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Final Report

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ABBREVIATIONS AND ACRONYMS USED

ACP	African, Caribbean and Pacific Group of States
ADM	Anti Dumping Measures
AFTA	Asian Free Trade Area.
AIPCE:	Association des Industries du Poisson de l'UE (EU fish processors association)
ASEAN:	Association of Southeast Asian Nations: Brunei, Cambodia, Indonesia, Laos, Malaysia, Myanmar, Philippines, Singapore, Thailand & Vietnam
CEP:	Comité des Organisations Nationales des Importateurs et Exportateur de Poisson de l'EU
CTH & CTC	Change of Tariff Heading from the HS harmonized system ("Tariff jump")
COOL	Country of Origin Labelling (USA trade requirement)
COP	Cost of Production
DevCo:	A generic term for all developing countries
EBA	Everything-but-Arms Initiative
EC	European Community
EEZ	(Maritime) Exclusive Economic Zone
EEA:	European Economic Area
EFTA	European Free Trade Association. Iceland, Liechtenstein, Norway & Switzerland
EPA	Economic Partnership Agreement between the EU and an ACP State
FPA	Fisheries Partnership Agreement (as for EPA)
FTA	Free Trade Agreement
GDP	Gross domestic product
GSP	Generalised System of Preferences covering 179 eligible states (1972)
HS	Harmonized System (Custom code for traded products)
IUU	Illegal, unregulated and Unreported fishing
LDC	Least Developed Country (50 states that qualify for EBA preferences)
MCS	Monitoring, Control & Surveillance (of fisheries)
MSC	Marine Stewardship Council
MFC	Maximum foreign content (of a product)
MFN	Most Favoured Nation Status (eligible for preferential trade relationships like GSP)
MLC	Minimum local content – the reciprocal of MFC
NAMA	Non Agriculture Market Access (in relation to the Doha Agenda)
NTB	Non tariff Barrier (to trade)
OECD	Organisation for Economic Cooperation and Development – used to denote developed wealthy Western economies in this study
OCT:	Overseas Countries & Territories (Greenland & French, Dutch & UK dependencies)
Pacto Andino:	South American trading group: Venezuela, Colombia, Ecuador, Peru & Bolivia
PCC	Per capita consumption (in kg/head/year)
PTA	Preferential Trade Arrangement
RMFO	Regional Fisheries Management Organisation
RoO	Rules of Origin
PSRO	Product Specific rules of origin
RTA	Regional Trade Agreement
SADC	Southern Africa Development Community: Angola, Botswana, Lesotho, Mozambique, Namibia, Swaziland, Tanzania
SAARC	South Asian Association for Regional Cooperation (1985) Bangladesh, Bhutan, India, Maldives, Nepal, Pakistan and Sri Lanka
SPS	Sanitary and Phytosanitary (food safety & hygiene)
SPT	Sufficient Processing Threshold - minimum processing for preference eligibility
TAC	Total Allowable Catch
TBT	Technical Barriers to Trade
TOR	Terms of Reference (From DG Fisheries for this assignment)
UNCLOS	United Nations Convention on the Law of the Sea
UNCTAD	United Nations Conference on Trade and Development
VA	Value Added
VMS	Vessel monitoring system
WTO	World Trade Organisation

CONTENTS

TABLES

FIGURES

EXECUTIVE SUMMARY

Context

This is the final report of a study regarding a Commission proposal to modify the preferential trade arrangements, and the potential impacts of this proposal on the trade in fishery and third country and EC stakeholders. Central to this reform are the rules of origin (RoO) that determine the eligibility of products for preference. Simplification of these RoO is proposed by basing eligibility criteria upon the value added in the preferred country, so that the origin of raw material and other inputs ceases to be an issue. This study has therefore assessed the impact of these proposed reforms on the trade n fishery products. This Report describes the work undertaken, the results in relation to some of the cases studied, and provides a synthesis of the findings with conclusions and recommendations in relation to Commission Proposals.

The study was commissioned by the Directorate General of Fisheries of the European Commission under a framework contract "for performing evaluations, impact analyses and monitoring services in the context of fisheries partnership agreements concluded between the Community and non-member coastal states", operated by the consortium comprising Oceanic Développement (France), and MegaPesca Lda (Portugal). The Terms of Reference for the study are shown in Annex 1.

This study has been undertaken by a team comprising Team Leader / Fisheries Economist, Fisheries Resource Specialist and a Fish Processing Specialist. In order to complete this study Members of the Evaluation Team have held meetings with Commission staff, as well as numerous detailed discussions interviews with fishery sector stakeholders in Seychelles, Ecuador, Bangladesh, Kenya, Indonesia and Namibia as well as within the EU. The study commenced on the 25th April 2007.

Objective

The primary purpose of the study was to assess the impact that the proposed changes to the Rules of Origin for fishery products will have upon the seafood sector. This was evaluated from an economic perspective, but also taking into account social and environmental aspects, especially in the beneficiary developing countries

Approach and methodology

Central to the approach adopted has been a series of six case studies covering a representative spread of seafood products, beneficiary countries and preference regimes:

Canned tuna: Seychelles (ACP) and Ecuador (GSP+)
Tuna loins: Kenya (ACP)
Frozen hake fillet (whitefish): Namibia (ACP)
Processed shrimp: Bangladesh (EBA) and Indonesia (GSP)

The methodologies applied were variously field enquiry in the targeted countries, use of computer modelling to assess production costs, and a questionnaire survey of key EU stakeholders. The central case investigated was the proposal that value added should be defined as all inputs other than raw material costs, and that these should account for at least 50% to 60% of the ex-works price of the product depending upon the preference regime on question

Key findings

The study started by assessing the value of preference to the beneficiary countries and other stakeholders concerned. This was found to be more a function of the industry segment (eg species group) concerned than either the preference regime or the country involved. Even so preference clearly did have value, and this ranged from the critical (canned tuna) to the relatively minor (processed shrimp). Set against this context, the study concluded that the proposed new value added based RoO would have the following implications

The proposed value added rule

- **The new value added rule cannot be applied successfully to most fisheries products**. This is because the proposed value added thresholds of 50-60% mostly cannot be met. As the table below shows, this is true for the sample of products assessed through the case studies, where all but one product (hake fillet in retail packs) failed to meet the threshold

Summary of value added for the target products in selected countries

Stage	Tuna			Whitefish	Shrimp	
	Seychelles	Ecuador	Kenya	Namibia	Bangladesh	Indonesia
Processing	48%-50%	44%-47%	32%	65%	37-38%%	27%-37%

- It then seems clear that there is a generic problem with the added value criteria when applied to seafood as defined by the proposed new RoO. The reason for this is high raw material costs, exacerbated by the effect of extracting usable meat.

- Failure to reach the threshold is particularly prevalent for the type of labour intensive primary processing most suited to developing nations – exactly the countries this legislation is intended to benefit.

- Another problem for the value added rule is the radically different outcomes for different species groups, with a high impact on tuna canning but minimal impact on shrimp producers. This obviously undermines the ambition to devise a "one-size-fits-all" system that is coherently applicable across the fisheries sector.

- The high proportion of costs attributable to raw material also leads to excessive sensitivity of value added to changes in raw material costs, themselves very variable and subject to changes in exchange rates. This means that value added is subject to rapid change that is beyond producer's control.

- The value added thresholds that could be achieved reliably under the specified conditions were actually closer to 25%-30%, some 25-35 percentage points below the thresholds set

- An alterative scenario was also investigated - one where all inputs, not just raw materials come under origination scrutiny. This means that cans, additives and packaging etc .would need to pass the origination test. In this case the levels of added value achievable by seafood processors could reduce to 15%-25%.

Unsurprisingly, then, most parties canvassed – in both developing countries and in the Member States – believed that the proposed RoO change as currently formulated was unworkable for seafood, and that for it to be feasible, thresholds would have to be greatly lowered. For the alternative scenario (all inputs tested for origination), the threshold would obviously have to be even lower with the risk that this might not be high enough to deter the abuse of "product laundering" by non-preferred countries to avoid duty. Given these difficulties alternative approaches were explored, as follows:

- **Maintaining the status quo**: was the preferred option by most stakeholders canvassed, with the single exception of the proposed changes to the vessel crewing rule, to which no one seemingly objected. This option would also have the powerful advantage of being a known quantity with which the industry is familiar and knows how to operate

- **Change of HS code heading (Tariff jump)** is a possible alternative criteria to value addition. However, this too suffers from a fundamental problem because of highly inconsistent coding of seafood products. As a result, the HS coding system tends not to reflect levels of possessing realistically, and so is of little use as a practical measure for value addition.

- **"Specific processing"** and the definition of manufacture is another alternative criteria. This is again problematic for seafood as again there is a mismatch between definitions of

manufacture that specify “sufficient transformation” and the realties of seafood processing. In particular filleting (which actually encompasses much of the work involved) is not deemed to be manufacturing whilst subsequent minor steps (cooking) are.

There were a number of other important issues raised by the study alongside the core concern of the impact of value added based RoO. These were

- **The Tolerances Rule:** Processors find tolerances difficult to use and this difficulty could increase under the proposed new RoO. There is a question as to whether this represents a renewed flexibility or a constraining “criteria” and this needs to be resolved. The reasons why processors rarely use tolerances include a lack of understanding of the rules, practical and administrative challenges in actually using them, and the concomitant risk in failing to use them correctly and so losing preference privileges.

- **Development and environmental implications of value added RoO.** If the value added rule is adapted so that it can be applied to seafood effectively, then there are a number of additional implications for developing country beneficiaries as well as EU high seas fleets. These include:

  o Raw material supplies would be likely to be sourced more widely with price the governing factor. This would discriminate against the EU fleet which is bound by access agreements to fish responsibly. It would favour those vessel operators who cut the most corners – i.e. those who pay least to their crew and tend to adopt IUU fishing practices. This risks further damaging already hard pressed fish stocks and would mitigate against more responsible fishing

  o Traceability along the supply chain would reduce, particularly regarding the source of the initial raw material. The quality of resource data would decline correspondingly as would the reliability of SPS (food safety) information.

  o FPAs would become less relevant if EU fleets reduce activity in preferred states’ EEZs. There would be less justification for payments for fishing rights that are no longer taken up. As these agreements support a mix of developmental and resource management objectives, these too would suffer. The measures would lack coherence with the external dimension of the Common Fisheries Policy.

  o There would be problems for some third country domestic fleets unable to compete with low cost imports, so stifling the potential development of national capacity in some preferred countries

  o Linked to this, there would also be a negative effect on other primary producers-small scale fish and shrimp farmers, again from foreign competition. It seems then that the processor’s gains would at least be partially offset by losses by primary producers.

Other Aspects of the reforms

There are some other important aspects that arose during the research, including serious concern about the proposed RoO administration systems and reactions to the proposed change in rules on vessel crewing.

European Seafood Importers liability: Importers are concerned about proposed reform of the RoO administrative system and reassignment of responsibility for declaring origin from competent authority to the exporter in the ACP/GSP state. In their view this will greatly increase the risk to EU commercial operators who are liable for duties if preference is falsely claimed. Wider impacts of this could include EU seafood importers becoming reluctant to deal with developing countries, or requiring large price discounts to compensate for risk. This would then jeopardise developing country exports to the EU, potentially undermining the gains sought by RoO reform.

Vessel crewing: Abandoning of the vessel crewing stipulation that formerly required 50%-75% of the

crews of vessels to come from either the preferred state or an EU member state would remove a constraint that was generally seen as benefiting no one. This was the view taken by stakeholders from both the EU fleet and the developing countries. There is though a disadvantage to this proposal from a development perspective. In some countries vessel crewing does present welcome employment prospects (eg West Africa) where loss of an imperative to crew locally would (i) lead to potential job losses and (ii) put pressure on national crews to accept less advantageous terms (or be replaced)

Overall Conclusions

There appears to be a misalignment with the system of RoO applied to Community trade in seafood products. This poses the question as to how to develop the RoO system as it applies to seafood holistically. Key outstanding issues that might usefully be addressed at this point include:

- The **HS coding** system bears little relationship to product differentiation from a practical processing view point.

- Proposed **definitions of manufacturing** do not reflect the processing involved or the level of value added.

- Originating status in **aquaculture** is currently determined by source of seed rather than that of major cost inputs like feed – an anomalous situation that is at odds with reality

- There may be an advantage in rationalising processing into **primary and secondary stages** in order to provide a coherent basis for establishing real value added

- **Originating status for wild caught seafood.** There is pressure from some sources to link origination to "ownership" of the resource (i.e. the EEZ) rather than ownership of the means of exploiting it (i.e. the fleet). This approach would find little support amongst EU fleet operators.

- **Tolerances** are seen by stakeholders as being too cumbersome, too complicated and too risky to use, and so are forgone by most producers who prefer to use derogations

If value added thresholds were to be set a great deal lower to allow the system to work there would be (i) a risk of allowing product laundering by non-preferred countries and (ii) a number of other problems likely to arise. Not least of these are the following:

- The EU high seas fleet would lose markets and may decline
- Local fleets in some developing regions would face similar problems
- The aquaculture industry would also face lower demand and lower prices.
- IUU fishing activity could increase should the EU fleet withdraw
- FPAs would become irrelevant if the EU fleet begins to withdraw from these areas.
- A reduction in development and conservation initiatives supported by FPAs would result.
- The change itself could add to complexity for users who must adapt to the new system

These potential developmental and environmental disadvantages raise questions regarding the advantages that the proposed new RoO might bring to the seafood sector. The answer seems to be that although the value added rule might seem to be an elegant and logical solution, it does not stand the test of practical worth in the fisheries and aquaculture arenas. This reflects a conclusion already reached by most of the sector's practitioners – that the proposed new RoO are unlikely to work as anticipated for seafood, and that retaining the existing arrangement would be preferable.

A series of recommendations are made in the light of these findings.

- **Set lower value-added thresholds** for the fisheries sector products of HS 03 and HS1604 chapters at levels closer to 25-30% than 50-60% (or 10%-25% if all inputs need to be originating).
- **Refine the definition of manufacture** to rationalise the classification of manufactures within the fisheries sector, especially within the 03 HS Chapter (Alternatives to value added such as "tariff jump" or "sufficient transformation" have been considered but are not seen as practical

options).

- Address EU Importers concerns with the **new RoO administrative arrangements that transfer responsibility to exporters** as this could lead to a reduction in trade between preferred suppliers and the EU.
- **Clarify the tolerance rule** in the new RoO and rationalise the tolerance and derogation regimes.

If these reforms prove to be impractical, then **retaining the existing RoO system** or a modified variation of it appears to be the best option as departures from this appear to generate substantially more disadvantages than advantages for the seafood sector.

Either way an **educational/awareness programme** will be essential given the confusion concerning the current RoO system within the industry, and the likelihood that this will increase if there are changes.

1 INTRODUCTION

1.1 Objectives of the Study

This is the final report of a study regarding a Commission proposal to modify the Rules of origin in preferential trade arrangements, and the potential impacts of this proposal on the trade in fishery and third country and EC stakeholders.

The study was commissioned by the Directorate General of Fisheries of the European Commission under a framework contract "for performing evaluations, impact analyses and monitoring services in the context of fisheries partnership agreements concluded between the Community and non-member coastal states", operated by the consortium comprising Oceanic Développement (France), and MegaPesca Lda (Portugal). The Terms of Reference for the study are shown in Annex 1.

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This Draft Final Report describes the work undertaken in the study, the main results in relation to some of the cases studied, and provides a synthesis of the findings with conclusions and recommendations in relation to Commission Proposals.

1.2 Background

This study concerns the preferential access that seafood[2] from certain developing countries has to the EU market – a preference granted to foster economic development in these countries. However, the rules that govern this system are complex, a complexity that could be threatening exactly the economic gains that preference should be creating. Accordingly, reform is required, with a central challenge – to make the rules less onerous whilst preventing abuse of the system. The particular abuse in question is "product laundering" – where efficient but non-preferred producers channel products through developing countries simply to gain the benefit of preferential access-i.e. reduced or zero duty.

Central to this reform are the rules of origin (RoO) that govern the eligibility of products for preference – with products made from imported raw materials (or precursors) being the key issue. The mechanism envisaged to achieve simplification of these RoO is to apply new and revised criteria, to include an approach based simply upon the value added in the preferred country, so that the origin of raw material and other inputs cease to be an issue. Ideally this should be a single measure that can be applied across the board irrespective of product or country, so avoiding the complex current range of product-specific criteria. The anticipated gains are simplification, and the cost savings (for both producers and regulators) that this implies, as well as greater flexibility for producers and for policy makers to focus preference on key objectives such as LDC development

This reform process got underway with the publication of a European Commission Green Paper on 18 December 2003 and was progressed through a Commission Communication dated 16 March 2005 (COM (2005)100) concerning the future rules of origin in preferential trade arrangements. The stated intention was to replace the current complex multiplicity of rules with a simple one-size-fits-all system that is easier to adjust to achieve developmental goals. It is the specific implications of these reforms for the fisheries sector that is at issue here – for both the favoured developing nations and for EU stakeholders in this sector. These need to be assessed, and that is the principle objective for this study.

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[1] Respectively Nigel Peacock of NAP Fisheries, Benoit Caillart of Oceanic Développement and Helder Silva of Megapesca Lda. The study was supported by FCMU Team Leader Kim Stobberup

[2] In this study the term seafood is used to refer to fishery products from marine or freshwater origins, and from capture fisheries or aquaculture, and includes crustácea, molluscs as well as the true fishes.

1.3 Approach and Methodology

The approach adopted for this study has been to base the research on (i) undertaking a series of case studies that cover both a representative product range and a relevant geographic spread, (ii) Interviews with key stakeholders and (iii) a review of recent relevant literature. Modelling the production economics of the essential activities involved – i.e. fishing, aquaculture and seafood processing was a key technique employed to provide an independent estimate of key economic parameters.

Central to this analysis was a common framework that expressed the wide range of fish and shellfish industries covered as a comparable sequence of processes. This framework is described in figure 1 which defines the sequence in three stages: primary production, primary processing and secondary processing.

Figure 1 is necessarily simplistic, but does suggest that this approach has validity across a range of very different seafoods, where the essential production stages are:

- primary production producing raw fish or shellfish through catching or farming),
- primary processing which essentially concerns removing net meat from the carcass (eg filleting) and is characterised by weight loss
- Secondary processing – generating consumer-ready products such as canned fish or prepared seafood meals which generally reverse the primary weight loss through inclusion of ingredients (eg brine or oil in canned fish, batter & breadcrumb for breaded fillets or shrimp).

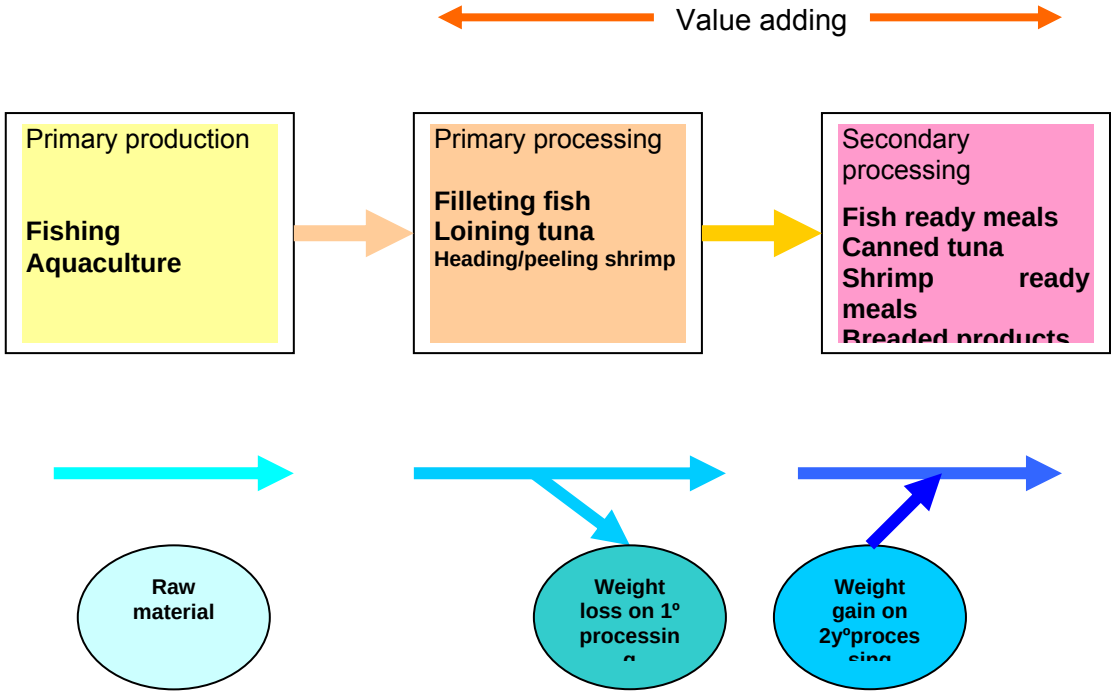

Figure 1: The processing sequence

Figure 2 looks at the geographical dimension – linking processing stages to the locations where the stage in question occurs - for each major product group. Again this is highly simplistic, but it is also instructive as it highlights processing chains that cross borders, especially between developing countries and the EU (or other OECD states).

Geographic positioning
(Species groups in red have north/south & east/west value-added connotations)
Species Raw material >> 1º processing >> 2º processing
1 Salmon: Norway, USA, Chile >> Chile, OECD >> China, OECD
2 Tuna: EU/Asian fleet >> ACP/SE Asia/LAm >> ACP/SE Asia/L Am/EU
3 Whitefish:
Wild cod/hake ACP/L.Am/EU/USA/FSU>>OECD, China, SE Asia>> OECD China
Farm tilapia/basa S Asia, China LAm>>S/E Asia, China>>OECD, S/E Asia
4 Small pelagics:
Wild pilchard Global, mainly developing countries **(processed where caught)**
Wild anchoveta Peru Chile USA EU& EEA **(processed where caught)**
5 Shrimp:
Wild coldwater Canada, EEA, >>OECD China SE Asia>> OECD China, SEAsia
Tropical farm/wild Asia, L Am, ACP >> Asia. L Am, >> OECD, China, SE Asia
6 Squid: Global (Asia & DevCo) >> Asia & DevCo >> Asia & OECD
7 Shelled molluscs: Global >> Processed where caught >> Asia, L Am OECD

Case study subjects

Product		Country	Trade preference regime
Tuna			
	1 Canned tuna:	**Seychelles**	**(ACP)**
	2 Canned tuna	**Ecuador**	**(GSP+)**
	3 Tuna loins:	**Kenya**	**(ACP)**
Whitefish			
	4 Frozen hake fillet:	**Namibia**	**(ACP)**
Shrimp			
	5 Processed shrimp:	**Bangladesh**	**(EBA)**
	6 Processed shrimp	**Indonesia**	**(GSP)**

Figure 2: Geographic patterns of seafood processing arrangements

Figure 2 also lists the six case study subjects chosen for this assignment, positioning them below the geographic matrix to show the relevance of the coverage by the case studies. With the exception of salmon – which involves Chile, a country that can now hardly be deemed to be "developing" – the target groups evidently correspond well with those where the processing chain tends to cross borders. The trade preference regime of the six case study targets is also listed, showing how the range of relevant preference systems is covered.

