in order to develop the existing cooperation and to promote joint European initiatives. The carrying out the EUROMAR-BRIDGES related work at a European level, involving the relevant national key actors along with the support of experts coming from “old” Europe allows for achieving the critical mass for strengthening the cooperation within maritime domains, innovative capacity of the potential new project proposals, creating added value at the European dimension, promoting Candidate Countries participation in joint European activities. The European dimension of the Project is of high importance and it has been tailored for the New Member States and Candidate Countries.

EUROMAR-BRIDGES will address the following goals:

- providing best practices,
- assisting the dissemination actions,
- practical information for establishing international cooperation by executing the brokerage events.

The brokerage events are intended to boost collaboration and to build consortia between those involved in a field of Maritime Research from Poland, Lithuania, Latvia, Slovakia, Hungary, Croatia, Romania, Bulgaria, Turkey.



The EUROMAR-BRIDGES project is treated as natural complement and support of the ENCOMAR-TRANSPORT project which is focused on helping to jointly use R&D potentials and resources and providing practical support for projects initiation.

### **Expressions of interest in 3 priority areas**

One of the ENCOMAR-TRANSPORT activities was to prepare Expressions of Interest 3 priority areas with high potential for the Integration of the new Member states, Associated Countries, Russia and Ukraine in European maritime research. This work was lead by CMT.

Three project proposals were identified and described:

- Priority area 1 - Enhanced inter modal transport on the inland waterways of the Danube Corridor (contact person: Thomas Schlüter (CMT), Tel. +49-40-691 99 47, email: [schlueter@cmt-net.org](mailto:schlueter@cmt-net.org))
- Priority area 2 - Energy Transport in Cold Climate Regions –ENTRICC (contact person: Tor Einar Berg (MARINTEK), Tel. +47 7359 5670, email: [tor.einar.berg@marintek.sintef.no](mailto:tor.einar.berg@marintek.sintef.no))
- Priority area 3 - Distributed design and manufacturing in shipbuilding (contact person: Joanna Wierszyło (CTO), Tel. +48 58 307 4565, email: [joanna.wierszylo@cto.gda.pl](mailto:joanna.wierszylo@cto.gda.pl)).

Main idea of the **proposal in priority area 1** is the development of new types of modular inland vessels in combination with new shipping concepts. Through the increased flexibility of the shipping applications (modularisation of waterborne transport), through new ship types with increased efficiency and safety for ship and cargo, through improved design concepts and application of new materials as well as through the entire vessel optimization with respect to the natural boundary conditions like river shape and infrastructural facilities, the enlarged demand for new products can be covered.

The project will significantly contribute to achieve the goals of the European Maritime Sector, as described in the Program, “NAIADES” by the European Commission.

The following objectives will be addressed:



- Increase and strengthen the sustainable expansion of cargo transportation on the Danube Corridor and therewith the better integration of the new EU-Member States
- Development of new and innovated modular inland vessels based on improved design and optimization methods for selected ship types; Container, Tanker, RoRo, Bulk and General Cargo
- Improve environmentally friendly and efficient inner European maritime transport through the decrease of risk factors and pollution with new propulsion systems (biological fuels, fuel cell) and improved waste water management
- Renewal of the existing fleet focused on efficiency, safety and cargo handling
- Improve port logistics and infrastructures adjusted to the local needs and forthcoming cargo flows by the development of improved and innovated cargo handling and transshipment technologies.
- Development and implementation of unified rules and guidelines for inland shipping
- Increase of safety standards by use of double hull structures and new materials (composite, sandwich structures) and increased crash worthiness
- Intensify the international exchange of goods within the Danube Corridor; to delight the overloaded streets and to foster incentives for international industrial investors
- Increase of European acceptance in politics and society through new and unified standards and environmentally friendly concepts for the enlarged use of the Danube corridor
- Increase of the competitiveness of European shipyards for inland vessels through achieving leading knowledge with new ship types for inland waterways and associated production technologies.
- Increase of the competitiveness of European ship owners by providing the basis for new offers with more efficient transport systems.



The proposal in priority area 2 covers topics of interest for different transport sectors as well as the energy sector. The topic described will thus have a trans-sectorial interest. For practical reasons, the project idea in this note is described from the waterborne perspective.

The proposal aims to study two major topics:

- Possible transport chains for gas produced from stranded gas fields in cold climate regions
- Regional and local small scale seaborne/inland waterway distribution of gas

This will be done by investigating state of the art, specifying further research requirements and solve research challenges related to:

- Development of logistic chains for stranded gas fields
- Design and operation of gas carriers in cold climate regions
- Environment friendly gas transport in cold climate regions

Another important objective of the project is to enhance transfer of knowledge and understanding with respect to operational aspects and safety measurements for ship based transport of gas between the consortium members.

The proposal covers topics interesting for shipyards, equipment manufacturers, designers as well as the research institutions both from EU-15 as well as from NMAS. The most important aim of the proposed project is to increase the shipbuilding productivity by reducing costs and delivery time simultaneously keeping the quality of the ships at least unchanged if not enhanced.

