PICES/MAFF PROJECT ON "*MARINE ECOSYSTEM HEALTH AND HUMAN WELL-BEING*"
REPORT OF THE FIRST INTERNATIONAL WORKSHOP
March 13–14, 2013, Jakarta/Karawang, Indonesia

1. BACKGROUND

In 2012, PICES started a 5-year project "*Marine ecosystem health and human well-being*", funded by the Ministry of Agriculture Forestry and Fisheries of Japan (MAFF), through the Fisheries Agency of Japan. The overall goal of the project is to identify the relationships between sustainable human communities and productive marine ecosystems in the North Pacific under the concept of fishery social–ecological systems (known in Japan as the "*Sato-umi*" fisheries management system). Considering that global changes are affecting both climate and human social and economic conditions, the project is expected to answer the following key questions: a) how do marine ecosystems support human well-being? and b) how do human communities support sustainable and productive marine ecosystems? The project is directed by a Project Science Team (PST), co-chaired by Dr. Mitsutaku Makino (Fisheries Research Agency, Japan) and Dr. Ian Perry (Department of Fisheries and Oceans, Canada.

Based on the decisions made at the first PST meeting (October 11, 2012, Hiroshima, Japan), the PICES-MAFF project would involve holding two workshops in developing countries in three regions of the North Pacific (Southeast Asia, Pacific oceanic islands, and Central America). Indonesia was selected because of its large population and aquaculture-intensive industry. Palau was chosen because of its focus on the finfish capture fishery and its existing networks of community-based fisheries. Guatemala was selected because its coastline features an upwelling system favourable for the finfish fishery and aquaculture. This report is on the first workshop held March 13–14, 2013, in Jakarta, Indonesia.

2. GEMPITA-SPL CONCEPT IN INDONESIA

The Indonesian Agency for the Assessment and Application of Technology (BPPT) has developed a concept of managing coastal and marine resources by actively involving the community. This Indonesian concept is called GEMPITA-SPL (Gerakkan Masyarakat Peduli Kelestarian Sumberdaya Perikanan, Pesisir dan Laut) or, in the English language version, as SFiCoMS (Sustainable Utilization of Fisheries, Coastal and Marine Resources for the Society). The GEMPITA-SPL or SFiCoMS concept has been implemented in the northern coastal area of Java Development Activities in West Java (GAPURA) by BPPT and the local Department of Fisheries and Marine Affairs through the development and promotion of environmentally friendly aquaculture technology called Integrated Multi-Trophic Aquaculture (IMTA). This approach features concepts of bio-recycling in idle and/or marginal brackish water ponds of the northern coastal area of West Java. By applying this concept, the coastal environment which has been heavily damaged by shrimp monoculture can be recovered to become more biodiverse and productive, leading to the improved welfare of local communities. The GEMPITA-SPL concept fits very well within the framework of fishery social-ecological systems in the PICES/MAFF Project.

3. OUTLINE OF THE WORKSHOP

The first PICES/MAFF project workshop was held in March 13–14, 2013, and was attended by 93 participants from Indonesia, Japan, and the USA. Indonesia was represented by the Ministry of Marine Affairs and Fisheries, Ministry of Research and Technology, Ministry of Environment, Ministry of Public Works, Coordinating Ministry for the Economy, Finance and Industry, Coordinating Ministry for People's Welfare, Ministry of Development of Disadvantaged Areas, Ministry for National Development Planning, Food Security Agency of the Ministry of Agriculture, Bandung Institute of Technology, Bogor Agriculture University, and local governments.

The objectives of the workshop were:

- To develop the contents of a manual that will describe GEMPITA-SPL/SFiCoMS and GAPURA experiences in Java Province according to local conditions at some candidate sites;
- To assess the utility of PICES' scientific tools for enhancing the human well-being of local communities and for rehabilitating coastal ecosystem at some candidate sites.

Fig. 1 Dr. Mitsutaku Makino at the workshop opening.

Fig. 2 Panel discussion including participation by Drs. Masahito Hirota (far left) and Mark Wells (center).