This then sets the research scope - research which involved modelling each specific processing chain involved, stage by stage for each target country/product case study. The primary objective here was to devise a detailed cost structure that which (i) provides clear identification of all significant input costs and value-added (ii) allows manipulation of the key variables so that the impact of RoO changes can be identified.

This “what-if” form of analysis has the advantage of allowing a range of scenarios to be tested, and furthermore can provide **quantitative** answers – demonstrating threshold levels of value added that a given industry can attain under defined circumstances. However, it does depend upon the accuracy of the model and the realism with which this reflects the industry in question.

Accordingly, a **qualitative** approach has also been adopted in parallel, where stakeholders in the target country have been interviewed to ascertain their views. Key topics covered were the problems producers experience with the current system – and how the proposed reform could help or hinder their businesses. No one understands these issues better than those whose business survival depends upon them, so the private sector was a primary focus of this inquiry. However, those administering the sector and others with an interest in the industry were also canvassed to gain a rounded and complete picture. This qualitative research was conducted in two ways – for the case study targets, this involved a mix of in-country and desk research (web searches, phone interviews with stakeholders and well informed commentators). For EU stakeholders, a **questionnaire** was used to elicit responses and guide interviews

1.4 Report Structure

This report is structured in four parts –

(i) a series of preliminary chapters which look at the legislative basis for EU seafood trade and then go on to assess the broad impact that changes to this might be expected to have upon trade between the EU and developing countries, from first principles. This relies upon previous reports and related data.

(ii) A series of case studies that explore, in detail, the likely impact in detail for six specific product/country groups.

(iii) a parallel review of the impact upon the EU seafood sector, based upon questionnaire and stakeholder interview feedback

(iv) Analysis of the outcome of the previous three sections to derive conclusions regarding primarily (a) the economic impact of RoO change upon both development agendas and the EU seafood industry but also (b) possible social impacts and (c) any environmental implications

2 CONTEXT

The principle context for this research is the trade legislation that defines preferential access to the European market. This section summarises *aspects that relate to the seafood sector in particular,* as well as briefly covering initiatives within the wider trade arena that have a bearing upon this sector.

2.1 The Preference Regime - Key Definitions

For the sake of clarity, this report sets out by defining the terms used in EU trade legislation, so providing the general context for the more detailed analysis of seafood trade. This section then describes the preference regime that currently applies to the seafood sector, and how the proposed reforms might change it. The governing instruments and rules can be defined as follows:

Preference agreements are treaties and other agreements which allow exports from most favoured nations (MFNs) to enter the EU markets with reduced duties (import tax) and/or quota restrictions (allowable volume of reduced-duty imports). These agreements are mostly "non-reciprocal", i.e. they act as one-way access systems for developing countries that do not give the EU a return advantage.. *eg canned tuna from the Seychelles enters EU markets duty free – that from highly competitive Thailand faces 24% duty less a quota (tonnage) allowed in at reduced duty.* This represents the **preference advantage** given to the preferred nation - in this case the Seychelles. The non reciprocal nature of the arrangement is an aspect that particularly concerns the WTO, and has led to pressure to implement the reforms that concern this study.

ACP, GSP, GPS+ and EBA are all preference regimes involving different MFN developing countries. They form a number of trading blocs from the EU perspective, and those relevant to this study are:

- The **Afro-Caribbean-Pacific (ACP)** former EU colony group, Eg case study subjects Seychelles & Kenya . Relevant terms are defined by the Cotonou Agreement, Annex V, Protocol 1 which follows previous similar regimes under the Lomé conventons since 1975.
- The **GSP group** (under the WTO's Generalised System of Preferences) of non ACP developing countries, Indonesia. Relevant terms are defined by the Community Customs Code, Commission Reg.2454/93 amended by EC Regs 12/97, 1602/00, 881/03: Article 68. This group includes many countries that receive limited preference for seafood products, and relevance to this to this study mainly resides with the GSP+ group (below) and some GSP countries who have reduced duties on some seafood items
- The **GSP+ group** (formerly "GSP drugs") who are mostly Latin American and FSU (Soviet) states implementing desired reform programmes such as fighting the illegal drugs trade or implementing good governance Ecuador
- "**Anything But Arms" (EBA)** that allows virtually all imports from the 50 least developed countries (LDCs) in duty free. Bangladesh

Rules of Origin (RoO): RoO qualify the preference regime by defining how raw materials (or semi processed precursors) should be sourced to allow the eventual manufactures to qualify for preference. Essentially these inputs must come from a favoured nation, the intention being to prevent non-favoured nations from "laundering" exports via MFNs to avoid duty*. Eg raw tuna for canning/loining in the ACP must be caught by ACP/EU vessels with at least 50% ACP/EU crew for the product to qualify*

Some specialised terms further define the rules. "Originating" raw material means those deemed to come from the preferred nation (i.e. eligible for EU preference), whilst wholly "obtained" products means those products where all items (from raw material onwards) are sourced within a MFN country and so fully eligible for EU preference.

"Tolerance" refers to a qualification designed to assist preferred states where a proportion of raw material can come from ineligible sources without compromising preference benefits – in seafood's case,15% for ACP and 10% for GSP countries. The point is made in the TOR that this benefit is infrequently used. The complexity of implementing tolerances might play a part in this – because the rule is that the 10-15% allowed is consignment related, i.e. this level must be demonstrably not exceeded in each consignment exported. The practicalities of managing this are understandably challenging in the seafood industry.

"Derogation" is another flexibility built into the system, and one that has similarities to tolerance. Derogations (from the Principle of Territoriality) allow limited volumes of exports to the EU that are, in effect, given blanket freedom from RoO. This is easer to manage than tolerance and thus tends to be used more frequently. Volumes allowed are small though, and so derogation tends to be used to fine tune the system. An example is the processed tuna derogation that allows ACP members (taken together) a combined total "RoO free" quota of 8,000 tonnes for canned tuna and 2,000 tonnes for tuna loins which is administered by the ACP secretariat

Other relevant terms include **"cumulation"** which refers to the build up of value-added through a series of countries that are serially processing a product. This arrangement applies under certain condition, i.e. where the countries all belong to a bloc like the ACP and operate under identical RoO. The country of final manufacture is then deemed to be the exporter (with that country's full preference privileges). This obviates the need to demonstrate that "sufficient" processing has occurred at any step in the chain. There are four categories of cumulation:

- **Bilateral cumulation** operates between two countries where FTAs or other arrangements allow them to do so. This basic form of cumulation is common to all of these arrangements. An example would be tuna caught by EU fleets for processing in an ACP state – which would be deemed to be originating (so eligible for preference).

- **Diagonal cumulation** is the arrangement relevant to ACP states as it applies to groups of countries within trading "blocs" that are recognised by the EU and which have both identical RoO and provision for cumulation between them. As with bilateral cumulation, only products with originating status at each trading point within the bloc can pass along the chain legitimately. This applies to raw materials and semi manufactures.

- **Regional cumulation** is a diagonal cumulation arrangement relevant to "GSP" states which operates in the same manner as its "diagonal" equivalents but within the GSP trade arena. Again it relates to EU-recognised trading blocs, and Indonesia, as a member of the regional body ASEAN and Ecuador under the Pacto Andino are the key relevant countries studied here

- **Full cumulation** is another arrangement for groups of states, and is similar to the previous two, but without the stipulation that inputs (eg raw material) have to be originating. This means that. originating status is gained through ensuring that "sufficient" manufacturing occurs collectively along the trade chain. This arrangement does to a degree reflect the added value approach that is the subject of this study, and is in place between the Community and the EEA, OCT or ACP blocs for various products.

Originating status and seafood: Seafood, as a raw material largely sourced from the wild, presents unusual problems where determination of origination is concerned. Special rules have accordingly been devised for fisheries, and are defined specifically (Cotonou Agreement, Annex V, Protocol 1 Article 3, 1e, f & g and its GSP equivalent). Essentially, wild fish and shellfish are deemed to be originating provided that they are caught within the inland waters or 12 mile territorial limits. When they are caught beyond these zones, complex rules apply - these are central to this study and are discussed in detail below.

However, increasingly seafood is also produced by **aquaculture** and this presents new definition challenges. The current rule is that provided the "seed" (ova, fry, juveniles, post larvae etc) originate in the country in question, the products grown from them qualify as originating. However, the major input in much aquaculture tends to be feed, and this is often imported. Should this come to be seen as a justification for changing RoO for aquaculture in the future, this would obviously have significant implications. Accordingly we address this in the analyses below

Governing rules for seafood trade. The rules described above have been tailored to different product categories under the PANEURO system's "**Single List".** In the case of seafood - classified as chapters 3 (fresh & frozen fish & shellfish) and 16 (mostly canned and preserved seafood) of the HS trade nomenclature - the rule is that all products must be wholly obtained, i.e. raw material must be sourced locally (as defined by RoO)

Timing. This is a particularly important juncture for these preference arrangements. The GSP regime has a three year cycle, and the current GSP, which was started in 1/1/06, runs out 30/12/08. It requires review at the end of 2007 in order to get the next GSP arrangement in place in time. As these are unilateral or "autonomous" arrangements where the EU grants privileges, this is not so much a negotiation as an assessment process. This is undertaken globally to determine whether countries (or product sectors) still merit GSP preference, or whether the country in question has graduated to an economic status where preference is no longer warranted. As it happens, t the same time, the ACP preference agreements are also being renegotiated as part of a wider reappraisal of EU/ACP trade relationships (discussed in detail below). This also has to occur by the end of 2007, a coincidence of timing that clearly sets December 2007 as a major deadline for EU-developing country trade reform

The preference regimes of particular interest for this study are ACP and the two GSP groups (the original GSP countries and the GSP+ former "drug" group, now designated as "special incentive for sustainable development & good governance") The rules applying to these countries' seafood trade are summarised below in table 1

Table 1: Rules of Origin requirements for processed seafood summarised

Rule	ACP group^	GSP groups	New rules
Territorial waters (i.e. within the 12mile limit)			
All fish caught within the 12 mile limit qualifies, whoever caught by			No change
ACP/GSP EEZ (200 mile limit)			
Vessel registration	ACP or EU state	GSP or EU state	No change
Vessel flag stipulation	ACP or EU state	GSP or EU state	No change
Crew stipulation	50% ACP/EU nationals	75% GSP/EU nationals	Eliminated#
Ship's officers stipulation	50% ACP/EU nationals	100% GSP/EU	Eliminated#
Ownership (% by whom)	50% ACP/EU nationals	50% GSP/EU nationals	Under review#
Tolerance for ineligible fish*	15% of ex-works price*	10% of ex-works price*	Revised system
Chartered vessel eligibility	50% ACP/EU nationals Various preconditions* *	Excluded from Article 68	No change?
High Seas (beyond the EEZ 200 mile limit)			
Catch of ACP (?GSP) vessels and factory ship products of this fish			No change
Governing documentation	Cotonou Agreement, Annex V, Protocol 1 Esp Article 3(1) (e)-(g)	Community Customs Code Commission Reg.2454/93 As amended by EC Regs 12/97 1602/00, 881/03: see Article 68	

^ Similar rules apply to OCT states (eg Greenland & dependent ACP states)
* Non originating raw material can amount to this % of the value of the ex-works price
# proposed change, in the case of ownership through refining legal definitions
** Preconditions: (i) charter/lease has been accepted by the ACP-EC Customs Cooperation Committee.
(ii) the ACP State has offered the EC an opportunity to negotiate a bilateral fisheries agreement (which offer having been declined by the EC).

The fourth preference regime considered here is **EBA (Anything but Arms)** that applies to some 50 of the least developed countries (LDCs) of which 9 are not otherwise covered by alternative EU agreements. The seafood RoO applying in this case equate more closely to those of the GSP regime, with the stipulation that 75% of the crew must come from the beneficiary state or EU member states and that all ship's officers should similarly be beneficiary state or EU nationals

Administrating the RoO system: Currently, operating this system depends upon a paper trail, i.e. certification though documentation. The key documents concerned are (i) Certificates of Origin (Form A) used as proof of origin for products imported into the EU and (ii) Movement Certificates (EUR 1) for goods exported to a beneficiary country for subsequent working and re-exporting to the EU through a cumulation chain. *An example of the latter would be EU caught tuna that is landed at an ACP cannery prior to re-export to the EU as canned product.* Simplifying this process by removing the need for continual official certification is part of the proposed reform agenda.

2.2 The proposed new value-added rule

The value-added definition: The Green paper states that with respect to wholly obtained products, "*The Commission considers that the origin of the fish*

should be based on the flag, registration and simplified yet adequate conditions regarding property, the crew conditions being removed." It proposes further that the basic origin rules for sufficiently worked or processed products should reflect the value added derived in the country of preference. Therefore central to this study is a proposed new method for determining origin that is based upon value-added in the beneficiary country.

Here value added has a precise definition as far as RoO are concerned. It is measured as the difference between ex-works price and raw material input cost, and so includes all costs that are not those of raw material. This means that value added includes labour, cans and packaging, filler and added ingredients, overhead and management costs as well as margin. This measure is set to replace previous definitions of origination that were based upon (i) specification of what constitutes a legitimate processing activity and (ii) the location of where raw material originates. The new, hopefully simpler and fairer system will entail the following: "

- Devising an overall **manufacturing definition** that will encompass all eligible activities – this is ongoing and not a question for this study – though current thinking regarding its formulation is certainly relevant

- Determining the eligibility of a product by an **value added** factor – provisionally defined as 60% of the ex-works price of the product (i.e. ineligible raw material can be no more than 40%) for ACP countries and 50% for LDCs and GSP+ countries. Attaining this **value added threshold** would be the critical requirement

- The current system is "fine tuned" for seafood products by the **General Tolerance Rule** where 10-15% of raw material can come from ineligible sources. The new RoO appear to institute a similar arrangement to be based on either value (ex-works price) or weight (of raw material), but it is unclear whether this involves a flexible allowance or a restrictive qualifying criterion. This is discussed below

    I. One interpretation of these new rules is that these "tolerance" values are actually qualifying criteria, i.e. in spite of a product attaining the value added threshold, still only 15% of raw material would be eligible were it to come from a non originating source. This seems to fundamentally undermine the logic of the proposed RoO reforms as far as seafood is concerned, reversing any liberalisation that reform might have otherwise generated

    II. If in fact these new rules are interpreted as tolerances in the former sense of the word, then their impact would vary depending upon whether value added thresholds were being attained or not. If VA thresholds are attained, so making raw material origin irrelevant, clearly there would be no need for the tolerance so no impact. On the other hand, where the thresholds are missed, then this tolerance rule would apply, as before. In purely practical terms, the effect would then be to reverse the new RoO so that they act similarly to the current RoO arrangement.

There is an additional factor to take into account here, concerning the implementation of these rules. These "tolerances" may be defined on a product basis rather than by the current "consignment" definition (i.e. per shipment). Taken literally, this could mean that, for example, every can of tuna could only contain 15% of non originating fish. Whilst this may be practical for a standardised advanced manufacture (eg electronic goods) where a given specific component of each unit could be non-originating, it is certainly not so for seafood. This is not least because of the need to ensure that consistent product specification and hygiene requirements are met, whilst using raw material of randomly variable characteristics. When the added difficulties of operating in developing countries are considered, the impracticality of this becomes overwhelming.

Certification arrangements: there is also a new approach proposed regarding the policing of the new arrangements. This will depend upon assigning responsibility to the **competent authorities** in exporting countries to administer the system through certification of exporters (**approved exporters),** whilst maintaining compliance oversight and inspection as required. The onus on accurate and honest reporting will then move from state authorities to commercial operators, i.e. certified exporting companies. This system reflects some elements of the Community system for health and hygiene

controls for seafood products supplied to the EC market and is expected to operate in a similar manner, but with an important difference – commercial operators will take responsibility for certification without recourse to state administrations. The need for extensive training and other support is recognised in the guiding Commission documentation (COM (2005)100). Even so, this transfer of responsibility from state to private operator has commercial risk implications for EU importers, and this is explored below.

Administrating the new system: As mentioned above, the main proposed administrative change is towards an "approved exporter" system, under the umbrella of a national certifying body (competent authority). This would then replace certificates from government bodies with a simpler **invoice declaration** (albeit a formalised precise document in itself). Although this could reduce bureaucratic complexity, it also increases both the administrative burden (and as mentioned above, the risk) for the private sector partners (exporter and importer) though distancing the role of state administrative bodies.

2.3 The broader context – the EPA process & DOHA agenda etc

As a background to these proposed RoO reforms, there are some significant initiatives underway which will have a substantial impact upon the whole preference system. They need to be mentioned here, and the first of these, EPAs, are central to the RoO reform agenda.

The EPAs (Economic Partnership Agreements) are being devised as a replacement to the current EU/ACP relationship. ACP states are negotiating EPAs with the EU which will, amongst other things, redefine trade relationships. This process needs to be completed by December 2007. The EU's waiver from the World Trade Organisation (WTO) that allows the discriminatory trade preferences described above, will expire at this time. WTO agreements demand a more reciprocal trading arrangement, and this will be provided by the EPAs.

Doha & "preference erosion": The World Trade Organisation (WTO) aims to reduce duties generally through the Doha Development Agenda round of negotiations. The objective is to foster increased global trade through this reform, but this would inevitably reduce the advantage that preferred states currently receive vis a vis non-preferred competitors. This threatens many ACP & LDC industries, and is itself also partly a reason for the RoO changes. There is an argument that the loss of preference advantage by ACP/GSP/EBA states would be offset by the lower costs and less onerous requirements of reformed RoO. Indeed, if Doha does in fact proceed eventually, preference erosion would be gradual and phased over some years. This would assist developing country operators to adjust to global efficiency norms, an aim consistent with the EU's long term development objectives for such countries. However, as much of the analysis below suggests, the fisheries sector may see little benefit in this regard, especially in the less efficient producer states. ***The important point here is that if the Doha reforms do proceed, the impact of this will dwarf that of RoO change.***

Related technical barriers to trade issues. There are a number of other trade related constraints that tend to enter the discussion when RoO issue is raised. Most are technically completely unrelated to RoO but as they act in the same arena, bear mention here. These are protective technical measures which are often applied to prevent the transfer of agents which may damage consumer health, animal and plant health or the environment. They may also include measures to ensure a regulated and orderly market. These measures often have the effect of making exporting more difficult and more costly. Some are perceived as being mischievously employed to frustrate competitive imports at times, but most have a strong rational basis. The measures which may be applied are regulated by the Agreement on Technical Barriers to Trade and the Sanitary and **Phyto-sanitary Agreement (see below). The latter is of particular importance in that the SPS issue and its implementation by the EU it has had a major impact on third country suppliers of fishery products to the Community**

Sanitary and PhytoSanitary (SPS) regulations. This is obviously a completely different issue from RoO - involving food safety - but it is nevertheless one that is frequently confounded with it. This is because it is seen as a parallel constraint by exporters to the EU. SPS requirements (and their equivalents for the USA and Japan) are particularly stringent for seafood for understandable reasons,

and so loom large amongst exporters' concerns. It was not surprising then that SPS issues were frequently raised during discussion with developing country exporters about RoO. Specific concerns include:

- Minimum allowable antibiotic residue and heavy metals levels, the former for farmed seafood (especially shrimp) and the latter for large pelagics, especially tuna and billfish
- Product labelling requirements, complying with very specific requirements in terms of disclosure, layout, language and aspects covered

There is a further parallel that merits mention. The new RoO envisage an administrative system in the third country that could use elements of that developed for SPS as a precedent. This RoO system would regulate exporters who are then authorised to declare originating status of their products themselves. The current SPS system requires a competent authority, an inspectorate and a reference laboratory, who together can inspect and authorise exporters who are then registered as "approved" exporters to the EU. This then devolves responsibility to the exporters, through their national government who authorise the competent authority and must ensure its reliability.

Alongside these official demands is a growing plethora of consumer-led requirements that are imposed on exporters by the market itself. These range from traceability (following the product "from net or pond to plate") to consumer concerns that can best be grouped under the "ethical responsibility" heading. The latter category encompasses a suite of private certification requirements including environmental (resource sustainability as denoted by eco-labelling MSC, or "dolphin-friendly" tuna), social welfare (non-exploitation of poor communities as in FairTrade) and organics (responsibility to feed the family healthily). All add to the burden facing developing country seafood producers, and all add to costs, though not necessarily rewarding this with any price premium.

3 OVERVIEW: PREFERENCE AND THE SEAFOOD SECTOR

The underlying theme for this section is a narrowing of the focus from generalised descriptions of EU/MFN trade to specifically fisheries related aspects. The section starts by establishing the importance of seafood trade to both developing countries and the EU, making the case that fisheries products have a special role here, and "punch well above their weight" in many cases. Subsequently, the current EU seafood tariff structure is described briefly alongside recent research on the relative value of preference to this sector. This is followed by discussion on current views regarding the value-added RoO approach, comparing it with alternative options from a seafood view point.

3.1 The importance of seafood trade

Seafood is a tiny fraction of global trade but has a special importance in developing countries' trade with the rest of the world. Indeed according to FAO, in 2004, 77% of all seafood consumed globally was produced by developing countries with 81% of international seafood trade destined for the wealthy developed world - 34% to the EU (with Spain, France Italy, Germany & UK together accounting for 27%), 21% to Japan and 18% to the USA. This exceeds the value of any other single food commodity, and has been claimed to exceed the receipts from trade in tea, rice, cocoa and coffee combined.

Table 2: Global seafood trade

	1980	2004		Growth pa %
Total	8.9	55.3	€billion	7.9
Devco's net trade	2.6	15.6	€billion	7.8
Devco %	29	28		

Source: FAO

The EU is heavily dependent upon seafood imports generally, and developing countries clearly play a large part in this. For processed seafood (taken to be mostly canned/loined tuna of HS category 1604), ACP and GSP+ suppliers accounted for at least 44% of imports in 2003 (table 3), so were clearly very much the major source of these products.

Table 3: Value of EU seafood imports 2003

Processed fish		Unprocessed fish	
	%		%
ACP	33	ACP	12
Ecuador (GSP+)	11	Norway (EFTA)	17
Morocco	11	Iceland (EFTA)	7
Thailand (GSP)	9	Argentina	6
Other	36	Others	58
Total	100		100
Total value	€1.6bn		€9.87bn

Source: Mackie report

ACP countries are also leading EU suppliers of non-preserved seafood (taken to be HS chapter 03), second only to Norway as a source. Although this trade is important for the EU, it is clearly quite crucial to some of the EU's developing country partners where it represents a key export category This is particularly true for the ACP group as FAO data for 2002 shows: their exports to the EU were worth $2.1bn against the reciprocal imports of $0.4bn – i.e. a positive trade balance of $1.8bn (table 4). By 2004 ACP exports to the EU had risen to $2.6bn (from 1.2m tonnes of seafood products, or about 20% of total ACP production). Canned tuna, fish fillet and shrimp (target products for this study) accounted for 62% of these ACP exports with round fish (fresh & frozen) adding a further 13% - i.e. three quarters of the ACP exports to the EU are addressed by this study.

