



Value Chain Analysis

CBI Integrated Country Programme
Peru (2013-2017)

Final Report Aquaculture and Fishery products

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1. Introduction

The following aquatic organisms have a commercial relevance in Peru:

- Wild caught fish, shellfish, cephalopods and crustaceans from marine and inland fisheries, and
- Fish, shellfish, crustacean, from marine and freshwater aquaculture

The first research phase¹ has led to the decision to focus the further Value Chain Analysis (VCA) on the export business of aquaculture, seaweed products marketwise are subject of the natural ingredients chapter. Traditionally, Peru is a world-wide leading fishery nation with an export business of aquatic organisms worth more than 3.1 billion US-\$ in 2011. The lion's share (67.5% of total export value) is generated by marine fisheries producing fishmeal and fish oil that is not for human consumption. The share of caught wild fish used for direct human consumption is significantly smaller. In the last decade Peru has developed a successful canning industry in order to add value to wild caught fish. The authors do not recommend integrating the wild fish sector into the new CBI (Centre for the Promotion of Imports from Developing Countries)² country programme:

- Global experts doubt that any Peruvian wild fish stocks are currently managed sustainably. Not a single fishery is certified according to Marine Stewardship Council (MSC), although several applications from anchovy fisheries are in the pipeline. According to MSC, there are discussions with Peruvian fisheries in progress, but certification will take at least three years. Thus a CBI country strategy focussing on sustainable products might not fit to the fishery sector.
- In this context the landings of major wild fish species cannot be seen as stable due to overfishing, exacerbated by climate change effects and phenomena like El Niño and La Niña. There are several examples where there has been a crash in the populations. For example, in 2010 landings of Horse Mackerel (Jurel) declined dramatically, while in the first half of 2012 the landings of anchovies went down. Similar events might follow in future and could harm a CBI sector programme focused on fisheries.
- Due to the economic importance the fishery sector is highly concentrated and dominated by a few larger companies. Concentration is much higher than in other sectors (including aquaculture).
- A wild fish processing infrastructure is in place and finished products have been developed for export business.

However, opportunities for the Peruvian aquaculture sector have been analysed in this Value Chain Analyses.

The VCA has been conducted by Udo Censkowsky with support from Thomas Sporrer and Jörn Berger. The VCA has been reviewed after the realization of the validation workshop in Lima (16th April 2013). New information gained as well as results of the workshop discussion have been integrated.

¹ A pre-assessment of the Peruvian seafood sector has been done before taking the decision on the focus of the value chain analysis. The pre-assessment has lead to an inception report.

² CBI is a program of the Dutch Ministry of Foreign Affairs.

2. Market demand in European Union/EFTA countries

2.1. Seafood import European Union

Worldwide fish consumption per-capita is estimated to be 18.8 kg (with a projection to reach 19.6 kg in 2021). In the European Union, which has around 503 million consumers, seafood consumption has reached 22.1 kg per capita making it to be above the world's average. Strongest growth in consumption is forecasted to take place in Asia and Europe³.

The European member states show significant differences in consumption per country, with the highest consumption in countries like Portugal (61.6 kg), Spain (44.8 kg), Lithuania (37.6 kg) and France (34.2 kg), and the lowest consumption in Bulgaria (4.2 kg), Hungary (5.1 kg), Romania (5.3 kg) and Slovakia (8.1 kg). Germany with the highest number of consumers has an average consumption of 15.3 kg⁴. Differences also exist between member states in regard to the seafood product preferences, in particular between the Mediterranean and Northern countries.

European wild fish stocks are partially overfished and so no significant increase in production can be expected. At the same time, European aquaculture production also remains stagnant – since 2000 there has been no significant increase in production⁵. As a consequence, the European Union is highly reliant on seafood imports from Third countries.

The EU is the largest importer of fish, seafood and aquaculture products in the world. More than 50% of total seafood is imported from Third Countries (65% in 2011; 9,548,000 tons +1.5%)⁶. Importation includes both wild and farmed seafood but excludes categories like bivalve molluscs and algae. However, the figures, which are published annually by the EU Fish Processors and Traders Association, do include species important to the Peruvian seafood business, like trout, shrimp, cephalopods, tilapia and hake.

In addition to the mainstream market, the European Union/EFTA countries are also the largest market for sustainable seafood products produced from sustainable fisheries and/or from organic or sustainable aquaculture. In regard to seafood market segments for sustainable fisheries, a consumer survey in various European countries has shown that the MSC label is gaining in recognition and importance⁷. For example, in 2011 30% of nearly 6,000 consumers from ten countries (six European countries, Japan, Canada, Australia and the United States) recognize the MSC label, which was up from 23% in 2010. In 2011, 55% of German consumers – up from 36% in 2010 – recognized the MSC label⁸. Following on from Germany, the world's largest market for MSC certified products, is the Netherlands, with 44% Dutch consumers (up from 34% in 2010) recognizing the MSC

³ The State of World Aquaculture and Fisheries, FAO 2012;

⁴ All figures are from 2007, FAO Yearbook; in Germany consumption increased slightly up to 15.7 kg in 2010, and then declined in 2011 to 15.6 kg.

⁵ In 2009 the EU Commission published a strategy for the future development of the aquaculture sector: <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:52009DC0162:EN:NOT>

⁶ A.I.P.C.E.-C.E.P. Finfish Study 2012: <http://aipcecep.drupalgardens.com/content/white-fish-study>

⁷ <http://www.msc.org/about-us/news/newsitem/new-research-reveals-increasing-consumer-support-for-the-msc-ecolabel>

⁸ 38% in Sweden, 31% in UK, 35% in Denmark and 20% in France

label. This upwards trend is forecasted to continue. The importance of the MSC label in Italy, France and Spain, major importers for Peruvian seafood, is still low.

Sales of organic seafood from aquaculture managed according to the EU production rules for organic aquaculture is increasing in some European countries. In both volume and values Germany has the lead, and is the world's largest importer of organic seafood at the moment. In the German market a high proportion of organic seafood carries the EU organic logo as well as the Naturland logo for organic aquaculture. Switzerland is the country with the highest organic seafood consumption per capita in Europe (and the highest per capita consumption of organic food in general). The second largest retailer in Switzerland, COOP, has particularly driven the market, educated its consumer and developed the largest assortment of organic seafood in all categories (frozen, chilled and fresh).

Organic shrimps and salmon are, by far, the main products in the market. However, the range of organic seafood is growing. Some of the new species include organic trout from domestic production and imported from EU producers such as Denmark, organic mussels from Ireland, organic tilapia from Israel and Ecuador, organic Pangasius from Vietnam, and organic sea bream and sea bass from various Mediterranean countries. The total market size might now have exceeded a turnover of 500,000 Mio EUR⁹.

In some important product categories imports declined between 2010 and 2011. And, according to the estimate for 2012, total imports will continue to decline by 500,000 t to 9,070,000 t¹⁰. The economic crisis is the most significant factor causing the slowdown in the seafood business, although other factors include a shortage of supply and related price increases.

In **Germany**, for example, per capita seafood consumption went down by 10% in 2012 due to the fact that consumers continued to buy herring in spite of the fact that prices for herring went up by 100%. As herring is the third most popular fish consumed in Germany consumers responded to increased prices by buying less other seafood products¹¹. In total, the German seafood business faced a decline of total sales of about 2.9% in 2011. However, re-export increased by 4.6% in 2011 (461 Mio EUR).

In **France** the number of imported scallops has declined. In the first six month of 2012 the imports fell from 14,400 t to 9,600 t. Of these, 1,800 t came from Peru, while the second biggest supplier of the French scallop market was Argentina (offering MSC certified Patagonian Scallops).

In **Spain, France and UK** the imports of shrimp declined significantly in the first quarter of 2012. Spain, the largest shrimp importer in Europe, has been hit very badly by the financial crisis, which explains why imports dropped by 28%. In Italy the decline was 24% and in UK imports dropped by 2.2%. In addition to this, leading German shrimp exporters have made it clear that it is difficult to keep the standard business. On the one hand prices are increasing, while on the other, hand trade requirements are become more challenging.

In spite of the overall slowdown of the European seafood import business, the high reliance on seafood imports as well as the overall import quantities makes the European Union a

⁹ No official figures are available; own estimation.

¹⁰ These figures of 2012 do not correspond to the long term forecast of FAO claiming that seafood consumption in Europe will grow. FAO data and analyses did not incorporate the short term impact of the economic crisis sufficiently.

¹¹ Personal communication with Dr. Matthias Keller, Managing Director, German Seafood Association; 10.11.2012

key market for Peruvian seafood exporters with further growth potential. More than 30% of all exports of seafood for direct human consumption (aquaculture and fisheries) go into the European Union. However, the Peruvian aquaculture sector faces increasing opportunities to export farmed seafood products to other regions in the world (above all to Asia, North America and Regional Markets).

Farmed seafood products count for 22.3% of all seafood exports in 2011, an increase of 37.1% in comparison to 2010. The export volumes and export values for farmed seafood from Peru has steadily increased over the last few years. From 2010 to 2011 the growth rate was 38.3% of the total value for farmed seafood.

By far the most important category is Peruvian Scallop accounting for more than 57% of all exports of farmed seafood, followed by Penaid shrimps which are 38% of all exports. Trout, tilapia and Amazonian fish species are relatively new but show strong growth and clearly have the potential for more growth in the future.

Table 1: Exports of main aquaculture products in 2010 and 2011

Farmed Species						
	MT in 2010	MT in 2011	(+/-) %	in US-\$ 2010	in US-\$ 2011	(+/-) %
Peruvian Scallops	9,980	11,414	14,3	96,427,148	131,293,390	36,2
Shrimp (<i>P.vannamei</i>)	9,932	15,404	55,1	62,560,193	87,501,370	39,8
Trout	953	1,165	22,2	5,928,693	8,868,321	49,6
Tilapa	94	239	154,2	709,725	1,186,316	67,1
Arapaima	2	32	1.500,0	23,153	379,098	1.537,0
Total	20,961	28,739	37,1	165,648,911	229,228,496	38,3

Source: PRODUCE 2012

Spain, Italy and France are, by far, the biggest importers of seafood, but in particular of shrimp and scallops, the dominant aquaculture products. In these countries particularly, a larger proportion of the imports are for further processing and value adding, and are imported frozen.

Currently, no tilapia products from Peru are exported to Europe where in total about 40,000 of frozen filets are imported from Third Countries. Most of the tilapia from China but also about 140 t from Ecuador (a good part or the whole quantity is certified organic) sold to Germany.

