



Hiroshima Office for Asia and the Pacific (HOAP)

Series on Sea and Human Security

Training Workshop on Food Security
Hiroshima, Japan, 26 –30 September 2005

Executive Summary and Next Steps

UNITAR would like to express its thanks to the many resource persons and participants who contributed their time and expertise to the workshop so graciously. Special thanks go to the City University of Hong Kong, Hiroshima University, the Hiroshima Prefectural Fisheries and Marine Technology Center, the Fisheries Agency of Japan, PEMSEA, ¹UNESCO IOC² and FAO³, who provided advice or sent representatives to the workshop. Finally UNITAR wishes to convey its gratitude to the Hiroshima Prefectural Government and its staff, along with volunteers – representatives of Hiroshima citizens – who helped in the organization of the programme and shared living Japanese culture with the international participants.

Introduction

The Series on Sea and Human Security is one of the six main programme pillars of the UNITAR Hiroshima Office for Asia and the Pacific (HOAP). On the basis of an international conference which addressed multiple dimensions of human security⁴ pertaining to the sea and oceans,⁵ the three-year Series was launched in 2004 to provide in-depth training seminars to selected experts and practitioners working for the protection and sustainable use of the seas' resources. The first training workshop organized in Hiroshima in July 2004 focused on the tradeoff between development and conservation. The second training workshop focused on food security and took place in Hiroshima, from 26 to 30 September 2005.



The objectives of the training workshop were to **introduce** the participants to basic knowledge, information and updates on marine food security, **set down** the underlying principles of sustainable marine food supply, **study** leading policies and strategies including their successes and failures, **explain** legal and policy planning techniques, **discuss** case studies and practical exercises, and **enhance** long-term learning and exchange among the participants. A **study tour** was organized and provided additional case studies and learning opportunities.

¹ GEF/UNDP/IMO Partnerships in Environmental Management for the Seas of East Asia.

² Intergovernmental Oceanographic Commission

³ Food and Agriculture Organization of the United Nations

⁴ Economic, food, health, environmental, personal, community, political securities as defined by UNDP in its Human Development Report 1994.

⁵ International Conference on Sea and Human Security, Hiroshima, Japan, 6-8 March 2002.

The 2005 Workshop

Some 40 participants and observers from 15 countries attended the workshop.

The training workshop used three main training methodologies:

- 1) Interactive presentations and lectures
- 2) Study tour
- 3) Practical exercise

1) **Presentations and lectures** by experts selected by UNITAR and representatives of partner organizations. The presentations, followed by Q and A sessions, addressed the following:

- **Opening remarks by Nassrine Azimi, Director of UNITAR Hiroshima Office** explained UNITAR and its vision in capacity-building. UNITAR is not an academic institution but its work directly benefits from academic work. Its training activities aim at supporting national policy making leading to action. Regarding the present Series on Sea and Human Security, she explained that the focus on food security and learning made in the workshop should not be confined to laboratories – rather, it should practically enhance the work of the participants’ on return to their countries.
- **Opening remarks by Rudolf Wu, Chair Professor, Department of Biology, City University of Hong Kong** welcomed the participants as the lead resource person. Professor Wu underlined the importance of ensuring a healthy and sustainable supply of food from the sea. He also stressed the need for an inter-disciplinary approach addressing policy aspects of food security.
- **Opening remarks by Tadao Ando, Director, Professor Emeritus, Community Cooperation Center, Hiroshima University** welcomed the participants on behalf of the citizens of Hiroshima Prefecture and wished them a stimulating and productive workshop. He introduced Hiroshima University, noting that it has the second largest student body in Japan, a large campus and that it ranks 10th in Japan in terms of academic output.
- **Opening remarks by Teng Seng Keh, Chief Technology Officer, LBTV (Life -science, Bio-Technology Venture) Management Sdn Bhd and representing PEMSEA** introduced the PEMSEA (GEF/UNDP/IMO Partnerships in Environmental Management for the Seas of East Asia) which has 12 participating countries. PEMSEA conducts capacity-building in integrated coastal management.
- **Opening remarks by Hiran Jayewardene, Secretary General of IOMAC⁶** explained the initiatives taken by the organization in setting up an integrated structure in order to achieve ocean governance. Capacity-building is key in such a structure, and it should be conducted in-country as far as possible.
- **Sustainable capture fishery by Rudolf Wu** – More than one billion people rely on fish as a source of protein and fish provides 20 per cent of the world’s protein (higher percentage in Asia). Sustainable fisheries will thus be an effective means to combat hunger, but it is hard to achieve. Professor Wu presented some impediments to sustainable capture fishery, such as destructive fishery and over-fishing, and suggested measures and strategies. A case study from Hong Kong was presented.