Table 4: ACP/EU seafood trade in 2002

Product, 2002 data	$US million	Comments
EU imports from ACP		
Canned/processed tuna	531	Seychelles, Ecuador
Fish fillet	409	Namibia
Shrimp	355	Bangladesh, Indonesia
Chilled fish, whole	159	High value prime fish
Frozen fish, whole	109	
Octopus	102	
Other	435	
Total	2,100	$US 2.6bn in 2004
EU exports to ACP		
Tuna, of which	110	Raw materials from EU
Yellowfin	*57*	fleets for processing
Skipjack	*53*	by ACP canners
Herring	51	Low cost bulk small
Mackerel	46	pelagics for local market
Other	148	
Total	355	

Source: Lem (2002) FAO via ADE July 2006 study

ACP imports from the EU were dominated by frozen tuna (raw material for canning, mostly from EU fleets fishing their adjacent waters) which accounted for 30% whilst low cost small pelagics for domestic consumption contributed a further 30%. Thus even the ACP reciprocal seafood trade (import) is itself largely export-orientated in that it involves raw materials for seafood exporting industries.

EU-ACP seafood trade is then clearly a key element of EU ACP relationships, as well as being a complex one. And by analogy, it must play a similar role in many of the EU's other developing world (i.e. non ACP) relationships

3.2 Seafood Tariffs & the Value of Preference

Full EU tariffs (*ergo omnes* rates) on imported seafood range between 7% and 25%, with the higher rates generally applying to the more highly processed items as would be expected (table 5). The relationship is not systematic though – some minimally processed items are high tariff, fresh and frozen whole marine fish being a case in point. Conversely there are also secondarily processed products like canned crab that are low duty. The important point here though is the relatively high tariffs that can be applied to many seafood products. Preference is then genuinely valuable to many developing country seafood producers

Table 5: EU tariffs applying to most important seafood products imported

Item	HS/CN Code	Conventional duty %
0302 Fresh whole fish Fresh freshwater fish (nei)	0302 69 11	8
Fresh marine fish (nei)	0302 69 99	15
0303 frozen whole fish Frozen tuna (all sp)	0303 41-49	22 suspended
Frozen small pelagics	0303 7130/7490/7991	15
Frozen freshwater fish (nei)	0303 79 19	8
Frozen marine fish (nei)	0303 79 98	15
0304 Fish fillet Freshwater fish fillets (nei)	0304 10 19 fresh	9
Fresh marine fish fillets	0304 10 98	15
Freshwater fish fillets (nei)	0304 20 19 frozen	9
Frozen marine fish fillets	0304 20 97	7.5
Frozen surimi	0304 90 05	15
0305 Cured fish Dried/smoked fish	0305 4980/5980/6950	12-14
0306 Crustacea Fresh/frozen rock lobster	030611	12.5
Fresh/frozen Penaeid shrimp	0306 1350/1380/2390	12
Fresh/frozen crabs	0306 1490/2480	7.5
0307 Molluscs Frozen squid	0307 49	6-8
1604 canned/processed Frozen tuna loins	1604 14 16	24
Canned tuna in oil	1604 14 11	24
Canned tuna in brine	1604 14 18	24
Canned tuna “flake pack”	1604 20 70	24
Canned mackerel etc	1604 1500/1600	25
Canned/processed shrimp	1605 20	20
Canned/processed crab	1605 1000	8
Canned/processed molluscs	1605 90	20

Source: Commission Regulation (EC) No 1719/2005 to Annex 1 of Council Regulation No 2658/87.
Also Council regulations No 975/2003 & 379/2004 for reduced duty quotas
nei = not elsewhere indicated (i.e. a general category)

This is not the case universally according to the recent ADE study (*Evaluating the Consequences of Shift to a Value-added method for Determining Origin in EU PTAs)* which raised questions concerning the true value of preference. Their analysis showed that, across all sectors, the trade weighted tariff (equivalent to the preference advantage given to countries whose preferred tariff is zero) averaged 2.3% for GSP states and only 1.7% for the ACP group. This was seen as explaining the relatively low uptake of preference – for example, in only 14% of cases where exports were eligible was this actually claimed by the GSP states, though naturally this improved markedly as the preference differential increased

Table 6 summarises some results of this ADE study that compared average MFN tariffs, with and without preference. Part A deals with EU trade generally whilst Part B narrows the focus to seafood products. In Part A, this across-the-board analysis is undertaken for each major preference regime. The bracketed figure gives the trade-weighted alternative to the simple average, i.e. it is a more meaningful figure. This confirms that, overall, preference is not conferring large practical advantage for preferred states *vis a vis* the wider MFN group – the quantum being in the range of only 2-3%.

Table 6: The value of preference in trade between EU and GSP/ACP states

A: Overall EU trade with preferred states

	GSP (only*)	ACP (only*)	EBA (only*)
	%		
Average MFN tariff	5.1 (2.3)	4.8(1.7)	7.9(11.9)
Average Preferential tariff	2.7(1.2)	0.2(0.0)	

* Exclusively the regime in question – i.e. GSP countries but excluding those which are also EBA rated (bracketed) figure gives the trade weighted alternative to the simple average

B: EU seafood trade with preferred states

Tariff regime	Trade category (HS Harmonised System chapter)	Share of EU's GSP or ACP total imports	Utilisation Rate	Tariff preference
		%		
GSP	03- Fish and crustaceans	7	95	4.7
ACP	03- Fish and crustaceans	13	98	1.0
	16- canned meat, fish or shellfish	13	100	7.0

Source ADE study

This serves to emphasise the special situation of the fisheries sector where preference has a more marked advantage (as shown in Part B).. Part B also shows that the advantage conferred by preference is relatively high, especially for added value products (i.e. HS chapter 16 items) which emanate from the ACP. Accordingly utilisation rates for preference are, unsurprisingly, also high. Preference is then both valuable and important for developing countries' fisheries and seafood sectors.

3.3 The Value Added system vs the current arrangement

This section compares the proposed value-added system reforms with the current arrangement – sometimes termed the "business as usual" option. This comparison is made in general terms, reflecting the current dialogue on RoO change, **and** sets the scene for the seafood-specific analyses which follow

3.3.1 The current system

Two drawbacks with the current arrangements stand out as being particularly relevant here: its complexity and the constraints it imposes on developing country seafood processors who lack originating raw material. The effects of these are as follows:

- Complexity, with a multitude of product specific rules, has concomitant on-costs for exporters, especially small businesses in poor or small countries who find costs of compliance with all market access conditions onerous and may lack the capacity to cope with them – thus denying these firms (and their countries) the benefits of participation

- Export restrictions that affect processing in developing countries that are unable to source raw material denies these countries the potential economic and social benefits that their effective seafood processing capacity would otherwise generate.

Both of these constraints directly undermine the fundamental objective of preferential access – this being to foster economic progress in the beneficiary countries – encapsulated in the stated aim of encouraging "*sustainability development, poverty eradication and the smooth integration of developing countries into the world economy".* Clearly this is counterproductive and has generated pressure for reform

3.3.2 The alternatives

At least three approaches to changing RoO have been discussed during the current reform round. First, value added – the option central to this study – is considered below. The alternatives to this are

(i) through the technical definition of the manufacturing process (termed "Specific Processing") and (ii) through change in product customs classification ("Change of Tariff Heading"). These are discussed subsequently

(i) The value added (VA) approach: The underlying objectives of the VA approach are to (i) simplify the system for all concerned and (ii) to assist developing countries to benefit maximally for export to the EU. However, the ADE study "*Evaluating the Consequences of Shift to a Value-added method for Determining Origin in EU PTAs"* found a number of problems that jeopardised these objectives. Some have been solved by subsequent adjustment to the scheme – replacing production cost with ex-works price as the base measure, but difficulties remain, including the following.

- Though simpler in concept, the ***VA rule is not necessarily simpler in implementation***, especially for smaller companies for whom the practical reality could be higher compliance costs (for managerial & transactions costs). This point is discussed in more detail below (section 3.5)

- ***Liability for fraudulent claims of eligibility*****:** There is reason for the concern expressed by EU importers regarding their legal liability when importing product for which originating status has been claimed fraudulently by the exporter. This relates more to the trade regulatory infrastructure than VA per se, but is part of the reform package. The risk is that this may frustrate trade, or at least reduce sale proceeds to developing countries after a risk premium has been deducted - so also defeating the objective of the reform. This is a risk that some believe the new RoO system will exacerbate

- Previous case study analysis has shown that ***value added, as defined here, can vary greatly between producers even for similar products***, depending upon the exact process and inputs applied. This, which was found to be especially true for fisheries products, means that tailoring VA thresholds to specific products (eg by HS classification) will be near impossible. The analyses suggested that a generalized uniform VA threshold that applies to all traded items may be the only practical recourse, regarding this as also having the benefit of reducing scope for special interest lobbying. ***This is of course a point of critical interest to this study and much of the subsequent analysis is directed towards it***

- There was originally an issue of ***commercial confidentiality*** regarding the establishing of net production cost. – with companies being required to disclose profit margins, which, if leaked to the public domain, would undermine their negotiating position in their markets i.e. buyers would be able to exert downward price pressure, so disadvantaging the developing country industry. ***However, the proposed change of price baseline from production cost to ex-works price will resolve this problem***

(ii) **Other methods for determining eligibility (originating status)** Value Added is one of three generally accepted methods of determining originating status through "sufficient working or processing". The other two are Specific Processing and Change of Tariff Heading showing that "substantial transformation" has occurred.

- **Specific Processing (SP)** requires demonstration that an adequate degree of processing has occurred, expressed in terms of series of defined processing stages (the "List Rules" which are product specific).The list rules specify that, currently, seafood of HS chapters 3 & 16 must be wholly obtained, so manufacturing is currently not an issue. This system is hard to generalise as a tool for universal use – a key problem from a seafood point of view where there is such a range of products and processes. This then leads to complexity and opens the door for argument and special case lobbying. There are already concerns specific to the seafood sector as some high labour input activities (such as filleting) are not deemed to be manufacturing (as mentioned below –see Definition of Manufacture). This is an issue for the new RoO, but not for current legislation because, as seafood has to be processed from originating raw material, this distinction is immaterial.

- **Change of Tariff Heading (CTH or CTC)** is based upon the EU customs product code, the Harmonised System (HS) classification, also referred to as the Eurostat CN (Combined Nomenclature) codes. This is expressed as a hierarchy of levels from two-digit "chapter"

headings (03 fresh/frozen seafood) to 8-digit highly specific product codes (030 623 31 for fresh crangon shrimp). For this system, adequate processing is denoted by a ***change of coding*** (or "tariff jump") – generally at the 4 digit level of differentiation. On the face of it this appears to provide a simple and independent measure, but it suffers from the systemic problem of a lack of internal consistency. This inconsistency concerns product differentiation, as for example a 4 digit "tariff jump" can mean very different levels of processing for different products. The coding system was, after all, not designed for this purpose.

- This problem is acute for seafood products, as, for example, peeling and freezing whole raw fresh shrimp would not count as processing on these criteria (a tariff jump of only 0306-2 to 0306-1) whereas simply freezing whole fish would (a jump from 0302 to 0303). Similarly canning tuna loins would also fail to qualify (a jump from 1604 1416 to 1604 1411). This is compounded by the very different degrees of disaggregation within the HS. For example, tuna is differentiated down below species level to size grade whereas, in contrast, a single code covers all freshwater white fish fillet. This then lumps together tilapia, Nile perch and catfish (inter alia), all now major contributors to global supplies and the EU market in their own right.

There is an additional conceptual problem here, in that with seafood, value adding often does just the opposite – i.e. fresh chilled (or indeed live) seafood has the highest value – value which is subsequently reduced by processing. This perverse situation arises because much seafood processing originated as methods of preservation – i.e. as a distress response to seafood's rapid deterioration – involving drying, salting, smoking, and latterly freezing. These processes are now frequently undertaken purely for taste reasons and so do add value but not necessarily in ways directly comparable with conventional manufacture. The fact also remains that the sector has in the past. typically added value by exporting fish in the fresh unprocessed form.

3.4 Definition of manufacture

Part of the proposed RoO reform is the redefining of "manufacture" in a manner more congruent with the Commission's development objectives. This is underway now and not a direct concern for this particular study. It is however clearly very relevant and so merits mention. Current thinking is that the definition should be broadly based whilst limiting the range of eligible activities by exclusion. This definition can expressed simplistically as **any kind of working or processing that:**

- requires the application of specialized skills or equipment
- produces a product that objectively demonstrates material differences from the raw input – in terms of its properties, composition, specific qualities etc
- requires "transforming" processes to achieve this and
- Involves none of the following exclusions
  - Simple movement - transhipment or transferring product
  - Loading, unloading or other logistical action
  - Packaging, labelling or similar peripheral measure
  - Measures used to ensure preservation: freezing

For fisheries, this leads to some inconsistencies because (as mentioned above) some modern processing that now generates real added value has grown out of practices formerly instigated to preserve highly perishable seafood in a pre-freezing era. Another inconsistency arises because producing fillets (primary processing) is not deemed to be a manufacture whilst simply cooking the fillets (eg to produce tuna loins) is. In fact the great bulk of the work (and so value added) can lie in the filleting process which is usually highly labour intensive.

This does have ramifications for the new RoO in the fisheries sector. Denying primary processing (such as filleting) manufacturing status ("sufficient working or processing") potentially limits developing countries' scope to expand industries that maximise their labour cost advantage. This is because they would be unable to import non-originating raw fish for re-export preferentially as fillets. This is perverse because it is in just this segment (i.e. hand filleting or hand peeling shellfish) that they can be most competitive. This then means that developing countries would lose out in the one area where they have a particular advantage - an advantage well demonstrated by the currently growing trend to "off-shore" primary processing to just such low labour cost areas

3.5 Key recent findings

Much research has already been directed towards assessing the impact of RoO change on developing countries. Whilst this has been generalised research, the importance of fisheries in these countries trade has led to analysis of the sector in these studies. The findings are important then, and some of the more relevant findings are set out below. The reports in question are referred to by authors as follows ADE, Landell Mills, PWC with details given in the reference section at the end of this report. Findings by the ADE study have already been incorporated in preceding sections, and this section deals with some other issues raised by these studies. Set against the advantages of simplicity and scope for reducing opportunities for lobbying by special interest groups, potential problems that were identified with RoO change were as follows:

- In spite of the intention to ***reduce complexity*** through the value added RoO, arguably this could actually increase this at a practical level, especially for small companies and for customs authorities. This would result from the need to understand the manufacturing processes and the companies involved rather than simply relying on a paper trail – eg certificates of origin. This means that small poorer countries would be worst effected as their capacity to manage this is that much the less. However, the adoption of the ex-works price rather than production cost base will of course mitigate this.

- Complexities will still remain though – and for example the point is made that ***exchange rate fluctuations*** will lead to problems in establishing value added as the different constituent ingredients' values will change over time in relation to each other.

- ***Discrimination against semi-manufactures***. The point is also made that the new RoO could lack coherence with both the EU's development objectives and with economic logic. The new criteria favour maximum added value in the beneficiary developing countries. However, the economic reality is that these countries are often unable to achieve this in practice. Indeed nor should they try as they are frequently more likely to be competitive as producers of semi-manufactures – exactly the low added value products that RoO discriminate against. Thus these countries, and especially the poorest, are denied the preferential access most relevant to their capabilities. This is a particularly true for seafood processing – a point that has already been made above.

- Accordingly, a conclusion reached was that the best way to favour LDCs was in fact ***to lower the value added threshold***, allowing the highest MFC (maximum foreign content) possible – i.e. to relax RoO as well as simplify them. The ADE report suggests that a value-added threshold of 40% of ex-works price (i.e. allowing a MFC of 60%) would achieve this. This implies a rate that is 10-20% lower than those being currently discussed (which are 50-60% - interestingly ADE estimated that the "array of rules" that define the current EU RoO equate to an average of 56% value-added). It is also worth noting that a 40% value added threshold would reflect levels in many Asian trade agreements. Anyway, bettering the current system to the LDC's benefit is an underlying Commission objective. Clearly then there is a balance to be struck here between favouring LDC's whilst denying scope for abuses such product "laundering" through LDCs by non-preferred states

- The researchers also see a potential trap that could arise if there are attempts to adjust or "fine tune" value added criteria to reflect different industries' situations. This would reintroduce just the sort of complexity that the reforms aim to reduce, so reversing a principle benefit of the process. The case for a ***one-size-fits-all RoO system*** is then seen as strong and adjustments need to be made in other ways. This, though, is the position for trade, taken as a whole.

- ***Sensitivity to value-added thresholds***. Seafood products clearly presented specific technical challenges for reforming RoO. For example, very similar products reacted very differently to changes in value added based RoO. In other words, a given value added threshold can lead to very different outcomes for apparently similar products. Evidently, it was the value added threshold itself - rather than minor changes in the formulae used to define how these thresholds are derived - that had greatest impact (i.e. the best way to limit this variability is to reduce the threshold). Analysis of the canned tuna industry confirmed the

sensitivity of fisheries products to value added based RoO. Here, small changes in the ingredient mix can radically change the apparent value added for apparently similar products under the same RoO

- Fisheries dependent ***small island economies*** are evidently particularly sensitive to minor RoO changes, and can react very differently to the same RoO parameters. – especially those currently concerning vessel crew nationality and flagging

The inevitable conclusion from the ADE research must be that the value added approach to RoO presents particular difficulties for the fisheries sector, especially where a single one-size-fits-all value added threshold is concerned. Not least of these problems is the difficulty of predicting what these effects might be. However, attempting to do just this is then a key task for this study, and the ADE' findings define the challenge that this will pose.

4 Case Studies: ACP, GSP and EBA Regimes

Case studies were central to the research that underlies this study. Six countries were selected to represent the sector globally, with three product categories investigated. The products are those of particular importance to EU trade whilst the countries selected include the range of preference regimes currently in force. The countries selected also differ widely in economic scale, from tiny islands dependent upon fisheries to huge countries with large diverse economies. The box below lists these target countries and products, **which were selected in consulation with the Commission**,

Case Study Subjects		
Product	**Country**	**Trade access regime**
Tuna		
1. Canned tuna	Seychelles	ACP
2. Canned tuna	Ecuador	GSP+
3. Tuna loins	Kenya	ACP
Whitefish		
4. Frozen hake fillet	Namibia	ACP
Shrimp		
5. Processed shrimp	Bangladesh	EBA
6. Processed shrimp	Indonesia	GSP

The case studies are presented in Annexes 3 to 8 at the end of this report. These annexes provide brief reviews of the fisheries sector of the countries in question plus detailed descriptions of the target fishery (tuna) and its processing industry counterpart (canning). The main focus of each case study is the production economics underpinning the target industries and how RoO might impact upon this. This is analysed in detail, as is the response of stakeholders to RoO issues. Finally, the wider connotations of RoO change within the social and environmental spheres are assessed wherever such impacts can be identified.

This purpose of the section is to summarise the findings of these case studies whichare most relevant to the RoO change. This is done below on a country by country basis, and this section should be read in conjunction with the respective annexes, where detailed arguments are set out for the conclusions summarised here. Each case study follows the same basic format, and addresses the same key issues, but the studies are not mirror-image identical. Their response is governed by the nature of both country and product and this leads to differences. For example, coverage of the Seychelles - which is seen as particularly instructive – is longer and more detailed than that or Kenya where the industry is of relatively low national importance and involves a single minor product. Also the Seychelles case study, as the first one described, covers many aspects that equally apply to the other case studies. These are then elaborated upon in the Seychelles section, but not reiterated elsewhere when to do so would add little.

4.1 Canned tuna: Seychelles

4.1.1 Context

The Seychelles stands out amongst these case studies as the only country where fisheries dominate the economy. For this and a number of related reasons the Seychelles has particular importance for this study:

- Fisheries contribute 31% to the Seychelles GDP, and accounts for over 97% of visible exports as well as employing 17% of the workforce.
- Fisheries' exports account for a massive 92% of merchandise exports
- Furthermore, some 2,200 families (involving some 9,000 people – over 10% of the population) depend upon the sector.
- Trade with the EU is crucial and so RoO would be expected to have more impact on the

Seychelles than anywhere else studied.

- The Seychelles has interests in all stages of the production process: in tuna fishing, loining and canning. It then presents a comprehensive case for the sector

- The Seychelles is a small remotely located island group suffering from low economic critical mass, high transaction costs and thus a lack of competitiveness.

Unusually for a developing country, it is the industrial fishery that dominates the Seychelles fisheries sector. Small scale fishing makes only a minor contribution and so coverage here focuses exclusively on the commercial – i.e. tuna –fishery.

4.1.2 The Seychelles Tuna Industry

The tuna fishery
The tuna fishery is an "industrial" activity with three fleets and two fisheries involved - purse seining and long lining. The fleets are:

I. A Seychellois "flagged" fleet which incorporates some locally owned vessels
II. A foreign EU fleet fishing under an agreement between the EU and Seychelles
III. A third country foreign fleet which is mostly Asian in origin

Catches by Seychelles licensed vessels have subsequently ranged between 350-400,000 tonnes annually which has provided two sources of revenue– license fees for the proportion of this catch taken within the Seychelles EEZ and revenues from the 81-87% of the production that is transhipped via Mahe

The tuna cannery
Seychelles tuna canning is the preserve of a single company, Indian Ocean Tuna Ltd (IOT). Formerly owned by Heinz as part of a strategy to manage its brands in key OECD markets whilst "off shoring" production to low-cost, tuna-rich areas, IOT was sold in 2006 to private equity, (investment bankers Lehmans). It is now part of MW Brands, a group with an annual turnover of €680m, including a number of tuna canneries. Annual production is 55-60,000 tonnes canned tuna from around 90,000 tonnes of raw tuna input

Seafood trade
Seafood is the most important segment of the Seychelles' visible trade, and it is tuna that dominates this - consistently accounting for 97% of total seafood exports. 35-40,000 tonnes of frozen tuna and 55-60,000 tonnes of canned tuna are exported annually worth €40m and €146m respectively in 2005. The principle tariffs involved are those for frozen tuna (*ergo omnes* rate 20-22%, now suspended) and canned or loined tuna (*ergo omnes* rate 24%), with the preference in regard to the latter clearly very advantageous

4.1.3 Economic Implications of the Seychelles Tuna Industry

The two main elements of the industry have different implications: the fleet is essentially an external activity that brings revenues to the Seychelles only where it impinges upon the Seychellois economy. The cannery is an internal activity that plays a major role in the national economy.

The tuna fishery
The tuna fishery contributed at least $74 million to the economy in 2004, to which should be added the value of Seychelles own tuna landings. This is substantial within the scale of the Seychellois economy, and involved two main sources – transhipment/servicing the high seas fleet and licenses, as follows:

- The principle contributor is the tuna fleet's spending on goods & services sourced in the Seychelles ($63m), but a large proportion of this is imported fuel (64% in 2004)

- There are also license revenues received from, and on behalf of the EU fleet (paid by the Commission under FPA), which in total amounted to $11m in 2004

- A comparison between licence fees received for the EU fleet and those from 3rd countries suggests that EU fleet revenues exceed 3rd country fleets by large margins

- Consequently, any threat to the current FPA arrangement could have severe implications for government revenues

- That said, the threat to this posed by RoO must be a great deal lower than that implicit in the Doha NAMA reforms.

