



Wild Trade Voluntary Standards Analysis Report

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Supporting institutions:



Table of Contents

1. Executive summary	3
2. Introduction	4
2.1 Preamble	4
2.2 Selection of standards	5
2.3 ITC/IUCN Report	5
2.4 Methods	6
3. Description of selected standards	7
3.1 FairWild Standard	7
3.2 Programme for the Endorsement of Forest Certification	7
3.3 Friend of the Sea Certification Program	8
3.4 Marine Stewardship Council Standards	8
3.5 Fair for Life Social and Fair Trade Certification Programme	9
4. Evaluation of standards	10
4.1 Species-level factors	10
4.2 Governance factors	13
4.3 Supply-chain factors	16
4.4 End-market factors	18
4.5 Case studies	20
5. Discussion	24
5.1 Factor-specific	24
5.2 Product-specific	26
6. The way forward	27
7. Bibliography	28
8. Appendix	30

1. Executive summary

The global demand for wild plants and animals has been increasing over the years and this international trade in wildlife has impacts for both the environment and the local people. More specifically, many rural communities rely heavily on the harvest and trade of wildlife as a key component of their livelihood strategy. Although majority of wildlife trade is legal and do not cause much harm to the environment, the growing demand for wildlife is a cause for concern because it has the potential to be very damaging, especially in terms of habitat destruction and overexploitation. This problem is further compounded by the effects of climate change and urbanisation. In this light, various private organisations have implemented voluntary standards and certification schemes with wildlife and trade-related indicators so as to enable the development of sustainable practices in managing wild plants and animals.

Meanwhile, the International Trade Centre and the International Union for Conservation of Nature have developed an analytical framework to enhance the understanding and assessment of the impact of trade in wildlife products on conservation and local livelihoods. It explores the role of interrelated factors related to particular species and their habitat, governance settings, the supply-chain structure and the nature of the end market. Thus, the extent to which voluntary standards contribute to the sustainable trade of wildlife will be evaluated based on the species-level, governance, supply-chain and end-market factors. This would be of interest to policy-makers and biodiversity or trade practitioners seeking to better understand and use wild trade indicators and standards.

Using the aforementioned framework as a basis for analysis, this paper seeks to evaluate the FairWild Standard, Programme for the Endorsement of Forest Certification, Friend of the Sea Certification Program, Marine Stewardship Council Standards and Friend for Life Social and Fair Trade Certification Programme. It finds that the FairWild Standard and Marine Stewardship Council Standards provides more robust and detailed indicators as well as a scoring guidance for performance indicators as compared to the other standards. This enables a clearer understanding of the requirements and the level of performance that is expected, hence allowing for greater sustainability in the long term. Furthermore, this paper also shows that even when a standard has indicators for a specific factor, it does not necessarily correlate to sustainability as it also contingent upon the rigour of the indicator.

Moving forward, more case studies could be analysed to find out whether the sustainability of trade, for some species, is more dependent on a particular factor than others. Other standards could also be analysed using a similar method to generate more discussion on what sustainability constitutes, specifically in the context of wild trade. Finally, a further possibility would be to consider using these voluntary standards as indicators for sustainable wild trade in the Sustainable Development Goals which currently do not have strong indicators to measure the sustainable use and trade of wild resources.

2. Introduction

2.1 Preamble

According to the World Wildlife Fund (2016), hundreds of millions of plants and animals are caught or harvested from the wild and then sold as, inter alia, food, pets, ornamental plants, tourist curios and medicine annually. While majority of wildlife trade is legal and does not cause much harm to the environment, this increasing demand for wild plants and animals is a cause for concern because it has the potential to be very damaging, especially in terms of habitat destruction and overexploitation (Oldfield, 2003). Furthermore, the effects of climate change and urbanisation is likely to place even more pressure on our limited resources (see for example Roessig et al., 2005; Botkin et al., 2007; Bradley & Altizer, 2007). In turn, this threatens the livelihood of local workers as well as endangers local ecosystems (McShane et al., 2011). Hence, this necessitates an engagement with sustainable wild trade to ensure the long-term sustainability of trade in wild resources.

To this extent, various private organisations have implemented voluntary standards and certification schemes with wildlife and trade-related indicators so as to enable the development of sustainable practices in managing wild plants and animals. The aim of this report is thus to evaluate if, and how, existing voluntary standards support sustainable wild trade. In doing so, it will elucidate whether voluntary standards can be used as suitable indicators for sustainable wild trade. More importantly, it is aligned with the recent 2030 Agenda for Sustainable Development, which has the 17 Sustainable Development Goals (SDGs) at its core¹. The SDGs are a set of goals adopted by countries in 2015 with the aim of achieving sustainable development by 2030. Each goal incorporates targets to be achieved over the next 15 years. All the SDGs have elements pertaining to wild trade, with Goals 6 (water management), 14 (marine ecosystems), 15 (terrestrial ecosystems) and 17 (means of implementation) being particularly relevant (Vorhies, 2015). However, some of the SDGs lack specific targets or indicators to measure sustainability in wild trade. For example, there has been some difficulty in terms of finding targets that measure sustainable use and the benefits of sustainable use of wildlife (see for example Targets 12.b, 14.7 and 15.1). As such, this report explores the possibility of utilising voluntary standards as indicators for SDGs and it would be of relevance to policy-makers and biodiversity or trade practitioners seeking to better understand and use wild trade indicators and standards.



The 17 SDGs

Source: www.un.org/sustainabledevelopment/sustainable-development-goals/

¹ <https://sustainabledevelopment.un.org/post2015/transformingourworld>

2.2 Selection of standards

For the purpose of this report, the following standards will be analysed:

1. FairWild Standard
2. Programme for the Endorsement of Forest Certification
3. Friend of the Sea Certification Program
4. Marine Stewardship Council Standards
5. Fair for Life Social and Fair Trade Certification Programme

These five standards were chosen to enable a more representative sample of the voluntary standards relevant to sustainable wild trade. The FairWild Standard (wild plants) and the Programme for the Endorsement of Forest Certification (forestry/timber) focuses on terrestrial wildlife products. Meanwhile, the Friend of the Sea Certification Program and the Marine Stewardship Council Standards covers marine products such as those harvested from wild-capture fisheries. Finally, the Fair for Life Social and Fair Trade Certification Programme provides social and fair trade standards; it is not product-specific. These standards will be evaluated based on the analytical framework² published by the International Trade Centre (ITC) and the International Union for Conservation of Nature (IUCN) (hereafter known as the 'ITC/IUCN report').

2.3 ITC/IUCN Report

The trade in wildlife resources can provide positive outcomes such as reducing the vulnerability and improving the resilience of poor rural communities, and creating incentives for sustainable use and management of target species and their habitats. However, unsustainable harvest and trade in wildlife threatens to negatively impact biodiversity conservation and local livelihoods. In this regard, the ITC/IUCN Report provides an analytical framework to guide assessments of conservation and livelihood outcomes of international trade in wildlife and wildlife products. The analytical framework comprise four components, each addressing one set of factors that will impact conservation and livelihood outcomes of any specific trade chain:

- **Species-level factors:** Is a species suitable for sustainable harvest and trade?
- **Governance factors:** Do the governance and institutional regimes support and provide incentives for conservation and benefit-sharing?
- **Supply-chain factors:** Does the supply-chain structure provide incentives for conservation and opportunities for local communities to participate in and benefit from trade?
- **End-market factors:** Do the returns from trade, and the type of products demanded, create sufficient incentives for market entry and sustainable use?