The proposal **Priority area 3 “Distributed design and manufacturing in shipbuilding”** aims at developing and establishing affordable solutions which support distributed design and manufacturing. Two principal foci can be distinguished:

- **Distributed design:** including the challenges emerging from **Data formats and data exchange** as well as development of the methods of **Design for production**
- Distributed manufacturing: covering the topics concerning **Production technology and organization, Production planning, Quality management, Logistics**



The principal aim of the project in priority area 3 is to widen the application of the distributed design idea in order to the increase productivity and strengthen competitiveness of the European shipbuilding. This will be done by investigating state of the art, specifying further research requirements and solve research challenges related to:

- Development of common platform for data exchange between partners involved in the ship design process
- Elaboration of the tool to separate production related parameters from the design process
- Saving expenses by shared use of advanced manufacturing technologies
- Utilisation of advanced methods for planning in distributed design and production environments
- Steel construction manufacturing (ship modules) shrinkage management, accuracy control, large scale 3D measurements
- Shuttle transport devices for extern parts

Another general and crucially important objective of the proposed project is to support transfer of knowledge and understanding with respect to economic aspects of distribution of design and manufacturing processes.

## **Project management and execution**

Project management was executed by the CMT, the co-ordinator of ENCOMAR-TRANSPORT.

Technical and administrative management covered:

- ensure communication flow within the consortium and the decision making procedures
- prepare and chair the project assembly meetings and prepare the minutes
- efficient administration of the project: collect, monitor and integrate financial and administrative data from the partners, and prepare the data for submission to the Commission; control and review the financial progress;



- promote and stimulate the establishment of contacts with other relevant external research projects;
- co-ordinate the work carried out, keeping strictly to the pre-defined timetable;
- verify the technical correct development of the project plan and adopt appropriate actions to correct deviations;
- promote and approve the attendance and the presentation of papers, at conferences and symposia.

In ENCOMAR-TRANSPORT project management was even more and part of the specific support provided by the project to newcomers. By executing the project from proposal preparation to final reporting the project partners, which were in many cases real newcomers in European research, gained practical experience and templates which can be reused in future projects. ENCOMAR-TRANSPORT partners will have the role of multipliers and forerunners in their country, therefore project management practice within the project aimed to follow best practice.

### *Degree to which the objectives were reached*

#### **Support the integration of the Associated Candidate States, Russia and Ukraine into the European Maritime Research Area, thus supporting EU policies and the formation of ERA**

In the following the impact of ENCOMAR-TRANSPORT is described from the perspective of the project participants.

The result of ENCOMAR-TRANSPORT gave much better overview of the industrial and scientific activities in the East-European Countries. This overview which also includes the overview of the Maritime Clusters in the participating Western European Countries has not been available before in such a detail. This could also be a basis for further development of stronger Maritime Clusters especially in the Eastern countries.



**Figure 7: Kari Airaksinen (Akeryards), co-ordinator INTERSHIP, presenting at ENCOMAR Awareness Workshop**

The participation in the ENCOMAR-TRANSPORT project gave partners a great opportunity to develop its knowledge and skills in presenting and analyzing the maritime oriented R&D needs at the European level and within different European branch organizations as for example WATERBORNE Technology Platform.

The participation in the ENCOMAR project gave a great opportunity to introduce a new European Policy on maritime industry and R&D, especially. Many responsible persons from shipyards didn't know about LeaderSHIP 2015, WATERBORNE Technology Platform, and priorities of FP6 related to R&D on maritime industry.

It was a golden opportunity to develop new knowledge and skills for professors and lecturers to transfer it to people working in maritime industry. Moreover, the possibility to work together with well-experienced partners from Germany, Finland, Norway, and Poland helped to develop knowledge as soon and clear as possible.



It was very interesting and useful to see and recognize the achievements and problems of new Member States, Candidate Countries as well as Russia and Ukraine and compare it with own circumstances.

Participation in the Awareness workshop in Gdansk demonstrated how to give information to maritime business people and what feed back could be gotten from them.

Achievements and added value of the ENCOMAR project:

- Developed new knowledge about EU R&D Policy on Maritime industry;
- Assuring the “sustainable growth” of maritime knowledge;
- Exchange of experience and best practice in order to implement it and obviate mistakes;
- Exchange of R&D knowledge and best practices;
- Achieving the critical mass of the new representatives for further interactions within new European joint activities;
- Involving LLSRA into the first for them BP6 project EUROMIND.

Taking the above into consideration the participation in the ENCOMAR-TRANSPORT project was very valuable. Moreover, the possibility to work together with other New Member States, Candidate Countries as well as Russia and Ukraine shaped the partner’s approach towards potential collaboration in future in the form of new project proposals to be submitted within FP7 in order to extend the knowledge and to achieve critical mass for solving common maritime problems.

The Awareness Workshops and Brokerage Events influence participants in to be much more oriented and sensitive for the maritime issues to be solved jointly rather than in separate manner and allowed to know better other partners’ research & development potential which is so important for future consortia building based on competences. Those events facilitated the emergence of high quality projects will offer ample opportunities to the participants to look for missing partners and to establish contacts for future calls in FP7. Main impact was put on the partnering sessions with the possibility of wide discussion and consultations on the topics presented, common project/-s and/or technology transfer.

There are also some “so called” soft achievements and added value coming from the project which could be listed as follows:

- exchange of experiences and best practices in order to avoid the repetition of mistakes;
- creation of prevalent attitude towards creativity, inventiveness, innovation, risk-taking, and the innovation culture;



- shaping the appropriate and up-to-date information policies and measures at national level;
- achieving the critical mass of the new representatives for further efficient complex interactions within new European joint activities;
- assuring the “sustainable growth” of maritime knowledge;
- establishing the open dialogue on how to fulfil the requirements of integrated maritime transport system;
- exchange of R&D knowledge and best practices;
- enhanced value of the results based on different specialties;
- well-recognized problems related to marine applied technologies of common relevance;
- increased awareness on procedure of solving common R&D problems based on complementarities.