⁶ Indian Ocean Marine Affairs Cooperation.

- **Food Security from the sea - policy and economic measures - Indian scenario** by *Arun Shrivnath Ninawe, Director, Department of Biotechnology, Ministry of Science and Technology of India* described the food insecurity in today's world and employed an Indian case to explain resources that could be exploited from the sea to achieve food security. Strategies to increase fish production and suggestions to achieve sustainable supply were also presented.
- **Managing coastal aquaculture in the context of integrated coastal management (ICM)** by *Teng Seng-Keh* noted that coastal areas are influenced significantly by human activities and represent diverse jurisdictions and interests of different parties. How could ICM be applied to aquaculture in this area and industrial development implemented in an integral manner? Hints for policy development were presented to achieve this goal.
- **In Japan's fisheries policy: management and enhancement toward the sustainable utilization of marine living resources**, *Hisashi Endo, Chief Policy Planner, Policy Planning Division of the Fisheries Agency, Ministry of Agriculture, Forestry and Fisheries of Japan* demonstrated the importance of fisheries resources for Japan and the country's policy of moving towards a self-sufficient fisheries supply. Japanese management includes the conservation of resources, promotion of stock enhancement and aquaculture, development of technologies and techniques and preservation of habitat. Inherent roles played by Japanese fishers were also presented.
- The session on **Harmful Algae Blooms (HABs)** was delivered by two speakers. *Manabu Asakawa, Associate Professor, Graduate School of Biosphere Science, Department of Bioresource Science and Technology of Hiroshima University* explained the mechanism of HABs and its influence on public health. The food chain leading to human consumption was demonstrated. A case of paralytic shellfish poisoning in Hiroshima Bay, as well as a case in the Philippines regarding food hygiene was reported.

Yasuwo Fukuyo, Professor, Asian Natural Environmental Science Center, Tokyo University put a basic question to the participants: "are fish caught in red tide safe to eat?" Showing various cases observed in Japan and in developing countries in Asia, Professor Fukuyo demonstrated the magnitude of the problem as well as the difficulties in confirming the safety of fish affected by red tide. He noted that the management of red tide requires proper monitoring and surveillance as well as national capacity development and coordination.

- **Environmental risk assessment (ERA), a new tool to ensure food security** by *Rudolf Wu* introduced the method of assessing risk and asserted that both the severity of the hazard and the probability of occurrence should be taken into consideration. Professor Wu argued that any risks should be put into context of those taken in daily life and then presented one way of assessing the acceptability of risk and factors to be considered in its management. A case of ciguatera in Hong Kong was studied as an example.
- 2) A **study tour** to the Hiroshima Prefectural Fisheries and Marine Technology Center on the Seto Inland Sea near Onoda, approximately an hour by bus from Hiroshima, was an important part of the training workshop. The Center carries out research on fisheries, the marine environment, oyster culture and aquaculture generally. A brief introduction to the Center by the *Director, Minoru Takaba*, was followed by three presentations.
- **Efficient uses of marine resources** by *Kanji Hori, Professor, Graduate School of Biosphere Science, Department of Bioresource Science and Technology of Hiroshima University* argued that it is important to take particular note of both the specific and universal natures of marine

organisms to utilize effectively the diversity of finite marine bio-resources, and noted that only a small amount of the sea's potential has been utilised for food resources.

- **Norovirus Contamination in Oysters** by *Tadashi Shimamoto, Associate Professor, Graduate School of Biosphere Science, Department of Bioresource Science and Technology of Hiroshima University* outlined the nature of norovirus' and the threat they pose to oyster production and consumption in Hiroshima, noting that as noroviruses can not be cultured and that human intestinal cells are the only hosts for the virus research is difficult. He argued that an effective method for detection and inactivation of noroviruses must be developed.
- **The history, current state and future of oyster cultivation in Hiroshima Prefecture** was outlined by *Satoru Akashige, Head of Oyster Culture and Research Division of the Hiroshima Prefectural Fisheries and Marine Technology Center*. He noted that oysters have been produced in Hiroshima since the mid-16th Century and now represent almost 60% of national production. The Center works closely with government agencies and private companies cultivating oysters to ensure the development and spread of new methods of cultivation.

