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Seafood Ecolabelling

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Abstract

Ecolabelling, traceability and related certification schemes are becoming significant features of international fish trade and marketing. Ecolabels are "seals of approval" given to products that are deemed to have fewer negative impacts on the environment than functionally or competitively similar products. There are about 400 ecolabels concerning different products in operation in the world, of which nearly 50 are related to fisheries and aquaculture. Marine Stewardship Council (MSC), Friend of the Sea (FOS), KRAV and Naturland are some of the well-known third party certification and ecolabelling schemes in fisheries. The effectiveness and potential trade implications of ecolabelling programmes have been widely discussed. The adoption of ecolabelling schemes provide additional tools to move towards sustainability of capture fisheries and aquaculture and brings together elements of the market, industry, environmental interests and communities. Different ecolabelling schemes for seafood products and the benefits, issues and challenges in their adoption are briefly reviewed in this paper.

Keywords: Ecolabelling, traceability, seafood, fishery resource conservation

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Introduction

Ecolabels and related certification schemes are market based management mechanisms which are designed to influence the purchasing decisions of consumers and the procurement policies of retailers of fish and fish based products, and to reward producers using responsible fishing practices. They are "seals of approval" given to products that are deemed to have fewer negative impacts on the environment than functionally or competitively similar products and are becoming significant features of international fish trade and marketing (Deere, 1999; Wessells et al., 2001). Incentives for seeking certification of seafood products may include potential price and/or market share differentials (MRAG/IIED/Soil Association, 2000).

There are about 400 ecolabels concerning different products in operation in the world, of which nearly 50 are related to fisheries and aquaculture (NAAS, 2012). Though the impact of ecolabels is not uniform across markets, species or product types, their importance has been increasing in the context of ensuring food safety, quality and environmental sustainability (Washington & Ababouch, 2011). The effectiveness and potential trade implications of ecolabelling programmes have been widely discussed (Gardiner & Viswanathan 2004; European Environment Agency 2005; FAO, 2005; EU, 2007; FAO, 2008a; NE (Nordic Swan), 2008; Ward & Phillips, 2008; Washington, 2008; FAO, 2009a; 2009b; Thrane et al., 2009; Anon, 2000; FAO, 2010; Parkes et al., 2010; Sainsbury, 2010; FAO, 2011a; b; Potts et al., 2011; Silas et al., 2011; Washington & Ababouch, 2011; OECD, 2011; Big Room Inc. 2012; FAO, 2012; Gutierrez et al., 2012; NAAS, 2012, NACA, 2012). Different ecolabelling schemes for seafood products and the benefits, issues and challenges in their adoption are briefly reviewed in this paper.

Different categories of ecolabels

Deere (1999) has grouped seafood ecolabelling schemes into three main categories:

- First party ecolabelling schemes: This form of ecolabelling is usually a self declaration and is typically established by individual producers or resellers based on their own product standards and can cover criteria related to

specific environmental issues, food quality and health issues.

- Second party ecolabelling schemes: These are typically established by industry associations for members' products, and the criteria are determined by the organisation. Verification of compliance is normally conducted by certification procedures internal to the industry or association or by use of external certifiers.
- Third party ecolabelling schemes: These are usually created by organisations external to the relevant industry sector and therefore carry a perceived level of independence. The owner of the labelling scheme usually sets the criteria and awards a label to products that are independently verified through a certification process to comply with the criteria. Third party schemes are typically considered to be the most robust form of ecolabelling, because of the independence of the criteria and the verification process from commercial influences.

Based on the attributes used for certification, three different categories of ecolabels have been recognised (Chaffee et al., 2004; Thrane et al., 2009):

- Single attribute ecolabels which typically focus on the protection of one single species such as 'Dolphin Safe Tuna' label (Earth Island Institute, 2012)
- Resource oriented multiple attribute labels that focus on sustaining the reproductive capacity of fish stocks by limiting overfishing and adverse effects on marine ecosystem, such as MSC ecolabel (MSC, 2011)
- Multiple attribute eco-labels that focus on environmental aspects in the whole life cycle of the product, such as the Swedish 'KRAV' ecolabel (KRAV, 2011)

Ecolabelling schemes for seafood products

Ecolabelling schemes for seafood range from self certification at one end of the spectrum to third-party independent certification at the other end. A select list of seafood related ecolabelling schemes is given in Table 1. Marine Stewardship Council (MSC), Friend of the Sea (FOS) KRAV and Naturland are some of the well-known third party certification and ecolabelling schemes, in fisheries.

