Well-being analysis for Sato-Umi in Indonesia

Fisheries Research Agency JAPAN
Masahito Hirota
Fisheries Management Group
Well-being analysis for Sato-Umi in Indonesia — Today’s Contents —

- PICES MAFF IMTA project — Introduction — From the Social Science Approach (in Karawang)

- Social approach for Sato-Umi (Gempita) HWB Integrating analyzing tool to emphasis Local activities by Sato-Umi (Gempita)
Outline of PICES-MAFF funded Project

• “Sato-umi” means “High productive and bio-diversity of coastal area are realized by Human activities

⇒ Lets sharing this concept in Asia

• Case study: Indonesia, Guatemala
• Project: Advanced by FRA,PICES,BPPT
• Background:
The **Intensive shrimp aquaculture** was highly developed in **Karawang area** in the 90s. It led to **de-forestation + marine pollution + shrimp mass-diseases + pond abandon**.

• Serious environmental degradation and land erosions.
To introduce IMTA
(What should we do for improving this)

1. **<Ecological System>**
   - **Now**: monoculture of “Shrimp”
   - **Challenge**: Introducing the IMTA to pond culture
   - **Goal**: Zero emission + coastal stabilization

2. **<Social System>**
   - **Now**: Export to developed countries • Japan or
   - **Challenge**: Balance of Export + Local consumption
   - **Goal**: Local job creation, consumption, Well-being
Social Survey in Karawang
Outline of the first Field Research (2013)

Main flame of Social Approach
1 Mapping of the Commodity Chains
2 Identify the stakeholders
3 How to extend and choose suitable analyzing tools
4 Confirmation and looking for regarding statistics

Subjects of Field Research
• Fishers (Fishing and Pond owners)
• Traders $ Middleman (Collectors, relating distributors)
• Wholesalers and processors (in Karawang, Jakarta)
# Check List for field research (in Karawang)

<table>
<thead>
<tr>
<th></th>
<th>Fishing and Pond sector</th>
<th>Trader</th>
<th>Processors</th>
<th>Small processors</th>
<th>Rerated sector (Ice supplier)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operation &amp; Information</td>
<td>tool, gear flow...</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Labor</td>
<td>the number, salary...</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Skill and facility</td>
<td>What kind of...</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Quality requirement</td>
<td>How to keep</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Association</td>
<td>Role...function</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Finance</td>
<td>How to get</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Strategy</td>
<td>In future</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Satisfaction</td>
<td>Now and future</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>New entry &amp; migration</td>
<td>Condition...</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Image: How to extend this research

Survey

- Employment (number)
- Multi Effect (info exchange...)
- Added value (margin...)
- Social infra (facility...)
- Industrial infra (diversity...)
- Education sys (security, skill...)
- Income (money...)

Well-Being

- Security
  - Basic material
  - For good life
- Health
  - Good social relations
- Freedom of choice and action

Security
Health
Freedom of choice and action

Survey?
Interview Research
Looking an ordinary life and Local food
Looking the Local small Business
Looking the Industrial sectors
Next step: making Map of commodity chain and to Identify the stakeholders

For Local consumption (40-30%)

- Milk Fish
- Mussel
- Crab
- Tilapia
- Collector
  - Fresh fish
  - Fresh
  - Fresh and Dry
  - Dish
  - Peddling as Dish
  - Cottage
  - Local people
  - Cafe
  - Pasar

For Export (70-60%)

- Seaweed
- Shrimp
- Catfish
- Exporter <abroad>
- Fish meal (East Java)
- Market <City>
- Driver
  - Ager goods
  - Frozen / Filet
- Freezer
- Collector
  - 300g under
  - 300g up
  - via collector
  - 80%
  - 30%
  - 70%
## Necessity of Data collecting (Statistics)

