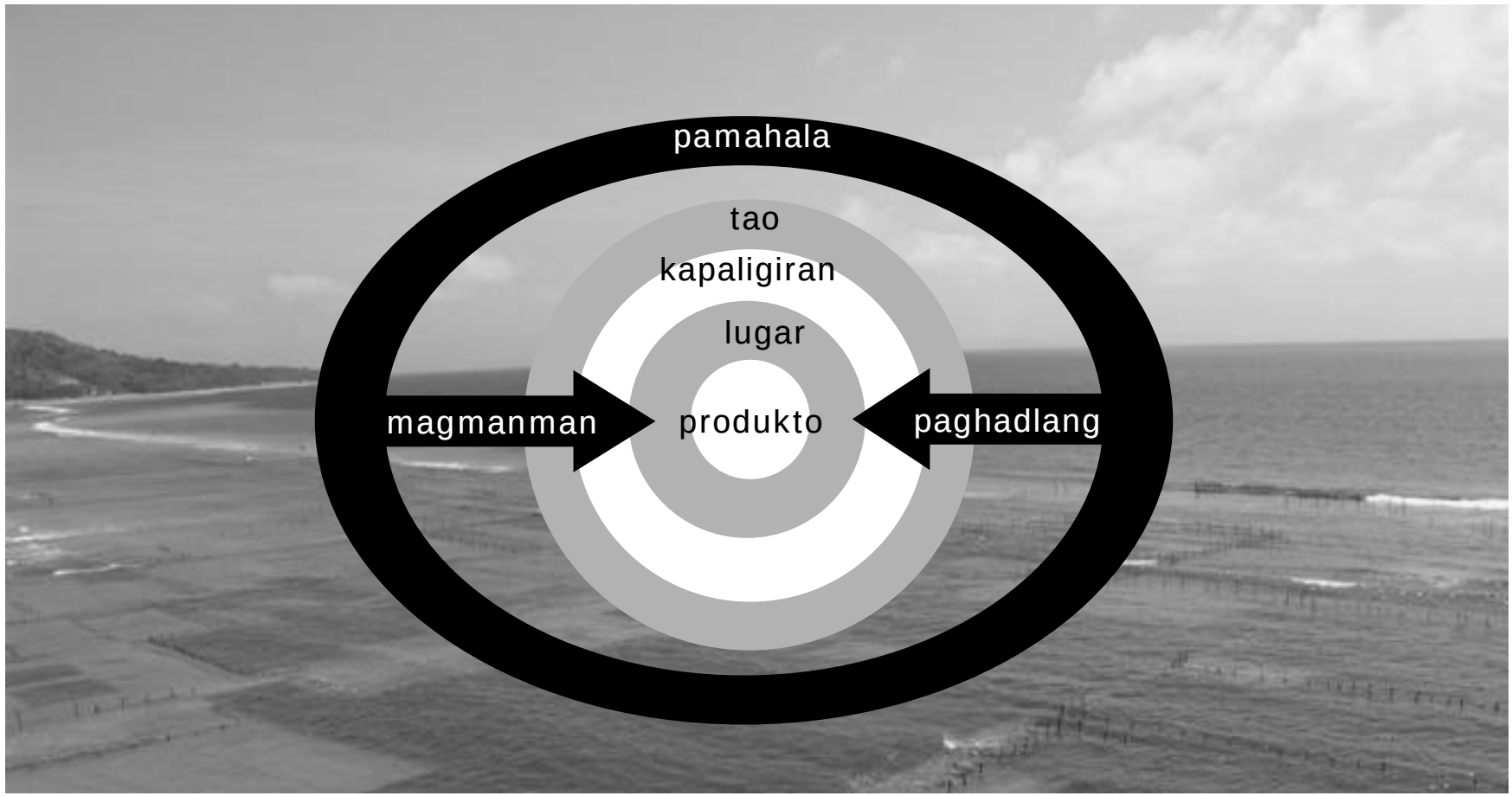
Mabubuting Gawi ng Akwakultura para ‘*Cottonii*’ at ‘*Spinosum*’