Table 2: European export destinations for farmed seafood products from Peru (2009-2011)

Major EU export destinations for farmed seafood products from Peru							
<i>Ranking per farmed product: F=France, NL=Netherlands, I=Italy, ES=Spain, B=Belgium, GER=Germany, S=Sweden, P=Poland</i>							
Product categories	HS Code	2009		2010		2011	
		in tons	per country	in tons	per country	in tons	per country
Peruvian scallops	3072990	6.065	1. F (4.268,4 t)	8.954	1. F (6.222,9 t)	7.690	1. F (5.830,2 t)
			2. NL (754,1 t)		2. NL (1.465,7 t)		2. B (642,7 t)
			3. I (398,3 t)		3. ES (384,2 t)		3. I (432,5 t)
Penaid shrimp	3061350	2.642	1. ES (1.803,9 t)	3.165	1. ES (2.188,2 t)	3.117	1. ES (2.351,4 t)
			2. F (591,9 t)		2. F (837,1 t)		2. F (397,8 t)
			3. NL (122,8 t)		3. B (61,5 t)		3. B (228,3 t)
Trout (fillets, frozen)	3042917	420	1. GER (220 t)	470	1. F (254 t)	1.334	1. P (481 t)
			2. S (198 t)		2. S (170 t)		2. F (371 t)
			3. PL (2 t)		3. P (46 t)		3. S (265 t)
Trout (frozen whole fish)	3031490	216	1. GER (124,8 t)	272	1. GER (181,8 t)	534	1. P (263,4 t)
			2. PL (63 t)		2. P (35,4 t)		2. D (225,7 t)
			3. S (28 t)		3. S (20,9 t)		3. S (24,7 t)

Source: EUROSTAT 1/2013

2.2. EU import requirements for seafood

EU member states (EU 27), as well as the Iceland, Switzerland, Norway and Liechtenstein (EFTA countries), require imports from Third Countries to meet the same quality requirements as seafood products produced elsewhere. According to the principal understanding of the European Union fulfilment of requirements needs to be guaranteed by the government of the exporting Third Country. Private certifications (according to ISO, GlobalG.A.P. etc.) are not accepted as the EU needs an official Sanitary Certificate, and for wild caught fish a certificate showing that catches are not from illegal, unregulated and unreported fisheries (IUU) is also required.

In the European Union DG Sanco is the responsible body to develop and administer food laws implementation in Europe. Competent authorities in Third Countries deal directly with DG Sanco. The food regulations (EC) No. 178/2002, (EC) No. 882/2004, (EC) No. 853/2004 and (EC) No. 854/2004 define the basic requirements for food quality in general, and seafood in particular.

The European Union requires that in exporting Third Countries a competent authority is in place to guarantee that the regulations in the Third Country are the same or equal to the regulation set for all European seafood companies (producers, processors and traders). In addition the competent authority must be efficient, impartial and capable to verify that:

- a) Seafood companies (fish farmers, fisheries, processors and exporters) have quality assurance systems like HACCP, Traceability, Good Manufacturing Practices etc. in place.
- b) Seafood exports are pathogen free (e.g. no histamines, residues, bio-toxins and/or microbiological contaminations).

This requires the existence of a governmental monitoring and verification system, necessary resources to inspect and supervise as well as an adequate infrastructure. The competent authority needs to issue (and update) a list of seafood operations (producers, fisheries), a list of processors and, for live bivalve molluscs, a special list. This list has to be send to DG SANCO. In Peru, Peruvian companies are responsible for getting in contact with the Peruvian competent authority (SANIPES) in order to start the approval process. At the moment 199 processing plants and factory vessels are approved by SANIPES and have reported to DG SANCO (exclusive bivalve molluscs with another 20 operations on the list)^{12,13}. In some cases one company depends upon several approved processing sites in Peru.

Out of the 199 approved operations, three are factory vessels, 126 are for wild fish processing and 70 are processing farmed seafood products. The 70 operations belong to 50 companies. Some companies operate more than one processing plants situated in different regions, like Inversiones Himalaya S.A.C. (2), Perupez S.A.C. (2), Inversiones Peru Pacifico S.A.C. (3), Pesquera Hayduk S.A.C. (2) and Corporación Refrigerados Iny

¹² https://webgate.ec.europa.eu/sanco/traces/output/PE/LBM_PE_en.pdf

¹³ https://webgate.ec.europa.eu/sanco/traces/output/PE/FFP_PE_en.pdf

S.A.C. (4). The regional distribution of approved seafood processing plant engaged in aquaculture products shows that more than half (36) are in the region of Piura¹⁴.

A more detailed description of the import requirements is given in two documents:

- a) Acceso al Mercado de la UE y Ecoetiquetado para productos pesqueros y acuícolas (2011) published by SIPPO¹⁵.
- b) EU market requirements for fishery and aquaculture products (2012) published by CBI Market Intelligence¹⁶.

Certified organic seafood products from aquaculture need to be in compliance with the EU production rules for organic aquaculture (including rules for fish, crustacean, bivalve molluscs, macro-algae from farms and from wild collection). The regulatory system for organic aquaculture is defined in three regulations:

- a) Council Regulation (EC) No. 834/2007; 28.06.2007
- b) Commission Regulation (EC) No. 889/2008; 18.09.2008
- c) Commission Regulation (EC) No. 710/2009; 5.8.2009

One Peruvian shrimp farm is certified organic, but its produce is exported via Ecuador. One trout producer group and related feed mill, processing plant and exporter is certified organic.

Besides compliance with official food regulations and laws seafood exporters (and importers) have to be able to demonstrate any private quality assurance certification they have. Retailers and processors supplying the European retailers, in particular ask for GlobalG.A.P. and/or for ASC certification. The standards for the latter certification scheme (standards for the production of tilapia and pangasius; bivalve molluscs, trout and shrimp) are in the testing and/or developing period and will become relevant for the business end of 2013 and/or beginning of 2014.

In regard to the importance of private labelling schemes two certifications are becoming of greater importance for aquaculture products in the European market:

- **GlobalG.A.P. certification**¹⁷: Importers in Europe ask for Global GAP certification in particular for products without ASC certification. Global GAP is a business to business certification. As seafood is mainly sold in retail trade retail groups ask for an additional quality assurance in order to avoid severe problems with environmental and social constraints.
- **ASC certification**¹⁸: This certification scheme started to enter the market in 2012, certifying just pangasius and tilapia. Before other species can be certified, the ASC standards need to be approved or, as for the standards covering trout, are still in the testing period. Currently, test audits are being undertaken to evaluate the practicability of ASC shrimp and salmon standards, and standards for bivalve molluscs are on the way. Unlike GlobalG.A.P. the ASC is a business to consumer

¹⁴ Other regions have a lower density of approved processing plants: Ancash (8), Tumbes (5), Ica (5), Callao (4), Lima (4), Tacna (2), Arequipa (2), Moquegua (2), , Puno (1) and Junin (1).

¹⁵ http://exporters.sippo.ch/en/filefield-private/files/43448/field_blog_public_files/11535

¹⁶ <http://www.cbi.eu/marketintel/EU%20legislation:%20Fishery%20and%20aquaculture%20products/160074>

¹⁷ http://www.globalgap.org/uk_en/for-producers/aquaculture/

¹⁸ <http://www.asc-aqua.org/>

label and on the way to becoming the sustainability choice for “mainstream” markets. ASC certification is challenging but offers good market entrance opportunities.

At the moment one Peruvian trout producer has applied for ASC certification.

- **Friends of the Sea Certification:** This sustainable aquaculture certification scheme is particularly well known in Italy, and to a lesser degree in France and Spain. It is unlikely it will get the recognition and market relevance that ASC will gain in the coming years. Nevertheless, Friends of the Sea certification is a starting point.

Two Peruvian scallop farmers are currently certified by Friends of the Sea.

Unfortunately, in 2008 the European Commission set into force the regulation (EC) No. 866/2008, which had the effect of stopping the import of live bivalve molluscs from Peru¹⁹ due to deficiencies in the quality assurance system. Currently, only Chile is exporting large quantities of live bivalve molluscs to the European Union; Peruvian exporters need to eviscerate the molluscs or treat the molluscs with heat in order to export to the EU.

¹⁹ <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2008:307:0009:0010:EN:PDF>

3. Aquaculture Value Chain Analysis

3.1. Governance and sector development

Aquaculture is governed by various governmental and semi-governmental organizations in Peru. The Ministry of Production (and/or the Vice Ministry for Fisheries) has a leading role in coordinating all activities. A National Commission of Aquaculture has been set up. These organizations have the political lead and define the framework and activities for the further development of the aquaculture sector. The General Aquaculture Directorate (GAD), which is linked to office of the Vice Minister for Fisheries, is responsible for the implementation and further development of the National Plan for Aquaculture Development (PNDA)²⁰.

This plan outlines a long term vision for the Peruvian aquaculture sector, including economic (e.g. income generation through increased exports), social (e.g. food security for rural population) and ecological aspects (e.g. carrying capacity of coastal ecosystem to counterbalance the impact of increasing mariculture along the Peruvian coastline).

GAD has to report regularly on the progress made in implementing the PNDA to the National Commission of Aquaculture. Members of the Commission include ADEX, CCL and Promperu.

In addition, an aquaculture research and development programme has been defined. Research on new species and technological innovations in aquaculture are the main research activities²¹. Innovations in the fishery and aquaculture sector can be supported by specific competitions initiated by the national programme, Innovate Peru²².

A National Cadastre²³ for all aquaculture operations in Peru has been built up as well as an information platform for aquaculture in Peru²⁴. The platform Red Nacional de Acuicultura offers a wide range of information on aquaculture production and markets.

For the most important farm species (trout, shrimp and scallops) national production protocols have been developed, which serve as guidelines²⁵.

A CBI sector programme for aquaculture products will benefit from an aquaculture sector that is organized and follows clear strategic objectives. Production targets set by the PNDA have been reached so far, and an ongoing growth in production has been forecasted.

