

PARTNERSHIP/INITIATIVES TO STRENGTHEN THE IMPLEMENTATION OF AGENDA 21

Marine Electronic Highway in the Straits of Malacca and Singapore

Submitted by the International Maritime Organization (IMO)

Name of the Partnership/Initiative:

Development of a Regional Marine Electronic Highway (MEH) in the Straits of Malacca and Singapore – Demonstration Phase: In partnership with the International Association of Independent Tanker Owners and the International Hydrographic Organization

Expected date of initiation: 1 October 2003

Expected date of completion: 30 September 2007

Partners Involved:

Governments: Indonesia, Malaysia and Singapore

Intergovernmental organizations: IMO, World Bank, IHO

Major groups: INTERTANKO and the international shipping industry

Others: A number of organizations, government agencies and the private sector have expressed interest in this initiative

Leading Partner: **IMO**

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Main objectives of the Partnership/Initiative

The ultimate goal of this initiative is the use of innovative maritime and environment management technological tools to create network and maintain a marine information infrastructure for enhancing maritime services, improving the safety of navigation and integrated management of the coastal and marine areas of the Straits of Malacca and Singapore.

The Marine Electronic Highway (MEH) is an innovative marine information and infrastructure system that integrates environmental management and protection systems and maritime safety technologies for enhanced maritime services, higher navigational safety standards, integrated marine environment protection and sustainable development of coastal and marine resources. The backbone of the MEH is precision navigation and will utilize a network of electronic navigational charts (ENCs) in conjunction with Electronic Chart Display and Information System (ECDIS), Differential Global Positioning System (DGPS) and other maritime technologies.

This initiative is part of a two-stage MEH Project for the Straits of Malacca and Singapore. This initiative, which is a demonstration project, will cover parts of the Straits, mainly the area of the Traffic Separation Scheme. The second stage or full-scale project, which will follow after this initiative, will cover the whole Straits including the coastal waters of the littoral States.

The general objectives of this initiative are to delineate options for the implementation of the MEH system in the Straits of Malacca and Singapore and assess the technical, financial, economic, social, institutional, political and legal aspects of the identified options, assess the integration of marine environment protection system with precision navigation, and develop sustainable financial mechanisms and a managing tool to operate, manage and administer the MEH system. The implementation will also cover the evaluation on the benefits of the system and financing requirements to implement the identified activities leading to the establishment of the MEH system in the Straits. Overall, the development objectives of this initiative are the following:

- Establish the MEH and demonstrate its technical functionalities on maritime safety and marine environment protection for the Straits of Malacca and Singapore;
- Facilitate the integration of marine environment systems and data flow and information exchange through the MEH system;
- Develop the operational and administrative mechanisms for the sustainable management of the MEH system;
- Evaluate the financial, social and economic benefits and legal aspects of the MEH system;
- Promote awareness and participation of relevant stakeholders to support the MEH system; and
- Strengthen national and regional capacity in maritime safety and marine environment protection for the sustainable management of the MEH system;

This initiative covers a number of programme areas of Agenda 21, in particular, paragraph 17.30 (a)(vii) and 17.35 of Chapter 17. The MEH system is envisioned to be

a regional network of marine information technologies linked through the electronic navigational charts (ENCs) – Electronic Chart Display and Information System (ECDIS), which effectively addresses paragraph 17.30 (a)(vii) of Agenda 21. Aside from hydrographic survey and ENC production, this initiative will also address marine data flow and exchange for safety of navigation and marine pollution prevention and response as well as real time access and communication through Internet connectivity. Basic marine environmental monitoring data required for chemical and oil spill response and control as well as for navigation will be collected on a continuous basis and transmitted to a network of data centres (servers) via telemetry. Thus, these activities also relate to Agenda 21 under Chapter 8 on integrating environment and development in decision-making, Chapter 30 on strengthening the role of business and industry, Chapter 36 on promoting education, public awareness and training, Chapter 37 on national mechanism and international cooperation for capacity-building, Chapter 38 on institutional arrangements and Chapter 40 on information for decision-making.