Participation in the four workshops in WP 3 Brokerage Events gave many interesting contacts and knowledge for further cooperation in EU funded project, and for establishing joint industry projects in the future.

We still see that there is a need for actively involvement from the “experienced countries” for establishment of specific projects. The knowledge of the EU framework- programs and particularly the contacts with the right persons in the different companies is not done over night. ENCOMAR-TRANSPORT project represents a first but important step in the right direction of involving these countries in Maritime Research.

The Knowledge has also been put forward to the Research Council of Norway. This knowledge will be of value when developing further the ERANET project MARTEC - Maritime Technologies.



**Figure 8: Brokerage Events gave many interesting contacts**

**Support the goals defined in the maritime part of the Sustainable Surface Priority, in particular to strengthen European competitiveness through scientific and technological excellence.**

Expressions of Interest 3 priority areas with high potential for the Integration of the new Member states, Associated Countries, Russia and Ukraine in European maritime research address the goals of the sustainable surface transport priority.

**Priority area 1 “Enhanced inter modal transport on the inland waterways of the Danube Corridor”** will significantly contribute to achieve the goals of the European Maritime Sector, as described in the Program, “NAIADES” by the European Commission.

**Priority area 2 "Energy Transport in Cold Climate Regions –ENTRICC"** covers topics of interest for different transport sectors as well as the energy sector. The topic described will thus have a transsectorial interest.

Another important objective of the project is to enhance transfer of knowledge and understanding with respect to operational aspects and safety measurements for ship based transport of gas between the consortium members.

The most important aim of the proposed project is to increase the shipbuilding productivity by reducing costs and delivery time simultaneously keeping the quality of the ships at least unchanged if not enhanced.

The proposal **Priority area 3 "Distributed design and manufacturing in shipbuilding"** aims at developing and establishing affordable solutions which support distributed design and manufacturing, Production planning, Quality management, Logistics



**Figure 9: Distributed design and Manufacturing attracted high interest**



The principal aim of the project in priority area 3 is to widen the application of the distributed design idea in order to increase productivity and strengthen competitiveness of the European shipbuilding.

Another general and crucially important objective of the proposed project is to support transfer of knowledge and understanding with respect to economic aspects of distribution of design and manufacturing processes.

All three proposals will therefore clearly support the goals defined in the maritime part of the Sustainable Surface Priority, in particular to strengthen European competitiveness through scientific and technological excellence.

### ***Impact of the project on its industry or research sector***

#### **Experienced partners group due to its active participation in FP4, FP5 and FP6**

The participation in the ENCOMAR-TRANSPORT project gave AFMI, CMT, MARINTEK and CTO a great opportunity to develop its knowledge of New Member States, Candidate Countries as well as Russia and Ukraine and shaped the approach towards potential collaboration in future. The Awareness Workshops and Brokerage Events offered ample opportunities to look for competent partners and to establish contacts for future calls in FP7. The following impact was achieved:

- exchange of experiences in order to avoid the repetition of mistakes; repeating same area research or compare the results.
- creation of prevalent attitude towards creativity, inventiveness, innovation, risk-taking, and the innovation culture;
- achieving the critical mass of the new representatives for further efficient complex interactions within new European joint activities;
- assuring the “sustainable growth” of European maritime knowledge;
- establishing the open dialogue on how to fulfil and influence the requirements and rules of integrated maritime transport system and inland waterways
- exchange of R&D knowledge and experiences of best practices;
- well-recognized problems related to marine applied technologies of common relevance; specially the interest of industry



- increased awareness on procedure of solving common R&D problems based on complementarities.

### **Inexperienced partners group**

The participation in the ENCOMAR-TRANSPORT project gave inexperienced partners a great opportunity to introduce a new European Policy on maritime industry and R&D. Many responsible persons from shipyards didn't know about LeaderSHIP 2015, WATERBORNE Technology Platform, and priorities of FP6 related to R&D on maritime industry.

Impact of the ENCOMAR-TRANSPORT project can be summarised:

- Developed new knowledge about EU R&D Policy on Maritime industry;
- Assuring the “sustainable growth” of maritime knowledge;
- Exchange of experience and best practice in order to implement it and obviate mistakes;
- Exchange of R&D knowledge and best practices;
- Achieving the critical mass of the new representatives for further interactions within new European joint activities;

Taking the above into consideration the participation in the ENCOMAR-TRANSPORT project was very valuable. It provided industry and research sector with new ideas and opportunities to improve R&D, especially on ship production for the future.

ENCOMAR-TRANSPORT has materialized into new EC funded projects: De-Light, EUROMIND, CREATE3S, IMPROVE and EUROMAR-Bridges. This assures the sustainability for the former inexperienced partners to participate in EU level maritime related research.