²⁰ Plan Nacional de Desarrollo Acuícola 2010-2021

²¹ Programa Nacional de Ciencia, Desarrollo Tecnológico e Innovación en Acuicultura 2013-2021

²² <http://redtematica.concytec.gob.pe/acuicultura/m/news/view/Lanzan-convocatoria-a-proyectos-de-innovacion-en-pesca-y-acuicultura-en-Per> ; www.innovateperu.pe

²³ http://gis-dga.produce.gob.pe:8181/CATASTRO_ACUICOLA/mapviewer.jsf?width=1366&height=880

²⁴ <http://redtematica.concytec.gob.pe/acuicultura/>

²⁵ Normas técnicas para la producción como parte del sistema ISO

3.2. Status quo production and trends

Aquaculture production has grown significantly in recent years. For example, in 2003 the Peruvian aquaculture sector produced a total of 13,610 t, which by 2011 production had increased to 92,201 t, an average annual growth rate of 20%. This growth trend continued in 2012, and according to current forecasts the total aquaculture production is likely to reach 135,000 Mt by 2016. Exports of aquaculture products are forecasted to reach 39,000 tons (28,000 tons in 2011). In 2011, 74% of aquaculture production took place in mariculture systems, while land based aquaculture accounted for the remainder of 26%.

About 81,917 people are directly and/or indirectly employed in the aquaculture sector, about 324,748 people make a living in the informal sector (subsistence aquaculture). In the year 2010, 3,764 aquaculture operations had a valid license for aqua-farming on a total area of 17,858.2 ha.

Table 3: Aquaculture farming licenses in Peru 2010*

Continental		Mariculture		Total	
N° farms	Area (ha)	N° of farms	Area (ha)	N° of farms	Area (ha)
3.535	2.801,78	229	15.056,43	3.764	17.858,20

*Source: Dirección de General de Acuicultura

While many small aqua-farming operations are relatively small land-based operations, mariculture is, by far, larger and more professionalized.

In continental aquaculture trout (19,962 t in 2011), tilapia (2,423 t in 2011) and various Amazonian fishes such as Gamitana (with 522 t) and Paiche (with 422 t in 2011) are the most important farmed species. In mariculture scallops (52,213 t in 2011) and shrimp (19,962 t in 2011) are the leading commercial products. More sites are available for the expansion of aquaculture in Peru, which is the pre-condition for further growth in production. Thus, the sector qualifies also for a CBI sector programme.

The most important production regions or marine aquaculture are Tumbes and Piura for shrimp, and Ica (city of Pisco), Ancash (cities of Samanco and Casma) and Piura (city of Sechura) for Peruvian Scallops. A promising marine species, the Fine Flounder (*Lenguado*; *Paralichthys adspersus*) is produced in the cities of Chincha (region of ICA) and Huarmey (region of Ancash). All in all, about 300 tons are currently being produced, with plans to increase production. Tilapia is produced mainly in Piura (city of Sullana), in the province of San Martin.

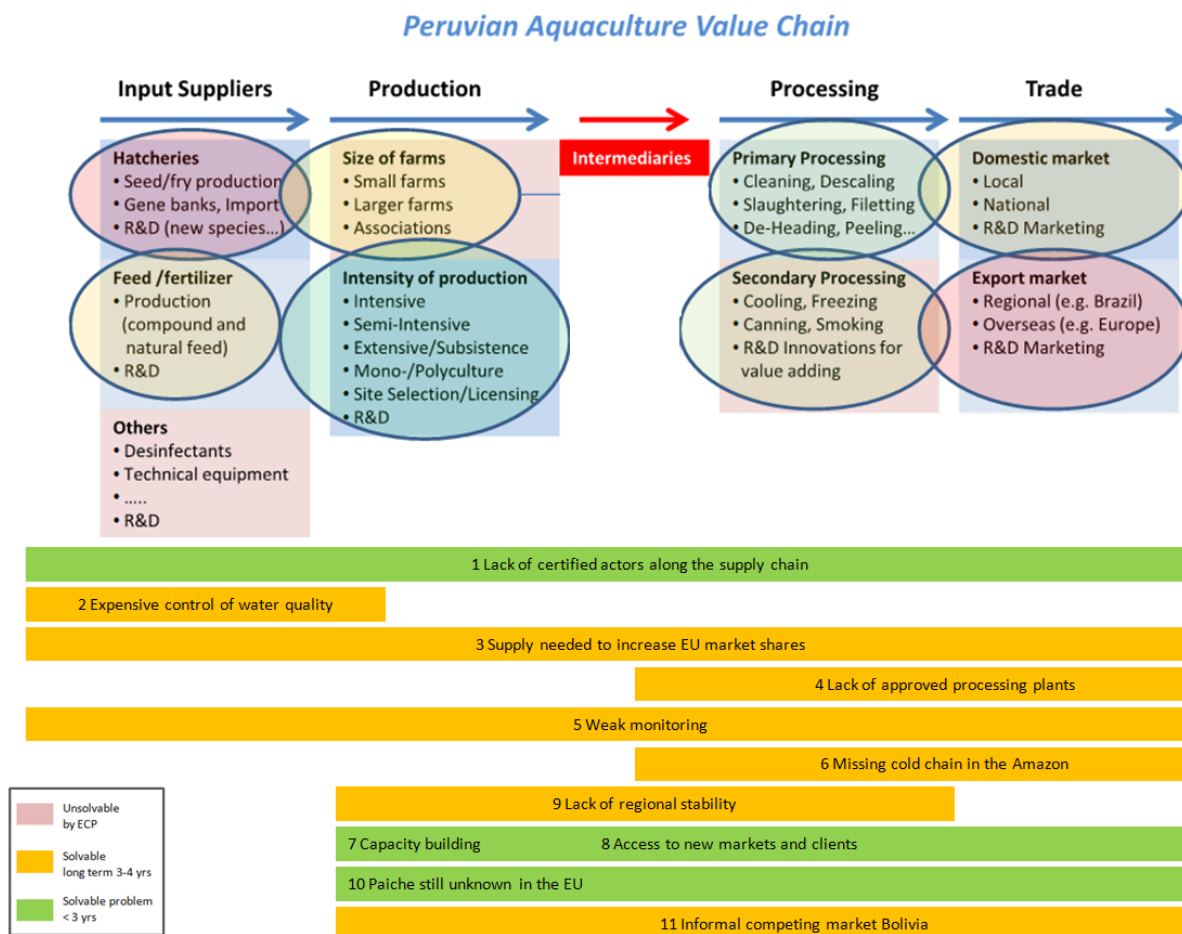
Trout is produced in Cajamarca, Junín, Cerro de Pasco, Huánuco, Huancavelica, Ayacucho, Ancash, Apurímac and in Puno. Amazonian fishes are produced around Iquitos and Yurimaguas in the department of Loreto, in San Martin and in Ucayali²⁶.

²⁶ Production in Yurimaguas depends upon land transport over Tarapoto.

3.3. Peruvian aquaculture: Value Chain Analysis

In spite of the fact that the overall aquaculture sector development has been successful in recent years, some constraining factors have been identified. Some of the factors are of a general nature and are relevant for all farmed species. Others are related to specific aquaculture species. Due to the growing global demand, as well as the growing domestic market for seafood, a shortage of supply can be forecasted.

Graph 1: Value Chain Bottlenecks and Opportunities



As already outlined in the National Development Plan for Aquaculture, the high share of imported seed (fertilized eggs of trout, tilapia and shrimp) creates a dependency from foreign suppliers, as well as increasing the risks in case of an outbreak of unknown diseases. In regard to the import of feedstuff, differing information is available. In all cases, Peru has a comparative advantage due to the fact that Peru is the world's largest supplier of fishmeal and fish oil. What is unclear is the availability of soybeans, an important ingredient for compound fish feed. However, an organic trout producer in Puno near Lake Arapa, has managed to produce its own feedstuff based on waste material of organic Andean grains (quinoa, and kiwicha) and earthworms, which is a promising example to follow.

Both topics cannot be influenced directly in the frame of a CBI sector programme. However, shifting selected seafood companies towards more sustainable production methods (e.g. by supporting the achievement of ASC certification) will influence the hatching process as well as the composition of compound feed and the origin of feed ingredients.

Capacity building, dissemination of know-how and bio security: Training courses are offered in nearly all regions of Peru to promote aquaculture production. Besides attracting new fish farmers, increasing fish supply for local and export markets, and increasing production efficiency, it is of utmost importance to avoid the outbreak of diseases²⁷. **Bio security trainings** on all levels are essential to avoid similar situations, in particular during times of quick growth. **Small producer organizations** can play an important role in transferring know-how to small producers, but many small aqua-farmer associations are poorly organized.

Therefore, a CBI sector programme should co-operate with Business Support Organizations trying to increase production, improve management of small fish farmer associations as well as impart bio security know-how on farmers' level.

Insufficient processing infrastructure: The lack of processing plants is a problem for inland aquaculture (tilapia, trout and Amazonian fish species). Along the coast a sufficient number of primary and secondary processing plants are available. In addition most of the EU approved processing plants are sited **along the coastline where in some cases wild fish and farmed fish are processed**²⁸.

With the help of CBI investment opportunities in primary processing shall be discussed and promoted with financing institutions in Peru as well as potential European buyers.

Deficiencies in the national food quality monitoring and supervision system: In addition to the problem that live bivalve molluscs from Peru are banned, inspectors undertaking audits of seafood operations need more training (e.g. in implementation of HACCP in supply chains, processing plants). A well functioning monitoring system is needed to avoid export bans, match with the quality requirements in important export markets and finally to keep the export markets open for the promising Peruvian aquaculture.

A capacity building programme (e.g. HACCP training courses) for involved Peruvian organizations (above all SANIPES) should be supported by CBI and implemented through Peruvian business supporting organisations.

3.3.1. Scallop (Concha Abanico, *Argopecten purpuratus*)

Three companies produce about 70% of the national scallop production. These large scallop producers run their own hatcheries to produce scallop seeds for their own production as well as for smaller producers in the region.

The biggest constraint in Scallop production is that the EU and Norway have a ban on Peruvian bivalve molluscs for human consumption. The ban was first imposed in 2008 following an outbreak of Hepatitis A in scallops from Peru. Last year both the European

²⁷ Between 2000 and 2004 the Peruvian shrimp industry was badly hit by an outbreak of the White Spot Virus.

²⁸ In 2009 the landings of Giant Squid (Pota) were record-breakingly low, and many processing plants went out of operation. Some offered their services to other fish producers in order to keep the processing plants running.

Commission and Norway decided to extend the ban by another year, it will now expire on November 30, 2013.

The reason the ban was extended was that the Peruvian Competent Authority (SANIPES) could not fully implement a monitoring system for virus detection in live bivalve molluscs. In addition, the testing method for Hepatitis A is still under validation of the EU Commission.