Marine Stewardship Council (MSC)

Marine Stewardship Council (MSC) was established in 1997, initially as a joint project between WWF and Unilever, but became an independent body since 1999. MSC focuses on wild capture fisheries. It claims that 10% of the world's edible wild capture fisheries are engaged in the programme (already certified or in full assessment), covering 9 million tonnes of seafood in all (MSC, 2011). MSC is a standard setting body. Certification to the MSC standard is carried out by independent, third-party, certifiers. MSC's Fisheries Assessment Methodology focuses on (i) an independent scientific verification of the sustainability of the stock, (ii) the eco-system impact of the fishery and (iii) the effective management of the fishery, on the basis of a range of indicators. The unit of certification can be an entire fishery or a component of a fishery. Where the client is a component of a fishery, the entire fishery and its management is still assessed in order to evaluate the impact of that sub-group. MSC adjusted its assessment model in the light of the development of the FAO Guidelines for the Eco-labelling of fish and fishery products from marine capture fisheries and conducts regular internal audits to ensure consistency with the FAO guidelines. Risk-based assessment models specifically adapted to data deficient fisheries are also being developed.

Friend of the Sea (FOS)

Friend of the Sea (FOS) was established in 2006 and has links to the Earth Island Institute, which is responsible for the Dolphin Safe label. The FOS has standards for wild capture fisheries and aquaculture fish and seafood products, including fishmeal. Friend of the Sea Criteria for Sustainable Fisheries requires (i) target stock to be not over exploited, (ii) fishery should not generate more than 8% discards, (iii) no bycatch of endangered species, (iv) no impact on the seabed, (v) compliance with regulations, (vi) social accountability and (vi) gradual reduction of carbon footprint (FOS, 2011). Their Sustainable Aquaculture Criteria requires (i) no impact critical habitat such as mangroves and wetlands, (ii) compliance with waste water parameters, (iii) reduction of escapes and bycatches to a negligible level, (iv) no use of harmful antifoulants, GMOs and growth hormones, (v) compliance with social accountability and (vi) gradual reduction of carbon footprint.

Table 1. Seafood related ecolabelling schemes

Sl. No.	Name and web address	Geographical range	Species covered
	Wild capture fisheries		
1.	Marine Stewardship Council (MSC) www.msc.org	Worldwide	All
2.	Friend of the Sea www.friendofthesea.org	Worldwide	All
3.	KRAV www.krav.se	Worldwide	All
4.	Naturland www.natureland.de	Worldwide	Salmonids, arapaima, milkfish, mussels, penaeid shrimp
5.	Australian Southern Rock lobster Clean Green Program www.southernrocklobster.com/ cleangreen	Australia	Rock lobsters
6.	Earth Island Institute (EII) www.earthisland.org/	Pacific Ocean	Tuna
7.	Ecofish www.ecofish.com	Worldwide	Crabs, spiny lobster, halibut, mussels, yellowfin tuna
8.	National Marine Fisheries Service http://dolphinsafe.gov	USA	Tuna
9.	Pacific Rivers Council www.salmonsafe.org	USA	Salmon
10.	RecFish Australia www.recfish.com.au	Australia	Species caught in recreational fishing tournaments.
11.	Royal forest and Bird Protection Society www.forestlandbird.org.nz/bestfishguide/index.asp	New Zealand	Wild-caught fish
12.	Flipper Seal Approval www.earthtrust.org/fsa.html	USA	Tuna
13.	FishWise, Santa Cruz, California, US www.fishwise.org	USA	Fish with Monterey Bay Aquarium's science-based rankings
14.	Sealord, New Zealand www.sealord.co.nz/	New Zealand	
15.	Marine Ecolabel, Japan www.melj.jp/eng/index.cfm	Japan	All
16.	IFFO Global Standard for Responsible Supply http://www.iffo.net/	Worldwide	Fish meal and oil
17.	Seafish Responsible Fishing Scheme - www.seafish.org/rfs/	UK	All
	Aquaculture		
1	Alter Trade www.altertrade.co.jp	Japan	Shrimp
2.	Australian Certified Organic www. australiancertifiedorganic.com.au	Australia	Fish, crustaceans, molluscs
3.	Aquaculture Certification Council (ACC)/ Best Aquaculture Practices/Global Aquaculture Alliance/Aquaculture Certification www. aquaculturecertification.org www.responsibleseafood.org www.gaalliance.org	Worldwide	Penaeid shrimp, salmon, tilapia, *Pangasius*, channel catfish, molluscs