Inilathala ng SEAPlant.net para sa pagsasanay sa ilalim ng
East ASEAN Initiative Business Development Services Project (EAI-BDS)
January, 2009

Nilalaman, pangkalahatang pananaw, talahuluganan, at babasahin prara Mabubuting Gawi ng Akwakultura para *'Cottonii'* at *'Spinosum'*

Kasama na ang pangkalahatan pananaw ng biyolohiya

PREAMBLE

This series of monographs expand upon *The Eucheuma Seaplant Handbook Volume I : Agronomics, Biology and Crop Systems* (SEAPlantNet Technical Monograph No. 0505- 10A; ISBN 979 99558 0 7).

The modules in this series have been prepared by SEAPlant.net Foundation specifically for use as training materials during the East ASEAN Initiative – Business Development Services Pilot Project (EAI-BDS). This was done under a subcontract to INDONESIAN INTERNATIONAL RURAL AND DEVELOPMENT FOUNDATION (INI RADEF) in their capacity as the legal holder of Contract No. 43890 with the Commonwealth of Australia as represented by the Australian Agency for International Development (AusAID).

The materials contained in the present series of training modules had their origins with materials developed by SEAPlant.net Foundation (SPNF) when it was an initiative of IFC – Advisory Services under the PENSA I program that ended its five year term in June, 2008. During jointly funded work involving the PENSA program and GTZ (Deutsche Gesellschaft für Technische Zusammenarbeit (GTZ) GmbH. it became clear that an integrated, ongoing and readily accessible body of information was necessary to facilitate and catalyze the development of seaweed farming as a component of integrated multi-trophic aquaculture (IMTA) in the BIMP-EAGA region in particular and in the Coral Triangle in general. GTZ therefore joined with SPNF to develop *A Practical Guide to Quality Assurance, Governance Systems and Good Practices for Tropical Seaweed-to-Carrageenan Value Chains with focus on developing harmonization and transparency in the BIMP-EAGA region of ASEAN in the Coral Triangle* (SEAPlant.net Monograph no. HB2D 1108 V1 GTZ). The practical guide provided a tool for negotiating the tangled web of rules, regulations, standards, tests and other requirements that increasingly make life complicated for industry stakeholders whether they be seaweed farmers, processors or end-users.

One of the objectives of the Practical Guide is to bring about the development of harmonized Good Agronomy Practices (GAP) for seaweed farming within the region. The present Series of training modules is based on these developing GAP.

Regulations and standards for the aquaculture industry are at an early stage of development. Those for the specialty chemicals businesses are in a constant state of change and comprehensive standards for carrageenan and agar in the BIMP-EAGA region have yet to be adopted although draft standards are under development. Consequently this is a "living document" that is being updated periodically.

Iain C. Neish, January, 2009, Makassar, Sulawesi Selatan, Indonesia

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NILALAMAN NG PAGSASANAY

NILALAMANG NG PAGSASANAY (KARUGDONG)

Module 7. Crop growth and yields

7.1. Paglaki at dami ng pananim
7.2. Paglaki at dami ng pananim
7.3. Kabuuang puhunan para sa taniman ng *Eucheuma*
7.4. Kabuuang puhunan para sa taniman ng *Eucheuma*
7.5. Iba-ibang gastos para sa taniman ng *Eucheuma*
7.6. Halimbawa ng pinansyal na pagpalagay para sa isang simpleng taniman

Module 8. Mga tamang hakbang sa pagtago ng tuyong halamang-dagat

8.1. Pangkalahatang-ideya ng pagpapatuyo
8.2. Pangkalahatang-ideya ng pagpapatuyo
8.3. Paglilinis at muling pagpapatuyo
8.4. Maling gawain ang paglalagay ng asin
8.5. Balangkas ng kurso ng “post-harvest treatment” (PHT) 8.6. Mga Natutunan 1
8.7. Mga Natutunan 1 (karugtong)
8.8. Mga Natutunan 2
8.9. Mga Natutunan 2 (karugtong)
8.10. Mga Natutunan 3
8.11. Mga Natutunan 3 (karugtong)