In the context of a CBI sector programme for aquaculture the following activities can be supported:

- *Help SANIPES solve the present problems with the monitoring system*
- *Help develop a fresh scallop marketing strategy with the industry (as Peruvian scallop producers have lower production costs than Chilean producers, their biggest competitors)*
- *Develop markets for fresh and processed scallops in European markets other than just France, Spain and Italy by using a sustainability value proposition (e.g. organic certification)*

3.3.2. Shrimps (Langostino blanco, *Penaeus.vannamei*)

The production of White shrimp has increased in recent years, rising by 24% between 2010 and 2011 to reach 13.082 t. Post-larvae and compound feed is still imported to a larger extent from Ecuador. The National Development Plan for Aquaculture wants to change this situation in order to increase value adding within the industry in Peru and to reduce the dependency from imports. From the bio security point of view it is important not to rely on a few suppliers (e.g. just Ecuador). Instead, a broader range of pathogen-free shrimp hatcheries in Peru would be an important cornerstone of a long lasting successful industry.

Another bottleneck and/or constraining factor is that the majority of Peruvian shrimp ponds are located in former mangrove areas. Shrimp production in mangrove areas is viewed more and more critically in European markets. All sustainability certification schemes (organic, ASC and FoS) have specific provisions for the protection of mangrove areas. Achievement of certification might limit the potential number of sites appropriate for organic and/or ASC certification. Another constraining environmental factor might become relevant in the context of sustainability certification "mixing fresh and salt water" in order to get the right salinity needed for shrimp production.

In the context of a CBI sector programme for aquaculture the following activities can be supported:

- *CBI consultants working with shrimp exporters selected for the ECP should address environmental issues (mangroves, water) when working with the companies. Also, the possibility to involve environmental programmes (e.g. initiating mangrove afforestation around shrimp farms) could be evaluated. Even without certification such an activity can be used as a sales argument.*
- *Initiate information seminars on sustainable shrimp farming in co-operation with ASC/IDH*
- *Support 1-2 ECP participants applying for test audits of the new ASC standard in co-operation with a potential buyer in Europe*

3.3.3. Trout (*Trucha arco iris*; *Oncorhynchus mykiss*)

The production of trout in Peru has increased significantly in recent years, due to an increasing national and global market demand. Production has grown by 20% annually since 2001, reaching 21,000 t in 2011, and it is estimated to reach 35,000 t by 2015.

However, the lack of standardized production is still a bottleneck as production is in the hand of small scale trout farmers and farmers groups. The government programme, Sierra Exportadora, has already started to work on the improvement of trout production in all producing regions. Another bottleneck is the limited number of approved processing plants in the farming areas. Currently, producers are requesting the regional government to construct and/or finance more processing plants in order to overcome this bottleneck. Probably due to this situation a significant part of the production is illegally being exported to Bolivia (over the Lake Titicaca). Pathogen-free trout seed is imported from the United States as there are very few hatcheries for trout seed in Peru, the fingerlings are then hatched close to the lakes with the grow out ponds.

Sierra Exportadora (with support from international donors such as World Bank) has supported the formation of a common trade mark “Andean Trouts”²⁹ within their program “Marcas Colectivas” utilized by 6 trout producing groups. One of the groups (PIPESAC) has been supported by SIPPO and presented during European Seafood Exhibition in 2012.

One of the producer groups is the only certified organic trout producer in Peru³⁰. Furthermore, Sierra Exportadora has helped to create the first processing plant in the Department of Junín. It was inaugurated in December 2012 (Planta Procesadora de Trucha de Acuícola Junin), and is managed by the consortium “Acuícola Junin” a joint-venture of five regional aquaculture companies.

In the context of a CBI sector programme for aquaculture the following activities can be supported:

- *Help identify potential investors in trout processing plants*
- *Help develop strategies for the expansion of production*
- *Support the promotion of the brand “Andean Trout”, strengthen the capacity of this marketing organization*
- *Help involved producer groups achieving ASC certification*

3.3.4. Amazonian fish (e.g. Paiche or *Arapaima gigas*)

Only one company has been able to produce Paiche successfully starting with the development of a hatchery. The company was called Acuicola de los Paiches S.A.C., but they later changed their name to Amazone³¹. Amazone bought up to about 140 parent fish from several areas in Peru and Bolivia in order to initiate the natural reproduction of fries (alevinos). The availability of alevinos is still the major bottleneck for production of Paiche. The company has started exporting to Japan, United States and France, targeting the gourmet gastronomy segment in these countries. The company, which has a registered

²⁹ <http://andeantrout.com/>

³⁰ Acceptance of Biolatina certification of Arapa in the European Union is verified. Organic certification was introduced by SIPPO some years ago and then taken up by the producers themselves.

³¹ <http://www.youtube.com/watch?v=ADFOj1srnxg> / www.amazone.com.pe

trademark, was created within the business development department of the Hochschild Mining Group.



In the context of a CBI sector programme for aquaculture the following activities can be supported:

- *Disseminate the reproduction technology in co-operation with the Peruvian Amazon Research Centre (IIAP)*
- *Identify Paiche producers other than Amazone and support them in developing basic traceability and quality assurance systems (e.g. target GlobalG.A.P. certification) knowing that the paiche needs to be transported to the airport in Lima which will make the product more expensive; the airport in Iquitos will not get an international status until 2018/2019.*
- *Identify producers of other Amazonian fish (e.g. Gamitama, Doncella), and develop European partner companies in order to prepare an export business to Europe. The so-called “Tiger Fish” is a promising fish species and already farmed in Brazil and exported to European Markets*
- *Help qualifying involved producer groups achieving GlobalG.A.P. and/or organic certification*

3.3.5. Production of fine flounder (*Paralychtys adspersus*)

So far there are only two producers of fine flounder in Peru and one experimental cultivation site. Though production is very small it is expected to grow in the future. Hatching and production is still new and involved companies need to further develop the production technology. From the marketing point of view there are good opportunities in developing a European market.

Within the CBI sector program it is recommended to focus on

- *Clarification with the two producing companies to determine the extent production can be increased in future before taking any action*

3.3.6. Production of tilapia

No major constraints are known in regard to tilapia production in Peru. However, production is small and needs to be increased in the already existing production regions. The Amazone regions do not have any EU-approved processing plants and transport costs may hinder their competitiveness in the international markets.

Within the CBI sector programme it is recommended to focus on

- *Identification of tilapia producers already exporting*
- *Promotion of sustainable tilapia from Peru in European markets*
- *Invitation of companies exporting tilapia in order to discuss ASC and/or organic certification*

4. Number of Peruvian companies

In 2011 there were 520 companies registered as seafood exporters in Peru an increase of 6% from the number of companies in 2010. Companies with export values between 50,000 US-\$ and 500,000 US-\$ formed the largest group in 2011.

In 2009 there was a sharp decline, which can be explained by the economic crisis that directly affected the number of export companies in Peru. In regard to the future outlook and the difficult economic situation (debt and economic crisis) in the target region a similar situation might occur in the upcoming years.

Tab. 4: Classification of seafood exporters in Peru

Classification Export values in million US-\$	Number of companies				
	2011	2010	2009	2008	2007
<0.05	135	133	98	91	102
0.05-0.5	139	140	119	154	167
0.5-2	114	114	94	103	101
2.0-5.0	56	46	40	46	38
5.0-10.0	33	27	26	25	20
10.0-50.0	34	24	20	27	29
50.0-100.0	2	1	2	1	4
>100	7	7	6	7	4
Total	520	492	405	454	465

Source: Promperu 2102

The Peruvian seafood sector is highly concentrated. In addition, several fishery companies have expanded their activities into aquaculture (and also into some types of livestock production). About 25 companies account for 57.97% of all seafood sales for human consumption.

There are 70 processing plants from about 50 companies that are EU approved and engaged in processing farmed seafood products. Export of seafood products to the EU can only be done through these 50 companies. The 50 companies export, in part, their own products, but to a larger extent the products of other companies. Export of trout is basically done by Piscifactoria de los Andes, which is also a producer of trout. A few companies are dedicated to offering just a processing service.

The number of potential participants of a CBI sector programme can be estimated to be about 40-80 companies. The majority will be shrimp producing companies. For all other species like scallops, tilapia, paiche and trout, the number of potential participant is below ten per species. The sector programme should target ten companies with at least three different of species (trout, scallops, shrimps) that are committed to developing sustainable supply chains.

5. Risk assessment and opportunities

Peruvian aquaculture production has increased without a break in the last few years. This process has been supported by the joint effort of various governmental and private sector organizations. However, due to the current global demand many more products could be exported to international markets.

- The company base for a CBI sector programme is seen as sufficient.
- Only some of the areas approved for marine and inland aquaculture are currently utilized by the aquaculture sector. As a consequence, an important factor for further growth in production is given without intensifying production in existing aquafarms.
- Fishmeal and fish oil are important ingredients for fish feed (compound feed) for shrimp, trout, tilapia, but not for molluscs. As Peru is the world's leading exporter of fishmeal and fish oil this can be seen as a comparative advantage for Peruvian aquaculture³².
- Under the lead of the Ministry of Produce the aquaculture sector is strictly following a National Development Plan for Aquaculture, which has met set targets in production, infrastructure development and capacity building. The Peruvian Government is developing aquaculture in order to increase domestic fish consumption as well as the export market.
- EU seafood markets are facing difficulties in sourcing sustainable seafood products in sufficient quantities either from fisheries or from aquaculture. In regard to aquaculture, though organic aquaculture markets have grown continuously for many years it has not reached significant market shares so far. The mainstream market in many European countries is now looking for ASC certified aquaculture products and if not available for GlobalG.A.P.
- New fish species from the Amazonian region, like *Arapaima gigas*, have good sales opportunities in the European gastronomy (but only in smaller quantities and under the pre-condition that production can be increased and becomes more stable).
- In particular, the markets in Germany, France and Poland³³ are attractive for trout exporters. Domestic production is low and importations from Third Countries are needed. Trout in Germany is quite popular and ranks sixth on the list of the most consumed fish species in Germany. Peru is established as an important supplier of trout (fresh, chilled and frozen).
- The European market is absorbing more tilapia than it did in the past, partly due to the fall of pangasius sales. Export-oriented tilapia production has been established in Peru on a small scale. To be economically feasible, in comparison to the more competitive Chinese and Vietnamese producers, Peruvian producers need a clear

³² Organic aquaculture requires sustainable sources of fishmeal and fish oil.

³³ Poland counts on various processing plant owned and/or linked to German and other European players. It can be assumed that trout processing is done in Poland and then exported to other EU countries.

differentiation in the market (like ASC certification or even better organic certification).