4.	Agriculture Biologique (AB) (French Ministry of Agriculture)	France	Organic products
5.	Hong Kong Fish Farm Accreditation Scheme Organic Production www.hkaffs.org	Hong Kong	Farmed fish, fish fry
6.	Crianza del Mar (Espana) www.ipacuicultura.com	Spain	Good aquacultural practices
7.	Pêche responsable Carrefour France www.carrefour.org	Worldwide	Salmonids, penaeid shrimp, oysters
8.	Freedom Foods www.rspca.org.uk	UK	Salmon
9.	Tartan Quality Mark www.scottishslamon.co.uk	Scotland	Salmon
10.	Thai Quality Shrimp/Good Aquaculture Practice www.thaiqualityshrimp.com	Thailand	Penaeid shrimp, *Macrobrachium*
11.	Label Rouge www.aqualabel.fr/web/p266_label-rouge.html	France, Scotland, Madagascar	Seabass, oysters, salmon, turbot, *Macrobrachium* penaeid shrimp
12.	Shrimp seal of quality www.cdpbd.org/ssoq/ssoq_brief.htm	Bangladesh	Penaeid shrimp, *Macrobrachium*
13.	GLOBAL GAP Integrated Farm Assurance Standard; Aquaculture Base www.globalgap.org	Worldwide	Salmon, trout, tilapia, Pangasius, penaeid shrimp
14.	ISO 14001/Environmental Management System www.iso.org	Worldwide	Any species
15.	Safe Quality Food Institute www.sqfi.org	Worldwide	Any species
16.	Malaysian Aquaculture Farm Certification Scheme www.fishdept.sabah.gov	Malaysia	Penaeid shrimp, Macrobrachium, fish ornamentals, molluscs
17.	SIGES Fundacion Chile/CBPA www.orgfoodfed.com	Chile	Salmonids
18.	Naturland www.natureland.de	Worldwide	Salmonids, arapaima, milkfish, mussels, penaeid shrimp
19.	Soil Association Scotland, UK www.soilassociationscotland.org	Scotland, EU	Atlantic salmon, trout, shrimp
20.	National Association for Sustainable Agriculture www.nasaa.com.au	Australia	Fish, crustaceans
21.	Bioland www.bioland.de	Germany	Freshwater fish
22.	Bio-Gro www.bio-gro.co.nz	New Zealand	Fish, crustaceans, molluscs
23.	Bio-Suisse www.bio-suisse.ch	Switzerland	Fish
24.	KRAV www.krav.se	Sweden	Organic products
25.	Debio www.debio.no	Norway	Organic products
26.	Aquaculture Stewardship Council (ASC) www.ascworldwide.org	Worldwide	Abalone, bivalves, cobia, freshwater trout, pangasius, salmon, seriola, shrimp, tilapia
27.	EU organic http://ec.europa.eu/agriculture/organic/home_en	EU	Organic products

(Source: Ward & Phillips, 2008; Lee, 2008; Big Room Inc. 2012; NACA, 2012; NAAS, 2012; UNCTAD, 2012)

KRAV

KRAV is a long-standing Swedish organic label that has developed a standard for sustainable fishing and has later developed framework for the certification of capture fisheries. Assessment against that standard includes a stock assessment, certification of vessels, audits of fishing techniques and of landing and processing facilities to ensure traceability and chain of custody (KRAV, 2011).