<table>
<thead>
<tr>
<th>Statistics</th>
<th>Indonesia</th>
<th>Karawang</th>
</tr>
</thead>
<tbody>
<tr>
<td>pond aquaculture production (value and amount)</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Exvessel price</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>Fishing costs</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>Fishing subsidies</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>pond companies (number)</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>fishing effort (by gear type)</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>commercial fishers (numbers)</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>commercial fishers (demographic characteristics)</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>income of fishermen (absolute and relative to median)</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>processing plants (number by scale)</td>
<td>X</td>
<td>x</td>
</tr>
<tr>
<td>employment in fish processing</td>
<td></td>
<td></td>
</tr>
<tr>
<td>processed fish products (amounts)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>first wholesale value</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>value added</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>fishing households (number)</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>fishing villages/communities (number)</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>fishing ports (number)</td>
<td>X</td>
<td>x</td>
</tr>
<tr>
<td>health/contamination monitoring</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>per capita consumption</td>
<td>X</td>
<td>x</td>
</tr>
<tr>
<td>fish price to consumers</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>fish exports</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>fish imports</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>inventories of fish products</td>
<td>x</td>
<td>x</td>
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</tbody>
</table>
How to think for our HWB
Locality and Entrepreneur

Photo by Hirota (2014)
Sampling of potential needs by Cube Analysis

To making consensus among stakeholders

Sampling human desire in 35

35peace

Evaluating expectation & Satisfaction in 5 steps

Getting the multiple value
From the stakeholders
The CUBE has 27 Pieces but we use 35 Pieces for the purpose of getting completeness about human needs.

Did a survey on "35CUBE-Pieces" by rating criteria the level of expectation and satisfaction.
Identifying the Stakeholder’s needs (To make an AHP map)

1. AHP (Analytic Hierarchy Process)

   - Well-being
     - e.g. Family & community
       - C.I 0.00
       - $\lambda_{max}$ 2.00
       - (0.286)
     - e.g. More Income
       - (0.714)

   - Intensive
     - Poly culture
       - IMTA
       - (0.151)
     - (0.797)
     - (0.052)

2. Well-being cube analysis

   - “Questionnaire”
   - “Text mining”
   - “Free writing”

   e.g. Co-occurrence network
Preliminary AHP field research

**Questionnaire**

*“How important” when the vertical line element compare with the horizontal line element*

<table>
<thead>
<tr>
<th></th>
<th>STAGE1 Fitting Life with Nature</th>
<th>More Income</th>
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<tbody>
<tr>
<td>Loose Life with Nature Rhythm</td>
<td>1</td>
<td>0.2</td>
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<tr>
<td>More Income</td>
<td>1</td>
<td></td>
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<table>
<thead>
<tr>
<th>Q1</th>
<th>Q2</th>
<th>Q3</th>
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</thead>
<tbody>
<tr>
<td>[1]</td>
<td>[2]</td>
<td>[3]</td>
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<tr>
<td>[7]</td>
<td>[8]</td>
<td>[9]</td>
</tr>
</tbody>
</table>

Please circle the number of

- 1 = same level
- 2 = a little more important
- 4 = more important
- 7 = very important
- 9 = extremely important

Choose 2, 4, 6, 8 when you need these between number. When it isn’t important, you use the reciprocal.

**STAGE4**

<table>
<thead>
<tr>
<th></th>
<th>Intensive Culture</th>
<th>IMTA</th>
<th>Extensive Culture</th>
</tr>
</thead>
<tbody>
<tr>
<td>Loose Life with Nature Rhythm</td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Intensive Culture</td>
<td>1</td>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td>IMTA</td>
<td>1</td>
<td></td>
<td>5</td>
</tr>
<tr>
<td>Extensive Culture</td>
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<td>1</td>
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<th>IMTA</th>
<th>Extensive Culture</th>
</tr>
</thead>
<tbody>
<tr>
<td>More Income</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Intensive Culture</td>
<td>1</td>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td>IMTA</td>
<td>1</td>
<td></td>
<td>5</td>
</tr>
<tr>
<td>Extensive Culture</td>
<td></td>
<td>1</td>
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</tbody>
</table>

**1. Intensive farmer’s Ansewer**

- Well-being
- Loose life with nature rhythm
- IMTA (Polyculture) (0.000)
- Extensive (0.000)
- Intensive (0.000)

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Necessity of identifying social benefits

The parameter of social aspect

- Employment (number)
- Added value (margin...)
- Social infra (facility...)
- Industrial infra (diversity...)
- Education sys (security, skill...)
- Income (money...)