## Final Plan for using and disseminating the knowledge

### *Section 1 - Exploitable knowledge and its Use*

#### Overview table

Exploitable knowledge	Exploitable product	Sector of application	Timetable for commercial use	Patents or IPR protection	Owner
Detailed analysis of maritime actors: shipyards, ports, shipping companies, research organisations and universities and public bodies. About 1000 companies and organisations in Germany, Finland, Norway, Poland, Lithuania, Latvia, Russia, Croatia, Hungary, Slovakia, Bulgaria, Romania, Ukraine and Turkey	Report: MARITIME POTENTIALS IN NEW EU MEMBER STATES, APPLICANT COUNTRIES, RUSSIA AND UKRAINE	Maritime transport	na	na	ENCOMAR-TRANSPORT



Summary of 9 ENCOMAR-TRANSPORT_Awareness workshops, including conclusions and presentations	Report: INCREASING AWARENESS IN NEW MEMBER STATES, APPLICANT COUNTRIES, CROATIA, RUSSIA AND UKRAINE	Maritime Transport	na	na	ENCOMAR-TRANSPORT
Summary of 4 ENCOMAR-TRANSPORT Brokerage Events, including conclusions and presentations	Report: WP 3 - BROKERAGE EVENT WORKSHOP POTENTIAL FOR COOPERATION BETWEEN EU, NEW MEMBER STATES, APPLICANT COUNTRIES, CROATIA, RUSSIA AND UKRAINE	Maritime Transport	na	na	ENCOMAR-TRANSPORT
Description of 3 research topics	Report: PROJECTS WITH HIGH POTENTIAL FOR INTEGRATION OF NEW MEMBER STATES, APPLICANT COUNTRIES, RUSSIA AND UKRAINE IN EUROPEAN MARITIME R&D	Waterborne Technology Platform, ERANET - MARTEC	na	na	ENCOMAR-TRANSPORT

**Table 2: Overview ENCOMAR-TRANSPORT exploitable results**

**Report: MARITIME POTENTIALS IN NEW EU MEMBER STATES, APPLICANT COUNTRIES, RUSSIA AND UKRAINE**

**Purpose:** The description of the maritime cluster in the enlarged European Union and strategic neighbours to provide baseline information for the better integration of the new member states and applicant countries in the European maritime cluster and to enhance co-operation within industry and in research by creating mutual knowledge about the maritime key actors, shipyards, ports, shipping companies, universities and other public, and industrial bodies.



**Innovation:** The result of ENCOMAR-TRANSPORT gave much better overview of the industrial and scientific activities in the East-European Countries. This overview which also includes the overview of the Maritime Clusters in the participating Western European Countries has not been available before in such a detail.

**How the result might be exploited:** This knowledge can be used for partner search for future joint research and industry projects. This could also be a basis for further development of stronger Maritime Clusters especially in the Eastern countries.

#### **Report: INCREASING AWARENESS IN NEW MEMBER STATES, APPLICANT COUNTRIES, CROATIA, RUSSIA AND UKRAINE**

##### **Purpose**

The summary of ENCOMAR-TRANSPORT Awareness Workshops compiles workshop material like presentations and conclusions. This was prepared to report on ENCOMAR-TRANSPORT activities and to provide material and experiences for future awareness raising.

##### **Innovation**

In the new member states, applicant countries and Ukraine information events on European research and the possibilities of framework programmes have not been executed before.

##### **How the result might be exploited**

This knowledge can be used by all parties who want to arrange such kind of events. And furthermore, the conclusions contribute to the development of maritime research strategies in the “eastern” countries and within the Waterborne Technology Platform as well as ERANET MARTEC.



## **Report: BROKERAGE EVENT WORKSHOP - POTENTIAL FOR COOPERATION BETWEEN EU, NEW MEMBER STATES, APPLICANT COUNTRIES, CROATIA, RUSSIA AND UKRAINE**

### **Purpose**

The summary of ENCOMAR-TRANSPORT Brokerage Events compiles workshop material, like presentations and conclusions. This was prepared to report on ENCOMAR-TRANSPORT activities and to provide material and experiences for future similar activities.

### **Innovation**

Such events especially for providing the new member states, applicant countries, Russia and Ukraine a platform to introduce their potential and interest to the “western” community have not been executed before.

### **How the result might be exploited**

This knowledge can be used by all parties who want to arrange such kind of events. And furthermore, the conclusions contribute to establishing new contacts for future co-operation within joint R&D projects and in industrial co-operations.

## **Report: PROJECTS WITH HIGH POTENTIAL FOR INTEGRATION OF NEW MEMBER STATES, APPLICANT COUNTRIES, RUSSIA AND UKRAINE IN EUROPEAN MARITIME R&D**

### **Purpose**

The description of the 3 research priorities with high potential for the integration of new member states, applicant countries, Russia and Ukraine were prepared to prepare for FP7 aiming at launching joint projects in each of the three priorities.



## Innovation

The preparation of research priorities targeted to the needs of “newcomers” before the start of a new framework programme was never done before to such extent. It thereby also contributed to the formulation of the research strategies in those countries.

## How the result might be exploited

This knowledge is explicitly thought for use within the Waterborne Technology Platform as well as the in the ERANANET MARTEC .

