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IMPACT+

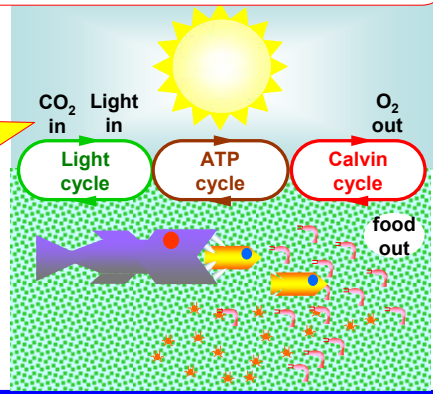
Coral Triangle Aquaculture: 3 OPPORTUNITIES FOR MARKETS IN CHINA

Photo: IMTA in Bali

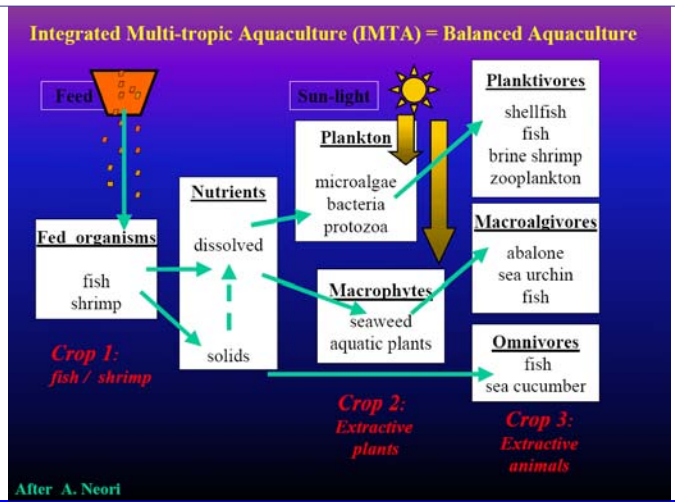
Seaplants… productivity base for a multi-billion dollar aquaculture industry

INDONESIA SUPPLY ➡ CHINA DEMAND

seaplant photosynthesis supports all life in the sea

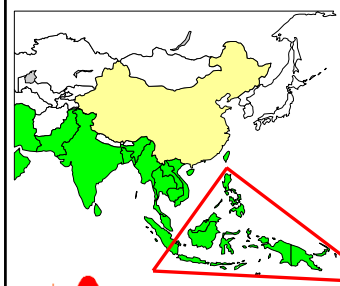


IMTA = Integrated Multi-Trophic Aquaculture



The Coral Triangle Opportunity

Comparative advantage for tropical IMTA



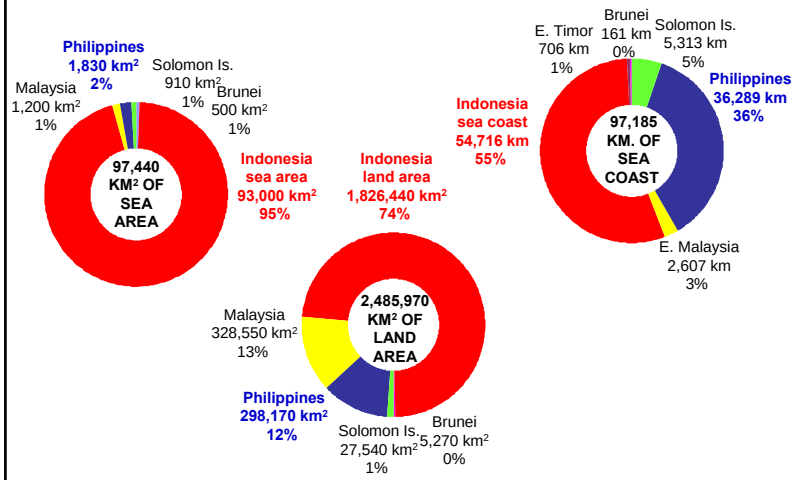
- ~ 100,000 km2 of sea area
- ~ 100,000 km of seacoast
- ~ 400 million people
- close to major Asian markets
- huge market opportunities
- especially in China

~ 60% of the world's tropical seacoast & coral reef

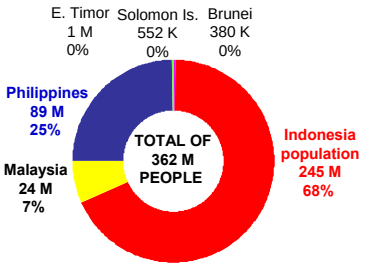
Indonesia… Heart of the Coral Triangle

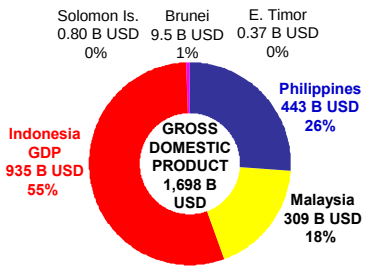
* East ASEAN includes BIMP-EAGA (Brunei, Indonesia, Malaysia, Philippines East ASEAN Growth Area) plus Nusa Tenggara