The first day of the workshop (March 13) was spent at the Main Commission Hall of BPPT's Headquarters in Jakarta. It was started with a welcome by Ms. Nenie Yustiningsih (Director of the Center for Agricultural Production Technology of BPPT), followed by the opening remarks and introduction by Dr. Makino (Fig. 1). The keynote presentation was made by Prof. Tetsuo Yanagi (Kyushu University, Japan). The opening of the workshop was formally announced by Dr. Listyani Wijayanti (Deputy Chairman of BPPT).

A total of 10 presentations were given during the meeting (see draft workshop agenda in Appendix 1). Dr. Mark Wells (University of Maine, USA; Fig. 2) described previous activities of PICES in Indonesia and suggested ways that PICES science can support GEMPITA-SPL. Dr. Masahito Hirota (National Research Institute of Fisheries Science, Fisheries Research Agency, Japan) talked about how PICES scientific tools can support the analysis of well-being in coastal societies.

The second day (March 14) featured a field trip to the Karawan area of West Java where BPPT has developed GEMPITA-SPL (Fig. 3). Participants visited Center for Brackishwater and Marine Culture of West Java Province and the National Center for Brackishwater Aquaculture to observe aquaculture ponds that applied the GEMPITA-SPL approach, and had discussions with local stakeholders (fishers, managers, *etc*.).

The workshop attracted serious attention from the Indonesian media, with many reports appearing in newspapers, on TV and internet news (Fig. 4).

Fig. 3 Field trip to the West Java area.

4. THE MAIN OUTPUTS FROM THE WORKSHOP AND THE NEXT STEPS OF THE PICES/MAFF PROJECT

Many important outputs have come from the workshop (March 13–14) and from discussions held the next day (March 15). The first output was a Letter of Intent (LOI; Appendix 2) between PICES and BPPT to recognize the benefits to their respective institutions of establishing an international link (Fig. 4). The second output was a draft list of parameters to evaluate GEMPITA-SPL performance (Table 1). In close coordination with Indonesian scientists, PICES scientists will support the assessment of these parameters in sample ponds where GEMPITA-SPL has been implemented. A third output was a table of contents developed for a GEMPITA-SPL manual to facilitate the dissemination of GEMPITA-SPL activities in Indonesia (Table 2). These main outputs will be discussed at the second PST meeting to be held June 11–12, 2013, in Holonlulu. Based on the advice and comments from this meeting, the second workshop will be held around March 2014.

In addition to this Indonesian study, the PICES/MAFF project will study a case in Guatemala in 2013, and in Palau in 2014.

Fig. 4 Media report about the LOI signing celemony by Dr. Makino and Dr. Listyani (BPPT Vice Chairman).

Table 1 Draft list of parameters to assess the performance of GEMPITA-SPL.

Aquaculture production parameter	Marine Ecosystem parameter	Social system parameters
1. Production (Number of species, Kg, Value). We have statistics. 2. Quality of aquaculture products: changes in size, and weight. 3. Costs of Production: costs for feeds, seeds, labor, operation costs. 4. Disease: shrimp-virus (see 2-7), # of dead. Fish-bacteria/pathogen (pending) Sellfish-toxins (pending) 5. Recovery of non-used ponds we can try 6. Other parameters?: origin of the seeds.	1. Dissolved Oxygen 2. Nutrient concentrations, chemical species, and ratios; Nitrate/nitrite and ammonium. P, Si 3. Water transparency 4. Phytoplankton abundance, and species composition 5. Bacteria abundance 6. Virus abundance 7. Sediment quality Pre-ASV, Post-ASV (Ion selective electrode) 8. Temperature and salinity	1. Number of employment (farmer, processers, distributers, retailers) 2. Multiple (synergy) effects (distribution, value chain, etc.) 3. Added values (production, processing, distribution) 4. Social Infrastructure (hospital, Health care, disaster protection (evacuation plan, hazard map), Information system (IT), etc.) 5. Industrial Infrastructure (fish Market and Supply chain) 6. Education system (Technical skill, food security, processing, etc.) 7. Average/range of Income (farmer, processers, distributers, retailers)

Table 2 The contents of GEMPITA-SPL Manual (Ver. 1).