The presentations were followed by a guided walking tour of the Center's facilities and the nearby oyster processing plant of a private company. A debriefing of the study tour was held on return to the UNITAR offices. Each group presented its impressions of the study tour, including the Center and the oyster processing plant. The following are some of the key points raised

Points raised by participants after the study tour

- ❖ Cultivation of oysters appeared to be a sustainable use of resources in the Seto Inland Sea to support food security for the region;
- ❖ Use of used oyster shells for agriculture fertilizer was effective;
- ❖ More information on how research was disseminated to the community, the source of funding for the Center and information on any applicable standards for water quality requested;
- ❖ Interest in the research done on testing for fish toxicity, uses of sea grasses and water quality monitoring;
- ❖ Apparent that solutions for norovirus' have not yet been discovered and that research is difficult;
- ❖ Well-equipped facilities including aquaculture and freshwater laboratories, although the number of scientists stationed there appeared to be low;
- ❖ Concerns about whether the carrying capacity of the area has been reached and what the appropriate level of water quality for cultivation of oysters is;
- ❖ Environmental changes in the Seto Inland Sea, including rising water levels and rising sea water temperatures are causes for concern and require cross-sector/boundary cooperation.

Summary by lead resource person, Ruldolf Wu, of discussions on the study tour

- ❖ Research at the Center covers not only oysters, but a diverse range of programmes related to food security including fish culture, oyster culture HABs and microbial contamination of seafood and sea grasses;
- ❖ Although oyster culture in Hiroshima considers the carrying capacity of the environment, more research on the effects of faeces being deposited on the sea bottom may need to be done;
- ❖ Paralytic shellfish poison (PSP) and norovirus' are two major problems confronting the oyster industry and the institute is using new molecular technology to detect and quantify norovirus in oysters;
- ❖ The Center was an example of sustainable development of aquaculture and how technological advancement can assist in food security.

Study tour



Japanese culture evening



- 3) **A practical exercise** was organized, employing case-study analysis by working teams. Four (4) teams were established, each assisted by a resource person. The four cases were selected from case studies submitted by participants, outlining specific issues in their countries which require policy development. Teams worked together throughout the workshop period to formulate a policy document related to achieving a sustainable and healthy food supply from the sea. A variety of learning and training methodologies designed by UNITAR were incorporated in the exercise.

The four (4) case studies were presented in power point form (20 minutes each) and commented on by a Panel of Resource Persons. Professor Rudolf Wu, the lead resource person, made the following general remarks.

- Case studies included a spread of:
 - Acute problems of food supply;
 - Chronic problems of food supply;
 - Sustainable development of food supply;
 - Public health issues in food security.
- Case studies should not be deemed as a separate exercise. It was hoped that the teams could incorporate in the exercise the concepts learned during the whole workshop period, for example, ICM, sustainable development, risk assessment and management, management strategies.

Team I
Rehabilitation of fishing industry affected by tsunami

Uditha Priyanga EGALAEWA (data provider)
Periyadan Kadinjappaly KRISHNAKUMAR
Thuy NGUYEN Thi Bich
Kim Hooi TAN
Montira THAVORNYUTIKARN
Tri Pratiwi TIWI

Resource person: Hiran JAYEWARDENE



Team II
Ecosystem-based marine culture development – case study of Ha Long Bay

Sandora Victoria ARCAMO
Chu Hoi NGUYEN (data provider)
Qing PAN
Romany Frances RASQUINHO
Sorawit POWTONGSOOK
Huaguo YANG

Resource person: Seng Keh TENG



Team III
HABs network as safeguard against seafood toxicity and massive fish kills

Rhodora AZANZA (data provider)
Alice GEDARIA
Venkat KRISHNAMURTHY
Karen MORRISON
Dinh Thu NGUYEN
Pemamiththa Abraham RATNAYEKE