## Section 2 – Dissemination of knowledge

### Overview table

Date	Type	Type of audience	Country, city	Size of audience	Partner responsible/involved
05-05-2005	1 <sup>st</sup> ENCOMAR-TRANSPORT Awareness Workshop	Research, industry and public bodies	Poland, Gdansk	54	CTO
22/23-08-2005	Turkish Awareness Workshop	Research, industry and public bodies	Turkey, Istanbul		ITU
30-08-2005	Lithuanian Awareness Workshop	Research, industry and public bodies	Lithuania, Kleipeda	24	KU
07/08-10-2005	Romanian Awareness Workshop	Research, industry and public bodies	Romania, Constanta	34	OUC-CAES
13-12-2005	Croatian Awareness Workshop	Research, industry and public	Zagreb,	28	FNA



		bodies	Croatia		
07-04-2006	Latvian Awareness Workshop	Research, industry and public bodies	Latvia, Riga	96	RTU-IMS
11-05-2006	Hungarian Awareness Workshop	Research, industry and public bodies	Hungary, Budapest	27	KTI
12-05-2006	Brokerage Event on Inland Waterways	Research, industry and public bodies	Hungary, Budapest	30	OUC-CAES, (KTI)
30-05-2006	Bulgarian Awareness Workshop	Research, industry and public bodies	Bulgaria, Varna	30	VSTU
15-06-2006	Brokerage Event on Shipping in connection to the Maritime ICT Forum Shipping Conference, Oslo 14 June 2006, with focus on ICT and Ship Safety aspects	Research, industry and public bodies	Norway, Oslo	40	MARINTEK
25-09-2006	2. Bulgarian Awareness Workshop	Black Sea 2006	Bulgaria, Varna		VSTU
28-09-2006	Brokerage Event on design in connection with SMM Exhibition in Hamburg 26 – 29 September 2006	Research, industry	Germany, Hamburg	28	AFMI, (CMT)
25-10.2006	Brokerage Event on ship production in connection with Ship Production Conference, 26-27 October, Rostock	Research, industry	Germany, Rostock	30	CMT

**Table 3: ENCOMAR-TRANSPORT overview dissemination of knowledge – ENCOMAR-TRANSPORT workshops**



<b>Date</b>	<b>Type</b>	<b>Type of audience</b>	<b>counties</b>	<b>Size of audience</b>	<b>Partner responsible/involved</b>
2005	9 <sup>th</sup> International Conference - Transport Means 2005	research and public bodies	Latvia		RTU-IMS, Kaspars Kalniņš
2005	The new prospects of the development of European shipbuilding. Proceedings of International Conference Transport Means '2005. Kaunas: Technologija, 2005	Conference proceedings	Latvia, Lithuania, Estonia	na	KU, R. Mickevičienė, L. Turkina
20/21-04-2006	“8 <sup>th</sup> International Conference MARITIME TRANSPORT AND INFRASTRUCTURE 2006”	Latvian Maritime Academy, research related institute	Latvia, Lithuania, Estonia	100	RTU-IMS, Kaspars Kalniņš and Iveta Sauka
2006	EU support for R&D projects in Latvia within maritime cluster	Conference proceedings	Latvia	na	RTU-IMS, Kaspars Kalniņš and Iveta Sauka
04-05-2006	„Western Express“ Lithuanian maritime industry – in the offside of the new EU Policy	Western Region and Klaipeda newspaper	Lithuania	na	KU, R. Mickevičienė
06-06-2006	International Conference “Transport in FP7”	Industry and research and public bodies	Poland and east Europe		CTO S.A., Leszek Wilczynski, Joanna Wieszylo
14-06-2006	SeaTech Workshop: Cruisers, the sign of competitiveness through networking	Companies	Finland International	134	AFMI, Merja Salmi-Lindgren
04-07-2006	Polish Waterborne Technology platform for Waterborne transport	Industry and research and public bodies	Poland		CTO S.A., Joanna Wieszylo
2005-2006	Various events at the Norwegian Research Council	Government and Industrial	Norway		MARINTEK, Egil Rensvik
2006	Technology level of Lithuanian shipbuilding	Conference proceedings	Bulgaria	na	KU, Mickeviciene, L.



	in the context of the world. Eight International Conference on Marine Sciences and Technologies BLACK SEA-2006.				Turkina, A. Zukauskaite
2006	Logistics aspects of the innovation business model of the European shipbuilding industry). Proceedings of the 2nd International conference „Мотивационное поведение в теории и практике предпринимательства“. Kaliningrad	Conference proceedings	Russia	na	KU, Turkina L., Mickeviciene R.
2006	The new prospects of the development of European shipbuilding and shiprepair industry. Proceedings of LMA 8th International Conference “Maritime Transport and Infrastructure’ 2006”. Riga,	Conference proceedings	Latvia	na	KU. R. Mickeviciene, L. Turkina
2006	Aspects of the Development of the European Maritime Cluster). Proceedings of the scientific conference „Technologijos mokslo darbai Vakarų Lietuvoje V“. Klaipeda university, 2006	Conference proceedings	Lithuania	na	KU. R. Mickeviciene, L. Turkina
2006	Technology level as factor for determination of the competitiveness of Lithuanian shipbuilding. Proceedings of International Conference Transport Means‘2006. Kaunas:Technologija, 2006	Conference proceedings	Lithuania	na	KU, R. Mickevičienė, L. Turkina, N. Sberegaev
Dec 2006	conference on FP7 for Turkish Research Area		Turkey and international		ITU, Mustafa Insel
23-26 Sep 2006	SMM shipbuilding machinery and marine technology international trade fair Hamburg	Poster	international	na	CMT, Sylvia Ullmer



06-12-2006	2. EU Statustagung, Hamburg	Industry, research and government	Germany	60	CMT, Sylvia Ullmer
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**Table 4: ENCOMAR-TRANSPORT overview dissemination of knowledge – conferences and publications**



### ***Section 3 - Publishable results***

- All results of are fully publishable as the Specific Support Action ENCOMAR-TRANSPORT was all about creating and dissemination mutual knowledge on the maritime cluster and research priorities the countries Germany, Finland, Norway, Poland, Lithuania, Latvia, Russia, Croatia, Hungary, Slovakia, Bulgaria, Romania, Ukraine and Turkey.