Available raw tuna supplies

The Seychelles exports raw yellowfin tuna to the EU but imports EU skipjack. Net Seychelles import has varied between 31,000 and 41,000 tonnes pa, i.e. this was the quantity of EU tuna needed to fulfil cannery demand for originating tuna. Added to Seychellois landings of around 80,000 tonnes, the available supply is then 110,000 to 120,000 tonnes of originating raw tuna. In fact only 90,000 tonnes is actually used in the cannery so the balance of Seychellois catch must be exported to third countries. The data suggest that this is mostly higher value yellowfin, and this does tie in with the belief that the cannery predominately produces lower priced skipjack in brine (70% of output). Clearly the canneries need for originating tuna is well catered for on a gross annual basis, though periodic minor off-season shortages have been reported

The Tuna Cannery

The value of tuna exports to the EU is effectively the value of the output of the IOT cannery, accepting that an allowance should be made for shipping to the EU of say €150/tonne. This would mean that in 2004 the value of output was €131million and in 2005 was €137 million. Within the Seychellois economy, this means the cannery (and the tuna sector in general) has a huge economic footprint. The canneries net contribution to foreign exchange has been estimated as $US22million (2003), whilst the negative impact of closing it would be a lot higher – put at $50million in 2004

The canneries production cost was investigated through a model-based analysis. The model is built up from known parameters (yields, input costs, overhead and marketing costs etc) coupled with Seychellois costs for key items. The fact that corporate production data is confidential, and so understandably not available to a study that could be viewed widely, leaves few alternatives for this type of analysis. The table below provides the result

Table 7: Indicative ex-works cost structure for canned tuna in the Seychelles

Unit production cost of Item	Yellowfin In oil	Skipjack in brine
	€/kg	
Direct costs		
Cost of fish raw material	1.54	1.28
Cans	0.53	0.53
Labels	0.02	0.02
Case (outer)	0.04	0.04
Oil filling	0.32	0.04
Indirect costs		
Labour	0.18	0.19
Variable overhead (marketing etc)	0.09	0.09
Fixed overhead	0.02	0.02
Less by-product revenues (fishmeal)	-0.09	-0.11
Total cost per kg	2.65	2.11
Total cost per standard case (48 halves)	23.5	18.7

Production costs are estimated at €2.7/kg and €2.1/kg for canned yellowfin and skipjack respectively (table 7), with a weighted average cost of €2.3/kg (€20.1/case). The weighted average price received by IOT in 2005 was €2.4/kg (€21.2/case) based on EU CIF import prices after discounting them for freight costs (table 8). This suggests that, at current average COP levels of €2.3, IOT would have in average profit of 5% (€0.13/kg or €1.12/case). The product mix was approximately 70:30 brine/oil pack, the assumption being that cheaper skipjack predominates in the former product, yellowfin in the latter.

Table 8: Average EU CIF prices for imported Seychelles tuna (2004/5)

Product	€/kg 2004	€/kg 2005	% export*
Vegetable oil pack	2.95	2.75	32
Brine pack	2.49	2.45	68
Weighted average	2.58	2.54	100
Less freight	0.15	0.15	
Ex-works price	2.43	2.40	

Source: Eurostat.*% by volume from 2005 Eurostat data.

The degree to which preference is important to the Seychelles industry is made evident by comparing IOT to Thailand, generally seen as setting the standard for efficiency. The price differential between IOT and Thailand is the measure of this. If the cost of raw fish is assumed to be the same for both countries plants, the cost production is as follows.

Table 9: Production cost estimates for canned tuna & loins in Seychelles

Country	Product	Fish cost	Other cost	Total cost	
Seychelles			**Yellowfin in vegetable oil, 185gm can**		
	Canned from frozen tuna	13.6	9.9	23.5	€/case
	Loins	2,576	398	2,974	€/tonne
Seychelles			**Skipjack in brine, 185 gm can**		
	Canned from frozen tuna	11.3	7.4	18.7	€/case
	Loins	2,144	381	2,526	€/tonne
Thailand			**Skipjack in brine, 185 gm can**		
	Canned from frozen tuna	10.0	5.8	15.8	€/case
	Loins	1,895	474	2,369	€/tonne

Source: Model analysis by Napfisheries

As the table shows, costs of producing both canned tuna and loins are markedly lower in Thailand. Thai cost of production (COP) is approximately €3 per case lower than that of the Seychelles, (ie16% lower than Seychelles prices. High tuna prices may have narrowed the differential, but what this makes abundantly clear is the importance of the 24% tariff preference differential to the Seychelles. Preference is clearly crucial in allowing Seychelles to compete in the EU market.

Clearly the Seychelles is a high cost producer compared with industry leaders like Thailand. The reasons for the Seychelles' high cost base are not hard to find. Labour costs are exceptionally high at $US19 compared with only $1/day in Kenya (Mombassa) $1.6/day in Madagascar, $4.5/day in Thailand and Mauritius, and $6/day in the Philippines. Against this, and thanks to a high investment in modern equipment, Seychelles labour is relatively productive with each worker processing 36.8 tonnes of raw tuna per worker per year compared with 20-21 tonnes in Mauritius and Ghana and 12.5 tonnes in Senegal.

4.1.4 Potential Impact of Rules of Origin Change

The Tuna Cannery

The first relevant issue for the cannery is the origin of its raw material i.e. raw whole tuna, mostly frozen. The current supply balance was investigated in the case study where it was concluded that currently 100-120,000 tonnes of originating raw tuna are available from tuna caught in the Seychelles EEZ. If the EU Indian Ocean catch transhipped through Mahe is included the potential eligible supply rises to over 335,000 tonnes, nearly 4 times actual requirements.

That said, there are occasions when the EU fleet is fishing distantly from the Seychelles and so tuna from that source is not available, and more flexibility is required. Currently this need for non-originating tuna is met from the pan-ACP 8,000 tuna derogation. The situation is then straightforward – Seychelles raw material is nearly all originating and so Seychelles tuna is wholly eligible for preference. Where this is not the case, derogation provides the necessary flexibility.

The future if there is a change towards the value-added rule: As RoO are currently presenting few problems to the cannery, their change is unlikely to bring much benefit. There may however be a downside risk, as the change may disadvantage the cannery. There are two aspects to this: the value-added criteria and security of raw material supply, dealt with in turn below.

Value added criteria The table below assesses the value-added in the IOT cannery. It is based upon the model and expresses each cost item as a percentage of ex-works price (estimated as CIF EU prices less estimated freight charges)..Added value, calculated as all costs and margins other than raw material is expressed as a percentage.

Table 10: Production costs for representative Seychelles canned tuna products

Item	Yellowfin canned in oil			Skipjack canned in brine		
	Production cost		Added Value %	Production cost		Added Value %
	€/kg	%		€/kg	%	
Direct costs						
Cost of fish raw material	1.54	55		1.28	55	
Cans	0.53	19	19	0.53	23	23
Labels	0.02	1	1	0.02	1	1
Case (outer)	0.04	1	1	0.04	2	2
Oil filling, salt etc	0.32	11	11	0.04	2	2
Indirect costs						
Labour	0.18	6	6	0.19	8	8
Variable overhead (marketing etc)	0.09	3	3	0.09	4	4
Fixed overhead	0.02	1	1	0.02	1	1
Less by-product revenues	-0.09	-3		-0.11	-5	
Margin	0.15	5	5	0.23	10	10
Total cost per kg	2.80	100	48	2.34	100	50
Freight	0.15			0.15		
CIF EU price	2.95			2.49		

Source: Model analysis by Napfisheries

What this table makes clear is that Seychelles canned tuna is highly unlikely to meet the proposed 60% threshold for ACP countries, and may also just fail to meet the lower 50% LDC alternative. This is the situation only if costs of other imported inputs such as cans and additives are deemed to be included in the added value, Were these items to be deemed raw material, then added value could to decline to as low as 13 to 25%.

If the current supply situation persists after RoO change, this actually creates no problems – the real risk would arise if RoO change reduced the attractiveness of the Seychelles as a base for the EU fleet. The wider ramifications of this are explored below, but a threat to the cannery would result if its raw materials supplies (i) reduced, should the EU fleet move its centre of gravity elsewhere and (ii) come to depend upon non originating tuna from third country fleets, in which event the added value threshold would become critical.

The Tuna Fishery

The current rules of origin clearly provide an incentive for the EU fleet to land tuna in the Seychelles because preference, which is critical for the cannery, depends upon their tuna. This then strengthens the EU fleets' position vis a vis the cannery – it is their captive market. Arguably this raises costs for the cannery. Some operators refer to a premium obtained by EC vessels, although other stakeholders believe that there is sufficient competition within the EU fleet to ensure that world prices apply. Either way, the cannery would wish to see the status quo maintained.

Overall

The principle potential effect of RoO changes on the tuna fishery would then be a loss in the motivation for the EU tuna fleet to base itself in the Seychelles. Current RoO encourages the use of Mahe because the cannery depends upon EU vessels (whether EU or Seychellois flagged) for originating raw material. Once that imperative is removed then the EU fleet loses a captive market and thus its competitive advantage. Tuna prices should fall as Asian competitors enter the market, but this is by no means guaranteed. Seychellois stake holders fear that this potential advantage is more than outweighed by the risk that the fleets will abandon Mahe – i.e. threatening future security of supply. There are various corollaries to this possible departure of the EU fleets:

- It would pose potentially serious difficulties for the cannery, because the resulting dependence

upon 3rd country fleets would mean that the added-value test would have to be applied.

- The analysis above suggests that IOT would not be able to reach the 60% threshold in this eventuality.

- The circumstances would thus turn dramatically against the cannery; with raw material origin - which had previously posed no problem – becoming a major issue.

- The eventual expression of this could be a reduction in the Seychelles tuna "fleet" as European–owned vessels choose to flag elsewhere.

- Similarly the Mahe transhipment business would be threatened. The EU fleet's diminished activity could reduce throughput markedly.

- There are counter arguments to this – Mahe's highly strategic location, relatively close to the resource, and its advanced ability to service fleets provide a powerful competitive advantage for the Seychelles as a transhipment centre. .

- Other RoO aspects cause less concern in the Seychelles. For example, abandoning the current crewing requirements (i.e. requiring 50% domestic/ACP crews on foreign vessels) will have little impact according to Seychelles stakeholders, but it could reduce opportunities for their Indian Ocean and African ACP neighbours who could see these jobs going to Asians crew.

The industry view

The value added rule: This is the situation as depicted by model based analysis. Discussion with the industry suggested that they view the situation similarly. Generally speaking they feel that a one-size-fits-all value added rule cannot be applied universally when there is so much cost variation between products and producer countries. As mentioned above, They cannery would struggle to meet even a 50% value added threshold. The industry does find the current system difficult to manage, with continual concern about accountability – i.e. an unintended error that could pose a threat to preference. This is a very real concern given the crucial importance of preference to IOT. In spite of that, they would prefer to retain the status quo in spite of the promise of simplification by the new RoO. The fact that there is a small premium (put at $100-200/tonne by industry commentators) currently paid for originating tuna from the EU fleet is more than outweighed by the benefits they receive in what is termed a "win-win situation".

The tolerance rule*:* Advantage is rarely taken of the tolerance allowance – with Mauritius and possibly Madagascar the only Africa region countries availing themselves of it (i.e. countries without a large nearby resource or fleet –see text box for the Mauritian viewpoint). The main reason for this according to the industry is the difficulty of implementing its stringent requirements in the context of a fisheries business in a developing region. The management skills to administer the use of tolerance inputs simply don't exist, and so rather than threaten their preference privileges, canners prefer to avoid its use. Where flexibility is required, the easier to use derogation is used – and though small, this appears to provide the latitude necessary. New more constricting tolerance rules are then unlikely to prove helpful

4.1.5 Wider Implications of RoO Change

The first point that should be made is that the real threat to the Seychelles tuna industry, and particularly the cannery would be preference erosion – i.e. the Doha agenda. The impact or RoO change would be far less disastrous, but the "cascade" effect noted above could eventually prove to be very damaging. The question is then, what would be the wider impact of (i) a reduction in transhipment activity as the EU fleet moves elsewhere and (ii) the subsequent threat to the cannery where less of its production could prove eligible for preference.

Potential impacts would be economic, social and environmental, and it is abundantly clear is that most impacts are negative. The principle effect would be upon employment and the wealth of the Seychelles citizens, especially those of Mahe. Wider effects would include reduced government

revenues and adverse effects on the balance of payments. The social consequences of this are understandably similarly negative. The impact upon resource management is less intuitively obvious but is also negative as funding for resource management would decline as arguably would control over the fleets supplying Seychelles. The generally adverse reaction to the proposed RoO changes by the Seychellois authorities is then very understandable.

4.2 Canned tuna: Ecuador

4.2.1 Context

Fisheries and aquaculture are growing in importance in the Ecuadorean economy – and are now both a major employer and contributor to exports. Seafood represents 10% of total exports, second only after oil and ahead of the traditional mainstay, bananas. Tuna is just one of a number of key seafood products contributing to this.

- There is a large marine fishery that produces 300-600,000 tonnes annually, mostly of pelagic species (over 80% in recent years) especially small pelagics which explains the huge variability in landings.

- The other major category is tuna, accounting for from 25% to 50% of the total (150-200,000 tonnes).

- Whilst wild landings have been variable at best and possibly declining, the real growth area has been aquaculture, especially of shrimp.

- Farmed tilapia has become increasingly important following a disastrous shrimp disease outbreak in the 1990s which hugely reduced output. Tilapia was reared as a substitute to keep the shrimp farms in business then and have emerged as a viable alternative at 34,000 tonnes/year.

- Latterly, shrimp culture has rebounded from the 1990's lows to yield an estimated 150,000 tonnes in 2006.

4.2.2 The Ecuadorian Tuna Industry

The Tuna Fishery
Ecuador has a substantial tuna fishery and has access to originating tuna from its GSP+ neighbours provided that they respect current RoO.

- This includes 86 vessels that are both Ecuadorian owned and registered, and carry more than a 50% national crew, including officers.

- Some of the more than 250 tuna vessels in the Central American and Andean countries' fleets (termed OPO – Oriental Pacific Origin) also qualify as GSP+ sources

- In addition there are EU vessels, with Spain being by far the most important in this region.

- Supplies also come from non- qualifying OPO vessels and some others (Vanuatu) which operate in Ecuadorian waters but their landings are processed for markets other than the EU.

- The Ecuadorian fleet lands skipjack, yellowfin and bigeye tuna and in 2006, Skipjack accounted for 70% of landings, followed by yellowfin (15%) and bigeye (15%).

- The main tuna season runs from December to May, with lower catches from June to November.

- According to the processors, the total landings to Ecuador from all fleets in 2006 were approximately 350,000 tonnes, of which 60% came from the 86 Ecuadorian vessels, 25% from

the Spanish vessels and 15% from other OPO vessels

However, the most important recent development has been the increase in raw tuna prices which have risen recently from long term averages or around US$700-900/tonne skipjack, and US$1,200-1,400/tonne for yellowfin to current levels of US$1,000-1,200 and US$1,600-1,800/tonne respectively. These are historically high and currently have a major impact upon structure of canning costs

Tuna processing
Tuna canning and loining has become a large industry in Ecuador. There are now eight large tuna plants with two in Guayaquil and six in Manta, which together account for around 90% of the total national output. These plants process raw tuna into a mix of semi-finished and finished products including loins, canned tuna and pouched tuna for the local and export markets. Tuna pouches are a more recently developed product involving flexible foil packs, produced for the US market where they are displacing canned tuna as the preferred format.

Seven of the leading Ecuadorean processing plants account for about 85% of Ecuadorian output (75,000 tonnes loins, 45,000 tonnes tuna pouches and 66,000 tonnes canned tuna). The plants, which have Ecuadorian, Spanish and US owners, have a total output of 186,000 tonnes tuna products and employ 13,000. This output implies a raw tuna input of 340,000 tonnes, a figure close to the informal industry estimate of 350,000 tonnes of raw material available from the various fleets landing in Ecuador.

Trade in Seafood
At $598million in 2006, shrimp is now Ecuador's most valuable seafood export following the shrimp farming industry's recent resurgence. However, tuna still accounts for 40% of Ecuador's seafood exports at $457m (158,000 tonnes). Whole fresh and frozen tuna now account for a tiny fraction of the total (only 2-3%) whilst the bulk of tuna export is processed: - loins or canned. Most tuna loins are exported to the EU as is canned tuna (65% of total Ecuadorean output) whilst the bulk (95%) of pouched tuna is destined for the USA. About 15% of loins are sold within the Latin America market. For canned tuna, the spilt between higher value yellow fin/bigeye and lower value skipjack of 30% to 70%, and it is assumed that most tuna canned in brine or as flake is skipjack.

4.2.3 Economic Implications of the Ecuadorian Tuna Industry

The Tuna Fishery
The bulk of tuna landed to the Ecuadorian canneries and loiners comes from Ecuadorian or OPO vessels. The output of the former is eligible for preference, and so the economics of this fishery is not really an issue for this study because, as originating raw material, it qualifies for preference now and will continue to do so under changed RoO. The other eligible source of tuna is that provided by OPO vessels if from GSP+ neighbours and which meets GSP+ cumulation conditions. Tuna from ineligible OPO vessels is sold regionally or to the USA after processing.

The Tuna Canneries
Processors in Ecuador are, as elsewhere, naturally reluctant to divulge detailed processing costs or margins. They were though prepared to give indications of the broad make up of ex-works prices, showing current levels of value added, and this is discussed below. This provides one view of the situation, but as with the other case studies, the alternative approach of modelling production cost has also been adopted as the table below shows. Loin production costs are also assessed as these are exported to the EU in some quantity, though they are not the target product here.

Table 11: Indicative production cost estimate for Ecuadorian skipjack tuna canned in brine

		€/kg	%
Skipjack	Raw material	1.28	56
Added value	Costs	0.94	41
	Margin	0.08	3
Added value		1.02	44
Ex-works price		2.30	100

Source: model analysis

The bulk of Ecuadorian production is skipjack (70% of landings) and so this is the representative product for the Ecuadorean industry. This is then an industry targeting the lower priced market segments and skipjack in brine, marketed in 185-200gm cans (with 48 of these ”halves” per case) is taken as the paradigm product for analysis

Table 12: Production costs estimate for Ecuadorian yellowfin tuna canned in oil

		€/kg	%
Yellowfin	Raw material	1.51	54
Added value	Costs	1.24	44
	Margin	0.05	2
Added value		1.29	46
Ex-works price		2.80	100

Source: model analysis

Table 12 gives similar data for yellowfin tuna, a higher cost and higher value product which is canned in oil rather than brine. In this case the view is taken that a long term representative average raw material price is $1,500/tonne for good quality yellowfin. This is however a less important product, accounting for an estimated 30% of canned tuna exports

Table 13: Production costs estimate for Ecuadorian skipjack loins

		€/kg	%
Skipjack	Raw material	2.14	71
Added value	Costs	0.57	19
	Margin	0.29	10
Added value		1.86	29
Ex-works price		3.00	100

Source: model analysis

Finally, in view of the importance of the Ecuadorian loining industry, and the relatively large volume of loins sold to the EU, the production cost for tuna loins is calculated in table 13. This is done along the same lines as for the canned product quoted in the preceding tables.

The tuna industry is an important employer in coastal Ecuador, with a current processing workforce of approximately 15,000, of whom between 75-80% are women. To this can be added those employed in associated industries such as the tuna fleet, packaging industries and so forth, probably accounting for a total of 200,000.

4.2.4 Potential Impact of Rules of Origin Change

The Tuna Canneries

RoO change does have implications for the Ecuadorian canneries. The analyses above make it clear that these canneries will generally fail to meet the GSP+ value added threshold of 50%. The higher 60% threshold set for ACP states would certainly be unattainable. Table 14 shows value added as percentages and confirms that value added is unlikely to reach the 50% threshold. Indeed were cans to be deemed to be an imported input, then value added would decline to less than 30%.

Table 14: Production costs analysis for Ecuadorian canned skipjack in brine

Item	Production cost		Added Value %
	€/kg	%	
Direct costs			
Cost of fish raw material	1.28	56	
Cans	0.41	18	18
Labels	0.02	1	1
Case (outer)	0.04	2	2
Brine filling	0.03	1	1
Indirect costs			
Labour	0.27	12	12
Variable overhead (marketing etc)	0.09	4	4
Fixed overhead	0.13	5	5
Less by-product revenues	-0.05	-2	
Margin	0.08	3	3
Sale price	2.30	100	47
Freight	0.10		
CIF EU price	2.40		

Source: model analysis

However, on the face of it, currently this presents few problems, as these canneries are supplied by the Ecuadorean fleet, so product is wholly obtained. There are potential issues though. Firstly, dependence upon the Ecuadorian or qualifying OPO fleets is a potential hostage to fortune. Should circumstances change and for whatever reason, these fleets cease to land to Ecuador, then the canneries would lose preferential access to EU markets. That said, it appears that the position would be no worse under RoO change, as the canneries would be in the same position – i.e. reliant upon originating raw material. An opportunity would have been lost to source more widely under the changed RoO, but that opportunity does not exist currently anyway, other than that allowed by the 10% tolerance

The Ecuadorian industry was canvassed on the new RoO as part of this study, and their concerted industry position was that they cannot attain the new value added threshold and would prefer to see the current RoO remain in place. The industry agrees with the model analysis in as much as they cannot attain the 50% threshold, but the agreement ends there. They believe that their value added is a great deal lower than the levels the model suggests, at only 15-25% of ex-works price.

Table 15: Industry estimates of cost breakdown for canned skipjack

		€/kg	€//kg	%
Skipjack	raw material	1.85	1.85	78
Added value	Cost range	0.33	0.48	17
	Margin	0.11	0.11	5
Added value		0.44	0.59	22
Ex-works price		2.30	2.44	100

Source: Industry interviews: costs in US$ converted to € @ $1.35/€

The discrepancy can be explained by different bases of calculation, but the important point is that the conclusion is the same, i.e. that the 50% added value threshold cannot be reached. Nevertheless this does serve to make an important point – the sensitivity of the value added proportion to raw tuna prices. The table below uses the model to test the degree to which this affects the value added component, covering the credible range of skipjack prices encountered in recent years. Clearly this does have a very considerable impact, radically changing the value added proportion – from between 40% to 60%. This demonstrates an additional hazard that the value added approach faces in the fisheries sector – excessive sensitivity to raw material costs. This in turn leads to value added being anything but a manageable fixed function, but rather a highly variable factor, subject to rapid change that is completely beyond producer's control

Table 16: Variation of the value added proportion with raw material unit cost

$US/tonne	Value added %
700	59
800	55
900	52
1,000	50
1,100	47
1,200	45
1,300	43
1,400	42

Source: model analysis

In conclusion, the processors would prefer to continue with the current RoO, even though they appreciate that they would benefit from a less restrictive supply regime that would allow them to be supplied from any OPO vessel irrespective of nationality for their EU destined processing.