- Value added seafood products (e.g. consumer products) need additional certification, like IFS or BRC. A good example of a certified company in Peru is Inversiones Prisco SAC (www.iprisco.com.pe). Their processing plant in Paracas/Pisco is BRC certified and they are already producing small volumes of a Ready-to-Eat meal with scallops for a retailer in the French market³⁴ (also on the way to get the first IFS certified plant in Peru).

Table 5: Value chain constraints analysis

Observed constraints in value chain	Critical constraint? (Y/N)	Solvable in short term (Y/N)	Could a solution be provided? If yes, by CBI or other organization?	Likelihood that it will be effectively solved (high/medium/low)
Certification				
1 Lack of certified actors along the supply chain	Y	Y	CBI	High
2 Expensive control of water quality	Y	Y	Other org.**	Low
Production				
3 Supply needed to increase EU market shares	Y	Y	Other org.**	Medium
Processing				
4 Lack of approved processing plants	Y	N	Other org.***	Medium
Quality assurance				
5 Weak monitoring	Y	N	Other org.****	Low
6 Missing cold chain in the Amazon	Y	N	Other org.***	Low
Export issues				
7 Capacity building	Y	N	CBI and other org.****	Low
8 Access to new markets and clients	Y	Y	CBI	High
9 Lack of regional stability	Y	N	Local authorities	Low
10 Paiche still unknown in the EU	Y	Y	CBI	High
11 Informal competing market Bolivia	Y	N	CBI and other org.**	Low

- * For tilapia, trout and shrimp within five years
- ** Ministry of Produce, SIEX , etc.
- *** Financing institutions and strategic investors (EU buyers)
- **** SANIPES

28) BRC/IFS certification is also accepted by Peruvian retailers.

Table 6: Solution Design

Workshop wall notes

Constraint	Why does this facilitate exports?	How can the constraint be solved/ addressed?	Can it be addressed by a CBI module?	Sector	Problem	Solution
Certification						
1 Lack of certified actors along the supply chain	EU importers prefer certificate	1 A) Training and coaching of exporters and BSO trainers on certification requirements 1 B) Partnership projects with EU buyers	Yes: ECP certification module, BSOD Partly: Business Development, strategic EU buyers Others like Ministry Produce, SANIPES, CERPER/SGS			
2 Expensive control of water quality	Keeps costs viable	Find viable solutions / costs for quality testing.		Scallops	Scallops farming need 1 quality test per week. The grow-out of scallops can be up to 16 month which means a high cost of quality control. (CERPER/SGS is currently taking the water quality control each Monday on behalf of SANIPES, the cost of these quality analysis though have to be borne by the producer / exporter)	

Constraint	Why does this facilitate exports?	How can the constraint be solved/ addressed?	Can it be addressed by a CBI module?	Sector	Problem	Solution
Production 3 Supply needed to increase EU market shares		Capacity building through BSO organizations	Yes: BSOD module			
		Identification of strategic investors (EU buyers)	Partly: Business Development, strategic EU buyers			
		Training from fishing towards farming	Other like Ministry Produce, extensionists, technical assistance	Scallops	Cultural behaviour: Many Producers are by their origin "Fishermen" and do not really understand the concept of "farming"	
		Train ability to offer mixed containers and offer different sizes. To identify new buyers for companies who are limited in offering sizes and mixed containers could be done within CBI's ECP. Small size scallops do not achieve a good market price and a company should be able to offer different sizes to be able to compete internationally	Partly: Business Development, strategic EU buyers	Scallops	To identify and maintain a "carrying capacity" The problem of "growth" or better said "not-growth" of the scallops in the farming area Sechura occurred because of too much scallops stocking thus not enough feed (biomass) was available for the scallops to grow	Several producers of the area Sechura are already working together to prevent over-stocking

Constraint	Why does this facilitate exports?	How can the constraint be solved/ addressed?	Can it be addressed by a CBI module?	Sector	Problem	Solution
Processing 4 Lack of approved processing plants	To enter high end markets in Europe not only the EU approval is needed. PPs also need to meet the private market standard, especially BRC and IFS.	Identification of strategic investors (EU buyers)	Partly: Business Development, strategic EU buyers	All	Certified and high quality PPs are mainly located in the coastal regions in the north, Lima and south. In the Amazonas region there are no EU approved PPs.	
			Others: Local authorities	All	In the north of Peru but also other parts the security risk s very high, up-to 2/3 of the employees are security personal to protect production, processing and transport	More regional stability is needed
		The association working with the new PP can be supported with the CBI certification module to achieve high market certifications such as BRC, IFS	Yes: A) Certification module and BSOD B) Business Development	Trout	Only one or two PPs for trout are working in the Andean region that have EU approval	Recently, in the Andean region a new PP has been constructed with support of SIEX and is n process to obtain the EU approval, used by different trout farmer associations.
		Some PPs do already have these certifications and others could be helped through CBI's certification module. Roundtables with stakeholders and donors.	Partly: Roundtables, certification and BSOD module	All	PPs need EU approval in order to prove their quality. Private market requirements and its certifications are needed.	To benefit of achieving the certifications with the private market standards should be communicated clearly
		Support existing companies to establish cooperation with buyers who are willing to invest n new PPs or to improve existing one's	Partly: Business Development, strategic EU buyers	Shrimps	In Tumbes there are only 3 PPs who provide service and their priority is their own production. The existing producers / exporters have problems with these service providers.	

Constraint	Why does this facilitate exports?	How can the constraint be solved/ addressed?	Can it be addressed by a CBI module?	Sector	Problem	Solution
Quality assurance						
5 Weak monitoring	Quality assurance precondition for export	Capacity building of involved organizations: Special training regarding EU norms should be carried out with companies and including the competent authority SANIPES regarding HACCP, Quality Controls etc. – this can be organized within the ECP for fish & seafood	Yes: BSOD module	All	Producers and Exporters have problems with the official gov. competent authority SANIPES	
6 Missing cold chain in the Amazon	Cold chain precondition for export	The “Cold chain” for products from the Amazon region does not exist. It can be established but includes high transportation cost.	Others: Strategic investors, financing institutions.			
Export issues						
7 Capacity building	Knowledge on EU norms are precondition for export to the EU	The example is the current ban of live-molluscs exports from Peru, as SANIPES could not present the necessary documentation during the EU inspection, the EU denied the re-approval, the companies were able to provide the documentation during the inspection and SANIPES has copies of all reports from the companies.	Special training regarding EU norms should be carried out with companies and including the competent authority SANIPES regarding HACCP, Quality Controls etc. – this can be organized within the ECP for fish & seafood	All	Producers and Exporters have problems with the official gov. competent authority SANIPES and ITP. SANIPES is not organized to do “their job” and shifts the responsibility to the producers / exporters.	

Constraint	Why does this facilitate exports?	How can the constraint be solved/ addressed?	Can it be addressed by a CBI module?	Sector	Problem	Solution
Export issues (continued)						
8 Access to new markets and clients	Facilitates sales of mixed sizes / containers	The CBI ECP can help to identify new markets with buyers that are currently not buying from Peru and are interested in mixed containers. Sales in Europe could be organized through an organization representing exporters or maybe through special events. (Thus to have kind of a distribution arm in Europe)	Yes: BSOD, Export Capacity Building, European Market Entry, HRD and MI	Scallops	Currently 70% of all scallop exports of Peru are managed through 3 companies. For other exporters the main problem is to fulfil the EU market demand of mixed containers. (e.g.: to offer a mix of different products and to offer scallops in different sizes) ³⁵	As helpful to find new markets in the EU is seen to organize “sales” in Europe for scallops of different sizes and other products.
9 Lack of regional stability	Precondition for EU investors	More regional stability is needed	Others: Local authorities	Scallops, (Algae)	Producers have substantial problems with bandits, pirates as the sea is considered a No-Man’s land and the authorities do not take any actions. Roughly 3% of the production and infrastructure has to be pre-calculated as loss due to robbery.	
10 Paiche still unknown in the EU	Creates interest in EU & cross-sector synergies	Positioning as an innovative high end gourmet product	Yes: MI, tailor-made EU market study gourmet products. European Market Entry.	Paiche, Amazon region	The fish “Paiche” is not known in the EU market and the common fish & seafood buyers are generally reluctant to buy new “unknown” species as they do not generally invest in end consumer marketing ³⁶	

³⁵ The problem is seen in the EU market where just few buyers manage container loads of only scallops and are very strict in their demands and already manage an existing supply chain and sales channels. (Only 4 to 5 companies in Peru can manage container loads with only Scallops)

³⁶ Within the ECP new available fish species from Peru could be introduced to the EU market, thus buyers need to be identified willing to cooperate and invest in end consumer marketing. The production of Paiche is too low to have enough market quantity but other species are also promising (doncella, gamitana).

Constraint	Why does this facilitate exports?	How can the constraint be solved/ addressed?	Can it be addressed by a CBI module?	Sector	Problem	Solution
Export issues (continued)						
11 Informal competing market Bolivia	See point 1	See point 1	See point 1	Trout	The buyer's requirements govern the producer's in Puno, the region in Peru with the highest production quantity. Currently 70% to 80% of the trout production is sold to Bolivia and their buyers want "informal" products, thus no certifications are required and sales are often bypassing the law, this in turn results in the non-formality of the producer as they see the compliance with int. certifications and laws with no direct benefit for their target market	

Tailor made activities need to be defined by the relevant Business Support Organization (BSO) in Peru. See the chapter recommendations for more information.

In spite of the fact that the European seafood business has been affected by the economic (debt) crisis and export volumes for important seafood products are slightly declining, a number of opportunities exist for the Peruvian seafood business. The strategic target in a stagnating market like Europe must be the increase of competitiveness of the aquaculture industry in order to acquire market shares from other export countries. Besides a high quality product (including guaranteed food safety) voluntary certification is a promising tool.