In addition to the establishment of infrastructure, networking and institutional arrangements, this initiative aims to demonstrate the economic, financial and social benefits of the MEH system by promoting public private partnerships with the industry and relevant stakeholders. In the case of the shipping sector and the maritime community in general, their participation in this initiative will be crucial in demonstrating the effectiveness, viability and value-added contribution of the MEH system to maritime safety and marine environment protection. A summary on the involvement of various stakeholders (existing and potential partners) is shown below:

- *National governments in the region:* Dialogue and consultation, steering committees, policy, legislation, investment, capacity building, implementation, public private partnership, agreements and international conventions, marine traffic management, maritime safety, pollution prevention and response;
- *Local governments in the region:* Consultation, implementation, coordination, capacity building, investment, public private partnership, monitoring, national steering committee, maritime safety, marine traffic management, public awareness, emergency response, enforcement, pollution prevention and response;
- *Shipping industry and maritime community:* Consultation, implementation, coordination, investment, public private partnership, evaluation, steering committees, standards compliance, international conventions, product testing, marine traffic management (through and cross-Straits), maritime safety, public awareness, emergency response, pollution prevention and response;
- *User States:* Partnership, capacity building, steering committees, implementation, international conventions, maritime safety, public awareness, pollution prevention; and
- *Technology providers and users:* Technology and financial investment, consultation, standards compliance, public private partnership, steering committees, public awareness, training, technology and product development.

All the activities in this initiative conforms to the recommendations contained in the Economic and Social Council Ministerial Declaration on development and international cooperation in the XXI century: the role of IT in the context of a knowledge-based global economy as well as the general framework of the United Nations Millennium Declaration.

Expected results:

- Overall enhancement of navigational safety for through and cross-Straits maritime traffic and chemical and oil spill prevention and response;
- Establishment of an effective and financially viable pilot MEH system which will be the foundation of the full-scale MEH system covering the whole Straits of Malacca and Singapore;
- Availability of adequate hydrographic data coverage necessary for the compilation of electronic navigational charts (ENC) for the protection of the marine environment such as for use in chemical and oil spill modelling including meteorological conditions for safety of navigation and transboundary marine pollution prevention, response and management;
- Availability of high quality large-scale ENCs of the TSS indispensable for real time navigation in congested and confined waters;
- Establishment of MEH data centres which will be the clearinghouse of the pilot MEH system and serve as the network servers for its products and services;
- Demonstration of the technical, financial and economic viability and benefits of the pilot MEH system leading to an expanded client base and partners;
- Integration of relevant marine environment systems within the MEH system for effective monitoring, response and management of marine pollution in the Straits;
- Enhanced national and regional cooperation on maritime safety and transboundary marine pollution management; and
- Provides the impetus for the ratification and accession of relevant international conventions, protocols and agreements on marine environment protection, maritime safety and sustainable development of the coastal and marine resources.

Specific targets of the Partnership/Initiative and timeframe for their achievement:

The following specific targets are considered under this Initiative:

- Evaluation of the MEH pilot demonstration for the development of a full-scale system in the Straits;
- Establishment and evaluation of available marine technology infrastructures in the Malacca and Singapore Straits;
- Comparative evaluation of charting information in critical areas of the shipping lanes and port areas to enhance marine traffic management;
- Assessment of the technical functionalities of the MEH system for maritime safety and marine environment protection;
- Promote the evaluation and augmentation of the MEH system with new and emergent technologies on maritime safety and marine environment protection;
- Technical evaluation on the integration of marine and coastal management information systems on the MEH system including meteorological and oceanographic data;
- Evaluation of the MEH system for marine pollution prevention and response
- Profiling and modelling the sandwaves phenomena in selected areas of the Straits;
- Development and evaluation of mechanisms for the long-term management of

data and information exchange for the MEH system and its operational and administrative mechanisms;

- Evaluation of the organizational structure at national, regional and international levels for the operation, administration and management of the MEH system including data exchange and warehousing;
- Socio-economic and financial assessment of the MEH system;
- Evaluation of the financing mechanisms including the development of public private partnership;
- Cost-benefit evaluation of system integration of maritime safety and marine environment protection technologies and information;
- Organization of national and regional workshops on the benefits and applicability of the MEH system and users feedback including training programmes for capacity-building for the littoral States; and
- Production and dissemination of information on the MEH system through print media and via the Internet.

This partnership is expected to commence in October 2003 for a period of 4 years. Prior to the implementation of the pilot demonstration, an organizational meeting among the littoral States, IMO, World Bank and partners will be held. In the implementation of the activities, shore-and shipside developments such as the establishment of land-based and offshore infrastructures and requirements including ENC development and exploratory evaluation of ECDIS/AIS will commence in the first three years of this initiative. A comprehensive evaluation of the pilot MEH demonstration system will commence on the 4th year of the partnership (late 2006 - 2007).