The Tuna Fishery
Whilst processing is the industry segment that is potentially most affected by RoO, there are some implications for the tuna fishery. These will probably be less severe than those for the Seychelles industry, because Ecuador has its own large viable fleet currently landing around 200,000 tonnes of tuna a year. This can theoretically yield some 90-130,000 tonnes of originating processed product, depending upon the mix between loining and canning. At recent levels of export to the EU (84,000 tonnes of loins and canned tuna in 2005) demand is then well covered by available originating tuna without recourse to external suppliers. The Ecuadorian fleet benefits from supplying its own canneries with the obvious logistical advantages as well as prospects for a price premium for EU-destined tuna. The current RoO arrangement is then beneficial to the Ecuadorean fleet, and the sector considers that a change would probably have negative impacts.

4.2.5 Wider Implications of RoO Change

The Ecuadorian tuna industry considers itself to be at an unfair disadvantage to the highly competitive Asian canners in three regards:

- Environmental: due to IATTC conditions that are not imposed on the Asian fleets & canners in the Western Pacific who can then source raw tuna more cheaply
- Socio-economic: with the great difference in pay scales between Ecuadorian labour (paid round US$1.0 per hour) whilst some Asian companies have to pay only US$1.00 per day for similar quality labour.
- Macro-economic: due the persistent problems with the Ecuadorean sucre, Ecuador has adopted the US dollar – over which it has no control - as a commercial currency.

It is countering these perceived disadvantages that both justifies the current preference and makes them crucial in the Ecuadorean industry's eyes. Without the preferences, they believe that they would be unable to retain their position in the global market place. This would then damage a crucial national industry.

4.3 Tuna Loins: Kenya

4.3.1 Context

Kenya is presents a marked contrast to the two other tuna processing industries assessed (Seychelles and Ecuador), as fisheries are a minor component of an economy that is now widely diversified.

- The tuna industry is similarly a minor activity, where domestic landings are minimal and processing depends wholly on fish landed to Mombasa by foreign high seas fleets.

- Processing itself involves tuna loining by a single company, Wananchi, and whilst production has grown fast it still plays a small part in Kenya's economy.

- Thus though locally important in Mombasa, this is then not an industry where change will have a substantial national impact.

- That said, fisheries, as a sector, does have socio-economic importance as a small but significant part of Kenya's 32.4m population depends upon fisheries for income and food.

- Although Kenya's marine catch is only 7,000 tonnes, the freshwater fishery is a far more important contributor to supplies at 130,000 tonnes, mostly from Lake Victoria.

- There are 9 significant Kenyan marine seafood companies of which only two are relatively large - Wananchi Marine Products (Kenya's only tuna processor) with a turnover of €30 million annually and the Alpha group, a leading diversified East African food group with interests in meat, dairy and fisheries.

- Most of these plants are operating well under capacity due to raw material shortages. The exception in the Wananchi's tuna plant (75% of capacity in use) so tuna is evidently the one seafood raw material in adequate supply in Kenya.

- There have been serious SPS issues in the past, leading to a ban on Kenyan fresh fish imports to the EU, which impacted mainly on the nile perch fishery As a result, much attention has subsequently been paid to Kenyan seafood quality control systems subsequently at both government and industry levels.

4.3.2 The Kenyan Tuna Industry

The tuna supply
What is clearly missing in Kenya is a significant tuna fishery. Domestic tuna landings are tiny (only a few hundred tonnes annually) but the potential resource in the Kenyan EEZ is seasonally significant with high seas (non-Kenyan) fleets (including EC) are catching as much as 60,000 tonnes annually as the seasonal migration passes through the Kenyan EEZ. However, this is a high seas fishery, which Kenya is ill equipped to exploit, lacking the very large, highly expensive, vessels required (eg purse seiners). Kenya's industrial tuna supply consequently depends upon imports.

This creates problems as Wananchi's limited cold storage capacity (and lack of public cold storage) means that they are hostage to the seasonal nature of the fishery, facing high prices or shortages when the EU fleet is operating distantly. This is exacerbated by poor Kenyan credit facilities, making it difficult for the company to finance purchases in bulk to gain economies of scale. Tuna landed in Mombasa from the South Western Indian Ocean Region is about 60% yellowfin and 40% skipjack according to the industry. Prices are believed to be some 0.1-0.2US$/kg higher than those for tuna from the Pacific, largely because of a higher proportion of yellowfin. However this might represent the EU tuna price premium of $100-200/tonne, a differential mentioned by tuna traders in the region – a differential this is largely due to preference.

Tuna Processing
Wananchi Marine Products in some ways acts more as a contract processing operation than a fully independent processor; such is its dependence upon the distant water fleets. The plant produces two products – frozen tuna loins and, as a marketable by-product, tuna flake (the fragments left after skinning and cleaning the loin fillets). Annual input to the plant in 2004 was some 15,000 tonnes or raw tuna which yielded about 7,000 tonnes of tuna loins.

Trade in Seafood
Nile perch exports have led Kenya's seafood trade for the past two decades. This trade peaked by 2003, and resource related constraints suggest that it will at best remain at current levels. The dynamic new element has been the emergence of tuna loining as an expanding industry which started in 1996 with exports of 500-1,000 tonnes to Italy. This trade has grown rapidly, with significant expansion evident after 2003. EU imports have subsequently risen to 9.000 tonnes (2005) although Kenyan export data suggests that considerably more tuna loins are exported (over 20,000 tonnes by

2006) though this would need corroborating. The principle EU importer of Kenyan loins is Italy, as it has been from the outset. France did import some loins and recently Spanish imports have been increasing, but Italy still accounts for nearly 90% of the total. By 2005 Kenya accounted for a small but significant proportion (12%) of EU tuna loin imports.

4.3.3 Economic Implications of the Kenyan Tuna loining Industry

The Tuna Fishery
Kenya has no fleet capable of participating in the high seas tuna fishery, but it does benefit from the fishery to a minor degree through licensing. Total license fees in 2005 amounted to US$840,000. This represents about 1.4% of the value of the estimated 60,000 tonnes of tuna caught in Kenyan waters, arguably worth more than $60 million at first sale. The catch may be considerably higher, but Kenya has limited monitoring, control and surveillance (MCS) and is largely unprotected against, Illegal, unregulated and Unreported (IUU) fishing activities in its EEZ.

Tuna Processing
The key Kenyan processing activity is tuna loining and this section assesses the production economics for this. In effect this means production costs for the sole processor, Wananchi. Costs are assessed through use of a model based upon key Kenyan factors and unit costs. Average production cost is estimated as €2.9/kg for loins which are assumed to involve a mix of skipjack and yellowfin loins. Minor revenues received for by-products are treated as discounts from production costs, and addition of a margin of €0.12/kg gives an ex-works price of €3.03/kg.

Table 17: Production cost estimates for Skipjack loins in Kenya

		€/kg	%
Skipjack	raw material	2.14	71
Added value	Costs	0.76	25
	Margin	0.12	4
Added value		0.88	29
Ex-works price		3.03	100

The estimate of ex-works price given in the table was derived from EU import data (€3.3/kg after these CIF costs have been adjusted downwards for freight costs).

4.3.4 Potential Impact of Rules of Origin Change

The Key issue for Kenya is clearly the source of tuna, and with no fleet of its own, Kenya's loining industry is obviously entirely dependent upon the international high seas fleet.

- This means either landings from that fleet or imports, and in both cases they must of course come from an originating source.
- This effectively limits the source to the EU fleet, and in particular periodic landings made during transhipment visits to Mombasa.
- The lack of storage facilities in Mombasa means that stockpiling is impossible, so regularity in delivery is important. The lack of this regularity is then a constraint on the industry's development.
- The implication is that access to non originating fish would assist the industry. This would allow it to benefit from landings by the other Indian Ocean fleets (mainly Asian), so widen the potential supply base.

The central question is then would Wananchi be able to achieve the value added threshold set for the new RoO. If not, then the new RoO do conceivably pose a potential threat if they serve to diminish the EU fleet's activities in the Western Indian Ocean. This could then prove to be a threat to the availability of eligible raw material

Tuna Processing

The crucial consideration here is then whether Kenyan loiners can achieve the value added threshold set by new RoO at 60%. As the table below shows, quite clearly they cannot, and even the lower limit set for EBA nations of 50% is similarly unattainable - value added is at most 32%, representing €0.84-0.97/kg depending whether direct costs are included or not.

Table 18: Added value Production cost estimates for loins in Kenya

Item	Production cost tuna loins		Added Value
	€/kg	%	
Direct costs			
Cost of fish raw material	2.14	71%	
Packaging	0.05	2%	2%
Case (outer)	0.04	1%	1%
Refreezing	0.10	3%	3%
Indirect costs			
Labour	0.04	1%	1%
Fixed overhead	0.36	12%	12%
Utilities & services	0.26	9%	9%
Less by-product revenues	-0.09	-3%	
Margin	0.12	4%	4%
Sale price	3.03	100%	32%
Freight	0.27		
CIF EU price	3.30		

Thus, the industry has little to gain from the new RoO and will remain dependent upon obtaining originating fish. The follow on from this is that the industry has something to loose – the risk that the new RoO could persuade the EU fleet to move away from the Western Indian Ocean, or could damage the fleets viability to the point where it retrenches. This would then trigger the concern mentioned above, i.e. a threat to the availability of eligible raw material for Kenyan loiners. This risk may not be great (compared with others such as the Doha agenda) but it does mean that RoO change is on balance, negative for Kenya

Kenyan authorities are of course alert to this risk, and the fact that the new RoO will increase rather than diminish it. Were all tuna caught within the Kenyan EEZ to be deemed to be originating, irrespective of by whom they were caught, then that would solve the problem in Kenyan eyes. Indeed, the fact that this tuna is apparently not deemed to be Kenyan is seen as an infringement of the UNCLOS in that it suggests that fish within the Kenyan EEZ does not actually belong to Kenya by sovereign right. It would also counter the difficulty developing countries have in benefiting from their resource, and switch the balance of advantage from the EU fleets to the developing country in question. Other potential options for improving the system from Kenya's view-point include increasing tolerances (to 30%) or expanding the derogation volume. The perception is also that the new RoO will add to bureaucratic complications, and in this regard, a simple CTH "tariff jump" system would be favoured

4.3.5 Wider Implications of RoO Change

Tuna loining in Kenya clearly provides some employment in Mombasa and makes a contribution to exports. Apart from that, its impact economically or socially is limited. Arguably, as Kenya has no fleet, its relative impact upon resource exploitation is even smaller as it is simply substituting for other potential loiners. The wider implications of any change that the new RoO might bring about are then likely to be very minor

4.4 Whitefish (Hake): Namibia

4.4.1 Context

Fisheries are important in Namibia. There is a substantial resource of some valuable species (hake in particular) and this supports a significant industry. The sector has consistently contributed more than 5% to Namibia's GDP with seafood processing a significant element.

- Although Namibia is a developing country, the fisheries sector is almost wholly commercial, with very little artisanal participation.
- This is essentially an industrial fishery using large commercial vessels to produce fish in quantity using modern techniques. The industry is accordingly advanced and sophisticated
- Fisheries makes a significant contribution to the economy through exports as well as the employment it generates and the ancillary industries it supports.
- This reflects the success of a government policy to encourage processing of white fish on-shore, linking rights for foreign fleets to fish in Namibian waters to the establishing of post harvest activities there.
- The advanced nature of the Namibian fishing industry has then been the result of partnerships with European (mainly Spanish) and South African industry leaders, driven by a policy framework that has been widely admired.
- Namibian waters produce around 400-600,000 tonnes of fish in most years. Much of this is small pelagics (65% on average), and this explains much of the variability in production.
- The main high value component is hake which contributes 30% to the total quantity and a great deal more to total value.
- All other species contribute minimally to supplies, accounting for less than 10% collectively. Other high value items include monkfish, kingklip and crab.
- Processing mostly involves whitefish, fresh and frozen, whole and filleted, but there is also a canning industry based upon the pilchard catch.

4.4.2 The Namibian Hake Industry

The hake fishery
Most hake is caught by large industrial demersal (bottom) trawlers, and there are two types of operation involved – fresh fish trawlers which hold fish on ice (mostly whole or headed and gutted) and freezer trawlers which freeze the fish at sea, usually after a degree of processing. The latter are deemed to produce the best quality as fish is frozen so soon after capture. These vessels are then effectively floating processing plants as well as fishing platforms, and some are now able to produce high quality sophisticated products. There is also a small long line fishery for fresh hake which produces very high quality fish that are exported fresh whole gutted.

The Hake Processing industry
To a large extent, Namibia's fishing industry has been, and still is, a raw materials producer. Most of the production is exported as fresh, chilled or frozen primary products; with limited value addition in Namibia. However, recently there has been development of some added value capacity there. The traditional raw material is fresh hake, as landed by wetfish trawlers. This is processed onshore into frozen products, ranging from headed and gutted fish to calibrated portions in retail packs.

The **typical primary hake product** is the frozen catering pack, aimed at the international food service and wholesale sectors. Generally packed in 5-10 kilo boxes, these include frozen headed and gutted fish, or frozen fillets (skin-on or off), as well as products such as loins, fish mince, blocks, sausages and roes. The majority of Namibian hake has been exported in this form over the years.

Increasingly the market is demanding customized products for foodservice and retail, i.e. value added items, and this is driving the move towards **value added (secondary processing)** generally. As a result, Namibian companies with Spanish shareholding are now producing value added retail and foodservice products, for sale under their own European brands. The key value added items in Namibia then are **frozen retail packs**. These are not the highly processed items which are normally regarded as value added products, but are rather refined raw materials that are "kitchen-ready" and do not demand elaborate preparation before addition to a dish. Namibian hake products are then a mix of commodity and value added items. The main distinction seems to be responsiveness to the market, with value added being conferred by tailoring products specifically to meet the end user's needs.

The processors: Of Namibia's 25 EU-registered seafood processing companies, eleven based in Walvis Bay and Luderitz handle the bulk of the country's hake processing. Together they have the capacity to process around 160.000 tonnes raw whole hake, i.e. the bulk of average Namibian hake landings. Novanam (Pescanova) is the largest (22% of the total) but no company has a dominant position, and most account for 5-10% of the total. The processing plants are differentiated along the product lines describe above. Two plants produce fresh products, the other nine frozen products, and six of these also produce some value added items.

Trade in Seafood
Namibia exports seafood in substantial quantities from all segments of the sector. Indeed, the export profile mirrors that of production by the fishery fairly closely, and the reality is that the fishery exists primarily to export. Hake in its various product forms is a major contributor to exports, accounting for 60-90,000 tonnes over the past five years.
The other large volume export is small pelagics, but when looked at in value terms the dominance of hake becomes apparent – $145m to $165m, up to 50% of total export receipts and twice the value of small pelagic exports

EU import data shows that fillet is the dominant product form, accounting for 61% in product weight terms but 75% when adjusted to live weight, the real gauge of its relative importance. In live weight terms the total hake export to the EU equates fairy closely to average landings by Namibia – i.e. the bulk of landings are exported to the EU, the average being 93% of production over the 2001-2005 period. Spain is overwhelmingly the major market consistently taking over 80% of Namibia's exports to the EU. Indeed, this is essentially a trade between Namibia and Spain.

4.4.3 Economic Implications of the Namibian Hake Industry

There are three principal activities being carried out in the Namibian hake industry: capture (primary production), filleting (primary processing) and producing value added retail packs (secondary processing). This simplifies what is actually a more complex situation. Some processing involves no more than freezing and packing, and companies vary in how many of the processing stages they undertake. Some fully integrated companies carry out the whole range from catching to final product, undertaken onboard advanced freezer trawlers in some cases. Others are more traditional land based processors of fish landed to their plants. Most plants also process fish other than hake when supplies allow. The distinctions below are then to a degree artificial, as the integrated nature of many of the processors makes stand-alone estimates of each hake processing stage hard to distinguish.

The Hake Fishery
Hake fishing's economics reflect a pattern common to fisheries worldwide where cost is dominated by three items: fuel, labour (crew) and repairs/maintenance. These three account for 70% of production costs in Namibia, the balance being licensing (quota) cost, vessel and fishing gear depreciation and a mix of minor items. The standard product is assumed to be headed and gutted fresh or frozen hake.

Table 19: Namibian hake fishery: production cost. Units: €/kg

Item	€/kg	%
Fuel	0.50	31
Labour	0.35	22
Repairs & maintenance	0.25	16
License/quota levy	0.14	9
Other	0.36	16
	1.59	100

Source: synthesis of cost structures reported by Namibian processors

The Hake processing Industry

The standard **primary processing** operation in a land based plant involves converting whole or headed and gutted hake into skin-off fillets which are the standard export product (accounting for 75% or more of the industry's output). The costs incorporate a substantial weight loss on filleting, with whole round hake yielding between 38% and 42% of skin-off fillet, depending upon size of raw material and product specification. Headed and gutted hake are assumed to be the principle input, which converts to 65-70% fillet on our assumptions.

Table 20: Indicative ex-works cost structure for processed hake in Namibia

Item	€/kg	Value added %
Raw material	1.51	49
Direct costs		
Labour	0.49	16
Packaging	0.16	5
Repairs & maintenance	0.11	4
Other expenses	0.44	14
Overhead	0.18	6
Margin	0.20	6
Total	3.09	100

The analysis suggests that average processing costs, inclusive of raw material, are €3/kg with labour the largest cost item after raw material costs. The latter are just under 49% of total costs, reflecting the position seen in other case studies where raw material is consistently the dominant cost. Added value is then again substantially under the 60% of ex-works price threshold. There is an alternative cost structure that reflects a smaller but still significant segment of the Namibian industry. This involves preparing and packing whole (i.e. headed & gutted) frozen hake, now very much a minority component of Namibian hake exports. Added value is, unsurprisingly, even lower than that for fillet products.

Clearly, for both of these commodity products, value added is less than 60% of the ex-works price threshold. There is though a **value added activity** that seemingly could allow hake products to meet this threshold. This is the production of retail products, i.e. packaging fillet and other primary products in consumer ready, fully labelled, portion and quality controlled packs. As mentioned above, this is not value added in the manufacturing sense, as these packs remain essentially primary products. However this activity is allowing producers to attain substantial mark-ups which average over 54%.

These mark-ups apply to the process of portioning, trimming, quality management, accurate portion control and sophisticated packaging of the fillet (or other material packed), not the cost of filleting. The processing option that would lead to higher added value is the combination of this process with "commodity" filleting. Assuming that the end product of this would attain a comparable price to that quoted for retail products i(i.e. €4.3/kg) then this would raise the level of value added to 65%, potentially comfortably above the 60% threshold.

4.4.4 Potential Impact of Rules of Origin Change

The implication of the foregoing argument is that RoO are mostly not a concern for the Namibian fisheries sector. Raw material is originating as it is caught by Namibian, Namibia flagged or EU vessels, and the crews of most of these vessels are eligible, because the government's Namibianisation policy favours crewing by Namibian nationals rather than those from 3rd countries.

Furthermore, Namibia's fisheries policy obliges foreign fishing companies to develop land based assets in Namibia, so developing linkages with key players (especially from Spain). This underpins these linkages by demanding long term commitment from foreign participants coupled with generating visible local benefit. As the main foreign partners are European, this web of relationships provides an EU centred stability to the arrangements that effectively obviates the need for RoO. This was the logic that emerged from our analysis, a finding that also largely reflects stakeholders' views.

The Hake Processing Industry

Most hake processing in Namibia will clearly fail to achieve the 60% value added threshold set by the new RoO. This much is evident from the foregoing analysis and is reiterated in the table below.

Table 21: Value added estimate for Namibian hake fillets products

Item	€/kg	%	Value added %
Raw material	1.51	49	
Direct costs			
Labour	0.49	16	16
Packaging	0.16	5	5
Repairs & maintenance	0.11	4	4
Municipal taxes	0.12	4	4
Factory rental	0.11	3	3
Other expenses	0.22	7	7
Overhead			
Admin & finance	0.13	4	4
Depreciation	0.05	2	2
Margin	0.20	6	6
Total	3.09	100	51
Freight	0.15		
CIF EU	3.24		

The cost structure shows that the 50% threshold may be met, but only by a small margin. Basing expectations on a reliable achievement of this margin would be rash for various reasons, chief of which is the variability of hake prices. Hake fillet prices have ranged between $2 to $4/kg in recent years, and are close to the latter now. Given the very high proportion of processing costs attributable to raw fish, these price variations could determine whether the threshold was reached or not. Thus they could lead to the random disqualification of Namibian products from originating status in a manner beyond the control of either the industry or it's administrators (MFMR).

Table 22: Value added estimate for Namibian hake retail fillet packs

Item	€/kg	%	Value added %
Raw material	1.51	35	
Direct costs	1.20	28	28
Overhead	0.38	9	9
Commodity fillet production cost	3.09	72	
Retail pack costs & margin	1.21	28	28
Retail pack ex-works price	4.30	100	65

This is then the position for the "commodity" segment of the market that exports in bulk to processors and foodservice. In short, the new RoO would provide marginal benefit, but also minimal disadvantage. The industry is so positioned as a wholly obtained supplier that the outcome would be effectively neutral. This is not the case universally though. There is a more advanced Namibian product – retail packs - that seem well able to exceed the value added threshold as Table 22 shows.

High value retail packs appear to be one seafood product that is able to exceed the value added threshold, a virtually unique finding amongst these six case studies. However, there is a serious difficulty with this, because this form of essentially primary product may not be deemed to be "sufficiently transformed" to qualify as a "manufacture", in spite of the relatively high value added. The

fact that that this value has been added through sophisticated packaging and presentation may be irrelevant as the product would still be viewed as raw fillet (and would demonstrate no tariff jump, even at 8 digit level, sharing the same designation as its frozen fillet precursor of HS 0304 2055). This would then potentially disqualify manufacturers of retail fillet packs the benefits of changed RoO, i.e. the freedom to source more widely.

The Hake Fishery
Relaxation of the crewing requirement could allow some cost reduction by using cheaper 3rd country crews (labour is 22% of vessels production cost). However, this would not be coherent with Namibian government policy of maximising national employment. Consequently, the potential freedom that RoO change promises to allow through employment of 3rd country crews in order to reduce labour costs is probably unlikely to be realised in this case.

Apart from the Namibian fishery, the main other potential sources of raw hake are currently South Africa and Argentina. Argentinean fish is clearly non-originating, but there is some confusion about the status of seafood materials from South Africa. Most South African seafood is excluded from cumulation with ACP countries under the TDCA and continues to be subject to tariffs. However, the product exclusion list specifying South African fish products that are deemed not to have ACP cumulation status omits some hake products including raw hake (fresh or frozen). This is then presumably deemed as originating in Namibia by cumulation.