Ultimately, the ITC/IUCN Report seeks to improve the sustainability of international wildlife supply chains and it is useful for this report as it allows for a holistic evaluation of existing voluntary standards. By evaluating the voluntary standards against the aforementioned four factors, it can elucidate the extent to which the standards support sustainable wild trade, and whether they are suitable to be used as indicators for the wild trade aspects, especially in the SDGs.

² Cooney, R., Kasterine, A., MacMillan, D., Milledge, S., Nossal, K., Roe, D. & S., 't Sas-Rolfes, M. (2015). *The trade in wildlife: A framework to improve biodiversity and livelihood outcomes*. International Trade Centre, Geneva, Switzerland.

2.4 Methods

The analysis was carried out via the following method: Firstly, I identified the key questions within each factor that would allow for an assessment of whether there would be a positive outcome for conservation and local livelihoods. Taking the example of species-level factors, questions taken from the ITC/IUCN Report included '*Is the species resilient to harvest?*', '*What level of harvest for trade is sustainable?*' and '*What harvest methods are sustainable?*'. In addition, after reviewing the various voluntary standards, I also included other pertinent questions that were not specifically addressed in the ITC/IUCN Report, such as '*Is there basic data on the species?*' and '*When to harvest?*'.

Secondly, I analysed the voluntary standards to find out if they had targets or indicators that addressed the above questions. Voluntary standards which had indicators addressing a specific question was marked with the '✓' symbol. Here, I also utilised ITC's Standards Map³ platform to aid my analysis as it provides a detailed breakdown of a standard's requirements in realms such as environment, social, management, quality and ethics. Besides, as the five chosen standards were available in the Standards Map, it allowed for a useful side-by-side comparison of the voluntary standards. Other relevant wild trade standards in the Standards Map include those on livestock, wild stock, aquaculture, agricultural produce, forestry, fisheries, and trade in ecosystem services such as tourism and energy products (e.g. carbon).

³ <http://standardsmap.org/>

3. Description of selected standards

3.1 FairWild Standard

The FairWild Standard⁴ was designed to assess the **harvest and trade of wild plants** against various ecological, social and economic requirements. It primarily addresses the collection of wild plant materials for commercial purposes, rather than for subsistence or local small-scale use. The purpose of the FairWild Standard is to ensure the continued use of and long-term survival of wild species and populations in their habitats. It also seeks to respect the traditions and cultures, and support the livelihoods, of all stakeholders, in particular collectors and workers. It is a unique guidance tool for fair sourcing and trade practices and effective resource management of all **plants, plant parts, plant products, lichens and fungi** collected from natural habitats. Ultimately, it helps contribute to poverty alleviation of rural communities and the conservation of biodiversity, especially for high risk species.



Objective of FairWild Standard

Source: <http://www.fairwild.org/background>

3.2 Programme for the Endorsement of Forest Certification (PEFC)

PEFC⁵ is a leading global alliance of **national forest certification systems** that were founded by small and family forest owners to demonstrate excellence in sustainable forest management. Recognising the country-specific priorities and conditions, PEFC works closely with local organisations to implement practices and certification systems that advance responsible forestry. It works throughout the forest supply chain to promote good practice in the forest and to ensure that **timber and non-timber forest products** are produced with respect for the ecological, social and ethical standards. PEFC is a third party certification system which means that compliance with requirements is assessed by an independent third-party certification body.



Timber

Source: <http://kswild.org>

⁴ <http://www.fairwild.org/standard/>

⁵ <http://www.pefc.org/>

3.3 Friend of the Sea (FOS) Certification Program

FOS is a non-profit, non-governmental organisation whose mission is the conservation of the marine habitat. The FOS Certification Program⁶ contributes to the health of the oceans by assessing and promoting sustainable fishing practices of fisheries and aquaculture. It is the only scheme in the world which can certify, with the same seal of approval, both farmed and wild-caught products and it has become one of the main sustainable seafood certification schemes in the world. Certified products from all continents include most of the traded species, fishmeal, fish feed, and Omega-3 fish oil.



FOS-certified sustainable seafood
Source: <http://friendofthesea.org>

Note: FOS has slightly different criteria and indicators for various types of seafood such as farmed freshwater species, saltwater species, shellfish, crustaceans and marine aquaculture. This report focuses only on the certification of sustainable marine aquaculture.

3.4 Marine Stewardship Council Standards (MSC)

MSC is an independent, non-governmental, not-for-profit organisation that promotes best practices for wild capture fishery and seafood traceability. MSC Standards⁷ apply to wild capture fisheries only and they are based on three overarching pillars: sustainable target fish stock, minimising environmental impact of fishing and effective management. MSC Standards aim to collaborate with fishers, retailers, processors, consumers and others to move towards more sustainable fishing practices and consumption choices. This thus ensures that MSC-labelled seafood comes from, and can be traced back to, a sustainable fishery so that consumers are assured that their seafood comes from a well-managed and sustainable source.



MSC logo

Source: <http://www.takepart.com/article/2013/04/16/sustainable-seafood-not-sustainable-fishing>

⁶ <http://www.friendofthesea.org/>

⁷ <https://www.msc.org/get-certified/fisheries>

3.5 Fair for Life (FFL) Social and Fair Trade Certification Programme

The FFL Social and Fair Trade Certification Programme⁸ aims to ensure **fair and positive relations** between producers and their cooperatives or contracting companies, between workers and their employer, between sellers and buyers on the world market, while at the same time ensuring performance of standards. The FFL Certification Programme covers the entire chains of custody from production to final brand-holder and requires fair working conditions at all stages. It combines strict social and fair trade standards with adaptability to local conditions. It is not product-specific and is instead designed for both **food and non-food** commodities.



Local collectors

Source: <http://fairforlife.org>

Note: The FFL Certification Programme has different modules for different kinds of operations. This report focuses on Module 1: Labelling and Control Criteria, which is applicable to all operations, as well as Module 6: Criteria for Wild Collection Operations, which is applicable to groups of wild collectors. The products for wild collection for which this module applies include plants, fungi and lichens. Some basic principles and control points in Module 6 are incorporated from the FairWild Standards.

⁸ <http://www.fairforlife.org/>

4. Evaluation of standards

4.1 Species-level factors

Species-level factors consider whether a species is suitable for harvest and trade, and under what conditions. It seeks to understand the suitability of a species for sustainable harvest and trade in terms of its resilience and accessibility. Generally, when species have a high resilience to harvest, trade in wildlife is more likely to generate conservation and livelihood benefits, although this is also dependent on the scale of harvest itself. Both biological factors and non-biological factors can influence species resilience. In addition, species which are easily accessible tend to provide greater prospects for local livelihoods and sustainable use, although this may make them more vulnerable to overharvest.

	Does standard address:	FairWild	PEFC	FOS	MSC	FFL
Species-related	Whether there is basic data on the species?	✓	✓	✓	✓	
	Whether there is sufficient knowledge on the species to allow for its identification?	✓			✓	✓
	Whether species is suitable for harvest?	✓	✓		✓	
	Whether species is suitable for trade?	✓			✓	
	Whether species is resilient to harvest?	✓			✓	
Harvest and trade-related	What level of harvest is sustainable?	✓	✓		✓	✓
	What level of harvest <i>for trade</i> is sustainable?	✓				
	What harvest methods are sustainable?		✓		✓	✓
	When to harvest?	✓	✓			✓
	Whether trade is likely to create livelihood opportunities for rural communities?	✓				
	Whether wild harvest or intensive management is likely to have better outcomes for conservation?	✓	✓		✓	
	Whether wild harvest or intensive management is likely to have better outcomes for livelihoods?		✓			

FairWild Standard

At the most fundamental level, the FairWild Standard requires basic data (e.g. plant monographs) for target species to be available and well-presented in writing (Indicator 1.3.a), as well as information about its 'reproduction system and replacement rate' (Indicator 1.3.b) and 'population size, distribution, population structure (size/age classes), rate of reproduction/growth/regeneration' (Indicator 1.3.c). It also requires species targeted for collection to be 'clearly identified' through means such as 'very good plant specifications/plant monographs and harmonisation with local and trade names' (Indicator 1.2.b). In terms of the suitability and resilience of a species for trade and harvest, the FairWild Standard also seeks to ensure that the conservation status of target species are regularly assessed (Indicator 1.1.a) and that threatened species are not being collected (Indicator 1.2.a). It also requires regular assessment, monitoring and survey of the target resources and their habitats to ensure that they are regenerating healthily (Indicators 9.2.a-9.2.d).