Coral Triangle Geography



Coral Triangle Demographics





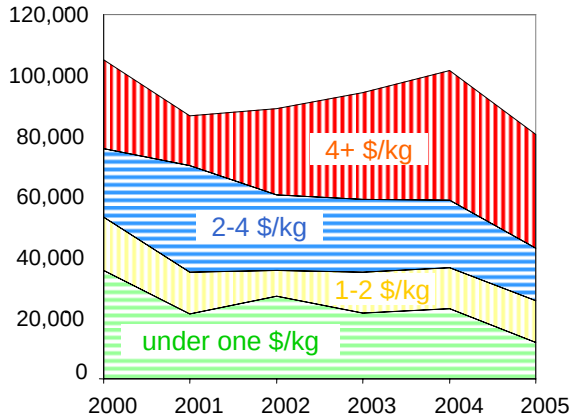
		Units	Brunei	East Timor	Indonesia	Malaysia	Philippines	Solomon Islands
GDP	PPP	B USD	9.53	0.37	935.00	308.80	443.10	0.80
	Real Growth	%	0.4	1.8	5.4	5.5	5.4	4.4
	Per capita	USD	25,000	800	3,800	12,700	5,000	600
Unemployment		%	4.0	N/A	12.5	3.5	7.9	N/A
Below poverty line		%	N/A	N/A	**17.8**	5.1	**40.0**	N/A
Labor force	Total	M	0.18	N/A	**108.20**	10.73	**35.79**	0.25
	Agriculture	%	2.9	N/A	**43.3**	13.0	**36.0**	75.0
	Industry	%	61.1	N/A	18.0	36.0	15.0	5.0
	Services	%	36.0	N/A	38.7	51.0	49.0	20.0

OPPORTUNITY # 1

Sell ingredient building blocks and ingredient solutions… not just raw seaweed !!

Most Philippine seaweed is now exported with value added

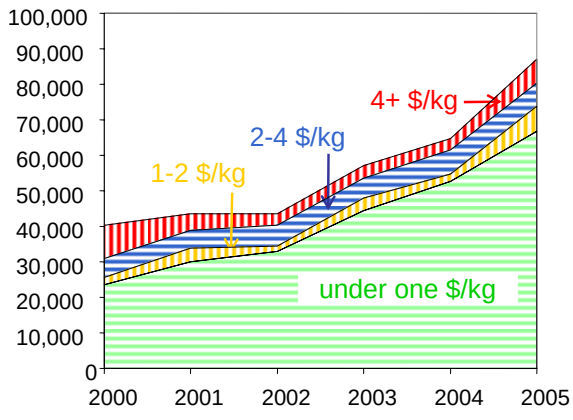
data show MT of seaweed converted to products traded at the indicated declared values



(SEAPlantNet data based on official sources)

Most of Indonesia's seaweed crop is still exported as raw weed

data show MT of seaweed converted to products traded at the indicated declared values



(SEAPlantNet data based on official sources)

Indonesian seaweed exports are growing but sales of value-added products are almost nil

COMPARISON OF PHILIPPINE & INDONESIAN DOMESTIC EXPORT DATA TO CHINA IMPORT DATA

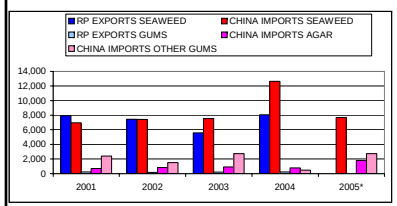
PHILIPPINES

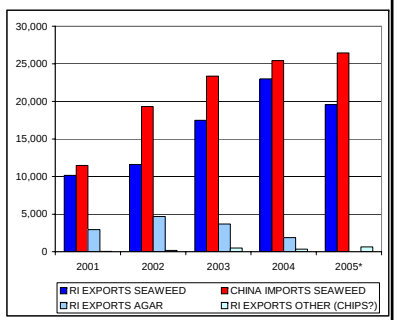
	2001	2002	2003	2004	2005*
RP EXPORTS SEAWEED	7,936	7,440	5,591	8,057	N/A
CHINA IMPORTS SEAWEED	*6,948*	*7,397*	7,525	*12,646*	7,677
RP EXPORTS GUMS	243	188	214	252	N/A
CHINA IMPORTS AGAR	700	810	920	800	1,802
CHINA IMPORTS OTHER GUMS	2,408	1,509	2,741	489	2,737
TOTALS	**18,235**	**17,344**	**16,991**	**22,244**	**12,216**