4.4.5 Wider Implications of RoO Change

RoO change will probably have little impact upon Namibia's hake industry and so by implication few economic, social or environmental impacts. If there are such impacts, they are likely to be at the margin anyway. There is one major impact that would follow, should the Namibian hake stock collapse for any reason. If, as seems likely, the Namibian industry is mostly unable to pass the new RoO criteria, then it would be unable to import raw material to supply its major market (the EU). This would leave the industry very exposed.

The follow-on effects would be possible collapse of many plants, with severe consequent economic and social impacts on employment, ancillary businesses and government revenues. The impact on communities would go beyond the coastal centres because earnings are relatively high (twice as high as the African average) and there is a significant level of remittances made to the rural communities from where much of the workforce originated. Thus the impact of such a decline of the hake industry would be both serious and nationwide. The situation will of course be little different from that under current RoO, and so this is a case where RoO change would be failing to generate any potential benefit. Conversely, and by the same argument, current and future RoO also constrain prospects for expanding the Namibian processing industry beyond its own resource base, through importing raw material.

4.5 Shrimp: Bangladesh

4.5.1 Context

Bangladesh is an LDC (Least Developed Country) and so qualifies for the EBA (Everything but Arms) preference regime. This case study then assesses the impact of RoO change on an EBA country, looking at the shrimp sector in particular.

- This involves three industries – (i) a wild shrimp fishery, (ii) shrimp farming and (iii) a processing industry which serves both fishery and farming segments.

- The shrimp farming industry is itself divided between the culture of marine black tiger shrimp (*Penaeids*) in coastal brackish water and that of giant freshwater prawns (*Macrobrachium spp)* in inland water bodies.

- The fisheries sector is important, accounting for 4.9% of GDP and 5-6% of foreign exchange earnings as well as 63% of the domestic animal protein supply.

- The fishery is substantial, landing more than 2 million tonnes annually, with Inland production (freshwater and coastal brackish water) accounting for 80% and aquaculture (mostly of freshwater fish) accounted for approximately 50%.

- Brackish water shrimp farming appears to be a minor contributor at only 5.5% of production, but it generated US$243 million in exports revenues, 3.6% of the national export total.

- 2005 shrimp production totalled 196,000 tonnes of shrimp, 44,000 tonnes from marine fisheries (mainly caught artisanally) and the balance of 152,000 tonnes from 'inland fisheries' and shrimp farms. Freshwater prawn production is of the order of 12-17,000 tonnes and farmed tiger prawn output is generally put at 65-85,000 tonnes

4.5.2 The Bangladesh Shrimp Industry

Shrimp Farming
There are two shrimp farming industries in Bangladesh: coastal farming of black tiger penaeids and inland farming of freshwater prawns. Both use extensive systems i.e. low input-low output, and both are now largely small scale activities. In the past, larger commercial investors took control of much coastal shrimp farming to the detriment of local communities, but the position appears to have been reversed now.

Black tiger shrimp (*Penaeids*): By 2005 there were 218,000 hectares of coastal shrimp farms producing 83,000 tonnes of shrimp (a relatively very low productivity of 379 kg/ha/yr) from an estimated 37,400 farms. However though productivity could easily be increased, Bangladesh has resisted the temptation, opting for low input culture termed "enhanced extensive culture" as this is seen as most appropriate to the community-based artisanal approach favoured for social reasons. It also ties in with Bangladesh's specialisation in premium large shrimp – 50gm black tiger and freshwater prawns. The industries' main weakness is the continual need for wild broodstock as black tiger still don't breed well in captivity

Freshwater prawns (*Macrobrachium).* These very large prawns are sold at relatively high prices to specialised markets. Tail yield is much lower than that of Penaeids, and this offsets the higher value implied by the prawns large size. Again culture is very extensive, and whilst farmers occasionally stock prawns as a monoculture, most usually polyculture prawns with fish. Though the prawns live in freshwater they need brackish water to breed and 38 specialised hatcheries support the industry. Small quantities are sold domestically, but most *macrobrachium* is destined for export.

Shrimp Processing
The principle way shrimp is processed in Bangladesh is, as elsewhere, freezing whole or freezing as tails after the "head" (front third of the shrimp for *penaeids*, front two thirds for *macrobrachium*) has been removed. Packing in retail/wholesale cardboard packs (typically of 2kg) completes the process. Currently there is limited secondary processing occurring in Bangladesh, if this is defined as processing that adds value beyond simple de-heading, packing and freezing shrimp. The small amount of shrimp caught by the marine fleet is processed on board vessels and so the land-based plants have to compete for supplies of farmed *penaeid* shrimp and freshwater prawn. There are a reported 135 seafood processing plants in the country, with a total processing capacity of 270,000 tonnes, and this represents a huge overcapacity as only 23% is currently being utilized.

The explanation for this apparent anomaly lies in the Government incentive packages for the agricultural processing sector. Many of the plants apparently maintain a minimal throughput to demonstrate that they are still in operation and so avoid any risk of their loans being called in. This means that there is insufficient attention paid to product quality, a factor which contributes to the poor reputation for seafood quality that Bangladesh has on the world market

Bangladesh Trade in Seafood
Seafood is a significant export commodity for Bangladesh with 63,000 tonnes of seafood products exported in 2005. This has been growing rapidly (at 13% annually) in volume terms due mostly to growth in trade in the two main product categories – shrimp and frozen fish. The latter is growing the faster (19% pa), but remains a fraction of shrimp exports which are clearly the dominant category at

47,000 tonnes worth €254million. The EU has been the principle destination for Bangladeshi shrimp exports, taking 24,000 tonnes in 2005, with UK and Belgium the main importers. Japan imported small quantities (4,000tonnes) but the USA has become a major market recently taking 19,000 tonnes in 2006.

This is a new development with US imports more than trebling since 2003, and the imposition of anti-dumping duties by the USA against some of Bangladesh's main competitors (such as Vietnam) is likely to have had something to do with this. As a significant producer not afflicted by antidumping duties, Bangladesh effectively have a US preference advantage *vis a vis* some of their most highly efficient competitors. This "preference" ranges widely between 4% and 55% (depending upon country) and will remain in force as long as the USA is able to maintain this action in the face of numerous WTO challenges.– a clear explanation for the recent surge in Bangladesh shrimp exports to the USA

4.5.3 Economic Implications of the Bangladesh Shrimp Industry

The shrimp processing industry is the main focus for this case study, but the shrimp culture industry is also relevant. Their economic parameters are investigated below as a precursor to assessing the impact of RoO changes

The Shrimp culture industry
Shrimp culture essentially consists of three stages: producing eggs, rearing these to juveniles that can be stocked in ponds (i.e. postlarvae, produced in the hatchery) and growing these juveniles on to market sized shrimp. The process is similar for marine and freshwater shrimp, but there are crucial differences – for example black tiger shrimp requires wild broodstock as the process of breeding from domesticated stock continues to elude farmers. As the table below shows, Indicative production costs for large farmed black tiger shrimp and freshwater prawns are €5.6/kg and €3.8/kg respectively.

Table 23: Farm production cost for farmed marine shrimp & freshwater shrimp

Cost item	Production cost		Value added	
	Black tiger	Freshwater prawn	Black tiger	Freshwater prawn
	Average size (whole) 50gm			
	€/kg			
Post larvae cost	0.22	0.89		
Grow-out cost*	1.78	0.89	1.78	0.89
Growers margin**	3.44	1.89	3.44	1.89
Traders margin	0.11	0.11	0.11	0.11
Ex farm price	5.56	3.78		
Added value			5.33	2.89
Added value %			96	76

The shrimp processing industry
The suspicion that the low cost loans available for agri-processing are being used to invest in other more profitable activities that are ineligible for these soft loans has been mentioned above. This means that the operating economics of some processing plants may be heavily distorted, and cross-subsidised cryptically by other unrelated business activities.

Table 24: Generalised processing costs for marine shrimp

Species	Black tiger	White shrimp
Average size (whole)	50gm	10gm
Product	HLSO	PD
	€/kg	€/kg
Gross raw material cost	5.61	1.72
Processing yield (%tails)	67%	67%
Net raw material cost	8.37	2.57
Total Direct costs	0.18	0.36
Total overhead	0.16	0.34
Margin/mark-up	0.39	0.83
Ex-works price	9.10	4.10

In each table, the parameters for these plants were synthesized into generalised cost breakdowns with some subjective interpretation. These are shown in table 24 above (for black tiger and white shrimp and table 25 below for freshwater prawns.

Table 25: Generalised processing costs for freshwater prawns

Species	Freshwater prawn
Average size (whole)	50-75gm
Product	HLSO
	€/kg
Gross raw material cost	3.89
Processing yield (%tails)	50%
Net raw material cost	7.78
Total direct cost	0.18
Total overhead	0.16
Margin/mark-up	0.39
Ex-works price	8.51

Source: Composite estimate from interviews with processors
HLSO – headless shell-on, i.e. unpeeled shrimp tails

There is a question as to how meaningful these processing cost analyses are given the fact that some of the plants are apparently not reflecting normal economic motivation, at least as far as the shrimp industry is concerned. However, the processing costs calculated do reflect international levels which are typically in the range US$ 0.50-0.75/ kg exclusive of raw material costs. Packaging costs quoted at around US$0.11/kg similarly reflect international norms as do freight costs to Europe and the USA of US$0.3/kg. This provides some justification for believing that these figures do reflect reality. The costs set out here may be assumed to be based upon the more commercially orientated plants visited by the consultants.

4.5.4 Potential Impact of Rules of Origin Change

The Shrimp Processing Industry

Table 26 : Detailed processing cost for marine shrimp showing value added

	Processing cost		Value added	
	Black tiger	**White shrimp**	**Black tiger**	**White shrimp**
Cost item				
Average size (whole)	50gm	10gm	50gm	10gm
Product	HLSO	PD	HLSO	PD
	€/kg			
Gross raw material cost	5.61	1.72		
Processing yield (%tails)	67%	67%	Raw material %	
Net raw material cost	8.38	2.57	92%	63%
Other input costs	0.02	0.02	0.02	0.02
Packaging cost	0.08	0.13	0.08	0.13
Labour cost	0.08	0.06	0.08	0.06
Contract processing: peeling:	NA	0.15	NA	0.15
Overhead	0.16	0.34	0.16	0.34
Margin/mark-up	0.39	0.83	0.39	0.83
Ex-works price	9.11	4.10	0.73	1.53
Transport costs to EU	0.24	0.27	Value added %	
CIF EU price	9.35	4.37	8%	37%

Source: Composite estimate from interviews with processors

This analysis is based upon the processing cost models described above, but giving more detail. Table 27 makes clear the low level of value added achieved in these plants. Where the operation is simply one of heading, packing and freezing, value added is a low as 8-9%. Where more work is done, such as peeling and de-veining ("PD" shrimp) then value added does increase, but only to 37% in spite of the high labour content of these intricate processes.

Table 27: Processing cost for freshwater prawn showing value added

	Freshwater prawn	
Average size (whole)	50-75gm	
Product	HLSO	
	Processing cost	Value added
Cost item	€/kg	€/kg
Gross raw material cost	3.89	
Processing yield (%tails)	50%	Raw material %
Net raw material cost	7.78	91%
Other input costs	0.02	0.02
Packaging cost	0.08	0.08
Labour cost	0.08	0.08
Overhead	0.16	0.16
Margin/mark-up	0.39	0.39
Ex-works price	8.51	0.73
Transport costs to EU	0.24	Added value %
CIF EU price	8.75	9%

Source: Composite estimate from interviews with processors

However, in spite of this low added value, RoO - in either current or potential future form - do not present a problem for the Bangladesh shrimp processing industry. This is because virtually no imported raw material is currently used in the Bangladesh seafood industry. Imports are limited to small quantities of shrimp feed and a small percentage of packaging materials. This means of course that tolerance allowances have virtually no relevance in Bangladesh's case. The logic of our analyses suggests this and players in the industry confirm that this also their view

There is of course one scenario where rules of origin would become important – the importing of shrimp raw material into Bangladesh for processing by domestic plants. Were this to be deemed to be

non-originating material (as it almost certainly would be because cumulation options are limited) then the new RoO would offer Bangladesh little scope for expansion. The low value added demonstrated by Bangladesh processing (8-35%) would clearly disqualify product based on non-originating material. Whether this could have any practical impact upon the processing sector is debatable. The low utilisation of processing capacity would suggest that increasing throughput by widening sourcing should be a priority (even though such strictly commercial concerns seem not to be a current priority). Quite the converse in fact -Thailand currently imports shrimp from Bangladesh to fill gaps in their own supplies of raw material.

The Shrimp fishery:
Shrimp caught by the Bangladeshi fleet are by definition originating. This would change were a foreign fleet (under the RoO definition) enter the fishery and land to Bangladeshi processors. There seems to be very little chance of this – the industrial fleet is a very minor contributor whilst the bulk of wild shrimp landings are artisanal – a highly unlikely segment for foreign involvement. There is however one minor aspect to consider – the collection of tiger shrimp broodstock by the trawler fleet. This could raise issues were the fleet to relocate its ownership outside Bangladesh for reasons explored directly below

Shrimp Aquaculture
Aquaculture production is generally deemed to be originating and so raises no contentious RoO issues. There is though one aspect that merits discussion here. This concerns the fact that black tiger farming is still precariously dependent upon wild broodstock. This is currently caught off Bangladesh and will in all probability continue to be so. However, if for some reason broodstock or seed were to have to be imported then a problem could emerge on current RoO. This is because some farmed shrimp would be deemed to be non-originating, in turn making processed shrimp ineligible for preference. This is of course a highly unlikely eventuality, but not an impossible one

However, under the value added rule, this problem could vanish in spite of the low value added by processing. The reason for this is that if shrimp farming is deemed to be a “manufacture” as this rule seems to imply, then seed (post larvae) as the input that defines origination, is effectively the raw material. Then according to the production cost model above, the value added is considerable – 96% for black tiger and 76% for freshwater prawns. This is well above the indicative thresholds set for the new RoO (50%), and so the raw-material would re-establish originating status, so conferring this on the processed product. This suggests that the definition of “manufacture” and its application to aquaculture will need to be considered.

4.5.5 Wider Implications of RoO Change

As the foregoing has signalled, RoO pose few current problems for the Bangladesh shrimp industry. Consequently as things stand RoO change will have little impact upon the industry (or indeed any other Bangladeshi export-orientated fisheries activity). Thus the wider implications are similarly limited and unless some of the less likely outcomes discussed above do actually materialise, that will continue to be the case.

4.6 Shrimp: Indonesia

4.6.1 Context

Indonesia is quite unlike all the other countries selected as case studies for this report. It is a vast country with both fishery sector and population to match. This means that the situation in Indonesia represents a scale and complexity that sets it apart from the other fishery sectors selected for case studies.

- The Indonesian shrimp industry reflects this difference in scale - Indonesia is amongst the world’s top five shrimp producers, contributing 12% of the global farmed shrimp total.

- Even so, shrimp is not particularly important within the wider domestic economy, nor indeed it is even one of the larger elements of the Indonesian fisheries sector.

- Shrimp does though support a processing industry that is becoming increasingly sophisticated, producing value added products.

- Shrimp is produced by both fishing and farming, but it is the latter that is now leading development.

- Shrimp farming grew out of traditional coastal pond culture, which benefited from the pond capacity already available but linked it to low-yielding artisanal practices.

- Latterly a far more intensive industry has developed involving some of the world's largest aquaculture enterprises with fully vertically integrated operations.

- Though the fisheries sector may not have great national economic significance in Indonesia, its socio-economic importance is high, employing over 5 million and arguably affecting the livelihoods of over 10% of all Indonesians, often in remote areas.

4.6.2 The Indonesian Shrimp Industry

The Indonesian shrimp industry splits clearly into three main segments, including two separate primary production activities (fishing and farming) and thirdly, processing. Each segment is effectively a separate industry in its own right and has developed with a relative degree of independence. This is changing though, and as we note below, large vertically integrated companies are beginning to combine aquaculture and processing into single pond-to-market businesses. However shrimp fishing still remains largely separate as a traditional activity that is less easy to integrate into modern business structures.

The Shrimp fishery
The capture fishery used to dominate production, but in a rapidly changing industry this now accounts for only around 40% of the total. The rising cost of fishing (fuel especially) coupled with declines in shrimp prices have favoured aquaculture. All the signs are that aquaculture will increasingly come to dominate the raw material supply.

Traditional Shrimp farming
Shrimp farming in Indonesia is, as with most of the nation's seafood production, mostly a small scale activity. This is partially a function of the way it has developed, through adapting existing traditional coastal fish ponds (tambaks formerly used to produce milkfish) for shrimp farming. This is clearly a farming system that is adapted to low income rural communities. However, though technical development has been modest, there is one way in which the industry has changed substantially and that is the move from indigenous black tiger shrimp (*Penaeus monodon*) to South American white *P.vannamei*. White shrimp has become very much the dominant farmed species over the past 5 years, and some in the industry believe it now accounts for 90% of farmed production, with black tiger mainly the preserve of some small family farmers.

Shrimp Processing
Shrimp processing tends to be separated from small scale farming, especially where export is the objective. This is usually the case given the investment required and the need for sufficient throughput to defray fixed costs and overheads. Processors are then commercial scale operations, set in the main population centres of the farming areas. The centre of the Indonesian shrimp processing industry is Surabaya where there are some 30 EU registered processing plants, and the industry's products include a mix of primary and secondary (value added) items which range from head-off shell-on tails to peeled tails, and fancy products.

The new large integrated companies
Latterly a new approach to shrimp farming has taken root in Indonesia. This is the large vertically integrated enterprise that undertakes the whole spectrum of activities from running hatcheries and broodstock facilities through large scale farming to processing and marketing. These companies also undertake ancillary activities such as feed production. This gives them control of the entire process from post larvae to sale of value added products. An example is CP Indonesia, now the largest Indonesian shrimp concern (and indeed its parent Charoen Pokfand Thailand is arguably the world's largest shrimp culture company)

What these “mega companies” have done is to link the formerly separate production and processing segments within a single integrated whole. They are now also bringing the small family farms within their ambit through setting up the sort of nucleus-satellite systems that have been developed so successfully in Thailand. The nucleus (the mega company) has a critical mass of its own production that allows it to operate “peripherals” (hatchery, processing plant, feed mill) viably. It then inducts a large number of family farms (the satellites) into its system supplying critical hatchery, input and processing services.

Indonesian Trade in Seafood
Indonesia exports nearly a million tonnes of seafood products worth over $US2 billion annually. The country is then a significant player in the global seafood trade arena.
Shrimp only accounts for 18% of exports by volume, but more than half of export value (53%). Export is now the major destination for Indonesian shrimp, and when allowance is made for the weight loss on processing, exports consistently account for over half of the total national supply. The bulk of these exports go to the major OECD markets, the proportion ranging between 70% and 80% in recent years. Japan used to be the major market for Indonesian shrimp, but subsequently the EU has become an important trade partner. Valued at around €110-€120m annually, shrimp now accounts for half EU seafood imports from Indonesia by value.

However latterly it is trade with the USA that has expanded most rapidly, largely because Indonesia was the single major shrimp producer not penalised by the US antidumping duties introduced in 2004. The other important trend has been the growing importance of more fully processed items, with firstly the proportion of peeled shrimp tails exported to the USA rising to the point where it now greatly exceeds raw (shell-on) tails, and latterly the rapid growth of value added value items.

4.6.3 Economic Implications of the Indonesian Shrimp Industry

The Shrimp Fishery
The Indonesian shrimp fishery mostly operates close to shore (i.e. within the 12 mile limit) and is wholly owned by Indonesians, operating under the national flag. Strong national resistance to foreign operators gaining control of Indonesian resource-based industries has ensured that this situation is unlikely to change any time soon. In short, then, wild caught shrimp are clearly wholly obtained in Indonesia and likely to remain that way.

The Shrimp culture industry
Establishing a single cost structure that meaningfully reflects the diversity of the Indonesian shrimp farming industry is problematic. Best sense of the industry can perhaps be made by regarding the industry as essentially two industries – (i) a commercial intensive industry based upon mid and large sized operations and (ii) the huge traditional small scale sector that uses extensive methods.

The cost stricture for intensive shrimp culture is set out in table 28 which shows that Indonesia is not a particularly low cost producer – with costs of US$3.3/kg for *P.vannamei* well above that for the most competitive producers (China, Vietnam &Thailand) which lies between $2.5/kg and $3.0/kg. This is surprising given the abundance of good low cost labour in Indonesia, but reasons for these higher costs are generally assumed to be a combination of poor infrastructure in the farming regions coupled with Indonesia’s notoriously bureaucratic systems, especially at regional level.

Table 28: Production costs estimate for intensive shrimp farming in Indonesia

Item	$US/kg	Proportion %
Post-larvae	0.31	9
Feed	1.56	47
Energy	0.72	22
Medication	0.19	6
Labour	0.22	7
Other	0.33	10
Total	3.33	100

Source Shrimp Club of Indonesia.

Small scale production costs are undoubtedly lower than those for intensive production. Industry commentators suggest that they could be as low as US$2/kg when inputs are minimal, but a more representative average value would be closer to $2.4/kg. Table 29 makes an estimate of the cost of production for such an "average" farm, where there are some inputs – primarily post larvae (seed) and feed.

Table 29: Production costs estimate for extensive shrimp farming in Indonesia

Heading	Item	$US	Proportion %
Direct	Post-larvae	0.52	22
	Feed	0.94	39
	Energy	0.06	2
	Labour	0.21	9
	Other	0.15	6
Overhead	general OH	0.12	5
	Depreciation	0.39	16
	Financing	0.01	1
Total		2.40	100

Source: ADB/NACA Farm Performance Survey 1996, updated to 2007

This production cost appears to be very close to the competitive levels mentioned above for the low cost leaders. Does this then mean that the small scale family farms are the segment of the Indonesian industry best able to compete with these leaders? It seems not, because what is not factored in here is the high cost imposed by the remote and dispersed location of these farms. When this is included, the overall cost apparently equates much more closely to that for intensive units

The shrimp processing industry

Indonesian shrimp processing is in transition, developing from basic processing to production of sophisticated value added products. As a result, Indonesia currently produces a wide range of shrimp products, though the basic item – frozen shell-on tails-remains the mainstay of the industry. Value added items include Asian specialties such as shrimp crackers (kerupoc) whilst western markets are supplied with peeled tails including fancy items. Some breaded shrimp tails and canned shrimp is also produced. A generalised composite of these various cost structures is set out in Table 30 which is based upon *P.vannamei,* now the main species produced.

Table 30: Production costs for the main types of shrimp processing

US$/kg	Shell on tails	Peeled tails	PD shrimp	Breaded tails
Raw material cost	3.5	3.5	3.5	3.5
Yield	67%	50%	45%	65%
Net raw input cost	5.2	7.0	7.8	5.4
Packaging	0.1	0.1	0.1	0.1
Labour cost	0.3	0.5	0.6	0.8
Production overhead	0.7	0.8	1.0	1.1
Other inc export cost	0.2	0.2	0.2	0.2
Added ingredients	-	-	-	0.2
Total cost	6.5	8.6	9.7	7.8
Margin	0.5	0.9	1.0	0.8
Ex-works price	7.0	9.5	10.7	8.6

Source: Interviews with processors and their associations, MMAF data

4.6.4 Potential Impact of Rules of Origin Change

Does this then suggest that RoO change is likely to have any impact upon the Indonesian shrimp sector? The immediate answer is no, as all shrimp is currently originating and so all processed shrimp is wholly obtained. It is not as simple as that though. Whilst wild caught shrimp is originating and likely to remains so, questions could be asked about farmed shrimp. There is also the matter of raw material imports.