Besides, the FairWild Standard has introduced additional indicators for high risk species (See Part II of Standard Report) - these are typically more stringent than existing indicators but are useful in enhancing the sustainability of wild trade because they require 'very good knowledge and document of collection sites/target populations within collection area' (Part II, Indicator 1.2.l) as well as for the collection rate to be significantly lower than replacement rates and to be supported by research (Part II, Indicators 1.3.c-1.3.f).

In addition, the harvest and trade-related indicators in the FairWild Standard generally seek to ascertain that species are harvest and traded sustainably. There are indicators regarding the collection quantity and frequency of target species and plant parts, as well as the methods and time periods for harvesting, although there are no indicators with respect to the level of sustainable harvest for the purpose of trade. The FairWild Standard also requires wild trade to create livelihood opportunities and 'fair employment conditions for wild-collection operation staff' (Criterion 8.3) by taking into account factors such as their wages, maximum working hours, rest days, health insurance and paid sick leave.

PEFC

PEFC requires an 'inventory and mapping of forest resources' to be established and maintained, aligned with local and national conditions (Indicator 1.3). It also requires endangered and rare species to be identified, protected and/or conserved, and to ensure that they are not exploited for commercial purposes, to the extent that measures are taken to increase their population where necessary (Indicators 4.2 and 4.3). Nevertheless, there are a lack of other species-related indicators regarding the suitability of a target species for trade, and its resilience to harvest.



Sustainable timber trade

Source: <http://2degreesnetwork.com>

In terms of the harvest and trade-related indicators, PEFC requires harvest levels to 'not exceed a rate that can be sustained in the long term', such that the forests have the ability to continuing producing 'a range of wood and non-wood forest products and services on a sustainable basis' (Indicators 3.1, 3.4 and 4.6). Harvest methods also have to be conducted in a manner that

minimises damage to ecosystems, particularly rare and sensitive species, to ensure their sustainability (Indicators 3.5, 4.1, 4.10 and 4.11). Finally, PEFC also requires forest management planning to 'consider new opportunities for employment' (Indicator 6.1) as well as to 'maintain and enhance protective functions of forests for society' (Indicator 5.1).

FOS Certification Program

The FOS Certification Program does not have indicators for any of the species-level factors although it requires the common name and scientific name of the species bred to be stated.

MSC Standards

The MSC Standards requires both the common and scientific name for main species to be provided (SA3.1.1.1). It also requires species to be resilient to harvest such that where the stock is reduced, there is evidence of stock rebuilding within a specified timeframe which usually does not exceed one generation time for the stock (Indicator 1.1.2). Besides, the MSC Standards also addresses whether a species is suitable for harvest and trade by requiring species listed under the national ETP (endangered, threatened or protected) legislation or other binding international agreements such as Appendix 1 of the Convention on International Trade in Endangered Species (CITES) to be assigned as ETP species (SA3.1.5). There are also additional indicators for ETP species (SA3.10, 3.11, 3.12).

Furthermore, harvest of species have to be conducted at a level that 'maintains high productivity' for stock while ensuring a 'low probability of recruitment overfishing' (Indicator 1.1.1). The MSC Standards also ensures that a 'robust and precautionary harvest strategy' is in place and must be evaluated, monitored and reviewed periodically, and improved as necessary (Indicator 1.2.1). Additionally, the MSC Standards also requires an assessment of stock status that takes into account the major features relevant to the biology of the species (Indicator 1.2.4) as well as the risks and impacts of fisheries on ecosystems (Indicator 2.5.2 and 2.5.3).



Wild plant collection
Source: www.imo.ch

FFL Certification Programme

The FFL Certification Programme requires product labelling such that the products are fully traceable and handled in a responsible way (Indicators 1.1.1 and 1.1.2). It also has indicators for several harvest-related factors and this includes 'good and detailed environmental requirements' for collectors (Indicator 6.5.1), very good knowledge and documentation of collection sites and target populations within collection areas, adequate collection instructions, and a collection frequency much lower

than regeneration rate (Indicator 6.5.2). However, there are no indicators to ensure that a species is suitable and resilient for harvest and trade, as well as whether wild harvest or intensive management is likely to have better outcomes for conservation and local livelihoods.

4.2 Governance factors

Governance factors include processes, laws, rules and policies that collectively guide the use of wildlife. Property rights govern who can access, utilise and benefit from the use of wildlife resources and they have to be well-defined and secure if they are to ensure a sustainable harvest of wildlife. Concomitantly, state-held property rights for wild resources, even where well-defined and secure, often require strong enforcement capacity to avoid an open access outcome and hence overharvesting. Nevertheless, property rights alone may not be sufficient to generate conservation and livelihood benefits and this requires the implementation of national and international-level policies. Finally, good governance is needed to ensure conservation and livelihood outcomes.

	Does standard address:	FairWild	PEFC	FOS	MSC	FFL
Property rights	Whether property rights over land and resources are well-defined and secure?	✓	✓	✓	✓	✓
Policy settings	Whether policy settings are supportive of sustainable trade?	✓		✓		✓
	Whether policy settings are supportive of fair contractual relationships?	✓	✓	✓		✓
	Whether policy settings limit the participation of children?	✓		✓		✓
Broader governance context	Whether the broader governance context enable legal trade?	✓	✓			
	Whether the broader governance context enable sustainable trade?		✓	✓	✓	
	Whether the broader governance context enable conservation?		✓	✓		
	Whether the broader governance context enable benefit-sharing?	✓	✓		✓	
	Whether the broader governance context enable livelihood opportunities?		✓		✓	

FairWild Standard

The FairWild Standard requires a 'clear definition of the wild collection area(s)' (Indicator 3.1.a) and details of the 'ownership, tenure or user rights' (Indicator 3.1.b). Moreover, as required by Criterion 4.1, these property rights have to comply with the 'legal and customary tenure or use rights of local communities and indigenous people, to the extent necessary to protect their rights, traditional knowledge or resources, over collection operations'. It also requires policy settings that support sustainable trade through a 'functioning regulatory system' (Indicator 3.1.d) and 'valid collection permits/agreements/conditions' (Indicator 3.1.e), fair contractual relationships that do not discriminate against collectors (Principle 5) and limit the participation of children in collection activities (Principle 6).



Harvesting cranberries

Source: <http://www.uc-cranberries.com/berry.html>

With respect to the broader governance context, the FairWild Standard requires them to enable legal trade (Indicators 3.2.a and 3.2.b) and benefit-sharing (Indicators 4.2.a-4.2.d). However, there are currently no indicators to ensure that the broader governance context enables sustainable trade, conservation and livelihood opportunities for the locals.