Resource person: Manabu ASAKAWA and Yasuwo FUKUYO



Team IV
Fish as a tool of combating micro-malnutrition in Cambodian rural areas

Chhoun CHAMNAN (data provider)
Saleha KHAN
Tatiana GADDA
Md. Abdur RAHMAN
Weerakoon Jayantha RATNAYAKE
Shahram SAFIYARY
Khin Maung SOE

Resource person: Hisashi ENDO and Arun Sivnath NINAWE



Cultural Briefing, Visits and Cultural Evening

Based in Hiroshima, Japan, UNITAR considers that its training efforts should reflect the message of Hiroshima and that its participants should be given an opportunity to better understand this unique place. An introduction to Japanese culture and demonstration of Japanese arts provided the participants with a chance to learn about Japanese culture and way of thinking, while visits were organized to the Hiroshima Peace Museum and Peace Park, to convey the magnitude of Hiroshima's tragedy and the danger of nuclear weapons. A tour to Miyajima Island and Itsukushima Shinto Shrine was also arranged.

Taiji Hotta, Associate Professor, International Student Center, Hiroshima University made a **Cultural briefing** at the get-together session/dinner organized on Sunday, 25 September (upon arrival of participants). Professor Hotta introduced some ideas such as Buddhism, Confucianism, Taoism, and Shintoism that influence to this day Japanese people's way of living and thinking, attitudes to decision making, and relations with other people.

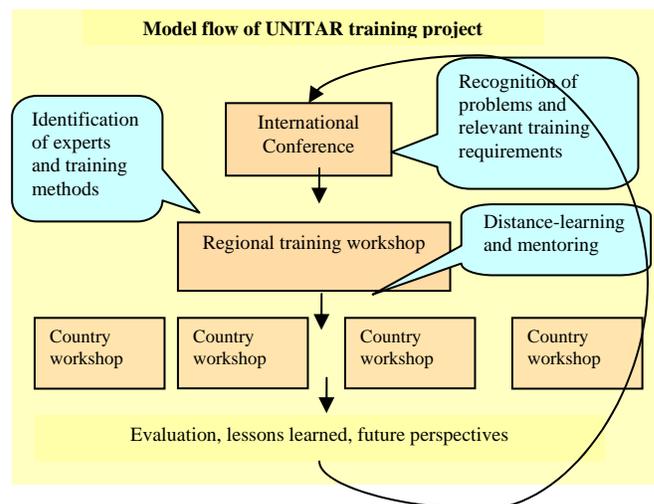
A **Visit to Hiroshima Peace Museum and surrounding Peace Park** was organized on 26 September, afternoon. **Nassrine Azimi** made an introduction to the Park and underlined the relevance of having a United Nations office in Hiroshima. The tour was organized in cooperation with the City of Hiroshima. **Kazuhiko Takano, Vice Director of the Hiroshima Peace Museum** made a presentation on the atomic bomb that exploded above Hiroshima in 1945 and Hiroshima's efforts to convey this experience to humanity and future generations, as well as efforts made by citizens in pursuing world peace.

A **Visit to Miyajima Island and Itsukushima Shinto Shrine** was organized on 30 September. Together with the Atomic Bomb Dome, Itsukushima Shinto Shrine is listed as a UNESCO World Heritage site. The Shinto shrine was first built in around 1148 and is a representation of harmony between human activities, culture and nature.

In the evening of 28 September a session giving an **Introduction to Japanese culture and arts** was organized by the Hiroshima Prefectural government and volunteers from Hiroshima. It provided a unique opportunity for the participants to see and try *shodo* (calligraphy), *sado* (tea ceremony) and *origami* (paper folding).

UNITAR "Training of Trainers (ToT)" Initiative

In order to expand the impact of training, UNITAR HOAP gives increasing importance to Training of Trainers (ToT) concepts and tools. Potential trainers (the workshop participants) are invited to submit projects for country/sub-regional level training. UNITAR will assist training projects in such fields as project development, training methodologies, and guidance on thematic matters by UNITAR faculty, through distance-learning, dispatch of experts and fundraising.



Based on longstanding contact and cooperation between UNITAR and IOMAC, and taking into account the training needs expressed in the aftermath of the earthquake and tsunami in December 2004, four participants and

one resource person were invited from Sri Lanka. After the conclusion of the workshop, five delegates from Sri Lanka, two (2) resource persons (Rudolf Wu and Teng Seng-Keh) met with UNITAR for an informal meeting to assess training needs for Sri Lanka. Tentative agreement was reached that IOMAC and its related programme of “Our Nation and the Sea” will intensify training activities focusing on various aspects of ocean governance, while UNITAR will provide guidance in the field of training methodologies.