Module 9 “Basic Book-keeping” para sa mga “Seaweed Farmers”

9.1 Bakit kailangan ang pagtatala o “book-keeping?
9.2 “Posting”
9.3 Mga nilalaman ng “posting ledger”
9.4 Halimbawa ng “posting daily records”
9.5 Pagkuha ng “Profit and Loss” (P & L)
9.6 Profit and loss (P & L) statement
9.7 Paggawa ng iyong balance sheet
9.8 Halimbawa ng balance sheet
9.9 Pagsusuri ng sistema ng pagtatala

Isang reperensyang listahan ng mga nasasakang tropikong halamang-dagat na pula

Itong dokyumento ay na-ayos ayon sa alpabeto para sa mga sunod-sunod na pagsasanay

Magagandang Kasanayan sa Akwakultura ng *Cottonii* at *Spinosum* Kasama ang saligan biyolohiya

Talahuluganan A-G

ADB - Asian Development Bank

Agar – isang 'galactan biopolymer' na nakukuha sa mga pulang halamang-dagat gaya ng *Gracilaria, Gelidium* at *Gelidiella*.

Agronomics (marine) - The art or science of managing marine habitats for production of seaplant crops

'Apical' – mga maliliit at matulis na parte ng sanga sa dulo

ATC – 'Alkali-treated cottonii chips'

AusAID - Australian Agency for International Development

'Axenic' - purong 'culture', na walang bahid ng mikrobyo

'Basal' – nakikita sa baba ng mga sanga na may matatandang 'cells'

'Biopolymer' – mga timplada na may matataas na 'molecular weight' na nabubuo ng mga buhay na organismo

BIMP-EAGA – Brunei, Indonesia, Malaysia Philippines East ASEAN Growth Area

'Callus' – mga tisyu na nabubuo pagkatpos mahiwa ang mga sanga-sanga

'Carpospore' – mga 'cells' (2N) na galing sa 'carposporophytes' at ito'y nabubuhay sa loon ng 'mother plants'

Karaginan - isang 'galactan biopolymer' na nakukuha sa mga pulang halamang-dagat gaya ng *Kappaphycus, Eucheuma, Betaphycus, Gigartina,* at *Chondrus*.

'Cisternae' – deposito o panahod sa tubig ng tisyu ng halaman

'Clone' – isang grupo ng organismo na galing sa isang katauhan

'Conjugate' - Fusion of two one celled organisms for reproduction where fertilization occurs

Coral Triangle – ito'y binubuo ng East Malaysia, Philippines, Indonesia, Timor Leste, Papua New Guinea and Solomon Islands

'Cortex' – pinaka labas na suson na may kulay ng isang halamang-dagat

Cottonii – *Kappaphycus* spp.

Cultivar – isang 'clone' na galing sa 'vegetative propagation' ng isang halamang-dagat.

DES – 'Dried Eucheuma Seaplants'

'Dioecious' – isang organismo na may lalake at babaeng 'reproductive structures' na magkahiwalay na halamang-dagat

'**Diploid'** – may 2 magkaparehong 'complements of chromosomes'

DKP - Dinas Kelautan dan Perikanan (Indonesian Department of Oceans and Fisheries)

EAI - East ASEAN Initiative of AusAID

ES - Eucheuma Seaplant (s)

'End-user' – negosyong gumagamit ng alinman sa sumusunod: 'ingredient building-blocks' o 'ingredient solutions' na binibili ng pakyawan o tingi

Eucheuma - "spinosum" sa pangangalakal; may iota karaginan.

***Eucheuma* seaplants** – *Betaphycus, Kappaphycus* at *Eucheuma*

FAO – 'United Nations Food and Agricultural Organization'

'Frond' – sanga ng isang halamang-dagat

'Furcellaran' - isang 'galactan biopolymer' na nakukuha sa mga pulang halamang-dagat *Furcellaria* spp.