The following CBI activities are recommended to overcome the given risks:

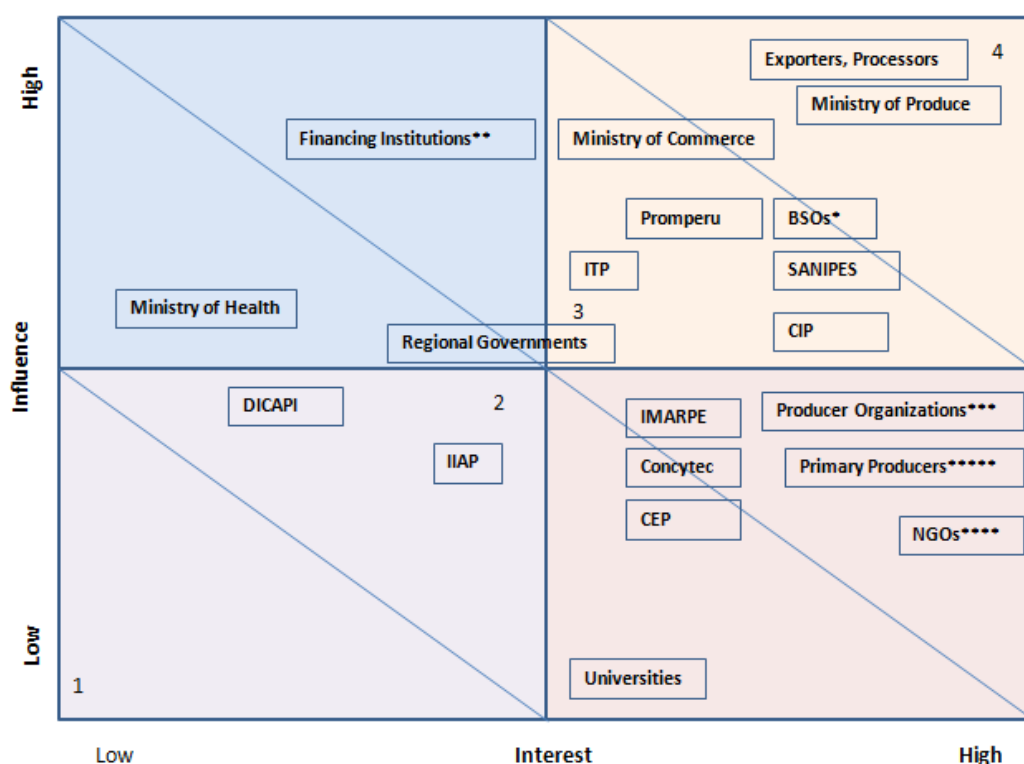
1. *Achievement of certifications is recommended to become one part of a CBI ECP programme in order to increase attractiveness for European buyers (e.g. most of the retailers ask for at least GlobalG.A.P. certification).*
2. *Stakeholder organizations in Peru are working on expanding aquaculture production. CBI can support these efforts by developing complementary training activities with BSOs and implement trainings in concrete projects (e.g. with a selected trout producer organization). Training should focus on improving production methods that are more efficient (cheaper) and safer (bio security issues), as well as strategies to strengthen producer organizations.*
3. *CBI should organize a roundtable with financing institutions engaged in aquaculture investments in Peru in co-operation with the national investment programme ProInversion (private banks, venture capital companies and governmental financing programmes such as Fondapes). Investments into the processing infrastructure have a clear priority for trout and some other fresh water fish species. Financing institutions might have concrete aquaculture projects in their pipeline that fit into an ECP programme. In addition, financing institutions could copy foreign investors in the way they invest in aquaculture projects in Peru. European financing organizations supporting investments in developing countries such as KfW DEG in Germany can also play an important role. As investment projects need time for sound preparation and planning the roundtable should be organized at the beginning of the country programme. Otherwise the country programme will not be able to create a direct effect within the four years.*
4. *A training programme for capacity building in quality assurance, food safety, HACCP etc. should be developed with SANIPES and related BSOs. The target groups for training are auditors and members of the ECP programme. CBI can contribute to promoting the image of Peruvian seafood which will indirectly lead to higher export sales. CBI could also organize a roundtable to discuss the issue of banned live scallop exports to the European Union in co-operation with SANIPES and related BSO, in particular, targeting the withdrawal of the ban for end of 2014.*

6. Role of stakeholders in a CBI country programme

The stakeholders have been analyzed in regard to their interest in an Integrated Programme for the emergent Peruvian aquaculture sector. A more detailed description of most of the relevant stakeholders has been presented in chapter 4. In order to demonstrate the degree of interest and influential power a stakeholder assessment grid has been developed.

Graph 2:

Peruvian Aquaculture Stakeholder Assessment Grid



1= Keep me informed

2= Maintain interest

3=Active consultation

4=Strong „Buy in“ required

*

**

BSOs= ADEX, SNP, CCL, SIEX

FI= Fondepes, ProInvest, Rabobank, Banco Agrario

PO=ALPE, Andean Trout, Asparel and others

NGOs=WWF Seafood Group, ProNaturaleza, Terra Nova, Care

Primary producers are often also exporters

In addition, the weighting of stakeholders followed three main objectives in the context of a successful Integrated Sector Programme:

- Establishment of contacts with potential programme participants (above all for an ECP).
- Direct contribution to overcome bottlenecks that impede expanding the export business into EU/EFTA countries.
- Indirect contribution to overcome bottlenecks that impede expanding the export business into EU/EFTA countries.

The Peruvian **Ministry of Production** is a key player and leads the VCA development for aquaculture (and fisheries), administers the National Development Plan (PNDA), organizes the National Commission for Aquaculture coordinates activities with the Regional Governments (and the Regional Commissions for Aquaculture), and has a stake in the discussion on how much funds will be allocated to the sector.

SANIPES is responsible for the monitoring and supervision of the seafood sector (as part of the food sector) in Peru. Without an efficient handling and compliance with international requirements, the export trade of Peruvian seafood might be affected negatively. In this context SANIPES plays an important role in the seafood business and belongs to the key organizations to work with for CBI.

Fondepes³⁷ is a national **financing scheme** with the main objective of supporting artisanal fisheries and aquaculture. However, Fondepes does not only grant loans for fish farmers and/or fishermen but is also engaged in capacity building, transfer of know-how to small producers and the development of new technologies. To accomplish the latter Fondepes depend upon a number of its own research stations. Currently, Fondepes is working on the further development of reproduction protocols for a wide range of species including lenguado (*Paralichthys adspersus*), abalón rojo (*Haliotis rufescens*), ostra del pacifico (*Crassostrea gigas*), some Amazonian fish species, and microalgas y rotíferos. Fondepes is above all an important player when it comes to link small producer groups with professional export business (for example this year more than 47 million PEN are designated to improve the sanitary conditions of artisanal fisheries).

Nevertheless, private national and international **financing institutions** involved in agro-food business should be included in a systematic approach. The financing institutions involved include Banco Agropecuario and Scotiabank del Peru (national) as well as Rabobank (international). In addition, investors either for capital funds or strategic investors from the seafood business, or private businesses interested in aquaculture should be approached to work in co-operation with the national programme ProInversion³⁸.

The Peruvian Exporters Association (ADEX) and the Sociedad Nacional del Pesquero (SNP) are **two key business associations**. The membership of SNP comprises fishery and aquaculture companies, and has a specific committee working on aquaculture. It has about 73 members, including service providers. ADEX is the main exporter association for all product segments, and many of the important seafood exporters are members.

The national export promotion programme, **Promperu, which has** represented the seafood sector at international trade fairs for many years, is a co-operation partner of CBI and similar international programmes (e.g. SIPPO). In this context, Promperu has the potential to become the co-ordination platform for the CBI activities in seafood as well as in other sectors (please, see chapter on recommendations).

³⁷ Fondo Nacional Al Desarrollo Pesquero

³⁸ www.proinversion.gob.pe/0/0/modulos/JER/PlantillaSectorHijo.aspx?ARE=0&PFL=0&JER=6023

7. Corporate Social Responsibility (CSR) in the Value Chain

Research carried out by the Norwegian research organization, NOFIMA, compared purchasing behaviour in regard to sustainability issues of British, French and German seafood buyers and came to the following conclusions³⁹:

- It is not the consumer that is demanding more sustainability but the environmental organizations that are putting more and more pressure on seafood businesses.
- European buyers are increasingly looking for documentation that products are in accordance with environmental standards.
- In all countries retailers have started to build sustainability strategies for seafood, as well as related communication concepts.
- Differences in attitude exist between consumers in Britain, France and Germany. In France the focus is set on social aspects and energy consumption along the supply chain. In Germany the MSC label for wild caught fish is prominent, and German consumers prefer Alaska Pollock, which is from a fishery that has been MSC certified for a long time. In UK retailers and suppliers use the term “responsible purchasing”, while in Germany and France the term “sustainable purchasing” is used more frequently.
- UK retailers have the strictest policies and in many cases their own seafood purchase criteria (e.g. Marks & Spencer’s and Rewe’s Pro Planet).

Only little information on CSR issues in the Peruvian aquaculture sector is given. A detailed CSR sector evaluation could help identify the most critical points in aquaculture production in Peru and would give guidance as to how a national sustainability concept for the aquaculture sector should be developed⁴⁰. However, CBI has to be aware of the following CSR issues in the Peruvian aquaculture:

Environmental issues

- Shrimp production in mangrove areas has a strong impact on mangrove forests. Many NGO’s in the region are active in mangrove protection (e.g. Red Manglar) and assess the impact of shrimp farms. A good part of the Peruvian shrimp production takes place in former mangrove areas.
- Trout production takes place in various Andean lakes. The increasing production of trout in the lakes leads to a higher release of nutrients. The carrying capacity of the lakes and/or the areas of trout production need to be assessed (e.g. by monitoring the sedimentation and seabed flora and fauna under the net cages).
- In scallop production the red tide (red algae blossom) phenomena has to be seen in conjunction with the release of municipal sewage water into the sea.
- Use of fish feed need to take into consideration the Fish In-Fish Out ratio (describing how much wild caught fish is used for feeding one farmed fish) as well as the origin of fish feed components (Non-GMO feed ingredients: soy beans are imported from Bolivia and Brazil to Peru and might be from GMO soy plants).

³⁹ Nielssen F., Brand awareness key for supermarkets, 2011; Nofima

⁴⁰ In this context the work of the Global Sustainable Seafood Initiative (GSSI) could be taken into consideration.

Social and human right issues

- In regard to social aspects, child labour is currently one of the “hot” topics, and is discussed in aquaculture and seafood industry. For the first time the US Ministry of Labour mentioned the seafood industry as an industry with severe child labour issues⁴¹. However, no reports are at hand that child labour or forced labour takes place in Peruvian aquaculture.
- Processing of seafood products for example shrimp peeling or slaughtering of trout is related to intensive manual work. The Peruvian labour legislation is clear, minimum wages, social insurance etc. have to be paid. However, in practice it is said that not all employees are formally registered as employees. Thus both parties the employee and the employing seafood processor have a benefit. The employee a higher net salary (a short term benefit as he gives up his social insurance) and the employer lower labour costs.