Naturland

Naturland was established in Germany in 1982 to certify organic farming. It later included aquaculture in that scheme and more recently has added a scheme for certification of capture fishery projects, based on the basis of social, economic and ecological sustainability criteria.

Aquaculture Stewardship Council (ASC)

Aquaculture Stewardship Council (ASC) is an independent not for profit organisation founded in 2009 by WWF and IDH (Dutch Sustainable Trade Initiative) to manage the global standards for responsible aquaculture, which are developed by the Aquaculture Dialogues, a program of roundtables initiated and coordinated by WWF (ASC, 2011). The ASC is projected to be the world's leading certification and labelling programme for responsibly farmed seafood which will work with aquaculture producers, seafood processors, retail and food service companies, scientists, conservation groups and the public to promote the best environmental and social choice in seafood. The ASC's aquaculture certification programme and seafood label will recognise and reward responsible aquaculture. The ASC will offer standards for aquaculture and for the seafood chain of custody. The standards are being developed by the Aquaculture Dialogues in compliance with the guidelines for standard setting established by the International Social and Environmental Accreditation and Labeling Alliance (ISEAL). The certification according to these standards will be in the hands of independent, third-party accredited certifiers.

Management of ecolabelling schemes

In terms of their origin, the fisheries ecolabel schemes are promoted by (i) national and regional governments, (ii) retailers, (iii) the fishing industry and (iv) non-governmental organisations (NGOs).

The key factors that an ecolabelling scheme should address are (i) setting of standards, (ii) accreditation and (iii) certification (Fig. 1). The standards contain the requirements that a fishery must fulfil in order to be considered sustainable. Generally, a standard-setting body is established or a technical committee of independent experts and a consultation forum are established, for the purpose of setting of standards. The entire standard-setting process must be transparent and must take place in consultation with all stakeholders. The standards must also be reviewed on a regular basis. In this context, it is necessary to prevent the inclusion of requirements that are irrelevant to sustainability that may cause technical barriers to trade.

A separate independent specialist accreditation body is required to carry out accreditation of certification bodies. The accreditation body can be private or public. The accreditation body need to be separate and independent from all other actors in the ecolabelling scheme. Accreditation provides the assurance that certification bodies are competent to assess fisheries in accordance with standards and that the operations of accreditation bodies are open and transparent. Certification is carried out by accredited certification bodies. The certification body must retain competent staff members who have knowledge of the subject and must work independently and transparently.

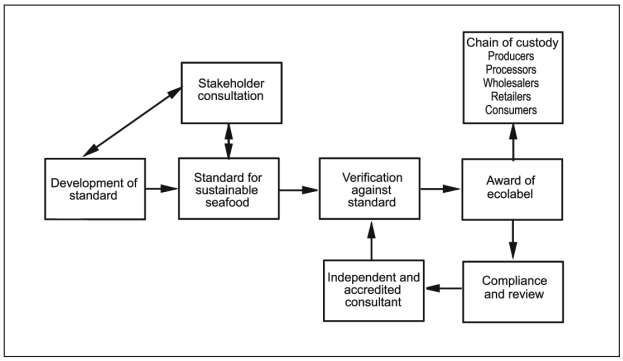

Fig. 1. A block diagram of the ecolabelling process

Traceability

After the awarding of an ecolabel to a product, a supply chain assessment is performed to ensure that the products from the certified operation are traced through processing and transport logistics to the shelf. Traceability, is defined as the ability to systematically identify a unit of production, track its

location and describe any treatments or transformations at all stages of production, processing and distribution (AMRL, 2005). According ISO (2005), traceability is the ability to trace the history, application or location of an entity by means of recorded identifications and forms an integral part of the ecolabelling schemes. In addition to its requirements in seafood ecolabelling schemes, the traceability system is necessary in the context of a number of regulatory and non-regulatory requirements such as in food safety and access to international markets. External traceability is the ability to keep track of what happens to a product, its ingredients and packaging in the entire or in part of a supply chain and internal traceability is the ability to track what happens to a product and packaging within a company or production facility (Petersen & Green, 2004). A number of initiatives have been undertaken nationally and internationally to address traceability information requirements for the seafood industry such as Tracefish in the European Union, Can-Trace in Canada and Young's Trace in UK (AMRL, 2005).