### **MARITIME POTENTIALS IN NEW EU MEMBER STATES, APPLICANT COUNTRIES, RUSSIA AND UKRAINE**

This document contains the deliverable 1.1 – MARITIME POTENTIALS IN THE NEW EU MEMBER STATES, APPLICANT COUNTRIES, RUSSIA AND UKRAINE – OVERVIEW ACTORS AND POTENTIALS, which was prepared by the FP6 project ENCOMAR-TRANSPORT “Enhanced Co-operation between EU Member States and Associated Candidate States in Maritime Research on Transport”. The deliverable combines the results of task 1.1 – Identification of maritime research and industry actors and task 1.2 – Identification of priority areas for joint research.

14partners in ENCOMAR-TRANSPORT act as national maritime contact points for the countries Germany, Finland, Norway, Poland, Lithuania, Latvia, Russia, Croatia, Hungary, Slovakia, Bulgaria, Romania, Ukraine and Turkey and have provided an extensive description of the maritime key actors, shipyards, ports, shipping companies and universities and identified the research priorities of their countries. The national key actor analysis is annexed to this report and provided as a separate document.

The information gathered and analysed in the document is based on the knowledge and investigations of the partners in the ENCOMAR-TRANSPORT project and provides support to all maritime actors in Europe who are looking for co-operation partners. In this main document the focus is on the maritime potentials of new member states, applicant countries and Russia and shall provide especially the maritime actors in “old” Europe with a better understanding of the potentials and interests of “newcomers”. Therefore, the summary of the maritime cluster in Norway, Finland and Germany is only covered in the Annex to this report.



The ENCOMAR-TRANSPORT project prepared the description of the maritime cluster in the enlarged European Union and strategic neighbours to provide baseline information for the better integration of the new member states and applicant countries in the European maritime cluster and to enhance co-operation within industry and in research. The information provided is not officially published or authorised by the states or responsible bodies and may not be complete.

This analysis for the first time provides an extensive description of the maritime cluster of new EU member states, associated states (NMS) and “strategic neighbours”, namely (Germany, Finland, Norway), Poland, Lithuania, Latvia, Russia, Croatia, Hungary, Slovakia, Bulgaria, Romania and Turkey and thereby creates mutual knowledge about the maritime key actors, shipyards, ports, shipping companies, universities and other public, and industrial bodies. This is considered a prerequisite for joining forces and enhanced co-operation and the integration into the European Maritime Research Area, thus supporting EU policies and the formation of ERA.

Chapter 1 introduces the strategic objectives of ENCOMAR-TRANSPORT, the purpose of the report, gives some figures of the involvement of the new EU member states, applicant countries and Russia in FP5 and FP6 and finally the methodology of preparing the maritime potentials.

Chapter 2 provides the analysis of the maritime industry actors in Poland, Lithuania, Latvia, Russia, Croatia, Hungary, Slovakia, Bulgaria, Romania, Ukraine and Turkey, which is based on the more detailed key actor analysis.

Chapter 3 gives the research potentials for each of the countries in terms of research organisations, policies and strategies.

Chapter 4 summarises the interests for future research which have been identified by the ENCOMAR partners for their respective countries and concludes three priority areas for future joint research.

While the integration of new member and associated states might not have a prime impact on worldwide shipping operations, a better integration of the new EU member states, associated states (NMS) and “strategic neighbours” (like Russia and Ukraine) into European waterborne research is found important to solve Europe-wide transport problems and to increase the competitiveness of the European industry.

The reduction of traffic congestion on European roads and a shift towards more environmentally friendly modes of transport requires the further development of short sea shipping and inland



navigation and their inclusion into inter modal transport chains.

NMAS play a significant role in that. As an example, the Danube is one of the main European transport corridors which is currently used by only a small portion of its capacity. Short sea shipping on the Baltic is getting increasingly important, e.g. in the transport of Russian natural resources to Europe.

Ships connecting NMAS and Russia with the rest of the world often move through European waters, such as the Baltic and Mediterranean seas. They thus have a significant impact on safety and environment. Close cooperation with the NMAS is necessary to avoid hazards for European citizens. Moreover those countries are potential allies in international regulatory bodies.

Owners from NMAS and Russia own and operate a significant share of short sea and inland waterway ships. Many of those vessels are old and need to be replaced in the coming years. Russia has recently launched a 20 bEUR worth programme for the production of new ships for gas transport from Russia to Europe. NMAS are therefore an important emerging market for European shipbuilders and equipment manufacturers. Close cooperation is needed to assure a high safety and environmental standard for new ships.

To reduce cost in ship production and to increase competitiveness on the world market, European shipbuilders increasingly cooperate with shipbuilders in the NMAS in one way or another. Countries like Poland, Croatia, Romania, Bulgaria, Ukraine and Turkey have a shipbuilding capacity which is coming close to the EU-15 capacities in GT. Turkey is one of the market leaders in Europe on ship scrapping. A better integration of the NMAS therefore bears a large potential also for European shipbuilders.