Executive Summary
1. Introduction for the concept of GEMPITA-SPL
   S1 Concept of Sato-umi (by Prof. Yanagi)
   S2 Concept of Gempita (by Dr. Suhendar)
2. Why we need Gempita (the expected outcome from Gempita to ecosystem and community)
   S1 Ecological system perspective
   S2 Social system perspective
3. How to introduce Gempita (technical how-to)
4. How to assess the effectiveness of Gempita (scientific assessment how-to)
5. Conclusion

Glossary

Appendix 1 Draft Agenda for the First Indonesia Workshop

Agency for the Assessment and Application of Technology	North Pacific Marine Science Organization	Fisheries Research Agency of Japan

DRAFT AGENDA

INTERNATIONAL WORKSHOP ON SATO UMI-GEMPITA SPL-GAPURA

(A New Concept and Model for Sustainable Fisheries, Aquaculture and Coastal Management)

Jakarta, March 13–14, 2013

Organized by BPPT Indonesia, PICES/MAFF, Fisheries Research Agency of Japan

March, 13: First Comission Room BPPT Bld.II 3rd Fl -JL. M.H.Thamrin No. 8 Jakarta 10340

Schedule	Agenda	Speaker
08.30-09.00	Registration	
09.00-09.05	Opening	MC
09.05-09.15	Report and welcome remarks	Director of Centre for Agriculture Production Technology-BPPT
09.15-09.25	Welcome Remark	Deputy Chairman for Biotechnology and Agroindustry Technology-BPPT
09.25-09.45	Opening Remark and introduction of the workshop	M.Makino (FRA-Japan)
09.45-10.15	Keynote Speech of Sato Umi	Prof. T. Yanagi (Kyushu University)
10.15-10.25	Keynote Address and Opening Workshop	Chairman of BPPT
10.25-10.45	MOU, Group photos, Press Release etc	
10.45-11.00	Coffee Break	
Session 1		
Chairman		M. Husni Amarullah (BPPT)
11.00-11.15	Harmonization between local wisdom and new technology on the fisheries and coastal management.	Antropologist (Univesity) will be decided
11.15-11.30	Coastal restoration and rehabilitation programme to support aquaculture development in Indonesia	Director General for Marine Coastal and Small Islands, Ministry of Marine Affairs and Fisheries-INA
11.30-11.45	Aquaculture Development in the Coastal Area	Director General of Aquaculture- Ministry of Marine Affairs and Fisheries-INA
11.45-12.00	Infrastructure Support in the Coastal Area	Director General of WaterResources, Ministry of Public Works-INA
12.00-12.20	Discussion	
12.20-13.00	LUNCH BREAK	
Session 2		
Chairman		Prof. T. Yanagi-Kyushu University
13.00-13.20	Sato Umi, GEMPITA-SPL/SFiCOM- GAPURA Programme in Indonesia	Suhendar I Sachoemar (BPPT, INA)
13.20-13.40	Past PICES's activities Supproting GEMPITA-SPL- SFiCOM and GAPURA in Indonessia	Vera Trainer (NOAA, USA), Mark Wells (Maine System Univ., USA), Charlie Trick (Western Univ., Canada)
13.40-14.00	Well-being analysis for Sato-Umi in Indonessia	Masahito Hirota (FRA, Japan)

14.00-14.20	Ecosystem Modeling of Breackishwaterpond	Susanna Nurjaman (Bandung Institute of Technology, INA)
14.20-15.00	Discussion	
15.00-15.30	Coffee Break*	
Session 3		
Chairman		Suhendar I Sachoemar (BPPT)
15.30-15.45	Status and Problem of the Coastal and Fisheries Resources Management of West Java Province	Head of the Department of Marine and Fisheries in West Java Province
15.45-16.00	Status and Problem of the Coastal and Fisheries Resources Management of Bantaeng Region-South Sulawesi Province	Regent of Bantaeng – South Sulawesi Province
16.00-16.15	Status and Problem of the Coastal and Fisheries Resources Management of Tanah Bumbu Region–South Kalimantan Province	Regent of Tanah Bumbu – South Kalimantan Province
16.15-17.30	General Discussion, Summary and Action Plan Lauch of Sato Umi Activities	M.Makino (FRA-Japan) Suhendar I Sachoemar (BPPT), Prof. T. Yanagi (Kyushu University), M. Husni Amarullah (BPPT)
17.30-17.45	Closing	MC
18.30-21.00	Dinner	