Originating shrimp: There is an origination issue with farmed shrimp because of a possible interpretation of RoO that defines originating status by source of the seed (post larvae). If these are imported, then the product may no longer be deemed to be originating. Indonesia has recently changed from producing locally sourced black tiger shrimp to the imported (i.e. exotic) white shrimp species *Penaeus vannamei*. The best source is SPF (Special Pathogen Free) shrimp from the specialised suppliers of this in Florida and Hawaii. Broodstock is imported, and were this to be deemed to be foreign sourcing (or were the industry to start importing SPF post larvae), there would obviously be a potential problem depending on whether farming is deemed to be a manufacture. If it were to be so considered, as Table 31 shows, under the proposed new RoO, the threshold would be met as value added is high (between 85% and 90%). So although the likelihood of origin of farmed shrimp becoming problematic is low, the new RoO could, under certain conditions, be beneficial in eliminating the problem,

Table 31: Notional value added by intensive & extensive shrimp farming, Units $/kg

	Intensive Value		Extensive Value	
	$US/kg	Added %	$US/kg	Added %
Postlarvae	0.3		0.5	
Feed	1.6	45	0.9	27
Energy	0.7	21	0.1	2
Labour	0.2	6	0.2	6
Other	0.5	15	0.7	19
	3.3		2.4	
Collection, transport & quality control			0.8	21
Margin	0.2	5	0.4	10
Total	3.5	91	3.5	85

Imported shrimp. This is the position for domestically produced shrimp. With regard to imported raw material, this may not raise any issues, at least in the short term This is because currently shrimp imports are banned in Indonesia, and so the question simply does not arise. However, this situation could change for a number of reasons.

I. The current ruling behind the ban has to be renewed every six months.

II. The ban does protect the interests of Indonesia's shrimp farmers but they are not the only interests involved
III. For example, it conflicts with interests of the processors, who may be able buy raw material more cheaply abroad than domestically
IV. The import ban may be challenged through the WTO as it conflicts with the underlying objective of freeing up seafood trade.

It is then entirely possible that the export ban will be lifted in the foreseeable future. In this case the new RoO would still be unlikely to deliver anticipated benefits, as Table 32 makes clear. Shrimp processing does not attain the 60% value added threshold, and even for the item with the highest level of processing, breaded shrimp, the value added is some 20% below threshold at only 37%. The underlying reason is one common to many of these seafood case studies – the high cost of raw material relative to other inputs This is especially true for shrimp which is still a particularly expensive raw material in spite of price declines over the past five years

Table 32: Value added by the main types of Indonesian processing, Units $/kg

	Yield	Raw material Cost	On-costs	Margin	Ex-works Price	Total value added
	%	US$/kg				%
Raw shrimp	100	3.5				
Shell on tails	67	5.2	1.3	0.5	7.0	25
Peeled tails	50	7.0	1.6	0.9	9.5	26
PD tails	45	7.8	1.9	1.0	10.7	27
Breaded tails	65	5.4	2.4	0.8	8.6	37

Source: Interviews with processors and their associations, MMAF data

The key question in Indonesia is whether the raw shrimp import ban is likely to be maintained. The large integrated producers are supportive of its retention as are the small farmers. On the other hand, processors are keen to see the ban lifted so that they can source raw material more cheaply overseas. The whole sector also benefits at present from the reassurance that the import ban gives the US authorities, so helping to maintain Indonesia's (antidumping) duty free status.

The processors are a powerful and concerted lobby and so it would be no surprise if they prevail – indeed major players accept that they will eventually. A reasonable assumption would be that this will be deferred until the current US antidumping dispute challenge runs its course, with the import ban will being lifted shortly thereafter. Even so, raw material imports are likely to remain small in relation to domestic production so there should be plenty of originating shrimp that can be diverted to product destined for the EU, at least at current export levels. The problem may then be more one of accounting (i.e. guaranteeing that the right shrimp is being incorporated in EU destined shrimp)

4.6.5 Wider Implications of RoO Change

Socioeconomic
The fisheries and aquaculture sectors have real social and environmental importance in Indonesia. Both are huge employers, especially in remote rural and coastal communities, so targeting communities that are both relatively poor and lack obvious economic alternatives. Aquaculture is almost as important as fisheries in employment terms, and shrimp culture is a significant contributor with tambak (coastal pond) culture accounting for 8% of the total aquaculture employment. Clearly the sector's impact is very extensive and as a significant contributor, shrimp fishing and farming plays a substantial role in this. Any economic damage to it will then clearly have a social impact

Environmental
The environmental implications are less positive. The capture fishery faces by-catch issues as well as probable overexploitation of the resource. Shrimp farming is also contentious, as its continued growth is expected to lead to greater mangrove destruction and increased pollution. The large integrated schemes may lead to both, though they tend to use wasteland behind the mangroves zone where possible. The situation with traditional tambak farmers is different as the ponds exist and the route to increasing output is to intensify culture in these ponds rather than necessarily creating new ponds.

5 IMPLICATIONS FOR THE EU INDUSTRY

This section of the report takes a different viewpoint, looking at the potential impact of RoO change upon the EU fisheries sector, including fisheries, processors and traders/distributors. It is then the direct reciprocal of the preceding case studies which looked exclusively at third country suppliers to the EU market. Accordingly, in this case a different approach has been used – involving three independent lines of inquiry:

I. Firstly, the likelihood of impact is gauged on a priori grounds by a simple logical analysis of the data available (assessing the context)

II. This is matched by questionnaire-based enquiry of key players in the EU, mostly organised through their various trade associations (a stakeholder survey).

III. Interviews were also directly held with some key players in the industry

Comparing the outcome of these three approaches then provides a balanced judgment of the likely impact of RoO change. No detailed case studies have been undertaken, but the same three product types - tuna, shrimp and whitefish – have remained central to the enquiry.

The stakeholder survey: Canvassing EU stakeholders centred on questionnaires circulated to the EU industry through their relevant EU associations (AIPCE, CEP, FRUCOM) based in Brussels. The Rule of Origin issue was raised at the AIPCE board meeting in April at the outset of the study, and specific feedback has been received from Spain and France. In parallel, we have contacted a number of key industrial players and specialist associations separately, and some informal responses have also been received from these sources. The key organisations specifically targeted included those involving tuna boat owners in Spain and France, the Spanish canners association (ANFACO) as well as some others with potential interests (e.g. UK shrimp importers, Scottish fishermen who fish off Namibia, Dutch shrimp traders etc). A visit to the European Seafood Expo (ESE) in Brussels proved to be a fertile source of relevant contacts.

The industry is again treated as having three key segments - tuna, whitefish and shrimp. For each of these segments, the objective is to both place the EU within its global context and conversely to asses the importance of the fishery in question to the EU. Thus although stakeholder responses are central to this section, each segment analysis starts with a brief overview of the industry involved to establish its relevance and importance within the EU. An analysis of stakeholder feedback then follows.

5.1 TUNA PRODUCERS

Of the three segments assessed, it is tuna that clearly has by far the greatest importance for EU producers. The relationship is more complex than for the other segments, involving interactions at each level of production and processing, and the scale is larger. Tuna is then the paradigm product for this analysis.

5.1.1 Context – The EU within the Global Tuna Sector

The EU is the world largest market for tuna, now consuming twice as much as the USA and 75% more than Japan. Table 33 summarises the tuna supply position for the OECD, expressed in live weight terms (so like can be compared with like). A decade ago EU demand was less than that of Japan and only 20% higher than that of the USA, but rapid growth (latterly at 7% annually) has brought the EU to the fore. Thus whilst tuna has long featured in EU markets, the EU has now assumed central importance in the global tuna market, accounting for 47% of the OECD total.

Table 33: Tuna supplies to main OECD markets.

Units: Tonnes Live Weight	USA Total	Imports* Whole 95%#	Europe EU		Total	Japan Total	Total OECD Supply
			Imports* Canned 70%#	Landings EU fleet 100%#			
	000 tonnes, live weight						
2000	647	86	319	453	859	819	2,325
2001	578	84	361	406	852	708	2,138
2002	623	160	474	460	1,094	810	2,526
2003	693	122	503	511	1,136	837	2,666
2004	638	14	508	466	988	753	2,379
2005	636	133	559	499	1,191	846	2,674
2006	634	85	610	526	1,221	758	2,612

Sources: NMFS, Eurostat, Infofish, forecasts. * Net imports (i.e. consumption).
adjustment factor converting product to live weight.

The EU is also a major tuna producer, landing around 500,000 tonnes annually, mostly caught by Spanish and French purse seiners. Skipjack and yellowfin are very much the dominant species, caught in the global tropics, especially within the Atlantic and Pacific Oceans. Thus the EU is important as producer as well as consumer of tuna, landing an amount equivalent to 20% of OECD consumption.

Table 34: EU tuna catch by country & species

	2000	2001	2002	2003	2004	2005*
	000 tonnes					
Country						
Spain	289	255	277	307	267	282
France	152	136	161	175	169	180
Italy	7	10	13	22	21	26
Portugal	4	5	8	7	9	10
Total	453	406	460	511	466	499
Species						
Skipjack	199	175	217	222	191	210
Yellowfin	151	155	160	210	202	224
Bigeye	58	37	45	36	34	27
Albacore	28	22	22	26	22	22
Bluefin	18	17	18	16	17	16
Total	453	406	460	511	466	499

Source: FAO * Forecast

Tuna is then important for the EU, both as a primary producer and as a consumer. It is also a major element of the EU seafood processing sector, especially in Spain, France and Italy. As table 35 shows, the six major plants have, on their own, a combined capacity to process 270,000 tonnes of raw tuna annually.

Table 35: EU tuna canning capacity by major factory, 2002-4. Units: tonnes/year

Factory	Owner	Registered Office	Capacity (tonnes/yr)
Calvo	Calvo	Carvhalo et Esterio, Galicia	96,000*
Conserveries Jealsa	Jealsa	Boiro, Galicia	96,000*
Paul Paulet Petit Navire	Heinz (now MW Brands)	Douarnenez, France	20,000
Maria Elisabeth	Heinz (now MW Brands)	Portugal	7,000
Rio Mare	Bolton/Saupiquet	Cermenate, Italy	50,000
Saupiquet	Bolton/Saupiquet	Vannes, France	

Source: Oceanic/Poseidon report

Key implications for RoO

The Indian Ocean, the subject of two of the tuna case studies above, is particularly important for the EU fleet. 60% of the EU catch comes from the Indian Ocean (table 36) and this fishery exemplifies the

complex interactions between the EU and its third country partners in the region.

Table 36: EU tuna catch by country & species in 2004. Units: 000 tonnes

Units: 000 tonnes	2004 Catch by all fleets	Spain	France	Italy	Total EU Catch
Skipjack	330	64	38	3	105
Yellow-fin	421	81	64	8	153
Big eye	90	9	6	1	16
Total	841	154	108	12	274

Source: FAO

What this highlights is the way the EU tuna supply depends upon a complex network of interdependencies between the EU and its developing country partners in whose EEZs much of the tuna is caught, and where much of the processing is now carried out. These relationships include the following:

- The EU fleet is intimately involved with regional processors as a supplier of raw tuna
- Some EU vessels have been re-flagged to Indian Ocean countries for whom they fish
- The regional processors in turn rely upon preferential access to the EU market for their viability
- Conversely some EU canners rely upon loins from the region for their viability (eg Rio Mare in Italy)
- Finally, Fisheries Partnership Agreements negotiated between the European Commission and the third countries bind this multifaceted arrangement together in a mutually supportive pact – a pact where RoO are decisively important.

This complex array of interconnecting dependencies means that EU interests are closely involved at a number of levels. RoO are then likely to have a significant impact, though given the complexity of the interrelationships, the expression of this impact may take unexpected directions and require subtle analysis.

5.1.2 Industry Feedback: tuna

There is a panoply of organisations representing the EU tuna industry in various ways. Organisations contacted and interviewed for this study included Interatun, Eurothon, ANFACO (Spanish canned seafood), CONXEMAR (Spanish frozen seafood) as well as Orthongel, ANABEC and OPAGAC (tuna vessel associations). Most responded, and it became very clear that this is the one area where the EU interests did clearly see substantive issues for RoO change. What is more, ***there was a consistent view – this being that RoO change would be detrimental, especially for the EU tuna fleets***. In short, maintaining the status quo was much the preferred option. This common position of the EU industry is in part a result of the setting up cross-border and cross-industry organisations: Eurothon (covering tuna producers in France, Spain, Italy and Portugal) and Interatun (linking Spanish tuna boat operators and canners). These organisations are allowing the forging of a coherent industry response as well as providing some lobbying power.

The value added rule: The position from the fleet operator's viewpoint was that RoO change would deprive them of an advantage that is essential for their viability. The advantage in question is a captive market (i.e. ACP & GSP+ canners) able and willing to pay the premium that the EU fleets require to operate viably. The argument runs as follows.

The EU fleet claims to require this premium because of the costs imposed by the increased contribution to the exploitation costs (in the form of the licence fee introduced in the Fisheries Partnership Agreements), as well as resource management (and other) obligations that have to be shouldered by the EU fleet (as embodied in the FPAs). RoO change threatens to weaken this relationship, allowing third country fleets to enter this market. These fleets operate under far less stringent conditions, allowing them to undercut the EU fleet on price. The cost of this may be imposed

on the environment, as the third country fleets may not be as well regulated by their flag state (which may not even be a member of a RFMO). EU fleet operators believe that some third country fleets indulge in extensive IUU fishing. The impact on the EU fleet of RoO change would thus be a double penalty – both lower prices and potential damage to resource sustainability. A third negative consequence mentioned was a threat to their market should irresponsible fishing cause negative publicity and dissuade people from eating tuna on sustainability grounds (the dolphin-friendly issue was mentioned as a precedent here). Thus in conclusion, the current RoO allow a re-levelling of a playing field that has been distorted by the lower regulatory costs faced by competitors

Processors (canners) also saw disadvantages but with less clarity than the fleets. Practical difficulties in implementing the scheme were mentioned, including the way value added can vary unpredictably with change of product specification. For example, with canned fish, can size is a major determinant of value added as measured by RoO (large cans contain proportionally more raw material, thus lower "added value" content per unit of weight). This could lead to the bizarre situation where origin became primarily a function of can size

These were not the only disadvantages noted. The new RoO were seen as increasing bureaucracy (though exactly how was not explained). More to the point, the way that the proposed implementation system would move the balance of responsibility for compliance to European importers rather than authorities in either the preferred country or the EU was regarded as highly unfair.

So, maintaining the current RoO is much the preferred option, especially as derogations and tolerances allow the sourcing flexibility that the industry needs. Indeed tolerances are not fully used, and the case was made that this demonstrates that more than adequate flexibility is already available. Thus a key objective of the new RoO initiative – to allow greater flexibility in raw material sourcing by preferred states – is already adequately embodied in the current system. This fundamentally undermines a key justification for RoO change in the EU industry's view.

Loins: There was one aspect where the new system was welcomed by some players - the prospect for wider sourcing and thus lowers prices for tuna loins. It was the EU canners of course who would welcome this, as their EU based canning operations increasingly depend upon using loins. The canners' position does though assume that the new RoO would allow loins to qualify under the value added test, so liberating preferred loin producers to source raw material more cheaply. Findings elsewhere in this study suggest that this would not be the case with the proposed criteria.

Crew nationality: There was another aspect of the proposed new RoO that was viewed positively, and in this case approval was universal. This concerns the current requirement that at least 50% of the crew of eligible vessels should come from the EU or the preferred developing country in question. Abandoning this would give the EU fleet greater flexibility without compromising any of the other benefits of the current RoO. This change would be welcomed by the fleet operators in particular, but was accepted as beneficial by the industry in general

5.2 Whitefish producers

Hake differs from the other two product groups covered by this study which are well established as commodities (albeit highly segmented with specialist niches). This part of the analysis then differs from the others in having a narrower and more specific focus. It does however follow the same format, starting with a brief review of the EU whitefish sector.

5.2.1 Context – The EU within the Global Whitefish Sector

Although hake is part of a broad commodity group (whitefish) it is itself a relatively specialised product that serves a specific market, this being Spain where it is a traditional favourite. Table 37 lists the EU supplies of a range of popular whitefish species and this shows how traditional preferences determine demand. Values have been adjusted to live weight terms so that like can be compared with like, and Spain clearly favours hake amongst the whitefish on offer, taking more than 40% of all EU hake supplies.

Table 37: EU whitefish supply by main species, 2004.

	Hake	Cod	Haddock	Saithe	Alaskan pollack	Other sp	Total
	000 tonnes						
Spain	217	41	0	8	6	88	361
Italy	73	11	0	1	3	36	124
France	57	81	14	84	116	54	405
Germany	53	30	1	40	299	74	497
UK	11	218	136	21	18	46	450
Netherlands	10	13	3	22	39	15	102
Others	114	72	12	35	86	35	355
Total	534	464	167	211	567	349	2,293

Source: Eurostat, FAO

Whilst Spain is the principle market, other Mediterranean countries account for at least a further 24% of consumption, clearly establishing hake as a regional speciality. Despite this narrow market focus, hake is an important contributor to EU whitefish supplies accounting for 23% of the all-species total.

Table 38: EU whitefish landings by main species, 2004.

	Hake	Cod	haddock	Saithe	Flatfish	Other sp	Total
	000 tonnes						
Spain	22	9	0	0	13	63	107
France	14	9	9	35	11	28	105
UK	2	16	43	13	25	11	110
Denmark	1	22	8	8	32	5	76
Netherlands	0	2	0	0	0	36	37
Germany	0	14	0	13	6	13	46
Others	0	14	0	0	9	0	24
Total	39	86	59	70	95	155	504

Source FAO

The EU does have interest in hake fishing, but domestic fisheries (mainly Spanish) produce less than 10% of total EU supply (Table 38). On one hand then, the domestic fishery cannot fulfil demand and imports are crucial, whilst on the other, it has the opportunity to supply fresh hake to a high value market where it has a strong price advantage over imports (which, if fresh, would have to be freighted by air. Imports should then not constitute a threat to EU hake fishermen.

Table 39: EU net hake imports by main category, 2004.

	Fresh	Frozen	Fillets	Total
	000 tonnes			
Spain	55	16	49	120
Italy	1	11	24	36
Germany	0	0	21	21
France	2	1	16	19
Poland	0	0	10	11
Others	1	38	26	65
Total	59	67	145	271

Source: Eurostat

Imports are then the main determinant of EU hake supplies. As table 39 shows, EU hake Imports in 2004 were 270,000 tonnes in product weight terms, equivalent to about 500,000 tonnes if adjusted to live weight. Fillet imports account for about half of the total in product weight terms, but after adjustment to live weight, this effectively equates to over 70% of the fish supplied. Fillet is then already very much the dominant form of hake imported into the EU. Primary processing has then already been largely relocated outwards towards the main hake producing areas (mainly the Southern Atlantic and Pacific: South Africa, Namibia, Argentina, Chile and Peru, though the North Pacific - USA & Canada – are also producers)

The main markets for hake are Mediterranean and these retain traditional preferences for unprocessed or minimally processed fish. Home cooking and foodservice still favours raw fish as an ingredient despite the global onward march of added value/prepared meals. This means that filleting probably represents the maximum level of processing that most of the hake market currently requires. On this argument, the EU seafood processing industry then has relatively little interest in hake as this,

in effect, mostly arrives as a fully finished product. As filleting is largely carried out in the producing countries (on-board or in shore based plants) where labour is relatively cheap, most hake has wholly originating status and origination is not an issue. Thus RoO changes are also unlikely to have a major impact upon EU importers.

5.2.2 Industry Feedback: hake

The arguments set out above apparently reflect industry views on the subject. No hake processors offered a response to requests for feedback circulated through EU seafood trade associations. Specific enquiry focussed on one segment that might have taken a view – Scottish vessel owners who send vessels seasonally to the South Atlantic (Namibia) to fish for hake – also elicited no response. Given the fishing industry's usual propensity to make its case where relevant, silence here is probably meaningful. The conclusion must then be that the industry – at primary fishing, processing and importing levels - generally sees RoO change as having little or no impact on its activities. That would accord with our analysis of the situation

5.3 Shrimp processors/producers

Shrimp is, like tuna, a segment where growth has been rapid and where the EU has become increasingly prominent as a market. That is where the similarity ends, as this is a segment that is fundamentally driven by imports. Some shrimp is caught by EU fleets, but this is now a minor contributor to supplies, and increasingly "niche" in status.

5.3.1 Context – The EU within the Global Shrimp Sector

Shrimp is another product where EU importance in the global marketplace is growing. In this case though, the EU is not the largest consumer, that distinction going to the USA which imports 25% more shrimp than the EU. It is shrimp farming that has allowed the rapid growth in consumption in both the EU and USA, but this response hasn't spread to Japan where consumption has been static. Table 40, which expresses consumption in live weight terms so that like can be compared with like shows that EU shrimp consumption is now 36% of the OECD total

Table 40: Shrimp supplies to main OECD markets

	USA	**Europe EU**			**Japan**	**Total**
	Total	**Imports 0.83#**	**Landings 1.00#**	**Total**	**Imports 0.65#**	**OECD supply**
	000 tonnes					
2000	753	541	83	624	466	1,843
2001	808	578	84	662	450	1,920
2002	825	572	71	643	466	1,934
2003	959	680	79	760	450	2,169
2004	1,010	676	92	768	479	2,257
2005	932	723	90	813	468	2,213
2006	1,038	752	87	839	478	2,355

Sources: NMFS, Eurostat, Infofish, forecasts. * Net imports (i.e. consumption).
Adjustment factor converting product to live weight.

The EU does land shrimp, mostly from home and NAFO waters, and under the Fisheries Partnership Agreement with Greenland. Approximately 30% of this has traditionally been warm waters species caught by Mediterranean fisheries and under Fisheries Partnership Agreements in West Africa, whilst the balance is roughly half small *crangon* (grey north sea shrimp) and half *pandalus* (Arctic shrimp). However, these fisheries only provide 10% of EU supplies, the balance being provided by imports of tropical *penaeids* (35-40%) and north Atlantic *pandalids* (60-65%). Where imports are concerned, the growth area is tropical shrimp and the outlook is for farmed shrimp to increasingly provide future supplies. Conversely, EU fisheries have been producing less warm water shrimp latterly, with coldwater shrimp now providing 80% of the total of the EU landings.