Costs and benefits of ecolabelling

Studies by Washington (2008) and Washington & Ababouch (2011) have identified the potential costs and benefits of ecolabelling of seafood products. Potential benefits identified include (i) access to new markets, (ii) consolidation or expansion of market share in existing markets, (iii) greater credibility, (iv) niche markets for environmentally friendly products, (v) improved management of fisheries resources and (vi) increased earnings through an anticipated price premium. Costs identified include (i) actual costs of certification including experts' fees, (ii) compliance costs related to adjusted management practices, data collection and record keeping, which is additional to existing government administrative requirements; and (iii) costs related to potential adjustments in fisheries management to meet sustainability criteria. Recent studies have indicated that the costs and benefits of ecolabelling and certification accrue differently to different stakeholders (Washington, 2008; FAO, 2011a; Washington & Ababouch, 2011). Retailers are the main drivers of the ecolabelling phenomenon and reap the most rewards in terms of value-addition to their brand and reputation, risk management, ease of procurement, and potential price premiums while the fishers assume the main cost burden relating to certification (Roheim & Seara, 2009; FAO, 2011a).

FAO Guidelines on ecolabelling

FAO has developed a set of guidelines for the ecolabelling of fish and fishery products from marine capture fisheries (FAO, 2005; 2009a), inland capture fisheries (FAO, 2010; 2011b) and aquaculture (FAO, 2008b; 2012).

Capture fisheries

The FAO guidelines are aimed at providing guidance to governments and organizations that already maintain, or are considering establishing, labelling schemes for certifying and promoting labels for fish and fishery products from well managed marine capture fisheries. Reliable, independent auditing, third party certification, transparency of standard-setting and accountability, standards based on good science are hallmarks of good ecolabelling schemes. FAO guidelines contain over 150 specific points which need to be addressed in an ecolabelling scheme. The guidelines, which are voluntary in nature, apply to ecolabelling programs focused on certification, and include principles, minimum substantive requirements and criteria, assessment, certification and governance. The guidelines were in tune with other international norms, standards and instruments such as those established by the International Organisation for Standardisation (ISO), the International Social and Environmental Labelling and Accreditation Alliance (ISEAL) and the World Trade Organisation (WTO).

The FAO guidelines prescribes that ecolabelling schemes should (i) be consistent with the 1982 United Nations Convention on the Law of the Sea (LOSC) and the Fish Stocks Agreement, the FAO Code of Conduct for Responsible Fisheries (FAO, 1995) and the World Trade Organization rules and other international instruments; (ii) recognise the sovereign rights of states and comply with all relevant laws and regulations; (iii) be of a voluntary nature and market driven; (iv) be transparent, including balanced and fair participation by all interested parties; (v) be non-discriminatory, do not create unnecessary obstacles to trade and allow for fair trade and competition; (vi) provide the opportunity to enter international markets; (vii) establish clear accountability for the owners of schemes and the certification bodies in conformity with international standards; (viii) incorporate reliable, independent auditing and verification procedures; (ix) be considered equivalent with other schemes, if they are consistent with these guidelines; (x) be based on

the best scientific evidence available, also taking into account traditional knowledge of the resources provided that its validity can be objectively verified; (xi) be practical, viable and verifiable; (xii) ensure that labels communicate truthful information; (xiii) provide for clarity; (xiv) be based on the minimum substantive requirements, criteria and procedures outlined in these guidelines.

The FAO guidelines also define the procedural and institutional aspects of ecolabelling scheme and require that (i) the fishery is conducted under a management system that is based on good practice including the collection of adequate data on the current state and trends of the stocks and based on the best scientific evidence; (ii) the stock under consideration is not over-fished and (iii) the adverse impacts of the fishery on the eco-system are properly assessed and effectively addressed. In terms of procedural and institutional aspects, an ecolabelling scheme should have provisions for (i) the setting of certification standards; (ii) the accreditation of independent certifying bodies and (iii) the certification that a fishery and the product chain of custody are in conformity with the required standard and procedures.