INDONESIA

	2001	2002	2003	2004	2005*
RI EXPORTS SEAWEED	10,172	11,611	17,467	22,999	19,581
CHINA IMPORTS SEAWEED	11,479	19,307	23,357	25,431	26,445
RI EXPORTS AGAR	2,939	4,695	3,682	1,883	0
RI EXPORTS OTHER (CHIPS?)	60	183	496	365	661
TOTALS	**24,650**	**35,796**	**45,002**	**50,678**	**46,688**

* 2005 SEAWEED DATA EXTRAPOLATED FOR FULL YEAR FROM DATA TO SEPTEMBER
* 2005 CHINA GUMS DATA THROUGH NOVEMBER - EXTRAPOLATED FOR FULL YEAR





OPPORTUNITY # 1

So… **how do we get China to buy "building blocks" and "solutions"…** not just raw weed from Indonesia??

OPPORTUNITY # 2

Sell seaplant nutrients…
do not throw them down the drain !!

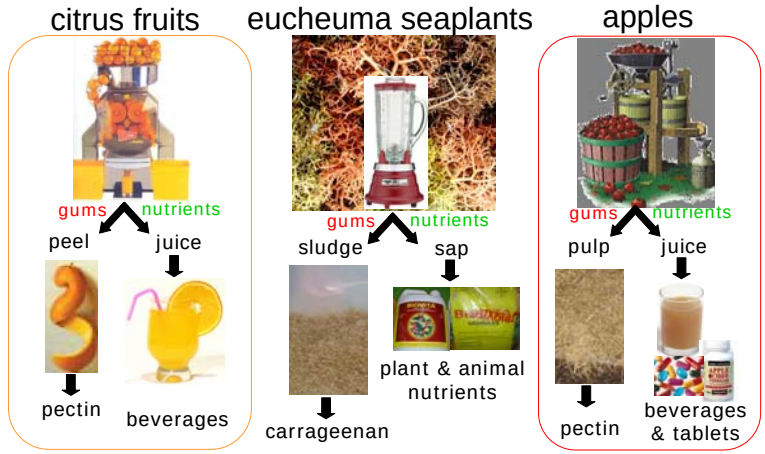
With “traditional” technology
1 ton carrageenan ≈ 1 ton nutrient solids
wasted… an effluent problem

Millions of dollars worth of valuable nutrients have been flushed down the drain

Moving forward means moving beyond “copycat” technology

- technology & product development have been stagnant for almost 30 years
- seaplant products tend to be specialty products such as ingredient building blocks & specialty foods
- progress will occur when the industry moves from “copy & follow” to “research & development”

Both “gum” and “nutrient” product streams become more feasible if live weed is used…



Live eucheuma seaplants are ~ 90% water, turgid and very friable

readily separated into "sap" & "sludge" fractions

~ 5 % of live weight is dry carrageenan concentrate and ~ 5 % is dry nutrient solids

Nutrient & gum fractions can best be separated at source… starting with live seaplants

- Lower labour & energy needs
- Low water requirement
- No effluent
- **Two value streams**

OPPORTUNITY # 2

China has a huge agriculture industry…

how will we market seaplant nutrients to China from Indonesia ??

OPPORTUNITY # 3

Build sustainable IMTA on a seaplant foundation

IMTA is already happening in thousands of Gracilaria + shrimp + fish ponds

IMTA is also being done with cottonii + oysters + finfish in cages

OPPORTUNITY # 3

China has a huge market for live tropical fish & other seafood… **how will we supply these from Indonesia ??**

IMPACT+

Integrated Multi-trophic Program for Aquaculture in the Coral Triangle + adjacent regions

SEAPlant.net working with Indonesian enterprises to develop IMTA opportunities

Yayasan **SEA**PlantNet

the South East Asia Seaplant Network

- Working with SME to build sustainable value chains for tropical seaplant products
- Catalyzing the development and introduction of “step change” technologies and management systems
- Building traceable, certifiable sources of ingredient building blocks for solution providers in global markets
- Building IMTA opportunities on a seaplant base

SEAPlant.net Mission

- To catalyze the development of **seaplants**
- as a **foundation** for
- integrated multi-trophic aquaculture (**IMTA**)
- and near-source **value** addition
- by linking **alliance** networks
- fostering **innovation** and
- implementing **business** systems that
- integrate tropical Asian **aquaculture** enterprises
- into sustainable **global** value chains.