When each producing method changes

- Intensive
- Poly culture
- IMTA

How changes each production ratio

For Local consumption (40-30%)
- Milk Fish
- Mussel
- Crab
- Tilapia

For Export (70-60%)
- Seaweed
- Shrimp
- Catfish

Flowchart showing different stages of production and distribution, including:
- Collector
- Fresh fish
- Fresh
- Fresh and Dry
- Pasar
- Cafe
- Cottage
- Driver
- Freezer
- Market
- Exporter
- Fish meal (East Java)

Parameter of social aspect diagram:
- Necessity of identifying social benefits
- Intensive Poly culture IMTA
- For Local consumption (40-30%)
- For Export (70-60%)
- Milk Fish Mussel Crab Tilapia Seaweed Shrimp Catfish
System dynamics model – (Simulation Model)

Commodity chain Map

- Marketing
- Business distribution
- Price forming
- Demand & Supply
- Price
- Business Management

Identify beneficial choice (Local or Export)
Thank you for listening
In case of Japan: How to add value for Local Consumption
産地レポート ～ 生産者の声 ～

脇野沢の焼き干し…山崎幸男さん（むつ市）

下北のまさかり形の半島の下の方に脇野沢はある。この地域の暮らし、国有林であるヒバと江戸時代から続いてきたタラ漁。

タラはマダラ。毎年12月初旬に行われているタラの「場とり」は、海上に横一線に並んだ漁船が、合図の旗振とともに、各自の漁場をめざして一斉にスタートする。しかし、タラ漁も、近年は最盛期の半分ほどになってしまう。

焼き干しは、タラ漁と並び、脇野沢を代表する物産で、その美味しさは、地元の人たちは誇りに思っている。同じく山崎幸男さんも、その味を味わいながら、次世代へと続くことを願っている。
漁獲から加工販売までを一環生産！だから安心！湘南葉山しらすのゆうしげ丸

2014/11/04 14/11/04 7:33

今日は綺麗なシラスが獲れています。

ゆうしげ丸
葉山しらす情報

old→ 一覧表示
Handling for keeping high quality

Transferring the hardness

Better handling

usual

Better handling

Logistics

Along their routine and low cost operation
Handling for squid

Let's marketing 「LIVE」「Color」!

1. What is good quality for middlemen and consumers?

2. How should we handle it for good quality?

<table>
<thead>
<tr>
<th>各要素のレンジ（影響度）</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>外套色</td>
<td>0.6339</td>
</tr>
<tr>
<td>頭脚色</td>
<td>0.2134</td>
</tr>
<tr>
<td>眼色</td>
<td>0.6548</td>
</tr>
<tr>
<td>重複部の退色</td>
<td>0.6004</td>
</tr>
<tr>
<td>損傷・凹凸</td>
<td>0.4707</td>
</tr>
<tr>
<td>体表活動色</td>
<td>0.3243</td>
</tr>
<tr>
<td>紡錘形維持</td>
<td>0.7845</td>
</tr>
<tr>
<td>破断強度</td>
<td>0.3',28</td>
</tr>
</tbody>
</table>

酸素供給が絶たれ色素胞放射状筋細胞死亡

2017/7/6

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Handling for Giant scallop by oxygen

Let’s marketing by 「LIVE」

Oxygen (no water)

Blowing oxygen → 5 days live

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Thank you for listening