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Partners

- Vrije University, Brussels, Belgium
- Hai Pong Institute of Oceanology, Vietnam
- University of Amsterdam, The Netherlands
- Royal University of Agriculture, Faculty of Fisheries and Aquaculture, Cambodia

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**EUROPEAN
COMMISSION**

Asia Pro Eco II

Promoting sustainable solutions for the environment between Europe and Asia

Establishing scientific supports for environmental management for ports in Vietnam and Cambodia

The aim of the project is to strengthen the capacity for environmental port and waterway related management in Vietnam and Cambodia. To this end, a «self-diagnosis method» and a basic environmental management system will be established. The target groups are the port authorities and different actors of the Vietnamese and Cambodian harbours, the representatives of the local industry, the neighbours of the harbours, the relevant authorities and the scientific community dealing with port environment issues.

Area: Coastal Zone Management

1. Introduction and Project Description

The driving force behind this project is the international treaty MARPOL 73/78 (the International Convention for the Prevention of Pollution from Ships). The stringent rules of this treaty, regulating disposal of wastes generated by normal operation of vessels, place high requirements on the environmental performance of ships and ports. In European ports actions to comply with MARPOL have been initiated for nearly 10 years ago. Over the past 5 years most of the European ports have implemented environmental management programmes to various extend. In Asia however, no specific measures have been undertaken to reduce the environmental impact of ports. This may seem odd considering the fact that both Vietnamese and Cambodian governments ratified the MARPOL treaty and its annexes. Cambodia ratified 5 from the 6 annexes, while Vietnam ratified all plus some compulsory annexes. In spite of the fact that Vietnam and Cambodia have undertaken some actions in order to comply with MARPOL, no significant actions have been identified at port level. Considering the perceived need for environmental management in ports, this project initiates the first step towards an improved environmental performance and subsequently compliance with the MARPOL obligations.

With a coastline of more than 3,200 km and a claimed sea area of about 1 million km², marine transport is a fast growing sector with high potential in Vietnam. Over the period 1999-2002 the number of seaports increased from 40 to 100, a number that is expected to rise to 114 in 2010. Cambodia, on the other hand, has only 2 international ports: the deep sea port of Sihanoukville and the river port of Phnom Penh which is connected to Vietnam by the Mekong River.

Although Vietnamese and Cambodian ports both differ in size and scale,

they all face emerging environmental problems related to ship discharges (bilge, ballast, and sewage), oil spills (bunkering), heavy traffic and noise. The partnership executing the project consists in total of 6 partners: 2 EU partners (Free University of Brussels (VUB) and University of Amsterdam (UvA)), 2 Vietnamese partners (Institute of Marine Environment and Resources (IMER) and Sub-Institute of Geography in Ho Chi Minh City (Sub-GEO)) and 2 Cambodian partners (Phnom Penh Autonomous Port (PPAP) and Sihanoukville Autonomous Port (PAS)). The local authorities, the port authorities and the port companies were considered as associated partners.

The direct beneficiaries in this project are the port authorities who will receive support to establish environmental management in their ports. Among the indirect beneficiaries of the project are local business organisations, neighbours of the port, and scientific institutes dealing with port environmental issues.

The main environmental benefits of the project include:

1. Integration of environmental research in the environmental management process at ports. An improved cooperation between science and port authorities, which will help ports to identify and tackle environmental problems.
2. During the project new environmental management tools were explained and introduced at the port. Through this action insight in the importance of a good environmental management of port authorities and businesses was improved, creating a growing environmental awareness. The new tools also improved the identification and possible solutions for different environmental problems in ports.

Thus, the project aims at improving the sustainability of ports in Cambodia and Vietnam, which implicates that ports need to be both economical efficient and environmental friendly. The introduction of scientific tools and an environmental management system will contribute to this, and is in the long run expected to increase the concurrential position of the participating ports. Besides, the living conditions of the people residing near the ports will become healthier and safer through the new environmental friendly approach of the ports' exploitation and expansion. Until now most ports in Vietnam and Cambodia were built to comprise with economic needs without taking environmental aspects into account with port activities mainly focusing on business and economical development.