Outcome, evaluation and next steps

There are roughly three main outputs from the 2005 workshop:

- Training modules consisting of all the presentations and documents to be made available on the UNITAR Hiroshima website, www.unitar.org/hiroshima, and in a CD distributed to all participants;
- Case studies prepared by the four working teams and comments made by the Panel of the Resource Persons;
- A network of cooperation and opportunities of discussion created among the training participants and resource persons.

Each participant was requested to fill in an evaluation form at the end of the workshop. The A-Bomb experience, as well as the reconstruction of the Hiroshima City into a green and peaceful place was noted by all the participants. The participants unanimously considered Hiroshima as a suitable place for training and cooperation with the Asia-Pacific region.

The overall evaluation of the workshop was most positive. In response to UNITAR’s request, suggestions for improvement were also provided. The chart below aims to show a brief summary of the key points of the participants’ evaluation.⁷

<p style="text-align: center;">General evaluation of the contents</p> <ul style="list-style-type: none"> • Useful in light of professional responsibilities (96 %); • Study tour to Hiroshima Prefectural Fisheries and Marine technology Center was useful (23 comments); • New insights, knowledge and lessons acquired (8 comments); • Interaction with other participants and exchange of information was useful (5 comments); • Policy aspects related to food security learned (4 comments). 	<p style="text-align: center;">Most useful part</p> <ul style="list-style-type: none"> • Lectures and presentations (17 comments); • Study tour to Hiroshima Prefectural Fisheries and Marine Technology Center (8 comments); • Interaction with other participants and resource persons (4 comments); • Team exercise (4 comments).
<p style="text-align: center;">Suggestions for improvement</p> <ul style="list-style-type: none"> • More focus on food security (2 comments); • Longer duration (7 comments); • More background information and reference (4 comments); • Visit to universities, private organizations, seaweed culture, fishery market, local fishers and fish boats (1 comment each). 	<p style="text-align: center;">Organization and sub-activities</p> <ul style="list-style-type: none"> • Introduction to Japanese culture and arts was good/interesting/impressive (24 comments); • Cultural briefing was useful (16 comments); • Organization was good/very good (23 comments); • Some difficulties reported regarding allowance, language, time shortage, technical support (1 comment each).

⁷ 25 evaluation forms were collected.

Additionally, topics suggested for future training activities are listed below.

- How global problems affect issues at a local level;
- Global trends of food security;
- International cooperation;
- The nature of co-operative fisheries in Japan;
- Fisheries and natural resources conservation;
- Environmental friendly agriculture management;
- Marine pollution;
- Food and nutrition security and safety;
- Case studies of Integrated Coastal Zone Management;
- Sustainable aquaculture / marine culture development;
- Sustainable coastal and marine ecosystem management and development;
- Sea and human security in relation to environmental issues;
- Sustainable and responsible fisheries;
- Ballast water management.

The focus topic ‘marine food security’ as part of human security was revealed as important for the Asia-Pacific region and the needs for further training activities were confirmed. UNITAR has therefore decided to work on this topic in the future. The third training workshop of the Series on Sea and Human Security, tentatively planned in late September 2006, will pursue this topic. Based on the evaluation and suggestions provided by the resource persons and participants, more focus on food security will be sought, and a longer and more comprehensive session on this topic will be set on the first day of training. For this purpose, UNITAR will consult with its resource persons and the United Nations organization in charge, the Food and Agriculture Organization (FAO). Changes in the format of the team exercise as well as in the choice of presentation topics will be further re-considered and refined in the 2006 training workshop.

Along with its overall effort in training methodologies development and Training of Trainers (ToT), UNITAR will provide assistance to training participants willing to organize country or sub-regional level training activities. It also plans to create a module on training methodologies applied and refined by the Hiroshima Office from 2003 to 2006.

A thorough evaluation for the first cycle of the Series (2003-2005) and planning for the second cycle (2006-2009) will also be conducted after the 2006 training workshop. Partners and UNITAR alumni are therefore requested to provide further guidance and information to improve the Series.

Hiroko Nakayama, Geneva
Chris Moore, Hiroshima
October 2005