Fair trading practices

- In scallop production as well as in trout production small producer play a role as suppliers. A larger part of the Peruvian scallops are produced by former small fishermen. Trout are produced by small trout farmers. Most of them are affiliated to trout farmer associations⁴². Principally fair trading practices needs to be assessed in regard to payment and business conditions. In trout production often intermediaries are involved.

Summarizing the identified CSR issues in the Peruvian aquaculture no principles obstacles have been identified which would lead to an exclusion of the sector from the CBI programme. Nevertheless, if aquaculture companies would be included in the CBI programme the mentioned issues should be taken into consideration when developing export marketing plans.

⁴¹ US-Dep of Labor (2012): List of Goods produced by Child Labour or Forced Labour

⁴² Nowadays, also larger companies can get a production licences in the Andine lakes but local governments are still quite restrictive in order to keep this business for communities living around the lakes (one company has attended the aquaculture workshop).

8. Result chain

All recommended activities will result in the increased export of farmed seafood products from Peru into European/EFTA countries. Additional export revenues created by about ten companies attending an ECP programme are estimated with about 9.82 million EUR (or about 12 million US-\$). Due to the high value of seafood products, 9.82 million can be realized even by a significantly smaller number of companies. Thus, it is seen as a conservative estimation. As the ECP programme will focus, among other issues, on certification export, results can only be expected after two years. Some companies might be able to achieve certification earlier, can sell all ready without a certification or can sell two year harvest as certified. This might lead to a significant higher export value. The present calculation has been done for one year only.

A good proportion of the certified production is already being exported to Europe and other markets. However, with the certification a higher price can be achieved in particular for organic seafood products. Higher prices for ASC certified products cannot be expected. Currently, ASC certified operators indicate a bonus of 5% for Pangasius and tilapia but traders in Europe indicate that they do not see many opportunities to pay a higher price for ASC quality.

It is estimated that 3.220 t of farmed seafood products will originate from existing production as well as from new production initiated by ECP members and indirectly supported by CBI⁴³.

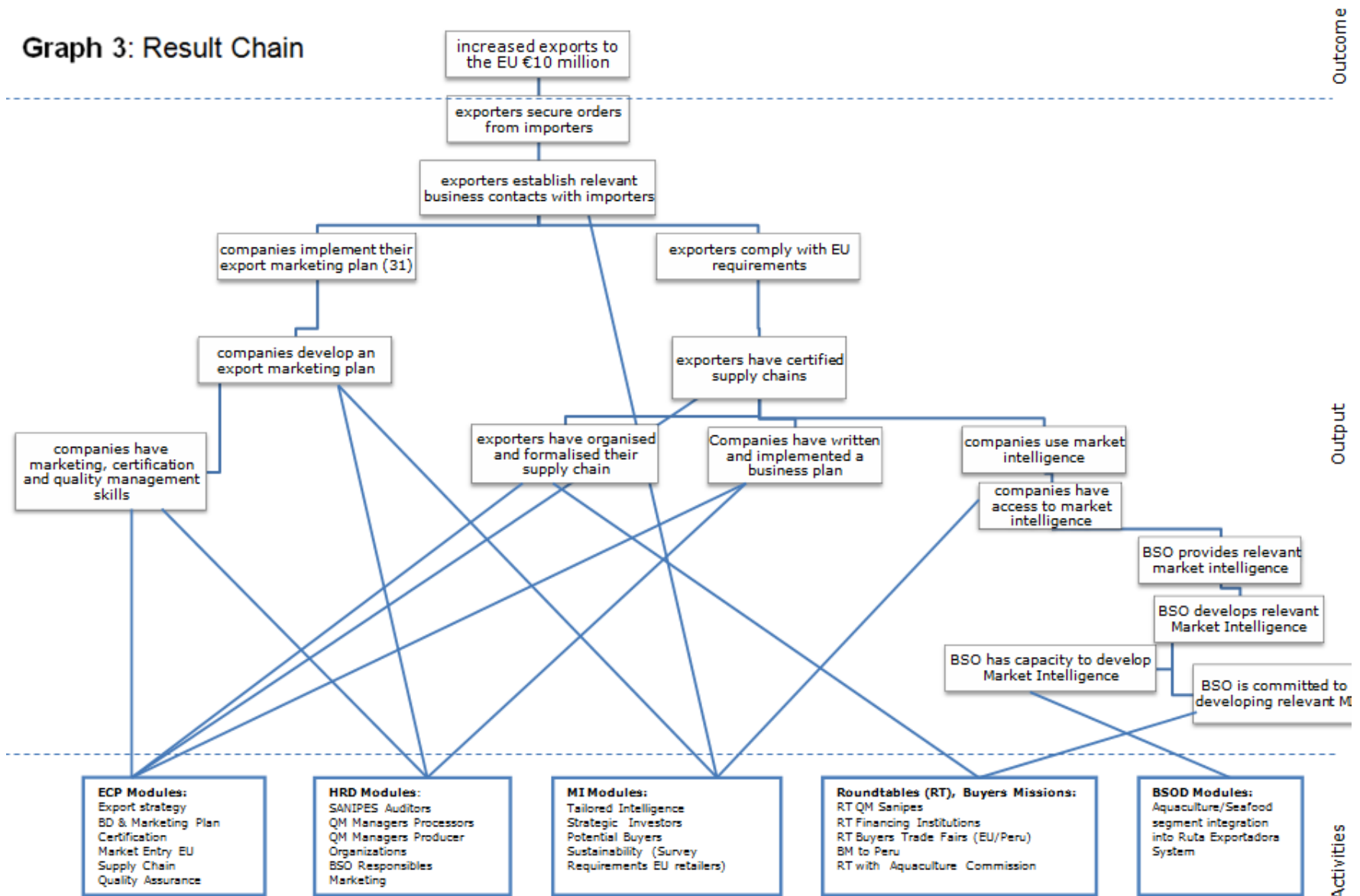
Table 7: Calculation of export growth values

Result chain					
	MT in 2011	in US-\$ 2011	Average FOB in US-\$/kg*	ECP export volume in t	ECP export value in US-\$
Peruvian scallops	11.414	131.293.390	5	1.000	5.000.000
Shrimp (<i>P.vannamei</i>)	15.404	87.501.370	7	500	3.500.000
Trout	1.165	8.868.321	5	500	2.500.000
Tilapa	239	1.186.316	7	200	1.400.000
Arapaima and others	32	379.098	10	20	200.000
Algae	2.345	16.810.000	0,19	1.000	190.000
Total		229,228,496		3.220	12.790.000

Looking into the result chain the ECP programme is linked to accompanying CBI activities such as human resource development, tailor made market intelligence modules, roundtables and buyers mission. In particular, the identification of potential buyers interested in partnership projects with Peruvian ECP participants could accelerate the growth of the export business, while also supporting Peruvian companies on their way to achieving certification, better levels of quality assurance. It would also give incentives to increasing production.

⁴³ See General Country Programme Strategy: co-operation with value chain developers

Graph 3: Result Chain



9. Final recommendations and conclusions

This chapter summarizes recommendations on three different levels. **Macro Level** = Activities to improve framework conditions for the aquaculture industry in Peru and sector development. **BSO Level** = Capacity building activities, development of tailor-made services and support of sector development initiatives. **Micro Level** = Support of companies in Peru (ECP) and acquisition of European partner companies (buyers, investors).

Recommendations at Macro Level

Fields of action for CBI, BSOs and further organisations:

Due to the difficult economic situation the module “Peruvian Aquaculture” needs to develop a competitive strategy in order to increase traded volumes. Therefore, the National Development Plan for Aquaculture should be linked to a marketing strategy based on three headings: **Certified Product Safety, Certified Sustainability⁴⁴ and Attractive Products**. The marketing strategy should be developed jointly with related BSOs and lead by the National Aquaculture Commission.

{5, 7, 2} For the urgent issue of **banned live bivalve exports** for the EU market, CBI should invite all related stakeholder organizations to discuss the issue. Solving this problem with a concerted action in Peru would attract awareness in European countries. In the same way CBI could initiate a solution finding for a less cost intensive water and scallop quality monitoring system.

The National aquaculture Commission should assess opportunities to feed farmed fish in Peru with **non-GMO feed**. If this were feasible (even for just one or two species) Peruvian aqua-farmers would benefit from an improved market position. Many importers and traders in Europe selling ASC certified products ask for additional non-GMO feed certifications due to the fact that European consumers perceive GMO food as “food with unknown risks”.

The quality and sustainability driven aquaculture concept could be developed by the end of 2013 and first presented at the ESE exhibition in 2014, where European buyers are invited to an information seminar.

9) The issue of robberies and missing legal actions cannot be solved by a CBI intervention. However, CBI partner organizations should be asked to address the issue where possible.

Recommendations at BSO Level

Fields of action for CBI, BSOs and further organisations:

{5, 7} A training programme for capacity building in quality assurance, food safety, HACCP etc. should be developed with SANIPES and related BSOs. Target groups for the training are auditors, BSOs and members of the ECP programs. CBI can contribute to promoting the image of Peruvian seafood, which will indirectly lead to higher export sales.

⁴⁴ **Important:** ASC certified shrimp will not be introduced before spring 2015. Other ASC certified products, like trout and tilapia, are already in the market or will come soon. ASC certification will facilitate market entrance in new European markets significantly but will not lead to higher prices in all cases. Vietnamese pangasius producers started with an ASC premium of 10%, which recently declined to about 5%.

{1, 3, 11} Stakeholder organizations in Peru are working on the expansion of aquaculture production. CBI can support these efforts by developing complementary training activities with BSOs and implement training in concrete projects (e.g. with a selected trout producer organization). The focus of the trainings should be on improving production methods that are more efficient (cheaper) and safer (bio security issues), as well as strategies to strengthen producer organizations.

CBI should support Sierra Exportadora in promoting and developing trout production in Andean regions (e.g. also by promoting the brand “Andean Trout”). The trout sector receives strong support regarding development of production and processing, including quality compliance programmes. Thus, increased export volumes can be expected.

It is recommended that international BSOs, like IDH, are involved to increase promotional and funding activities for Peruvian aqua-farmers.