PEFC

PEFC requires property rights and land tenure arrangements to be 'clearly defined, documented and established for the relevant forest area', taking into account other legal, customary and traditional rights (Indicator 6.3). It also requires policy settings to be supportive of fair contractual relationship, especially in terms of work-related risks, working conditions and working practices (Indicators 6.11 and 6.12) although there are no indicators vis-à-vis sustainable trade and the participation of children. Furthermore, PEFC ensures that the broader governance context enhances legal and sustainable trade, conservation, benefit-sharing and livelihood opportunities (Indicators 7.1 and 7.2) although it only provides rather vague indicators. For instance, Indicator 7.1 states that forest management 'shall comply with legislation applicable to forest management issues including forest management practices; nature and environment protection [...] and the payment of royalties and taxes' but there is no mention of any specific legislation to be adhered to, and the degree of adherence.

FOS Certification Program

The FOS Certification Program requires aquaculture farms to obtain a licence or permit for the development of a site if it is required by the national regulation (Indicator 2.1). An Environmental Footprint Assessment also has to be carried out with a positive outcome if it is required by the national regulation (Indicator 2.2). In terms of its policy settings, the FOS Certification Program states that aquaculture farms must 'implement a traceability system that allows verifying that the certified

products come from approved systems and there is no possibility of exchange with products coming from non-certified systems' (Indicator 12.1). It also requires policy settings to be supportive of fair contractual relationships vis-à-vis minimum legal wages, access to healthcare and safety measures (Indicators 11.1.2-11.1.4) as well as limit the participation of children by complying with national regulations and International Labour Standards on Child Labour⁹ (Indicator 11.1.1). Additionally, to ensure social accountability, the aquaculture fishery must be SA8000-certified¹⁰. However, FOS does not have indicators to measure whether the broader governance context enables legal trade, benefit-sharing and livelihood opportunities.

MSC Standards

The MSC Standards requires the jurisdictional category or combination of jurisdictional categories that apply to the management system of a fishery to be clearly determined and stated. It also seeks to ensure that the broader governance context enables sustainability and livelihood opportunities through 'binding procedures governing cooperation with other parties' and a 'transparent mechanism for the resolution of legal disputes' (Indicator 3.1.1). With respect to the consultation process, all interested and affected parties must be given opportunity to be involved, thereby facilitating an effective engagement (Indicator 3.1.2). Nevertheless, the MSC Standards does not have indicators for policy settings in areas such as enabling sustainable trade and fair contractual relationships.



Fisheries management
Source: www.asmfc.org

FFL Certification Programme

The FFL Certification Programme requires operators to have legitimate collection rights and to respect the rights of indigenous people with regard to use of local resources and traditional knowledge (Indicator 6.4.3). It also requires strong policy settings - there are indicators ensuring that the group operator acts as a responsible and fair trading partner for the collectors in the group (Indicator 6.1.1), collectors are paid fairly and promptly (Indicator 6.1.2), collectors are not discriminated against in any way (Indicator 6.1.3), Social Responsibility/FairTrade and environmental principles in collection are implemented (Indicator 6.1.4), and collection workers have a right to fair, safe and good working conditions (Indicator 6.2.2, 6.3.1 and 6.3.2). The participation of children in the collection process must also be limited (Indicator 6.2.1). However, there are no indicators vis-à-vis the broader governance context.

⁹ <http://www.ilo.org/global/standards/subjects-covered-by-international-labour-standards/child-labour/lang--en/index.htm>

¹⁰ http://sa-intl.org/_data/n_0001/resources/live/SA8000%20Standard%202014.pdf

4.3 Supply-chain factors

The supply chain encompasses the processes associated with wildlife trade including harvest and production. The supply-chain factors seek to understand the costs and benefits of trade relative to other potential uses for wildlife. Generally, when the cost of production is lower, it becomes more viable to engage in trade and hence, there is more incentive for sustainable use. Meanwhile, the participation of poor communities and the development of local enterprises in the supply chain can enhance incentives for conservation.

	Does standard address:	FairWild	PEFC	FOS	MSC	FFL
Cost and scale of supply-chain	Whether sustainable harvest in the species is cost-effective?	✓	✓			
	Whether sustainable trade in the species is cost-effective?	✓	✓			
	Whether there is transparency in cost calculation?	✓				
	Whether wildlife trade is the most cost-effective use of wildlife and land resources?	✓				
Participation of local communities	Whether the supply-chain structure provides opportunities for local communities to participate in and benefit from trade?	✓				✓
	Whether the supply-chain structure provides opportunities for the development of local enterprises?					
Conservation outcomes	Whether the supply-chain structure provides incentives for conservation?					

FairWild Standard

The FairWild Standard does take into consideration the cost and scale of the supply-chain. It requires a 'good costing analysis' for collection (Indicator 7.1.a) and an 'advanced financial plan' (Indicator 10.3.b) for the overall collection operation to ensure the financial viability of the supply-chain. It also requires transparency in cost calculation and price-setting mechanism (Indicator 7.1.b).

Additionally, the FairWild Standard also ensures that local communities are able to participate in and benefit from trade, with collectors receiving higher prices for FairWild-certified products (Indicators 7.1.d). However, there are no indicators for whether the supply-chain provides opportunities for the development of local enterprises, and incentives for conservation.

PEFC

PEFC ensures that sustainable harvest and trade in the target species is cost-effective with the potential to achieve 'sound economic performance' (Indicator 3.2). Although the PEFC Sustainable Forest Management Certification does not have indicators to ensure that the supply-chain structure provides opportunities for local participation and conservation outcomes, it has a separate certification program named the PEFC Chain of Custody Certification¹¹ that provides indicators in this aspect. It aims to provide customers of forest-based products with accurate and verifiable information on the content of material originating in PEFC certified, sustainably managed forests, recycled material and controlled sources.

FOS Certification Program

The FOS Certification Program does not have indicators for any of the supply-chain factors.

MSC Standards

The MSC Standards does not have indicators for any of the supply-chain factors, but it should be noted that they have a rigorous traceability system for its certified products.

FFL Certification Programme

The FFL Certification Programme requires a system of 'fair sharing of profits' such that prices paid to collections will result in collectors 'earning a fair income from their collection' (Indicator 6.6.2). In addition, the FairTrade Development Premium is intended to finance. However, there are no indicators regarding the cost and scale of production, and conservation outcomes.

¹¹ <http://pefc.org/certification-services/supply-chain>

4.4 End-market factors

End-market factors seek to address whether there are sufficient incentives for market entry and sustainable use based on the returns from trade, and the type of products demanded. Large markets, demand inelasticity and consumer preference are more likely to create incentives for conservation and local participation.

	Does standard address...	FairWild	PEFC	FOS	MSC	FFL
Market-related	Whether the returns from trade create sufficient incentives for market entry and sustainable use?					
	Whether there is a market to warrant sustainable harvest of this species?	✓				
	Whether the market value is sufficiently high to generate livelihood benefits?					
	Whether the market value is sufficiently high to generate conservation incentives?					
Demand-related	Whether the type of products demanded create sufficient incentives for market entry and sustainable use?	✓				
	Whether the nature of demand create risks for overharvest or illegal trade?					
Consumer preferences	Whether consumer preferences create an opportunity or a risk for conservation and sustainable livelihoods?					

FairWild Standard

The FairWild Standard requires an excellent identification of market needs (Indicator 10.1.a) and for the collection management operations to agree with buyer(s) on quantities before the collection system starts (Indicator 10.1.c) but it does not address any of the other end-market factors. Although Principle 11 aims to promote buyer commitment by 'striving for mutually beneficial long-term trade relations with the wild-collection operation', there are no performance indicators to measure this.