Last but not least, NMAS have a number of highly qualified and specialized universities and research facilities, which provide good value for money. Cooperation with them allows for cross fertilization with European researchers and bears significant potentials for the European industry.

Based on the analysis three priority areas for future joint research has been identified:

- Priority area 1 - Increasing inland waterways and Short Sea Transport in the Danube transport corridor. In this priority area Romania, Bulgaria, Croatia, Hungary, Slovakia, Germany, Russia, Ukraine, Turkey are potentially interested.



- Priority area 2 - Energy transport under extreme conditions. In this priority Russia, Norway, Finland and the Baltic States are interested.
- Priority area 3 - Distributed design and manufacturing. This priority area is of special interest for Romania, Croatia, Poland, Finland, Germany and Russia.

Those priority areas were taken forward within ENCOMAR by preparing expressions of interests for future joint research and addressed during the Brokerage Events.

### **INCREASING AWARENESS IN NEW MEMBER STATES, APPLICANT COUNTRIES, CROATIA, RUSSIA AND UKRAINE**

This report collected by AFMI as work package leader has the information how awareness workshop has been placed in

ENCOMAR-TRANSPORT and this is also deliverable of Task 2.1: Mediterranean (Task leader: OUC-CAES). This task covers the countries RO, TK, HR, BG, and Task 2.2: East- (Task leader: CTO). This task covers the countries PL, UA, HU, SK and Task 2.3: Russia and Ukraine (Task leader: MEB). This task covers the countries RU, LV, LT.

D2.1, D2.2, D2.3 is "Increasing awareness in the new EU member states, applicant countries, Russia and Ukraine. The report covers an extensive overview of agenda of the Awareness workshop, participation list, presentations made and feedback. Originally the idea was to arrange Regional Awareness Workshops, but instead of three regional workshops in area of Mediterranean, East and Russia and Ukraine Area, ENCOMAR TRANSPORT has been arranged nine National Awareness Workshops and awareness meetings.



## **BROKERAGE EVENT WORKSHOP - POTENTIAL FOR COOPERATION BETWEEN EU, NEW MEMBER STATES, APPLICANT COUNTRIES, CROATIA, RUSSIA AND UKRAINE**

This report brings together information from the Brokerage Event workshops in ENCOMAR-TRANSPORT.

This work package was led by MARINTEK and four Brokerage Events were held in Budapest, Oslo, Hamburg and Rostock. The Events covered the following topics; Ship Design, Ship Safety, Ship Production and Inland Waterways.

*Brokerage Event on Ship Design*, with AMFI as responsible partner for the workshop, gathered 26 representatives from shipping companies, shipyards, equipment suppliers, universities and research institutes. This meeting was held during the SMM Exhibition in Hamburg 26 – 29 September 2006. The main issues for further discussion between the participants were:

- The requirements of shipyards in distributed design and manufacturing
- Data models for digital data exchange between design offices, shipyards, etc.
- Ship design for arctic conditions

*Brokerage Event on Shipping*, with MARINTEK as responsible partner for the workshop. This event was arranged in connection with the Maritime ICT Forum Shipping Conference, Oslo 14- 15 June 2006, with a focus on ICT and ship safety. On the first day, 40 participants from shipping companies, classification societies, software application suppliers, training institutions and research institutes attended the presentations and discussions. On the second day, a more in-depth discussion was held between ENCOMAR partners and selected Norwegian companies. A representative of the Interreg III – Safety Umbrella Operation also joined the meeting. The following potential areas of interest for cooperation were discussed:

- Risk-based approaches



- Hull – construction – stability / rules / condition monitoring
- Inspections / vetting
- Navigation – weather / operational
- Emergency handling on board
- Crisis management – procedures / ICT
- Evacuation – systems procedures
- Rules and regulations – inland waterways / deep sea shipping

**Brokerage Event on Ship Production** was managed by CMT and was held on 25 October in connection with “The First European Conference on Production Technologies in Shipbuilding”, held on 26-27 October in Rostock. Some 30 participants attended the event. Topics of interest included:

- Production technologies
- New developments in laser welding technologies
- Production planning – simulation tools

**Brokerage Event on Inland Waterways** was managed by OUC-CAES and the arrangement was held in Budapest 12 May 2006. About 30 participants attended the workshop.

The main areas of interest at this workshop were:

- The potential of efficient inland waterway transport
- Inland waterways - infrastructure
- Climate change and transport regularity
- Setting up a research agenda for “Enhancing inland shipping on the Danube”

### ***Expressions of interest***

Priority areas from WP 4 – project proposals: Inland waterways and short -sea shipping, Energy transport under extreme weather conditions and Distributed design and manufacturing were discussed during all these workshops with the aim of exploring levels of interest and obtaining more detailed Expressions of Interest (EoI). These will be further developed and forwarded to the EU via the appropriate channels.