{4, 6} CBI should organize a roundtable with financing institutions engaged in aquaculture investments in Peru in co-operation with ProInversion (private banks, venture capital companies and governmental financing programmes such as Fondapes). Investments into the processing infrastructure have a clear priority for trout and some other fresh water fish species. Financing institutions might have concrete aquaculture projects in their pipeline that fit to an ECP programme. In addition, financing institutions could copy the way foreign investors invest in aquaculture projects in Peru. European financing organizations supporting investments in developing countries, such as KfW DEG in Germany, can play an important role. As investment projects need time for sound preparation and planning the roundtable should be organized at the beginning of the country programme. Otherwise the country programme will not be able to create a direct effect within the four years.

{8} A tailor made market investigation on export opportunities of scallops in other European markets than Spain, France and Italy is recommended taken into consideration different sizes of frozen scallops as well as processed scallop products (convenient/finished food products). Market information should be used as a basis for developing a midterm export marketing plan.

Recommendations at Micro Level

Fields of action for CBI and BSOs:

{1, 3, 4} In the context of a business plan development for selected ECP participants the country programme matches private companies with supply chain developers and/or donor organizations investing in the expansion of sustainable production (in particular for trout, shrimp and tilapia).

{1} Certification of farmed seafood products is the main objective. In detail the following targets should be followed:

- ASC certification of trout, shrimp and tilapia, and the introduction into the EU.
- Organic certification of scallops and shrimp, and the introduction into the EU market.
- GlobalG.A.P. certification for all categories
- IFS certification of one EU approved seafood processor

{10} Roundtables with new species producers will be held clarifying likeability to develop an export business with new species like fine flounder, gamitama, doncella and paiche.

Conclusions

The authors do not recommend including the aquaculture sector into the CBI country programme. The impression got during the validation workshop with stakeholder organizations of the Peruvian aquaculture industry has been less encouraging than in other sectors. While the aquaculture sector is facing some challenges, involved sector organizations fail to develop solutions jointly. Producers and exporters are on their own with problems resulting from missing frame conditions. Unlike the fishery sector aquaculture gains a low priority and do not receive a supportive treatment by the Peruvian government. It is unclear to what extent CBI can generate a positive impact in the sector other than qualifying ten selected export companies.

Furthermore, it might be more difficult to acquire the needed number of ECP participants for sector specific CBI interventions than in other sectors (in particular ECP participants with a clear interest to convert production towards one of the relevant sustainability standards in the European market). Also, co-funding opportunities for BSOs involved in the aquaculture industry are less likely to expect. Only funds for certification of companies which can be received through the Ruta Exportadora programme are available but companies are not really convinced to go any of the proposed sustainability certifications. They can still sell production without any certification which is less challenging for them and need to be convinced about the mid to long term advantages.

However, if CBI would decide in favour of the aquaculture sector the Sociedad Nacional de Pesquero (SNP) and ADEX would be the two BSOs to be involved as partner organizations for CBI. Sierra Exportadora could help identifying trout producer organizations suitable for the CBI country programme. Also, no principle CSR issues exist which would not allow for inclusion of the aquaculture sector into the programme.

10. Annex 1 Stakeholder organizations involved in the Peruvian aquaculture sector

In addition to the Ministry of Produce, other organizations with direct competences in the Peruvian aquaculture sector are

- **DIREPRO (Regional organizations del Ministerio de Produce):** In every Peruvian region has been established one Dirección de Acuicultura y Medio Ambiente in order to promote local aquaculture (e.g. in the region of Tacna)⁴⁵.
- **ITP (Instituto Tecnológico Pesquero del Perú)**⁴⁶: Until this year when it became an independent organization, the competent authority, SANIPES (see below), was part of ITP. Among other organizations, ITP is engaged in new product development for the seafood sector. It has its own EU-approved processing plant, which can be used by producers to process their fish and seafood products for export markets, and in developing value added products. ITP is also involved in the development of new species and in the development of hatcheries. In northern Peru ITP operates a hatchery to produce Scallop seed. In south Peru ITP has a research farm dedicated to developing the production of fine flounder (*P. adspersus*).
- **SANIPES (Servicio Nacional de Sanidad Pesquera)**⁴⁷: SANIPES is the competent authority responsible for monitoring and verification of compliance with food regulations in Peru. In this context, SANIPES has to monitor and verify the seafood sector as well. With the decision of the Peruvian Government to let SANIPES become an independent organization it is expected that the organization can work more efficiently. Expansion of exports goes hand-in-hand with a well functioning competent authority providing the guarantees needed in global food trade.
- **DGA (Dirección General De Aguas):** DGA operates under the Ministry of Agriculture (MINAG) and is responsible for use of water resources in the country. In particular, land based aquaculture relies on fresh water resources and needs to get permission from DGA.
- **IMARPE (Instituto del Mar del Perú)**⁴⁸: This is a research institute involved in the development of marine aquaculture and coastal zone management.
- **FONDEPES (Fondo Nacional de Desarrollo Pesquero)**⁴⁹: FONDEPES is a national development fund that provides capital for investments into the aquaculture and fishery sector.

⁴⁵ http://www.direpro-tacna.gob.pe/index.php?option=com_content&view=article&id=51&Itemid=45

⁴⁶ <http://www.itp.gob.pe/>

⁴⁷ <http://www.itp.gob.pe/webitp/servicios-de-sanidad-pesquera>

⁴⁸ <http://www.imarpe.pe/imarpe/>

⁴⁹ <http://www.fondepes.gob.pe/>

- **Aquaculture programmes managed by local governments:** Some local governments e.g. in the region of Loreto, have financing schemes for small fish farming operations, (Dirección Regional de la Producción)⁵⁰. All are linked to the Ministry of Production (GAD). According to the PNDA all regional governments must set up regional aquaculture centres in order to support the further development of the sector.
- **MINAM (Ministerio del Medio Ambiente):** All aquaculture operations need a license. Licenses are issued on the basis of an environmental impact assessment.
- **DICAPI (body under the Ministry of Defence)⁵¹:** Coastal zones are under the authority of the Ministry of Defence. Aquaculture operations in coastal zones need permission from DICAPI.
- **IIAP (Instituto de Investigaciones de la Amazonía Peruana)⁵²:** IIAP is engaged in the development of the Amazonia aquaculture sector.
- **Ministry of Commerce and Tourism (MINCETUR)⁵³:** A national sector plan under MINCETUR is in place to increase seafood exports (2003-2013 Plan Exportador Pesca y Acuicultura).
- **Promperu⁵⁴:** The governmental export promotion organization is engaged in all export market segments and, thus, also promotes the Peruvian seafood exporters. Promperu is member of the National Aquaculture Commission.
- **Proinversion⁵⁵:** The official governmental investment promotion organization is engaged in all market segments and promotes as BSO the investment in the Peruvian seafood and aquaculture sector exporters. PROINVERSION is member of the National Aquaculture Commission.
- **SIERRA EXPORTADORA (SIEX)⁵⁶:** Sierra Exportadora is a governmental organization directly controlled by the Presidency of the Council of Ministers. Its role is to support regional business development and to foster productive sectors with social inclusion. Within the aquaculture sector it is active in the Andean and Amazon region, mainly focusing on improvements in trout farming and creating market access for trout farming associations/exporters.

The following private sector bodies have a stake in the Peruvian aquaculture sector:

- **ADEX⁵⁷:** The Peruvian exporters association supports seafood exporters as a Business Support Organisation and is partner of CBI. Not all seafood exporters are member of ADEX. ADEX is member of the National Aquaculture Commission.

⁵⁰ <http://www.regionloreto.gob.pe/direpro/Enlaces/Pesacuicultura.html#>

⁵¹ <https://www.dicapi.mil.pe>

⁵² <http://www.iiap.org.pe/>

⁵³ <http://www.mincetur.gob.pe/comercio/OTROS/penx/index.htm>

⁵⁴ <http://www.promperu.gob.pe/>

⁵⁵ <http://www.proinversion.gob.pe/>

⁵⁶ <http://www.sierraexportadora.gob.pe/>

⁵⁷ <http://www.adexperu.edu.pe>

- **Sociedad Nacional de Pesquería⁵⁸**: This private business organization represents the fishery and aquaculture sector. A specific aquaculture committee is in place (lead by José Ernesto Muñoz, Peruvian Aquaculture Company).
- **Producer Associations:** Producers have set up producer associations for some aquaculture products like shrimp (e.g. **Acuicultura de Langostinos en el Perú/ALPE with about 18 members**), for trout (e.g. Arapa) and for Amazonian fish species (e.g. Asociación 20 de Enero/ Nauta; Asociación de Pequeños Productores y Acuicultores de la Region Loreto/ASPAREL; and Asociación de Piscicultores de la region Loreto-Iquitos).
- **Universities:**
 - a) Universidad Nacional de la Amazonía Peruana (UNAP); www.unapiquitos.edu.pe/
 - b) Universidad Nacional José Faustino Sánchez Carrión de Huacho Facultad de Ingeniería Pesquera (The University with the first faculty to teach aquaculture since 1960 and still the best known); www.unifsc.edu.pe/
 - c) Universidad Nacional Agraria La Molina; www.lamolina.edu.pe/
 - d) Universidad Nacional del Callao; www.unac.edu.pe/
 - e) Universidad Nacional Federico Villarreal; www.unfv.edu.pe/

A further listing of regional universities offering this study subject can be found under: <http://www.universidadperu.com/ingenieria-pesquera-peru.php>
- **Non Governmental Organisations in Peru:**
 - a) **ProNaturaleza⁵⁹**: An environmental organization that is engaged with other organizations in the development of Amazonian aquaculture.
 - b) **AIDER⁶⁰**: Acuicultura and food security.
 - c) **Care Peru⁶¹**: Promotion of aquaculture in the Amazonian region.
 - d) **Terra Nuova⁶² and CESVI⁶³**: Two Italian NGOs promoting aquaculture in Peru.
 - e) **Colegio de Ingenieros del Peru (CIP)**, Capitulo Ingeniería Pesquera, the CIP oversees the development of this sector from a private and professional point of view. It supports the formation of new businesses and recommends strategies to the private and public sector, has its own TV and radio web-programme, and organizes and broadcasts regular news and thematic workshops. Most fish and seafood professionals and companies of the sector are members of CIP. www.cip.org.pe)

⁵⁸ <http://snp.org.pe>

⁵⁹ <http://www.pronaturaleza.org>

⁶⁰ <http://www.aider.com.pe/>

⁶¹ <http://www.careenperu.org/>

⁶² <http://www.terranuova.org>

⁶³ www.cesvi.org

Public stakeholders in the Peruvian Aquaculture Chain

Peruvian Aquaculture Value Chain: Public Supporting/Influencing Agencies