PEFC

PEFC does not have indicators for any of the end-market factors.

FOS Certification Program

The FOS Certification Program does not have indicators for any of the end-market factors.

MSC Standards

The MSC Standards does not have indicators for any of the end-market factors. However, there is mention in the main document that for all performance indicators, assessments may consider 'the role and effectiveness of a range of factors in deterring illegal activity' and one them includes '[...] market-related factors such as value, demand or preferences (e.g. preferences regarding size)' (GSA4.9).

FFL Certification Programme

The FFL Certification Programme does not have indicators for any of the end-market factors.

4.5 Case studies

Having evaluated whether each standard addresses the four factors of species-level, governance, supply-chain and end-market, this sub-section now presents five different case studies to give a better understanding of how these standards have enabled the trade in wildlife to move towards sustainability, particularly in the real world context.

FairWild Standard

In Bolivia, the adoption of a comprehensive land rights reform plan by the government recognised the rights of indigenous communities to their ancestral land, thereby enabling them to exploit the natural resources. However, there remains a need to maintain a balance between the use and conservation of resources, and to ensure that local people are able to benefit the most. As such, the **Yuracaré Forest Coca Gatherers Association (ARCASY)** decided to collaborate with the Rainforest Exquisite Products S.A. (REPSA), a Bolivian company specialising in the sustainable production and commercialisation of non-wood forest products, to work towards achieving fair and sustainable trade systems. Subsequently, both of them decided to work toward FairWild certification as this label offers “guidelines on best practices for gathering and commercialising wild plants and related resources on the basis of eleven main criteria, which cover ecological, social and fair aspects of sustainability” (REPSA, n.d.)



Wild Bolivian cocoa

Source: www.invalsacoffee.com

Ideally, FairWild certification appears to be highly suitable for gathered products such as the wild coca which the Yuracaré collect in the Amazon forest. However, in reality, there have been several obstacles especially pertaining to storage and product conservation. These logistical issues pose challenges in ensuring the quality of harvest products and it is only when natural high-quality products can be guaranteed that wild coca from the FairWild label can obtain higher sales prices than those offered on the conventional market. Other challenges encompass issues such as mapping gathering zones, risk inventory, monitoring and traceability of products and the training of teams. These challenges were overcome with strong support from ARCASY, REPSA and other agencies and ARCASY eventually managed to obtain FairWild certification in November 2012.

PEFC

The China Forest Certification Scheme¹² (CFCS) was endorsed by the PEFC General Assembly in 2014 after demonstrating compliance with PEFC's globally recognised Sustainability Benchmarks - a suite of requirements for covering a range of issues including standards development, sustainable forest management, Chain of Custody certification as well as certification and accreditation requirements (PEFC, 2014a). This is a significant milestone considering that China is the world's largest manufacturer of forest products, and also among the five countries with the largest forest area in the world. PEFC has arguably been successful in pushing for greater sustainability as China currently has the highest afforestation rate of any country in the world since it increased its forest cover from 12% thirty years ago to more than 21% in 2013. Moreover, it is continuing to implement policy measures to increase the quality and quantity of its forests and aims to bring forest coverage to 23%, or 223 million hectares, by 2020. About 2 million hectares of forests in China are CFCS-certified and more than 200 professionals have participated in the China Forest Certification Council (CFCC) auditor training over the past years to be able to respond to the expected increase in demand for certification services following the endorsement by PEFC.

More recently, in June 2015, Asia Symbol's "Paper One" copy paper was launched as certified products carrying the CFCC and PEFC combined logo (PEFC, 2015). Although the CFCC and PEFC currently applies to the premium red "Paper One" 85g copy paper series produced with 100% PEFC-certified materials, other kinds of paper products and product series (e.g. "Paper One" and "Golden Paper") are expected to also



Premium red "Paper One" copy paper

Source: www.pefc.org/

fully use certified materials in the near future. According to Hsu Chung Chen, Business Director of Asia Symbol (Guangdong) Paper Co., Ltd, CFCC and PEFC certification demonstrates that Asia Symbol has "made due contributions in promoting sustainable forest management" and the certification would help to "develop up-end user market and win their recognition and support".

¹² <http://www.cfcs.org.cn/english/zh/index.action>



KD Pharma's sustainable fish oils
Source: www.friendofthesea.org

FOS Certification Program

In 2015, KD Pharma¹³, the leading producer of highly purified Omega-3 fatty acids, was found to be compliant with FOS standards and can henceforth display the FOS eco-label on its Omega-3 bulk oils and supplements (FOS, 2015). The fish oil is provided only by FOS-approved suppliers, from trimmings of squids, cod and tuna processing and from anchovies and sardines. The German company has invested in resources to help develop sustainable practices over the years, such as rainwater recovery for cooling purposes, thermal energy from waste oil and liquid solvent from recyclable natural alcohol. In addition, a chain of custody has also been put in place, from the fishery to the processing of the finished product, to guarantee that no mixing occurs between approved and non-approved sources.



Ben Tre clams are handpicked and collected in sacks
Source: www.panda.org

MSC Standards

The Ben Tre clam fishery in Vietnam was the first fishery in Southeast Asia to receive MSC certification in 2009 (MSC, 2009). The nationally renowned Ben Tre hard clams are handpicked using metal rakes and collected into mesh sacks, before they are sold to domestic markets and exported to Europe, the US, Japan, China and Taiwan. The width of the rake and the mesh size on the net must abide by the regulations of management organisations and the use of machines for harvesting clams is fully banned. Most of the commercial harvesting takes between April to October. In addition, the fishery is operated by local cooperative that provide close management and surveillance of the brood stock and harvestable clams within their area.

¹³ <http://www.kd-pharma.com/>

FFL Certification Programme

In 2010, Equal Exchange¹⁴, an operation from West Bridgewater in the United States specialising in the harvest of products such as green and black tea, cocoa and sugar, was certified according to the FFL Social and Fair Trade Certification Programme (FFL, 2015). Equal Exchange aims to demonstrate how the contribution of worker co-operatives and Fair Trade can lead to a more equitable, democratic and sustainable world. Their efforts have benefitted farmer producer groups by increasing the awareness and demand of fair trade products in the market. This is achieved via higher payment or product and added premiums, open and transparent communication, and frequent visits to producer groups in harvesting countries - for example, Equal Exchange has a direct purchasing relationship with coffee farmers co-operatives around the world and every full-time employee will go on a week-long trip to visit their farmer partners in Latin American at least once during their first 3 years. Their Quality Control manager also leads training seminars in both the farmers' countries and at their Massachusetts headquarters for visiting farmer co-operative technicians, thereby improving both its internal and external relations.



Equal Exchange products

Source: <http://equalexchange.coop/blog>

Furthermore, Equal Exchange also demonstrates their own fair trade behaviour by including social responsibility in the structure and practices within the company. For instance, all employees participate in annual meetings and committees, are thoroughly educated in fair trade and enjoy a wide variety of benefits. Besides, environmental conservation is also evident in their treatment of composting chaff, a processing by-product, and their reducing of packaging material where possible.

¹⁴ <http://equalexchange.coop>

5. Discussion

5.1 Factor-specific

Species-level factors

From the analysis in Section 3, it can be seen that the extent to which each standard has performance indicators for the four factors varies. Generally, the FairWild Standard has the most number of indicators for species-level factors while the FOS certification program has hardly any indicators in this area. The FairWild Standard can potentially be used as indicators for sustainable wild trade in this aspect because it has highly specific and detailed indicators. For example, Criterion 1.3 provides a comprehensive range of indicators to ensure that the collection rate is sustainable and 'does not exceed the target species' ability to regenerate over the long term'. More specifically Indicator 1.3.d states that

"Quality of data used to define maximum allowed collected quantities for each target species: (0) no reasonable maximum quantities, and no reference from long-term collection practices (1=M) very approximate estimation of maximum quantities, e.g. based on long-term collection in the area or based on general concepts (rule of thumb) that are not site- or species-specific; (2) collection limits are justified by site- and species-specific resource assessment and monitoring information as well as knowledge of collectors; (3) very good system of resource monitoring/setting of maximum quantities."