'Further processor' – negosyanteng namimili ng 'building blocks' at may ginagawang karagdagan sa kadalisayan

'Gamete' - Mature haploid reproductive cell capable of fusion with another gamete to form a diploid nucleus

'Gametophyte' - Life cycle stage in many plants and algae; individual plant composed of haploid cells that produce gametes

GAP – 'Good Agronomic Practices'

'Germinate' – pagsibul

GMP – 'Good Manufacturing Practices'

'Golgi body' –mga hugis lambat sa loob ng 'cytoplasm' at ito'y pook ng 'biopolymer synthesis'

'Gonimoblast' - filamentos na namumula sa 'egg cell' hanggang sa 'carposporophytes'

GTZ - Deutsche Gesellschaft für Technische Zusammenarbeit (GTZ)

Talahuluganan H-U

'Habituate' – bumabagay

'Haploid' – may isang 'complement of chromosomes'

IBB – 'Ingredient building-blocks' – produktong nakukuha sa isang 'raw material' at pwedeng ipagtinda sa mga 'processors' o kaya sa mga 'solution providers'.

IFC – AS - International Finance Corporation – Advisory Services

IFC-PENSA - IFC Small Business Development in Eastern Indonesia

IMTA - Integrated Multi-Trophic aquaculture

Katutubo – nagsasaad ng isang lugar na may saliring katutubo

JaSuDa – Jaringan Sumber Daya (Source Net), a program of SEAPlant.net.

Kappaphycus - "cottonii" sa pangangalakal; may kappa karaginan

'KITS' - Knowledge + Information + Tools + Solutions

'Macrophyte' – mga halamang na nakikita sa mga mata ng tao

'Macroalga' – mga halamang-dagat na 'non-vascular' sa 'phyla' ng 'Chlorophyta', 'Rhodophyta' at 'Phaeophyta'; halamang-dagat na nakikita sa mata ng tao

Marinalg – World Association of Seaweed Processors (marinalg.org)

'Medulla' – suson na walang kulay na nakikita sa ilalim ng korteks

'**Microalga'** – mga halamang-dagat na 'non vascular' na masyadong maliliit na dindi makikita sa mata ng tao

'**Monoecious'** – mga organismo na may lalake at babae sa iisang 'individual'

'Morphology' – Forma at estruktura ng halaman

'**Pericarp'** – pinaka labas na parte ng isang hinog na magulang na halamang-dagat

'Phenotype' – panlabas na kaanyuan lamang A

'Phycocolloid' – isang Complex polysaccharide biopolymers (e.g. agar, alginates and carrageenan)

'Propagule' – isang putol ng halamang-dagat na pwedeng gamiting semilya sa pagtatanim.

'Protoplast' - Actively metabolising membrane-bound part of a cell (as distinct from the cell wall)

RAGS – red algal galactan seaweeds (includes eucheuma seaplants)

RC - Refined Carrageenan

'Rheology' – katutubong pagkahabihabi ng gel o solusyon

'Rhizoid' – parang mga ugat na pilamentos na ginagamit ng mga 'macroalga' sa pag-angkla sa mga matitigas na bato; ito'y bumubuo ng isang 'holdfast' balang

'Seaplant' – isang halaman sa dagat na kayang mag-potosintesis

'Seaweed' – pangkaraniwang pangalang ng mga halamang-dagat

SFDM - Salt free dry matter

SGR – 'Specific growth rate expressed in percent per day'

SIAP - Seaweed Industry Association of the Philippines

SPNF- Seaplant.net Foundation

Spinosum – *Eucheuma* spp.

SME - Small-medium enterprise

'Sporophyll' – mga estrakturang na nagbubuo ng 'reproductive cells' na tinatawag na 'spores'

'Sporophyte' – isang siklo ng buhay ng halamang-dagat na natatapos sa isang 'meiosis' para makagawa ng 'spores'

SRC – 'semi-refined carrageenan' (a.k.a. processed eucheuma seaweed, PES or E407a)

'Tetraspore' – isa sa mga apat na 'asexual spores' na nakikita sa 'tetrasporangium'

'Thallus' – buong kaanyuan ng isang halalmang-dagat na semilya

'**Uniseriate'** – isang hanay

USD - United States dollar

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