Transfer of experience and knowledge in the field of environmental management from Europe to Asia is a focal point in the project. European ports already work closely together to improve the environmental performance at their ports through an association called ECOPORTS. Throughout the project the experience and knowledge of the ECOPORT association was shared with the scientific institutes and port authorities in Vietnam and Cambodia, creating a sustainable transfer of environmental issues and solutions between ports in Europe and Asia.

2. Description of Activities

The project started with an inventory phase during which information on all relevant environmental aspects in the 5 participating ports was gathered including air, water and soil pollution, waste, impact on fauna and flora, ecosystems, biodiversity, human health, land use and land use changes. The inventory was performed by local researchers at IMER for the ports of Hai Phong and Da Nang and at Sub-Geo for the port of Vung Tau. The Port Authorities of the Phnom Penh Autonomous Port and Sihanoukville Autonomous Port conducted the inventories on an independent basis. Besides the inventory of scientific data, a questionnaire was composed in order to identify the main environmental problems in the port area according to different stakeholders and their personal perception. The preparation phase also entailed a literature study collecting relevant information from ports worldwide.

The basic study of the project was based on 2 main inputs, firstly on the results of the inventory phase and secondly on the output of the draft 'SDEP' (Self Diagnosis for Environmental Performance). This draft 'SDEP' is an audit checklist to evaluate the environmental performance of port activities. The checklist is designed within the project, based on an already existing audit tool used by European ports. The European tool is widely used among member ports of the ECOPORTS network and is called SDM, Self Diagnosis Method. This tool was adapted during the project to the real situation in Asian ports through a literature study, field visits and results from the inventory phase. The 5 participating ports completed the SDEP document resulting in a clear list of environmental problems in ports that are described in the 'Basic Study Book'. While filling in the SDEP, comments on the SDEP tool were formulated and used to optimise and specify the tool for ports in Vietnam and Cambodia.

During the first phase of the project guidelines for the implementation of an environmental management system were developed according to the PERS standard. PERS, Port Environmental Review System, is a system used by the ECOPORTS Foundation. Ports complying with the PERS receive a certificate that can be seen as a first step towards ISO 14001 certification. The peer review process was followed by 2 social review workshops, one in Hai Phong and one in Phnom Penh. Both workshops served as a stakeholder-platform where the developed tools were discussed and suggestions for improvement were made. Besides the review aspect, the workshops were organised to collect information on the socio-economic conditions in and around the port areas. The socio-economic conditions were additionally assessed through a survey in the port surrounding communities.

In the next phase, the meaningful comments and suggestions from the peer review and the social review in phase 2 were incorporated into the final documents. These various inputs guaranteed the quality and usefulness of the project documents, from both scientific and practical point of view. This resulted in a final version of the SDEP, the EMS guidelines and the 'Basic Study Book'.

Training in Europe

5 Asian port managers attended a 2-week training in Belgium and the Netherlands. The participants were selected based on 1) professional experience: experience in the port and experience with environmental management, 2) motivation, 3) English language skills, 4) Age. The training largely consisted of study visits to different ports in Belgium (Antwerp, Oostende, and Ghent) and the Netherlands (Amsterdam, Moerdijk). At the different ports the participants met the environmental coordinator of the port and attended lectures on topics related to environmental management. Furthermore an excursion to the port area was made, focussing on environmental actions and solutions.

Training in Vietnam

Training on port environmental management was organised at the Institute of Marine Environment and Resources in Hai Phong. 32 persons from different ports all over Vietnam, from VINAMARINE and from scientific research institutes were invited. The training offered lectures on environmental issues in ports, environmental legislation, waste management, oil spill rescue, monitoring, planning, EIA and the practical use of the developed tools in this project. The topics covered in the lectures provided a starting point for discussion among the different participants. The main outcomes of the training were an increased awareness of environmental issues among port staff and an improved knowledge on avoiding and tackling environmental problems.

Training in Cambodia

A similar training as the one in Hai Phong was held in Sihanoukville. 30 trainees, coming from Phnom Penh Autonomous Port, Sihanoukville Autonomous Port and the Municipality and the Ministry of Environment were present at the training.