There is clear mention of *how* the maximum allowed collected quantities for each target species should be defined and this goes beyond simply setting the maximum quantities. Moreover, for the minimum requirement of (1), they also give an example of what constitutes an "approximate estimation of maximum quantities". With respect to *high risk species*, the FairWild Standard also requires a minimum requirement of (2) to be met, hence ensuring that the quality of data is of a higher standard. Therefore, the indicators in the FairWild Standards would be useful for Target 15.c of the SDGs which aims to "Mobilise significant resources from all sources and at all levels to finance sustainable forest management and provide adequate incentive to developing countries to advance such management, including for conservation and reforestation".

Governance factors

Interestingly, for governance factors, all standards require clearly defined and secure property rights over land and resources which takes into consideration local traditional knowledge and rights. This is a positive step because well-defined and secure property rights are generally critical for sustainable use (see Demsetz, 1967).

Although PEFC has the most number of indicators here, most of them are covered under Indicators 5.7.1 ("Forest management shall comply with legislation applicable to forest management issues including forest management practices; nature and environment protection; protected and endangered species; property, tenure and land-use rights for indigenous people; health, labour and safety issues, and the payment of royalties and taxes") and 5.7.2 ("Forest management shall provide for adequate protection of the forest from unauthorised activities such as illegal logging, illegal land use, illegal initiated fires, and other illegal activities"). This two indicators are rather broad and do not have specific means to measure sustainability.

This may be due to the fact that PEFC operates as 'a system of mutual recognition between national certification systems' (Yadav & Dugaya, 2013:570) so there may be some differences when PEFC is adopted in various countries. However, this means that PEFC may be limited in its usefulness for sustainable wild trade on an international scale. The FOS Certification Program also faces similar issues in terms of its rather vague governance-related indicators such as "An Environmental Footprint Assessment (EFA) was carried out with a positive outcome, if required by the national regulation" (Indicator 2.2) - a more definite measurement of "positive outcome" could have been provided.

In contrast, the FairWild Standard and MSC Standards perform slightly better in this aspect. In particular, the FairWild Standard has a focus on limiting the participation of children and young collectors in wild-collection activities (Criterion 6) and some of these indicators may be useful for Target 8.7 of the SDGs which aims of "Take immediate and effective measures to eradicate forced labour, end modern slavery and human trafficking and secure the prohibition and elimination of the worst forms of child labour [...], and by 2025 end child labour in all its forms". Meanwhile, the MSC Standards also has a strong legal and/or customary framework that fisheries have to adhere to (SA4.3) and indicators for consultation, roles and responsibilities (SA4.4). They even require the management policy to have *explicitly* 'clear long-term objectives to guide decision making that are consistent with MSC Fisheries Standard, and incorporates the precautionary approach' (SA4.5). Although this indicator could be enhanced by specifying a time frame, it nonetheless ensures that fisheries have a long-term sustainability goal in mind.

Supply-chain factors

For supply-chain factors, the FairWild Standard has the most number of indicators here as compared to the other standards which generally do not have any indicators to address the supply-chain factors. Principle 7 of the FairWild Standard aims to ensure that there are benefits for collectors and their communities and one of the ways is to require collectors to receive higher prices for FairWild-certified products and they even give a benchmark to adhere to. For instance, Indicator 7.1.d states that FairWild collectors have to be compensated for their extra efforts and this amounts to approximately >5% (level 2) or >10% (level 3) higher than normal prices. The remaining standards could be improved by including indicators in this aspect.

End-market factors

Lastly, virtually all the standards do not have any indicators relating to end-market factors, with the exception of the FairWild Standard. However, the FairWild indicators in this area could be further enhanced - for example, an *excellent* understanding of market requirements can be rather subjective. Thus, voluntary standards need to include indicators addressing end-market factors, and to implement them more objectively, so as to ensure the sustainability of wild trade in the long run. This is aligned with the arguments put forth by Pierce et al. (2008) who contend that without a clear understanding of the market forces, including demand and supply trends, it may compromise on the effectiveness of certification if consumers are not interested in certified organic products.

5.2 Product-specific

Terrestrial-based products

As mentioned above, the FairWild Standard and PEFC are standards for terrestrial-based products - they are both rather comprehensive in the kinds of indicators that they have and generally cover most of the species-level, governance and supply-chain factors. However, comparing between the two, the FairWild Standard is slightly more rigorous in its indicators and has a detailed scoring guidance for different levels of performance (usually ranging from 0 to 3) and this facilitates a better understanding of what needs to be achieved. On the other hand, PEFC only provides the necessary indicators that need to be met - different levels of scoring could be included to enhance this standard.



PEFC-certified timber
Source: www.pefc.co.uk

Nevertheless, it is a positive step that there are sustainability certification systems which specialise in particular products (i.e. plants, lichens and fungi for the FairWild Standard and timber for PEFC) as this encourages better collection and management practices that take into account the specificity of a product, rather than to adopt generic standards and indicators. In the future, standards for terrestrial-based products can be further improved by taking into account both geographical *and* product/harvest differences as well as to have stricter traceability procedures in place (Yadav & Dugaya, 2013).

Marine-based products

With respect to the standards on marine-based products, the MSC Standards has more indicators for species-level factors whereas the FOS Certification Program has more indicators in governance factors. Both of them do not have indicators for supply-chain and end-market factors. However, the MSC Standards has different performance indicator scoring grades (either 60, 80 or 100) whereas the FOS Certification Program only has a yes/no option for its indicators and this lack of scoring guidance makes it difficult to understand the extent to which the requirements apply.

Moreover, in a global analysis of wild-capture seafood sustainability certification schemes conducted by WWF (2012), it was revealed that MSC remains most compliant with international sustainability criteria. Other certification programs - specifically schemes from the Alaska Seafood Marketing Institute, Friend of the Sea and Iceland Responsible Fisheries - fell short in terms of their implementation procedure and transparency within the standard setting procedure. The FOS Certification Program generally had very few indicators that addressed the different aforementioned factors. Some of the reference quality parameters were also rather vague such as "The Organisation provides evidence of valid and up-to-date permit or license" without providing a specific time period that constitutes "up-to-date" (ibid.). Moreover, the traceability principles are defined, but specific means to operationalise the requirements are lacking and the guidance to auditors is also unclear.

5. The way forward

The analytical framework developed in the ITC/IUCN Report is a useful tool in facilitating an analysis of voluntary standards and the ways in which they support sustainable wild trade, especially in light of the increasing pressures on wild plant and animal resources. The use of this framework also acts as a benchmark to assess the credibility of various voluntary standards, which creates greater transparency and standardisation in analysis. In summary, this report has strived to demonstrate how the framework in the ITC/IUCN Report can be used to evaluate existing voluntary standards. In this aspect, more case studies could be analysed to find out whether the sustainability of trade, for some species, is more dependent on a particular factor than others. Besides, more standards can be evaluated as this enables for a greater discussion on what sustainability constitutes, specifically in the context of wild trade. Finally, a further possibility would be to use these voluntary standards as indicators for sustainable wild trade, especially since the SDGs do not always have indicators for sustainable use of, and trade in, wild resources.