Coordination and Implementation mechanism

The coordination mechanism of this initiative has the following institutional arrangements:

- Project Coordination Team at IMO Headquarters;
- Project Steering Committee (PSC) comprising the littoral States, IMO, World Bank and partners, which will meet annually, oversees the implementation of project activities providing policy directions/strategies and guidance;
- Four standing Technical Committees and two *ad-hoc* Working Groups will assist the PSC in monitoring and evaluating the implementation of project activities as well as providing technical guidance to the Project Management Team;
- Project Management Team comprising one Project Manager and four experts is tasked with the implementation and management of this initiative;
- A Project Management Office will be established in one of the littoral States to house the Project Management Team; and
- Two MEH Data Centres will be set up in Indonesia and Malaysia and will link up with Singapore to serve as the network server for the MEH system and will be operated by relevant national agencies experts.

To ensure effective implementation of this initiative, IMO will work closely with its partners, particularly the members of the PSC as well as provide all the necessary technical, financial and administrative support to the Project Management Office (PMO).

In turn, the PMO will attend to the day-to-day requirements of the project and will work closely with the littoral States and partners to ensure smooth and efficient delivery of project outputs.

Linkage with national authorities is vital in the effective operation of the MEH system. Many of these national authorities are the sources and producers of marine information suitable for the MEH as well as mandated to be responsible of various components in the management of the Malacca and Singapore Straits. Thus, co-operative agreements including operational modalities, guidelines and protocols will be established in order to ensure the smooth operation of the MEH system, flow of information, communication procedure and complementarity of efforts.

Arrangements for funding

The estimated budget for this initiative is US\$12,055,420 of which US\$11,055,420 (91.7%) is assured and committed. Negotiation with relevant stakeholders is underway to secure the remaining US\$1,000,000 of the required budget. Included in the budget is US\$387,000 for the PDF Block B Grant, which is currently being implemented (March 2001 to December 2002). Under the PDF Block B, the GEF/World Bank proposal for this initiative is being finalized including preparatory arrangements for its approval and implementation. The estimated budget consists of financial support from the GEF/World Bank and in-kind contributions from the littoral States and INTERTANKO. Additional sources of financial support will be explored in the future with interested stakeholders.

Arrangements for capacity building and technology transfer

Among major activities of this initiative are capacity building and the establishment of institutional mechanism for the long-term sustainable management of the MEH system. Technical training and onsite participation of relevant national agencies are aimed at institutional strengthening for the effective operation and management of the MEH system including the MEH Data Centres.

Brief description of expected arrangements for technology transfer: N/A

Links of Partnership/Initiative with on-going sustainable development activities at the International and/or regional level (if any)

This initiative will establish linkage with the GEF/UNDP/IMO Regional Programme on Partnership for Environmental Management for the Seas of East Asia (PEMSEA) and Global Ballast Water Management Project. It will also establish linkage with relevant bodies such as the WMO on meteorological issues/data, Tripartite Technical Experts Group (TTEG) on maritime safety activities of the Straits and with relevant international organizations such as the Japan Association of Marine Safety and US Naval

Oceanographic Office on various issues relating to maritime safety and marine pollution management in the Straits.

Monitoring Arrangements

Monitoring and evaluation of project activities will include milestones for each major activity with a corresponding specific timeframe to complete. In addition, there will be annual reviews by the Project Steering Committee (PSC) as well as bi-annual internal reviews of project implementation as well as results. Four Technical Committees under the guidance and direction of the PSC will also undertake review and evaluation of the project activities. Two Working Groups will be established at some stage of the project life to evaluate the impacts of the project as well as the development of the proposal for the full-scale MEH Project. The Technical Committees and Working Groups will be composed of representatives from relevant stakeholders as well as consultants hired under the project. The project will participate in the annual GEF Project Implementation Review (PIR).

Other relevant information:

For more information on this initiative, please contact the Director, Marine Environment Division, International Maritime Organization. Occasional news on this initiative will appear at the IMO website (<http://www.imo.org/HOME.html>) and PEMSEA (<http://www.pemsea.org>) including IMO NEWS.

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