## **PROJECTS WITH HIGH POTENTIAL FOR INTEGRATION OF NEW MEMBER STATES, APPLICANT COUNTRIES, RUSSIA AND UKRAINE IN EUROPEAN MARITIME R&D**

The FP6 Specific Support Action ENCOMAR-TRANSPORT – Enhanced co-operation between EU member states and associated candidate states in maritime research on transport, which started activities 1 April 2005 and finalised 31 October 2006 aimed to improve co-operation between EU member states, the Associated Candidate Countries (ACC), Russia, Ukraine and Turkey in maritime research. One of the ENCOMAR-TRANSPORT activities was to prepare Expressions of Interest 3 priority areas with high potential for the Integration of the new Member states, Associated Countries, Russia and Ukraine in European maritime research.

These three project proposals are described in this report:

- Priority area 1 - Enhanced inter modal transport on the inland waterways of the Danube Corridor (contact person: Thomas Schlüter (CMT), Tel. +49-40-691 99 47, email: [schlueter@cmt-net.org](mailto:schlueter@cmt-net.org))
- Priority area 2 - Energy Transport in Cold Climate Regions –ENTRICC (contact person: Tor Einar Berg (MARINTEK), Tel. +47 7359 5670, email: [tor.einar.berg@marintek.sintef.no](mailto:tor.einar.berg@marintek.sintef.no))
- Priority area 3 - Distributed design and manufacturing in shipbuilding (contact person: Joanna Wierszyło (CTO), Tel. +48 58 307 4565, email: [joanna.wierszylo@cto.gda.pl](mailto:joanna.wierszylo@cto.gda.pl)).

Main idea of the **proposal in priority area 1** is the development of new types of modular inland vessels in combination with new shipping concepts. Through the increased flexibility of the shipping applications (modularisation of waterborne transport), through new ship types with increased efficiency and safety for ship and cargo, through improved design concepts and application of new materials as well as through the entire vessel optimization with respect to the natural boundary conditions like river shape and infrastructural facilities, the enlarged demand for new products can be covered.

The project will significantly contribute to achieve the goals of the European Maritime Sector, as described in the Program, “NAIADES” by the European Commission.



The following objectives will be addressed:

- Increase and strengthen the sustainable expansion of cargo transportation on the Danube Corridor and therewith the better integration of the new EU-Member States
- Development of new and innovated modular inland vessels based on improved design and optimization methods for selected ship types; Container, Tanker, RoRo, Bulk and General Cargo
- Improve environmentally friendly and efficient inner European maritime transport through the decrease of risk factors and pollution with new propulsion systems (biological fuels, fuel cell) and improved waste water management
- Renewal of the existing fleet focused on efficiency, safety and cargo handling
- Improve port logistics and infrastructures adjusted to the local needs and forthcoming cargo flows by the development of improved and innovated cargo handling and transshipment technologies.
- Development and implementation of unified rules and guidelines for inland shipping
- Increase of safety standards by use of double hull structures and new materials (composite, sandwich structures) and increased crash worthiness
- Intensify the international exchange of goods within the Danube Corridor; to delight the overloaded streets and to foster incentives for international industrial investors
- Increase of European acceptance in politics and society through new and unified standards and environmentally friendly concepts for the enlarged use of the Danube corridor
- Increase of the competitiveness of European shipyards for inland vessels through achieving leading knowledge with new ship types for inland waterways and associated production technologies.
- Increase of the competitiveness of European ship owners by providing the basis for new offers with more efficient transport systems.



The proposal in priority area 2 covers topics of interest for different transport sectors as well as the energy sector. The topic described will thus have a transsectorial interest. For practical reasons, the project idea in this note is described from the waterborne perspective.

The proposal aims to study two major topics:

- Possible transport chains for gas produced from stranded gas fields in cold climate regions
- Regional and local small scale seaborne/inland waterway distribution of gas

This will be done by investigating state of the art, specifying further research requirements and solve research challenges related to:

- Development of logistic chains for stranded gas fields
- Design and operation of gas carriers in cold climate regions
- Environment friendly gas transport in cold climate regions

Another important objective of the project is to enhance transfer of knowledge and understanding with respect to operational aspects and safety measurements for ship based transport of gas between the consortium members.

The proposal has been prepared as part of WP within the frames of the ENCOMAR TRANSPORT project. The proposal covers topics interesting for shipyards, equipment manufacturers, designers as well as the research institutions both from EU-15 as well as from NMAS. The most important aim of the proposed project is to increase the shipbuilding productivity by reducing costs and delivery time simultaneously keeping the quality of the ships at least unchanged if not enhanced.

The proposal aims at developing and establishing affordable solutions which support distributed design and manufacturing. Two principal foci can be distinguished:

- **Distributed design:** including the challenges emerging from **Data formats and data exchange** as well as development of the methods of **Design for production**
- Distributed manufacturing: covering the topics concerning **Production technology and organization, Production planning, Quality management, Logistics**



The principal aim of the **project in priority area 3** is to widen the application of the distributed design idea in order to the increase productivity and strengthen competitiveness of the European shipbuilding. This will be done by investigating state of the art, specifying further research requirements and solve research challenges related to:

- Development of common platform for data exchange between partners involved in the ship design process
- Elaboration of the tool to separate production related parameters from the design process
- Saving expenses by shared use of advanced manufacturing technologies
- Utilisation of advanced methods for planning in distributed design and production environments
- Steel construction manufacturing (ship modules) shrinkage management, accuracy control, large scale 3D measurements
- Shuttle transport devices for extern parts

Another general and crucially important objective of the proposed project is to support transfer of knowledge and understanding with respect to economic aspects of distribution of design and manufacturing processes.