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8. Appendix

7.1 FairWild Standard

Species-level factors

	Does standard address:	FairWild	Indicators	Additional indicators for high risk species
Species-related	Whether there is basic data on the species?	✓	1.3.a, 1.3.b, 1.3.c	1.3.c
	Whether there is sufficient knowledge on the species to allow for its identification?	✓	1.2.b, 1.2.c	1.2.c
	Whether species is suitable for harvest?	✓	1.1.a, 1.2.a, 9.2.a, 9.2.b, 9.2.c	1.1.b, 1.2.l, 9.2.a
	Whether species is suitable for trade?	✓	1.1	
	Whether species is resilient to harvest?	✓	1.2.i, 1.2.h, 9.2.d	
Harvest and trade-related	What level of harvest is sustainable?	✓	1.3.d, 1.3.e, 1.3.f	1.3.d, 1.3.e, 1.3.f, 1.3.l
	What level of harvest <i>for trade</i> is sustainable?			
	What harvest methods are sustainable?	✓	1.2.f, 1.2.g, 1.2.k, 2.2.c, 9.1.e	
	When to harvest?	✓	1.3.g	
	Whether trade is likely to create livelihood opportunities for rural communities?	✓	8.3.a-8.3.v	
	Whether wild harvest or intensive management is likely to have better outcomes for conservation?	✓	2.2.e	
	Whether wild harvest or intensive management is likely to have better outcomes for livelihoods?			

Governance factors

	Does standard address:	FairWild	Indicators
Property rights	Whether property rights over land and resources are well-defined and secure?	✓	3.1.a, 3.1.b, 4.1.a-4.1.f
Policy settings	Whether policy settings are supportive of sustainable trade?	✓	3.1.d, 3.1.e
	Whether policy settings are supportive of fair contractual relationships?	✓	5.1.a-5.1.f, 5.2.a-5.2.d
	Whether policy settings limit the participation of children?	✓	6.1.a-6.1.b, 6.2.a-6.2.c, 6.3.a-6.3.c
Broader governance context	Whether the broader governance context enable legal trade?	✓	3.2.a, 3.2.b
	Whether the broader governance context enable sustainable trade?		
	Whether the broader governance context enable conservation?		
	Whether the broader governance context enable benefit-sharing?	✓	4.2.a, 4.2.b, 4.2.c, 4.2.d
	Whether the broader governance context enable livelihood opportunities?		

Supply-chain factors

	Does standard address:	FairWild	Indicators
Cost and scale of supply-chain	Whether sustainable harvest in the species is cost-effective?	✓	7.1.a, 10.3.a
	Whether sustainable trade in the species is cost-effective?	✓	7.1.a, 10.3.b
	Whether there is transparency in cost calculation?	✓	7.1.b
	Whether wildlife trade is the most cost-effective use of wildlife and land resources?	✓	10.3.d
Participation of local communities	Whether the supply-chain structure provides opportunities for local communities to participate in and benefit from trade?	✓	7.1.c, 7.1.d, 7.1.e. 9.5.a
	Whether the supply-chain structure provides opportunities for the development of local enterprises?		
Conservation outcomes	Whether the supply-chain structure provides incentives for conservation?		

End-market factors

	Does standard address...	FairWild	Indicators
Market-related	Whether the returns from trade create sufficient incentives for market entry and sustainable use?		
	Whether there is a market to warrant sustainable harvest of this species?	✓	10.1.c
	Whether the market value is sufficiently high to generate livelihood benefits?		
	Whether the market value is sufficiently high to generate conservation incentives?		
Demand-related	Whether the type of products demanded create sufficient incentives for market entry and sustainable use?	✓	10.1.a
	Whether the nature of demand create risks for overharvest or illegal trade?		
Consumer preferences	Whether consumer preferences create an opportunity or a risk for conservation and sustainable livelihoods?		

7.2 PEFC

Species-level factors

	Does standard address:	PEFC	Indicators
Species-related	Whether there is basic data on the species?	✓	1.3
	Whether there is sufficient knowledge on the species to allow for its identification?		
	Whether species is suitable for harvest?	✓	4.2, 4.3
	Whether species is suitable for trade?		
	Whether species is resilient to harvest?		
Harvest and trade-related	What level of harvest is sustainable?	✓	3.1, 3.4, 3.6
	What level of harvest <i>for trade</i> is sustainable?		
	What harvest methods are sustainable?	✓	3.5, 4.1, 4.10, 4.11
	When to harvest?	✓	3.5
	Whether trade is likely to create livelihood opportunities for rural communities?		
	Whether wild harvest or intensive management is likely to have better outcomes for conservation?	✓	5.1
	Whether wild harvest or intensive management is likely to have better outcomes for livelihoods?	✓	6.1

Governance factors

	Does standard address:	PEFC	Indicators
Property rights	Whether property rights over land and resources are well-defined and secure?	✓	6.3
Policy settings	Whether policy settings are supportive of sustainable trade?		
	Whether policy settings are supportive of fair contractual relationships?	✓	6.11, 6.12
	Whether policy settings limit the participation of children?		
Broader governance context	Whether the broader governance context enable legal trade?	✓	7.1, 7.2
	Whether the broader governance context enable sustainable trade?	✓	7.1
	Whether the broader governance context enable conservation?	✓	7.2
	Whether the broader governance context enable benefit-sharing?	✓	7.1
	Whether the broader governance context enable livelihood opportunities?	✓	7.1

Supply-chain factors

	Does standard address:	PEFC	Indicators
Cost and scale of production	Whether sustainable harvest in the species is cost-effective?	✓	3.2
	Whether sustainable trade in the species is cost-effective?	✓	3.2
	Whether there is transparency in cost calculation?		
	Whether wildlife trade is the most cost-effective use of wildlife and land resources?		
Participation of local communities	Whether the supply-chain structure provides opportunities for local communities to participate in and benefit from trade?		
	Whether the supply-chain structure provides opportunities for the development of local enterprises?		
Conservation outcomes	Whether the supply-chain structure provides incentives for conservation?		

End-market factors

	Does standard address...	PEFC	Indicators
Market-related	Whether the returns from trade create sufficient incentives for market entry and sustainable use?		
	Whether there is a market to warrant sustainable harvest of this species?		
	Whether the market value is sufficiently high to generate livelihood benefits?		
	Whether the market value is sufficiently high to generate conservation incentives?		
Demand-related	Whether the type of products demanded create sufficient incentives for market entry and sustainable use?		
	Whether the nature of demand create risks for overharvest or illegal trade?		
Consumer preferences	Whether consumer preferences create an opportunity or a risk for conservation and sustainable livelihoods?		

7.3 FOS Certification Program

Species-level factors

	Does standard address:	FOS	Indicators
Species-related	Whether there is basic data on the species?	✓	Main document (f) (g)
	Whether there is sufficient knowledge on the species to allow for its identification?		
	Whether species is suitable for harvest?		
	Whether species is suitable for trade?		
	Whether species is resilient to harvest?		
Harvest and trade-related	What level of harvest is sustainable?		
	What level of harvest <i>for trade</i> is sustainable?		
	What harvest methods are sustainable?		
	When to harvest?		
	Whether trade is likely to create livelihood opportunities for rural communities?		
	Whether wild harvest or intensive management is likely to have better outcomes for conservation?		
	Whether wild harvest or intensive management is likely to have better outcomes for livelihoods?		