FAO Guidelines for Ecolabelling of Fish and Fishery Products from Inland Capture Fisheries was adopted on 27 May 2010 (FAO, 2010). These guidelines are applicable to ecolabelling schemes that are designed to certify and promote labels for products from well-managed inland capture fisheries and focus on issues related to the sustainable use of fisheries resources.

Aquaculture

FAO Technical Guidelines on Aquaculture Certification (FAO, 2008b) was approved by the Sub-Committee on Aquaculture in 2010 and approved by FAO Committee on Fisheries in February 2011. Minimum substantive criteria for developing aquaculture certification standards are provided for (i) animal health and welfare, (ii) food safety and quality, (iii) environmental integrity and (iv) social responsibility. The extent to which a certification scheme seeks to address the issues in all or some of these four areas depends on the objectives of the scheme, which should be explicitly and transparently stated by the scheme. Development of certification schemes should consider the importance of being able to measure performance of aquaculture systems and practices, and the ability to assess conformity with certification standards.

Ecolabelling initiatives in India

In India, two potential candidate species, namely, Indian oil sardine (*Sardinella longiceps*) and squid (*Doryteuthis sibogae*) were identified for certification against the Guidelines for Assessing Small Scale Data Deficient Fisheries (GASS/DD) of MSC, on an initiative by WWF-India. Based on the pre-assessment, a Fishery Improvement Plan (FIP) for the oil sardine has been prepared for moving the fisheries into certification. In 2010, on initiative by WWF-India, the pre-assessment of the Short Neck clam fishery of Ashtamudi estuary, Kollam was completed (Malayilethu, 2010; 2011). Marine Products Export Development Authority (MPEDA) also made attempts to get the tiger shrimp, skipjack tuna and yellowfin tuna into certification. Gaps related to data deficiency, bycatch quantification, etc., were identified in the pre-assessment report. The National Task Force constituted by the Marine Products Export Development Authority (MPEDA) has finalised the guidelines for green certification of ornamental fisheries (Silas et al., 2011). NAAS (New Delhi) has recently published a policy paper on ecolabelling and certification in capture fisheries and aquaculture, based on a brainstorming session on 27 August 2011, at New Delhi, on various aspects of certification and ecolabelling, in the context of Indian fisheries (NAAS, 2012).

Concerns in adoption of ecolabelling schemes

While formulating the guidelines for ecolabelling schemes, FAO (2005) has identified the concerns such as (i) their potential use as trade barriers, (ii) doubts regarding scientific basis of certification standards and criteria, (iii) potential difficulties for developing countries to participate in such schemes, especially the small-scale producers, and (iv) potential confusion among traders and consumers due to proliferation and diversity of ecolabels, based on different criteria and standards. Several issues associated with the implementation of ecolabelling schemes in developing countries have been reported which include the high cost of certification, inadequate management support, paucity of data, unit of certification and impact on trade (Kurien, 2000; Sally, 2008; Sharma, 2010; Venugopal, 2010).

Conclusion

The adoption of ecolabelling schemes provide additional tools to move towards sustainability of capture fisheries and aquaculture and brings

together elements of the market, industry, environmental interests and communities. In order to be credible and successful, such ecolabelling schemes need to be aligned and harmonised with FAO guidelines for ecolabelling of fish and fish fishery products from marine and inland capture fisheries and aquaculture; compliant with relevant international standards such as (International Organization for Standardization (ISO) and International Social and Environmental Accreditation and Labelling Alliance (ISEAL) Codes of Good Practice for setting social and environmental standards; have a robust and transparent governance structure, whether operated in public or private domain; be affordable with an acceptable cost structure and an equitable distribution of benefits across the value chain; should not lead to creation of indirect trade barriers and should have adequate training and outreach efforts to create awareness and sensitise stakeholders. Traceability is an important aspect both in terms of seafood safety and certification and due attention is needed in developing a system, which is viable, cost-effective and appropriate for the nation. There are several certification and ecolabelling schemes in the market today using different standards and assessment methodologies. Harmonisation of the ecolabelling schemes on international level is needed and equivalency is required to be established on compliance with relevant FAO guidelines. Seafood safety, quality and carbon footprint need to be integrated into the ecolabelling schemes.

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