3. Results

Scientific achievement:

A basic environmental study was performed to investigate the current environmental conditions at the 5 participating ports in Vietnam and Cambodia. The basic study gave an overview of the environmental problems in the ports, along with information on existing management systems and institutional aspects related to environmental management in port areas. After analysing the environmental situation in the ports priority issues for the port's environmental management were set, which sought to facilitate the process of integrating environmental aspects into the every day management. The project was the first of its kind in Vietnam and Cambodia. In both countries, studies on the impact of shipping and port operations on the coastal environment were very limited. Research on such environmental impacts was until now only done on fragmented aspects. The project was the first to look into the environmental impacts of ports systematically.

Concurrently, a "Self Diagnosis for Environmental Performance" (SDEP) was developed, based on the "self diagnosis method" used by the

ECOPOINTS Foundation. This tool made it possible for the port managers, to review systematically their environmental performance. The method is also described and explained in the basic study.

- A practical guideline to implement an environmental management system at the ports was elaborated, based on the data yielded through the basic study and the finalisation of the SDEP at the ports. The guideline was developed according to the Port Environmental Review System (PERS) standard of the ECOPOINTS Foundation.
- A database, containing best practices for frequently occurring accidents polluting the environment in ports (e.g. oil spills) was established. This database is based on the concept launched by ECOPOINTS.
- By the end of the project scientific research results were disseminated to both local researchers and beneficiaries. These results were valorised through training of ports' staff on pollution prevention management. Besides training courses in Vietnam and Cambodia, a study tour in Europe was organised to get insight in the European strategies to tackle environmental problems in ports. Furthermore the research results have been used to support environmental management activities.

Development targets

The main aim of the project was to diagnose the environmental problems in ports and advertise them to relevant stakeholders. Awareness increasing on environmental issues in ports was mainly done through societal consultation workshops, trainings, publications, etc. This active participation of local stakeholders in the project enhanced their understanding of environmental problems in ports and the importance of environmental management. Through common research activities with European academics and experts local researchers gained knowledge and experience on research methodologies in the field of environmental pollution and management.

Networking

Another important aspect of the project was the establishment of a network between research institutions in Europe and Asia on the one hand and between ports in both continents on the other hand. Common research activities contributed to the academic network, while the Asia-Europe port network was stimulated by introducing the Vietnamese and Cambodian ports in the ECOPOINTS network. Initial efforts to achieve this latter goal have been done through the University of Amsterdam which has close contacts with the ECOPOINTS Foundation. The first step towards membership for the Asian ports in the ECOPOINTS Foundation was made by input of Asian port information into the ECOPOINTS database of best practices. Furthermore, collaboration between Asian ports and Belgian and Dutch ports has been initiated through visits of an Asian delegation to ports in Belgium and the Netherlands. The port of Oostende for example promised to take on participants from Vietnam and Cambodia in their up-coming training/exercise on oil spill rescue.

The project generated various impacts on both target groups and the partners in the project

▪ Impact on target groups:

One of the most important target groups of the project are the 5 port managers who needed to be introduced to and convinced of the usefulness and need of an environmental management system in the ports. More specifically they were offered scientific tools to enhance the environmental performance of their port. Besides insight in theoretical methodologies for environmental management, they were given practical examples by training in Vietnam and Cambodia and by a study visit to Europe. They mainly benefit from the study visit because they have seen the practical organisation of environmental management in Belgian and Dutch ports. Moreover they had the opportunity to discuss with European environmental coordinators in ports, which was an outstanding chance to exchange knowledge and experience and build networks with them. Another target group included port managers, representatives from the ministry, representatives from VINAMARINE, etc. They specifically benefited from the project by enhancing their knowledge of international legislation, environmental impacts of ports, and monitoring, environmental management practices during several trainings in Vietnam and Cambodia. During the trainings they were able to network with the other participants exploring a possible cooperation with different ports and agencies Neighbours of the different ports were also affected by the project, because the project contributed to a new environmental protection policy at the ports and secondly because ports were encouraged to include their neighbours' opinions when establishing new plans concerning environmental issues.

