Processing cultured tropical sea cucumbers into export product: issues and opportunities

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Presentation overview

- The value of processed sea cucumbers
- Stages in processing - issues
- Pond-reared sea cucumbers vs wild sea cucumbers?
- Preferences of importers and dealers
- Fuel use for boiling sea cucumbers - issues
- New markets for creative processing - opportunities
- Training in processing sea cucumbers - opportunities
The value of processed sea cucumbers

- Value depends on:
  - Size of the animal
  - Condition of the animal (damage to body wall)
  - Quality of processing
- Value of sandfish is about US$5 to US$200+ per kg in Asian dried seafood markets
Price Variation: size and processing quality

Reseachable questions:
- When is it best to harvest sea cucumbers from ponds or sea ranching?
- In what situations could it be better to get experienced processors to transform the sea cucumbers into beche-de-mer?

Data source: Brown et al. (2010)
Source: Purcell & Kirby (2006)
Potential Stages in Processing

- Gutting
  - Blanche first then squeeze out guts
  - Cut across mouth
  - Small slit on underside of animal

- Salting (1 week)

- Boiling

- Removal of spicules from body wall
  - Soak in seawater vs Bury in sand overnight vs Pack in a wood box overnight vs Mix with Papaya leaves for 1 h
  - Brush off vs Remove by a automated mechanical process (industrial processing)

- Drying

- Re-boiling

- Re-drying
Case study – Vietnam: pros and cons of two approaches

Traditional approach

- Some buyers do salting at the pond if it takes several hours of transport.
- The buyers are often processors.

**Pros:**
- low cost at transport
- gives value-adding to community or farmer
- can apply with small and medium volume

**Cons:**
- low quality product

- cutting and degutting at the pond
- transfer to processing area (mostly nearby)
- salting them for a week
- boiling (using coal) for several hours
- sun-drying
- Transport dried product to exporter
Industrial approach:

cutting 2-3cm at the end of body + degutting → boil using industrial gas cookers (~ 30 to 45mins) → pack in salt → Transport firs-boiled product to factory (far away) → re-processing at the factory (far away)

**Pros:**
- high quality product

**Cons:**
- high cost of transport,
- removes value-adding from community or farmer,
- only worthwhile with big volume of sea cucumbers
Pond-reared sea cucumbers vs wild sea cucumbers?

Disadvantages of cultured sea cucumbers

- Body wall is considered by some to be thinner in pond-reared animals
  - In Vietnam, this is only for smaller animals – not a problem for larger ones

Advantages of cultured sea cucumbers

- Similar body size
- Big volume at one time – economy of scale for processing
- Can be processed quickly once removed from ponds – no deterioration in boats
Preferences of importers and dealers

- Some importers do not want smoked smell
- Some importers may prefer a different placement of the cut in the animals
- Salting (problem with too much)
Fuel use for boiling sea cucumbers – issues

- Wood as fuel may be an socio-ecological issue
- Mangrove wood is used in some places for boiling sea cucumbers
- Leads to deforestation of mangroves and loss of services that ecosystems offer to coastal livelihoods
- Issue: What fuel is best to promote to farmers/processors – which is socio-economically and ecologically compatible?
New markets for creative processing - opportunities

- Beche-de-mer is the dried form - easy for shipment and storage in markets
- Other processed forms are becoming more popular and easier to export
  - Boiled and canned whole sea cucumbers
  - Frozen
  - Boiled but undried sandfish – kept frozen (Japanese consumers)
- Some body parts of sea cucumbers are a delicacy and it may be more lucrative to process them separately and export as a separate product
  - Muscle bands
  - Epipharyngeal bulb (‘Flower’)
  - Intestine and gonads (e.g. Pacific Islands)
Processing sea cucumbers - opportunities

- When is it most economically effective to harvest pond-cultured or sea-ranching sea cucumbers?
- Which processing methods are most favoured by importers?
  - Cutting position, boiling time, smoking, salting
  - Voiding guts (in cage in pond) prior to processing to recover intestines and gonads (sandfish)
- Which processing methods are most cost-effective and environmentally responsible?
Opportunities for upgrading supply chains and value chains

- Determining the most cost-effective chain for processing and exporting sea cucumbers?
  - Is it better for the farmers or sea ranchers to just sell the fresh or salted sea cucumbers to an experienced processor who can process to a much better standard?
- Reducing the number of ‘middlemen’ in the supply chain.
  - How to link sea cucumber farmers and ranchers directly to exporters to shorten the supply chains and provide better prices.
- Reducing ‘information asymmetry’ in the supply chain – education to producers about markets and fair prices