*Special meeting for the leader of local government (West Java, Bantaeng, Tanah Bumbu)

March 14: Field Trip to Karawang (Center for Breackishwater Aquaculture)

Schedule	Agenda	Speaker
06.30-09.30	Heading to Karawang	OC and Participant
Chairman		M. Husni Amarullah (BPPT)
09.30-09.45	Welcome Address	Head of Center for Breackishwater Aquaculture
09.45-11.15	Field Trip at Center for Breackishwater Aquaculture	Head of Center for Breackishwater Aquaculture
11.15-11.30	Heading to Center for Breackishwater and Marine Culture of West Java Province - Karawang	OC and Participant
Chairman		Suhendar I Sachoemar (BPPT)
11.30-11.45	Welcome Address	Head of Center for Breackishwater and Marine Culture of West Java Province - Karawang
11.45-13.15	Field Trip at Center for Breackishwater and Marine Culture of West Java Province - Karawang	OC and Participant
13.15-14.15	LUNCH BREAK	
14.15-16.45	Discussion with local leader of the northern coastal area of west Java communities, Summary and Action Plan Lauch of Sato Umi Activities	M.Makino (FRA-Japan) Suhendar I Sachoemar (BPPT), Prof. T. Yanagi (Kyushu University)
16.45-17.00	Closing	
17.00	Return to Jakarta	OC and Participant

March 12 : Preliminary meeting at Sari Pan Pacific Hotel 08.00 pm.
March 14 : Wrap up meeting on the Bus 17.00-20.00
March 15 : Wrap up meeting at BPPT in 01.00 pm

Appendix 2 Letter of Intent between PICES and the Agency for the Assessment and Application of Technology

Agency for the Assessment and Application of Technology

North Pacific Marine Science Organization

LETTER OF INTENT

Between

AGENCY FOR THE ASSESSMENT AND APPLICATION OF TECHNOLOGY (BADAN PENGKAJIAN DAN PENERAPAN TEKNOLOGI / BPPT)

And

North Pacific Marine Science Organization (PICES)

Concerning

THE DISSEMINATION OF "SATO-UMI" GEMPITA-SPL/SFiCoMSCONCEPT IN INDONESIA

1. The Agency for the Assessment and Application of Technology (Badan Pengkajian dan Penerapan Teknologi/BPPT) and the North Pacific Marine Science Organization (PICES), hereinafter referred to as the "Parties", enter into this Letter of Intent (LOI) by recognizing the benefits to their respective institutions from the establishment of international links.

2. In the spirit of better and responsible management of global earth resources utilization, and in order to enhance the economic situation of the people and the region's sustainability, through *wisdom harmonization of science and technology – natural resources and environment – humans*, which is getting urgent to implement in Indonesia, BPPT and PICES agree to promote the dissemination of the "Sato-Umi" concept in Indonesia, through the PICES/MAFF Project on "*Marine Ecosystem Health and Human Wellbeing*".

3. The LOI implementation will be followed by the preparation of an Agreement on Development Research Co-operation within 6 (six) months from the signing of the LOI.

4. The LOI shall be in effect until March 31, 2017, or otherwise terminated in writing with at least one month's advance notice of the intention of termination by the Parties.

The LOI shall be executed in two (2) copies in English, both Parties will retain one copy each.

Jakarta, _____

(Signature) _____
(Name)

Deputy Chairman of BPPT
For Agroindustry and Biotechnology

(Signature) _____
(Name)

Representative of PICES

Alexander Bychkov
Executive Secretary

Mitsutaku Makino and Ian Perry
PI of the PICES/MAFF Project on
"Marine Ecosystem Health and Human Well being"