Governance factors

	Does standard address:	FOS	Indicators
Property rights	Whether property rights over land and resources are well-defined and secure?	✓	2.1
Policy settings	Whether policy settings are supportive of sustainable trade?	✓	12.1
	Whether policy settings are supportive of fair contractual relationships?	✓	11.1.2, 11.1.3, 11.1.4, 11.2
	Whether policy settings limit the participation of children?	✓	11.1.1
Broader governance context	Whether the broader governance context enable legal trade?		
	Whether the broader governance context enable sustainable trade?	✓	2.2
	Whether the broader governance context enable conservation?	✓	2.2
	Whether the broader governance context enable benefit-sharing?		
	Whether the broader governance context enable livelihood opportunities?		

Supply-chain factors

	Does standard address:	FOS	Indicators
Cost and scale of production	Whether sustainable harvest in the species is cost-effective?		
	Whether sustainable trade in the species is cost-effective?		
	Whether there is transparency in cost calculation?		
	Whether wildlife trade is the most cost-effective use of wildlife and land resources?		
Participation of local communities	Whether the supply-chain structure provides opportunities for local communities to participate in and benefit from trade?		
	Whether the supply-chain structure provides opportunities for the development of local enterprises?		
Conservation outcomes	Whether the supply-chain structure provides incentives for conservation?		

End-market factors

	Does standard address...	FOS	Indicators
Market-related	Whether the returns from trade create sufficient incentives for market entry and sustainable use?		
	Whether there is a market to warrant sustainable harvest of this species?		
	Whether the market value is sufficiently high to generate livelihood benefits?		
	Whether the market value is sufficiently high to generate conservation incentives?		
Demand-related	Whether the type of products demanded create sufficient incentives for market entry and sustainable use?		
	Whether the nature of demand create risks for overharvest or illegal trade?		
Consumer preferences	Whether consumer preferences create an opportunity or a risk for conservation and sustainable livelihoods?		

7.4 MSC Standards

Species-level factors

	Does standard address:	MSC	Indicators
Species-related	Whether there is basic data on the species?	✓	SA2.2.2, SA3.1.1.1, Table SA12 PI 2.1.3
	Whether there is sufficient knowledge on the species to allow for its identification?	✓	Table SA6 PI 1.2.3
	Whether species is suitable for harvest?	✓	SA3.1.5
	Whether species is suitable for trade?	✓	SA3.1.5
	Whether species is resilient to harvest?	✓	Table SA3 PI 1.1.2
Harvest and trade-related	What level of harvest is sustainable?	✓	Table SA1 PI 1.1.1
	What level of harvest <i>for trade</i> is sustainable?		
	What harvest methods are sustainable?	✓	Table SA4 PI 1.2.1
	When to harvest?		
	Whether trade is likely to create livelihood opportunities for rural communities?		
	Whether wild harvest or intensive management is likely to have better outcomes for conservation?	✓	Table SA2 PI 1.2.4, Table SA23 PI 2.5.2
	Whether wild harvest or intensive management is likely to have better outcomes for livelihoods?		

Governance factors

	Does standard address:	MSC	Indicators
Property rights	Whether property rights over land and resources are well-defined and secure?	✓	SA4.1.1
Policy settings	Whether policy settings are supportive of sustainable trade?		
	Whether policy settings are supportive of fair contractual relationships?		
	Whether policy settings limit the participation of children?		
Broader governance context	Whether the broader governance context enable legal trade?		
	Whether the broader governance context enable sustainable trade?	✓	Table SA25 PI 3.1.1, Table SA27 PI 3.1.3
	Whether the broader governance context enable conservation?		
	Whether the broader governance context enable benefit-sharing?	✓	Table SA26 PI 3.1.2
	Whether the broader governance context enable livelihood opportunities?	✓	Table SA25 PI 3.1.1

Supply-chain factors

	Does standard address:	MSC	Indicators
Cost and scale of production	Whether sustainable harvest in the species is cost-effective?		
	Whether sustainable trade in the species is cost-effective?		
	Whether there is transparency in cost calculation?		
	Whether wildlife trade is the most cost-effective use of wildlife and land resources?		
Participation of local communities	Whether the supply-chain structure provides opportunities for local communities to participate in and benefit from trade?		
	Whether the supply-chain structure provides opportunities for the development of local enterprises?		
Conservation outcomes	Whether the supply-chain structure provides incentives for conservation?		

End-market factors

	Does standard address...	MSC	Indicators
Market-related	Whether the returns from trade create sufficient incentives for market entry and sustainable use?		
	Whether there is a market to warrant sustainable harvest of this species?		
	Whether the market value is sufficiently high to generate livelihood benefits?		
	Whether the market value is sufficiently high to generate conservation incentives?		
Demand-related	Whether the type of products demanded create sufficient incentives for market entry and sustainable use?		
	Whether the nature of demand create risks for overharvest or illegal trade?		
Consumer preferences	Whether consumer preferences create an opportunity or a risk for conservation and sustainable livelihoods?		

7.5 FFL Certification Programme

Species-level factors

	Does standard address:	FFL	Indicators
Species-related	Whether there is basic data on the species?	✓	1.1.1
	Whether there is sufficient knowledge on the species to allow for its identification?	✓	1.1.1, 1.1.2
	Whether species is suitable for harvest?		
	Whether species is suitable for trade?		
	Whether species is resilient to harvest?		
Harvest and trade-related	What level of harvest is sustainable?	✓	6.5.2
	What level of harvest <i>for trade</i> is sustainable?		
	What harvest methods are sustainable?	✓	6.5.1
	When to harvest?	✓	6.5.2
	Whether trade is likely to create livelihood opportunities for rural communities?		
	Whether wild harvest or intensive management is likely to have better outcomes for conservation?		
	Whether wild harvest or intensive management is likely to have better outcomes for livelihoods?		

Governance factors

	Does standard address:	FFL	Indicators
Property rights	Whether property rights over land and resources are well-defined and secure?	✓	6.4.3
Policy settings	Whether policy settings are supportive of sustainable trade?	✓	6.1.4
	Whether policy settings are supportive of fair contractual relationships?	✓	6.1.1, 6.1.2, 6.1.3, 6.1.4, 6.2.2, 6.3.1, 6.3.2
	Whether policy settings limit the participation of children?	✓	6.2.1
Broader governance context	Whether the broader governance context enable legal trade?		
	Whether the broader governance context enable sustainable trade?		
	Whether the broader governance context enable conservation?		
	Whether the broader governance context enable benefit-sharing?		
	Whether the broader governance context enable livelihood opportunities?		

Supply-chain factors

	Does standard address:	FFL	Indicators
Cost and scale of production	Whether sustainable harvest in the species is cost-effective?		
	Whether sustainable trade in the species is cost-effective?		
	Whether there is transparency in cost calculation?		
	Whether wildlife trade is the most cost-effective use of wildlife and land resources?		
Participation of local communities	Whether the supply-chain structure provides opportunities for local communities to participate in and benefit from trade?	✓	6.6.2
	Whether the supply-chain structure provides opportunities for the development of local enterprises?		
Conservation outcomes	Whether the supply-chain structure provides incentives for conservation?		

End-market factors

	Does standard address...	FFL	Indicators
Market-related	Whether the returns from trade create sufficient incentives for market entry and sustainable use?		
	Whether there is a market to warrant sustainable harvest of this species?		
	Whether the market value is sufficiently high to generate livelihood benefits?		
	Whether the market value is sufficiently high to generate conservation incentives?		
Demand-related	Whether the type of products demanded create sufficient incentives for market entry and sustainable use?		
	Whether the nature of demand create risks for overharvest or illegal trade?		
Consumer preferences	Whether consumer preferences create an opportunity or a risk for conservation and sustainable livelihoods?		