▪ Impact on applicant and partner:

This was the first Asia-wide programme that was executed at the DHE-VUB. However it was not the first cooperation between the DHE-VUB and IMER and Sub-Geo and this project therefore strengthened this existing relationship. For the Cambodian partners on the other hand, it was the first time that VUB cooperated with them. It was also the first time that Phnom Penh port and Sihanoukville port worked together with European partners in a project like this. The project not only improved the cooperation between both Cambodian ports but also between the Vietnamese and the Cambodian ports. All partners showed strong commitment to the project as well as the commitment to maintain the project's results after the end of the project, and the management capacities of all partners increased by common project management and different meetings. The experience of this project and the established partnerships are expected to improve further cooperation.

4. Lessons Learnt

The partnership of the project comprised of 6 partners, including 2 European Universities, 2 Vietnamese research institutes and 2 Cambodian port authorities. In Vietnam, collaboration between research institutes and the ports was established to jointly work on several



project activities. This research-business collaboration proved to be efficient because the research institutes contributed their research experience while the ports delivered essential data and information for research purposes. The practical experience of the ports' personnel turned out to be of crucial importance for the researchers to enhance their insight and understanding of the sector, but unfortunately the research component was very weak in Cambodia, and there were no research institutions to support the ports during their activities. Nonetheless, the ports in Cambodia managed to contribute essential data and information to the research part of the project with support from European and Vietnamese researchers.

The selection of the two neighbouring countries in South-East Asia brought about strengths and weaknesses. On the one hand, the geographical vicinity allowed easier practical arrangement for travel-related activities and future cooperation. On the other hand, differences in economic and social structure of the two countries created difficulties in finding (common) solutions for identified problems.

5. Outreach and Dissemination

The project results were disseminated to all local stakeholders, including local population residing in or near port areas and local authorities through workshops and trainings and several material outputs. An important emphasis of the project was to raise awareness of environmental problems and the need for environmental management at ports. The material outputs of the project were:

- 1,500 copies of a project brochure containing important information on the project activities and its organisation. These brochures were widely spread to relevant agencies, the ports, scientific communities as well as the general public.
- 400 copies of the "Basic environmental study of the ports of Vietnam and Cambodia" were published. The document was translated into Khmer for better dissemination of the document in Cambodia.
- 400 copies of "Guidelines for implementing an Environmental Management System (EMS) according to the PERS standard" were printed and were also translated into Khmer aiming to facilitate its application among Cambodian ports' staff.
- 400 copies of the Self Diagnosis for Environmental Performance (SDEP) were printed.
- A project website at www.indochinaecoports.com was developed and is maintained by a local partner.
- 400 CD-ROMs were prepared, containing all project documents, and shared with organisations in Europe, Vietnam, and Cambodia.
- A database (printed in hard-copy) containing best practices in port's environmental management in Europe was prepared and offered to the local partners. This will act as a reference point for environmental management activities at the ports in Vietnam and Cambodia.

Due to short project duration, there has been no assessment of the impact of the project visibility. However, the visibility of the project was done consistently throughout the project activities including the display of logos of all partners and the co-financed institution (EU Asia Pro Eco) and the name of the project and its code.

6. Sustainability

A series of activities was proposed to transfer knowledge to the local stakeholders, such as:

- Training workshops for local port personnel
- Social review workshops
- Publications contributing to the knowledge transfer.

The material outputs of the project guarantee its multiplication. The basic study will allow other ports in Vietnam and Cambodia to compare their ports with the 5 case study ports. The SDEP will allow these ports to make an assessment of their environmental performance and the EMS guidelines will assist them to manage the most important environmental issues as discovered with the SDEP.

Through the established networks within this project, Asian port managers will have the opportunity to further contact European experts. The database furthermore allows to contact other EU experts and the contacts among Asian port managers that were established during the workshops, will also be extended in the future. The networks between Asian partners and other ports that did not join the training will also be strengthened during the next years. The collaboration between the 6 partners were extended another year in a running project, also funded by Asia Pro Eco Programme.

A second phase of the project was approved by EU Asia Pro Programme to be implemented during 2006. This will ensure the continuity of the project activities and results. The partnership will continue to work in the new project, which will last until end February 2007.

7. Recommendations

There should be put more emphasis on networking activities between different Asia Pro Eco projects considering the importance of experience exchange between projects and *EU-Asia partnerships*.