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Challenging for Achieving Effective Capacity-Building in Ocean Affairs and the Law of the Sea

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International Cooperation in Capacity-Building in Marine Scientific Research and Transfer of Technology

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Introduction

Capacity-building is no doubt an essential element related to marine scientific research activities and also to the better implementation of the United Nations Convention on the Law of the Sea. Since its beginning of marine scientific research at sea with research ships in high sea areas, international cooperation became its key component. In the opening statement at the inauguration of the Intergovernmental Oceanographic Commission (IOC) in 1961, the representative of UNESCO specifically mentioned that at the early days of marine science one single expedition by adventurous scientists brought back from the cruise extraordinary amount of new scientific knowledge and unknown samples however nowadays internationally cooperated marine works are required with number of scientists and research ships for one purpose. However, in early 60's available vessels for marine scientific research were so limited and these were mainly conducted by European and/or North American scientists and most of cases scientists from developing countries invited were treated just as research assistants. Although some developing countries now operate their research facilities including ships, it is unfortunate that considerable gaps still exist in scientific knowledge and technology and/or operational techniques between developing and industrialized countries. Efforts of every scientists, institutions and countries are required to fill up such gaps through mutual assistance and international cooperation.

Experience of JAMSTEC

Japan Agency for Marine-Earth Science and Technology (JAMSTEC) is an independent administrative organization for marine and geo-scientific research and related technological development. Its headquarters locates in Yokosuka, about 70 km south of Tokyo with about 1000 staff. In addition, it runs 4 regional research centers in Japan and jointly operates 2 centers in United States of America with US-NSF. It owns and operates 8 research vessels including a deep water drilling vessel, and a manned submersible for science research purpose capable to dive 6500 meters deep and an internationally ranked high speed super computing system. However, the Center focused its research areas mainly for ocean observation and climate change, interior of the Earth, biology/micro-biology under extreme conditions such as high pressure and high temperature, simulator sciences and related naval technologies. Most of research activities are carried out through international cooperation.

Training activities

Cooperative relation with neighbouring developing countries provide us efficient working atmosphere. For this purpose, we accept scientists for joint research projects internationally and regionally for long- and short- term. Although most of training activities are provided through individual on-the-job training for specific research target more than 10 scientists and/or technicians are enjoying this system every year, JAMSTEC has implemented a series of group training on ocean data handling and application 4 times in Japan and once in the south Pacific region, through this series about 40 young scientists and governmental officials from 12 countries in total were trained.

Joint works on board

As mentioned earlier, JAMSTEC operates 7 ocean going research vessels with about 200 cruising days per year for each vessel mostly in international waters. According to procedures stated in UNCLOS, we request every chief scientist to accept certain number of researchers from coastal states on board during their cruise in case they plan to carry out research activities such as observation or sampling in juristic waters of coastal states. Even though very limited scientists invited on board, the principle scientist team normally assigned them some tasks of sampling on deck, analyzing samples in laboratory and watch standing for observation, depending on their experience and/or skill, to enable their full

participation in research activities during the cruise and share responsibility with science team. This system provides them on-the-job training opportunity and participation in practical research works, and about 50 international scientists enjoy this arrangement. One of our vessels made a remarkable 6 month-cruise in 2003/4 in the southern oceans. This Circum Southern Hemisphere Cruise started Brisbane, Australia and steamed eastward via east coast of Chili, crossed the south Atlantic and after Madagascar, reached to Freemantle, Australia then back to Japan. The cruise received 30 international scientists from 12 countries on board and demonstrated effective international cooperation.

Technology transfer and provision of data

Technology transfer is one of difficult item through international cooperation due to many complicated custom regulations and domestic security rules and regulation. We could solve such difficulty in utilizing the IOC developed procedure on Criteria and Guidelines on the Transfer of Marine Technology. We receive visiting scientists for cooperative research projects at our center and regional laboratories and arranging training opportunity on data handling and analysis ad hoc basis.

JAMSTEC opens, in principle, most of observed data and collected samples after certain period of time, and provides them also upon requests before publicly opened according to institutional rules and procedures. Stored data at JAMSTEC data center are mostly collected by our vessels during cruises. Continental shelf data are also deposited at the UNEP-GRID center at Arendal and available for public upon request. Another way of cooperation with coastal states is providing observed data including geophysical data such as gravity and magnetic data upon their request obtained during research cruise.

Proposal for better future

JAMSTEC performed some training activities explained above and found that group training at a central institution is effective if trainees are same level of skill however its operational manner easily becomes classroom type training and would face difficulty in maintaining level of knowledge. We feel that training with small participants of 5 to 6 would be more effective but costly. It would be effective if training activities implemented on the regional basis to meet closer to

the need of the region. In this regards, a regional center for capacity building and technology transfer as is specified in UNCLOS would become a powerful tool when established. Efforts of DOALOS in cooperation with IOC would be recommended to initiate this challenge.

Participation in research activities on board is the most effective for capacity building but operation of research vessels becomes very expensive due to fuel cost. However, it would be possible if cruises could be operated in particular region with cooperative manner under guidance of UN Agencies such as DOALOS, IOC and GEF.