Table 41: Warm & coldwater shrimp landings by EU fleets

	2000	2001	2002	2003	2004	2005
	000 tonnes					
Warmwater shrimp (*Penaeids, Parapenaeids*)						
Greece	3	3	3	3	4	4
Italy	12	9	8	8	7	6
Spain	21	27	17	14	10	7
Coldwater shrimp (*Crangon, Pandalids*)						
Germany	17	13	16	16	19	18
Netherlands	11	14	11	15	15	15
Denmark	8	7	9	11	12	12
Baltic states	21	17	21	19	22	22
EU Total	102	98	91	93	92	89
Warm water	38%	42%	32%	30%	23%	19%
Cold water	62%	58%	68%	70%	77%	81%

Source: FAO, Eurostat

Key implications for RoO

The situation regarding shrimp is relatively straightforward, certainly in comparison with that for tuna. Firstly, such shrimp as is caught by EU fleets comes from EU waters and mostly gets the best prices if sold locally fresh. The balance of supplies is imported from Canada, Greenland, Argentina and EFTA countries (Iceland and Norway) for coldwater shrimp and from the tropics for *penaeids*. Shrimp processing is undertaken in the EU, some involving local species but most using imported tropical shrimp (mostly shell on whole or tails that are cooked or peeled in the EU). Coldwater shrimp is usually imported processed (cooked or cooked and peeled) and this will almost certainly set the scene for the future of tropical shrimp, with added value moving to low labour cost areas.

These changes will obviously have an impact upon EU producers. EU fisheries are already threatened by increasing imports of cheap small *penaeids* and processing is already moving overseas. Taken together, these trends herald an increase in imports of processed shrimp (peeled and cooked) except for niches (eg whole shrimp for Mediterranean markets).

Table 42: EU penaeid imports by origin

	2001	2002	2003	2004	2005
	000 tonnes				
Ecuador	13	13	19	25	43
Brazil	12	20	37	40	40
India	17	28	40	32	38
China	18	3	1	1	30
Bangladesh	16	18	22	19	24
Indonesia	13	10	21	22	20
Other	105	100	128	96	134
Total	194	192	268	235	329

Source: Eurostat

EU producers are then going to be increasingly threatened by imports. However, the RoO changes proposed seem unlikely to have any impact on this. Shrimp are best processed as quickly as possible, and so ideally this should be done close to production location. This implies processing in tropical production areas where labour for processing is cheapest anyway. Then, raw material will mostly be originating and the deciding factor will be SPS conditions rather than RoO. And unless the industry becomes differentiated with production and processing becoming separated, that is the way it seems likely to continue.

More of an issue is the sending of EU caught shrimp to low cost areas for processing – (the outward processing regime, as set out in the Customs Council Code 2912/2913 for externally processed and re-exported products). The dispatch of Dutch shrimp to Morocco for hand peeling prior to return to the EU is a case in point. However, this is not a subject for this study.

5.3.2 Industry Feedback: shrimp

The logic of arguments set out above is apparently accepted by the EU shrimp industry. Despite canvassing processors trade association throughout the EU and interviewing leading shrimp processors, there was not a great deal of feedback received, formal or informal. Those who did respond saw the change more in terms of the administration burden it might impose. This was generally regarded as likely to increase.

5.4 Generalised feedback

In the product-specific analyses above, the position of the EU high sea tuna fleets is clear, that of the operators dealing with other products less so. There was however some more broadly based feedback from others in the sector, eg frozen seafood processors and seafood importers. Key organisations in this regard were AIPCE (Association des Industries du Poisson de l'UE/EU fish processors association) and FRUCOM (European federation of the Trade in Dried fruit, Edible Nuts, Processed Fruit & Vegetables, Processed Fishery Products, Spices, Honey and Similar Foodstuffs)

Processors. Whilst specific feedback was limited to tuna and a few shrimp producers, there was a more generalised response from EU fish processors. Their views were mixed. Some saw advantage in the prospects for greater flexibility that RoO change could generate in that the new rules might (a) allow fishing boats to supply plants closer to the fishing grounds (shorter delivery distance and thus lower costs) and (b) allow plants to source more widely (less downtime, better use of capacity).

However, there are also negatives in their view, including (a) the increased risk of abuse by non-preferred states (important, as maintaining the integrity of the preferred supply chain was seen as being desirable), (b) practical problems in establishing what value-added levels actually are for a product range as widely diverse as seafood and (b) the likelihood of increased bureaucratic complexity. The difficulties of establishing raw material prices reliably, and the wide degree to which value added varied according to the specific process employed, were highlighted. These uncertainties were seen as complicating a process that is seen to be already more complex than it should be. Moreover, they could lead to increases in litigation as some aspects will be determined by fine judgements (eg only1% added value could theoretically make the difference in borderline cases, with large cost and margin implications)

Importers: Seafood importers have a rather different perspective, the principle issue being the responsibility for managing the system. The proposed transfer of responsibility from competent authority to exporter in the ACP/GSP state is seen as greatly increasing commercial risk for EU importers. The fact that no government entity will participate in the day to day certification of origin leaves importers highly exposed should there be fraud, error or other abuse by exporters. Formerly state certification provided responsible importers in the EU with reasonable protection against malfeasance by their suppliers. As EU authorities can challenge importers retrospectively (up to three years in arrears) the risks involved are considerable, especially as subsequent attempts to recoup losses from delinquent exporters will mostly inevitably fail. In short, this potential transfer of risk from state administrators to commercial operators is a real and substantial problem. Indeed minor unintended administrative errors could land EU importers with heavy losses.

This is the most important but not the only ramification of abandoning the official certification system. Taken together these can be summed as the **removal of certainties** that had underpinned trade. Thus for example managing letters of credit becomes more difficult without a certificate of origin which allows that specific aspect to be managed straightforwardly within currently proven systems.

The fear is that this will express itself in reluctance by importers to trade with preferred states (or to require large price discounts to compensate for risk). The result would then be the exact reverse of that sought by RoO reform – that being improved outcomes for export-orientated seafood producers in developing countries. Furthermore, the developing country's exporters best placed to succeed will be those very closely tied to EU enterprises, where the EU parent can exert sufficient authority over the developing country entity to be confident about compliance. Again this is counter to EU ambitions to foster emancipation of developing country seafood producers. Given the high level of risk already embodied in seafood trade (spoilage, SPS etc), this could then become a substantial additional trade barrier.

Finally, the need for the establishment of a straightforward, stable, coherent and widely understood arrangement which can be applied universally was stressed. Commercial operators seek a return to certainty, in short wishing for “closure” regarding the RoO issue at the earliest opportunity

6 ANALYSIS AND CONCLUSIONS

This final chapter draws together the conclusions from the preceding chapters, taking particular note of the case studies' findings. A primary objective is to find common themes in a complex situation where perhaps the one common feature is disparity itself – disparity that arises from wide differences in both products and stakeholders interests.

A key problem is the subtle interplay of effects that RoO change can have. A case in point is the Seychelles tuna industry where adopting the value added rule would have no immediate effect as thresholds would not be met, leaving Seychelles canners in much the same position as they are now. However, the new RoO might eventually lead to the EU fleet limiting their Indian Ocean activities so cutting off the Seychelles originating supply. This would then leave them unable to meet the new RoO and mean that the change had had a disastrous impact eventually. So an apparently small impact of RoO change could become magnified into a major change under certain circumstances.

Given these potentially tortuous impacts, the analytical process will require robust logic, and our approach has been to adopt a simple analytical sequence involving two stages:

- To first assess whether **preference is having a significant impact** (beneficial or otherwise) on the industry in question

- then if the answer is yes, investigate **how RoO change could effect the industry** from the perspective of both EU players and their developing country partners

During the course of this study it has become clear that the impact of RoO change is more a function of the industry segment concerned (eg tuna, shrimp) than either the preference regime or the country involved. For example, the tuna segment faces comparable issues in all countries investigated, whilst having little in common with the shrimp segment. Accordingly this section starts with a review of the three species-based segments that this study addressed: tuna, whitefish (hake) and shrimp.

One final point that should be reiterated at this juncture is that the Doha Agenda reforms could overtake events in relation to RoO. Should agreement be reached and this the Doha process move forward, its impact (through reducing duties, leading to preference erosion for developing countries) will be far greater than any of the effects of RoO change discussed here

6.1 The impact of preference

This section summarises the findings of the case studies, literature review, industry questionnaires and other methods of enquiry regarding the three target product groups (tuna, whitefish and shrimp). The framework for this analysis is the distinction made in the introduction to this report between primary production (fishing or farming), primary processing (removing edible meat) and secondary processing (adding value to that meat). This is a distinction that reflects the HS trade nomenclature to a degree (primary products being classified within the 03 chapter, secondary products within chapter16), but not wholly. Also, as subsequent discussion makes clear, HS distinctions don't necessarily reflect real added value, and so the distinction adopted here is that each stage should reflect significant inputs and real product change. The relevant product flows are expressed in the following supply chain diagrams.

6.1.1 Tuna

Canned tuna production clearly fits into the three stage framework adopted for this study, depending upon (i) fishing, (ii) primary processing into cooked loins and (iii) secondary processing as the canned end product. Loins and canned tuna are both deemed to be "sufficiently processed" products and are separated from raw tuna by a tariff jump (i.e. change in HS chapter). This reflects reality as the bulk of the labour intensive part of the process is producing the loins (fillets) ready for canning.

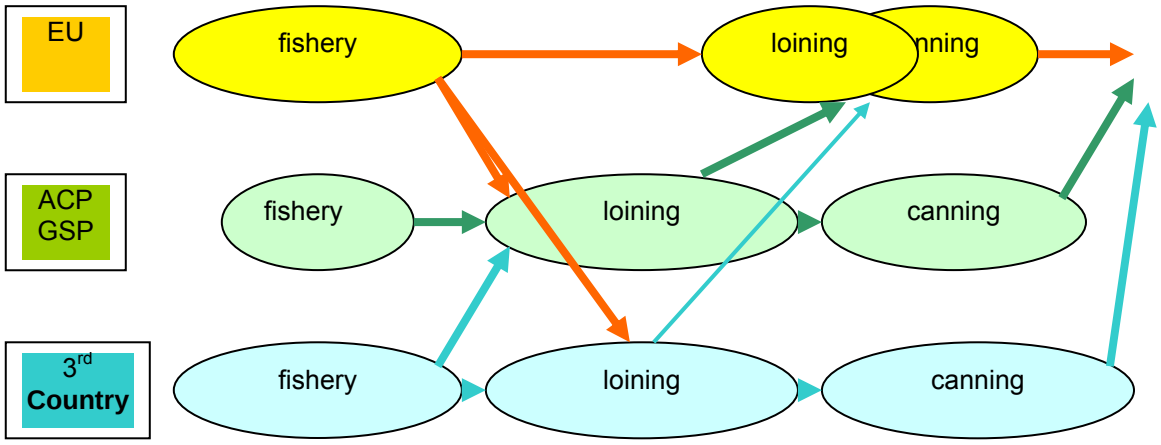

Figure 3: Tuna – EU trade interrelationships

Figure 3 summarises the supply network from an EU perspective showing the complex network of relationship involved. EU fleets supply all categories of primary processor, EU processors are supplied with loins from all regions and all regions supply canned tuna to EU markets. In the EU, loining and canning are largely undertaken contiguously, though not exclusively (i.e. there is some intra EU trade in loins). This helps to make a number of aspects that have emerged from the foregoing research clear:

Processing

- EU tuna processors are highly interdependent upon their foreign partners
- Loining is allowing EU processors to stay in business by "off-shoring" the labour intensive processing stage. This means loins play a key role in EU tuna canning.
- ACP/GSP producers remain a major element of the supply chain in spite of competing against very low cost producers.
- The 24% *ergo omnes* duty on loins and canned tuna is clearly critical in allowing preferred ACP producers to remain commercially viable
- It similarly supports GSP+ producers, though is a less crucial determinant of viability here (as these producers are also able to supply to other markets – e.g. regionally or USA)
- The regime is also critical for EU processors (in Spain, France & Italy) who would otherwise only be able to compete with low-cost leaders (e.g. Thailand) in the top-end quality niche.

Fishing

- The EU fleet is similarly integrated within the global supply chain
- The arrangement allows the EU fleet access to the resource and to markets that are arguably captive
- Current preference rules ensure this captive market exists for some of the EU fleet's output, as it is a source of originating tuna for preferred producers who lack fishing capacity
- This allows EU fleets to receive a premium that improves their competitiveness in comparison

with 3rd country fleets

- The corollary of this is motivation for the EU fleet to fish more responsibly than they might otherwise do (as required under the terms of Fishery Partnership Agreements). Third country fleets fishing in the same zones may not be regulated and may be involved in higher levels of IUU activity.

- Frozen whole raw tuna has currently duty free access to the EU – so EU fleets are not protected in their home EU market

Conclusion on the value of preference: this is a situation where the ***current preference regime generates substantial economic benefit for preferred developing countries and the EU industry,*** especially the latter's high seas fisheries.

6.1.2 Whitefish - hake

This category differs from the others in being narrowly specific to hake, rather than a broad commodity product. However, it does in many ways represent whitefish generally and this is a major seafood commodity group, albeit a highly segmented one.

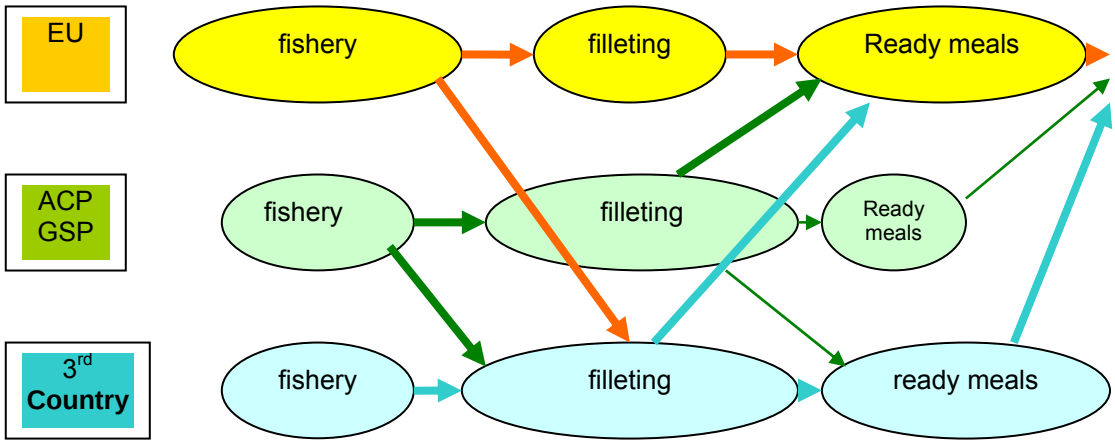

Figure 4: White fish – EU trade interrelationships

Whitefish processing is less clearly demarcated than tuna canning with product graduations less well defined. The transition between whole fish and abstracted meat runs the gamut from minimally to highly transformed products: eg from gutted, headed and gutted, steaks, skin-on fillets, skinless fillets to "deep-skinned fillets" with all dark meat and bones ("pin bones") removed. Subsequent value adding tends to be limited to preparation of fish-based ready meals such as "boil in the bag" and micro-waveable prepared meals. The question as to where most value is added is complicated by the fact that the transition from whole fish to fillet is not deemed to be processing under present definitions in EU legislation, whilst some alternative forms of value added production is. As it is again primary processing that accounts for much of the genuine value added (and most of the labour input), this does not reflect reality.

Figure 4 summarises the trade linkages in the whitefish segment. This is an industry that developed within EU and adjacent waters, and so there is still a strong core EU presence in the industry. However a number of factors have intervened to change the picture, not least of which are raw material shortages brought about by stock decline and the expulsion under UNCLOS EEZ legislation

of EU fleets from some waters they had traditionally fished. The result has been a marked increase in the interaction with foreign countries, especially for sourcing whitefish. Increasingly this arrives as fillets for economic reasons, whilst a new departure is the trend to export EU-caught whitefish for processing in low labour cost areas (e.g. China, Thailand) and then re-import it to the EU under the outward processing regime. Some ready meals are produced in the more industrialised third countries (eg Thailand & Vietnam) but secondary processing is generally a minor component of EU whitefish trade with preferred countries.

In this study hake is the paradigm product that exemplifies trade in whitefish generally between the EU and developing country partners, and analysis of this particular trade has highlighted the following:

Processing

- The principle whitefish product traded between third countries and the EU is frozen fillet
- There is some trade in whole fish (fresh and frozen) but this is a declining minority
- Preference tariff rates reverse the normal situation of tariff escalation, where the more processed a product - the higher the tariff. Duty for whole fresh or frozen hake is 15% whilst that for fillet is 7.5%.
- This does little to protect the EU primary processing industry (as it increases imported raw material costs relative those of imported fillet). It does though benefit the EU fishing fleet
- It also reduces the competitive benefit, relatively speaking, for preferred countries processing industries *vis a vis* their exporters of unprocessed hake

Fishing

- Some EU vessels do fish in developing country waters for whitefish (eg Namibia and Mauritania).
- This mainly occurs where the developing country is unable to invest in a commercial fleet
- However the barriers to entry into this fishery are lower than those for tuna as less expensive vessels can be used, mostly fishing coastal shelves well within EEZs Developing countries can then build up their own fleets more easily
- The outlook is then for continuation of the “localisation” of these fisheries to the developing countries in whose waters they occur.

Conclusion on the value of preference: this is a segment of the fisheries sector that **is benefited by preference but considerably less critically than the tuna industry**. The preference advantage is lower and declines with increased processing.

6.1.3 Shrimp

There are two categories of shrimp in the EU market: tropical and coldwater shrimp. It is the former that is most relevant here, being produced by developing countries. The EU does catch some warm water shrimp, but quantities are very small, and so this is an import dependent market. Production is increasingly farmed rather than wild as the farmed supply expands and its quality and consistency improves. In contrast wild shrimp fisheries face increasing problems with low yields and rising costs, especially for fuel.

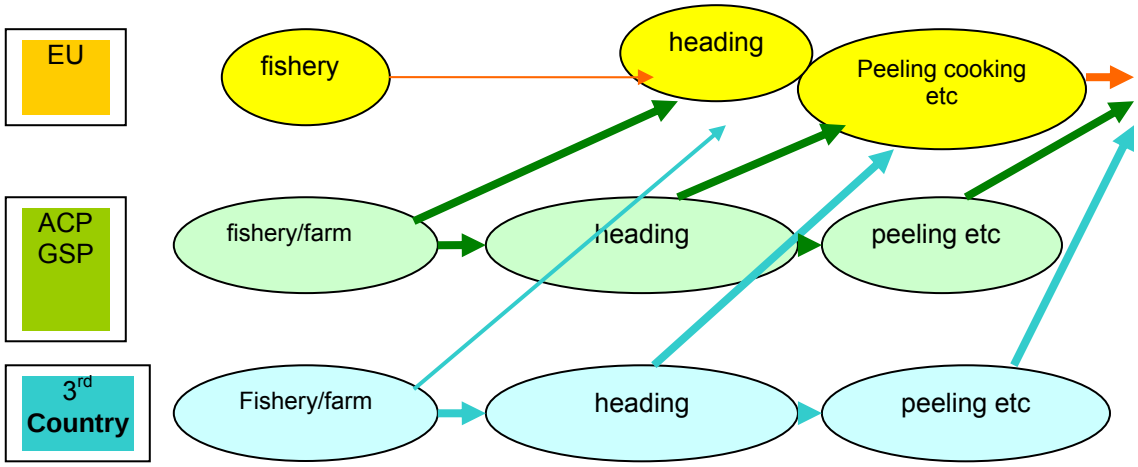

Figure 5: Tropical shrimp – EU trade interrelationships

Primary processing (de-heading & freezing) is best undertaken as rapidly and as close to point of production as possible (i.e. onboard vessel or on-farm) and so this mostly also occurs in tropical developing regions. In fact where unprocessed shrimp is imported, this is mostly for the whole shrimp market, a Mediterranean niche. Increasingly further processing (peeling, breading and added value products such as ready meals) is being undertaken by the more advanced primary producers (i.e. in developing countries). This means that where tropical shrimp is concerned, the EU is increasingly becoming simply an end-product importer.

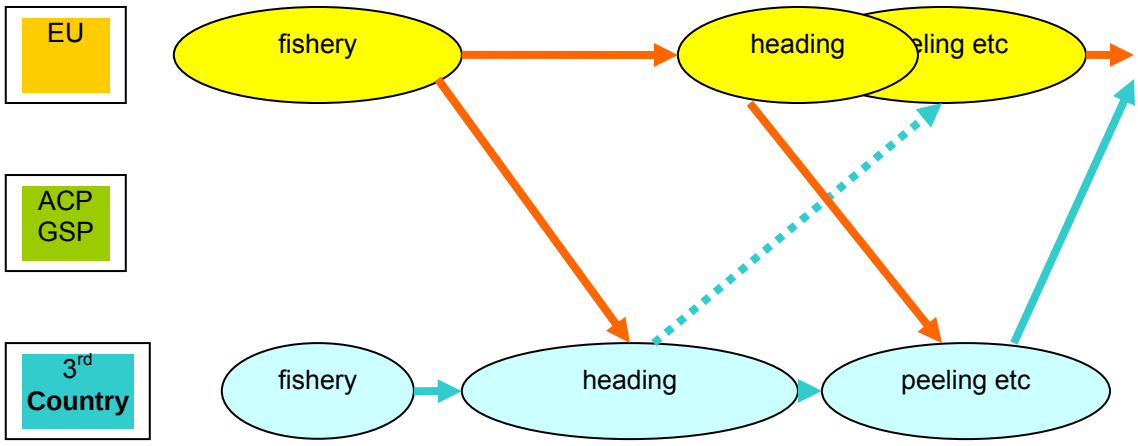

Figure 6: Cold water shrimp – EU trade interrelationships

This is not the case for the shrimp industry overall. Cold water shrimp is caught by the EU in significant quantities and is processed within the EU. It may also be processed outside the EU and returned as a refined product as is the case with whitefish (the outward process regime – e.g. Dutch shrimp processed in Morocco). This leads to a more complex supply chain linking the EU markets to both North Atlantic states and third countries with low labour costs. There is no connection with preferred developing countries, but cold water shrimp is still important to this study as a competitor to the smaller sizes of tropical shrimp (and an important one that still provides 60-70% of EU shrimp supplies).

Processing

- The preference advantage for shrimp is relatively high at 12% for raw & semi processed frozen shrimp and 20% for "processed" shrimp (i.e. canned, brined/potted or added value)

- As discussed above, most processed shrimp products fall into the 12% raw & semi processed category.

- This did not prevent some normally less-preferred countries contributing more than 60% to EU supplies of tropical shrimp in 2003 and 2004

- This occurred before these less-preferred countries were assisted through a 65% reduction in duties (to 4.2% and 7% respectively) under GSP (thereafter in 2005 the proportion imported from these less preferred countries rose to over 70%).

- Preference has then not been conferring the advantage that might be expected, even when the differential was higher than it is now (for key low cost producers).

- A possible reason for this is that real competitive advantage outweighs preference, with efficient less-preferred producers (eg Brazil, China etc) being major suppliers to the EU.

- Another important factor is change to the duty free access that shrimp has had to the largest market – the USA. Imposition of antidumping duty in 2005 by the USA has thwarted some suppliers, but for some key exporters (Ecuador, Thailand) these duties are low (6-7%) and there has been little change

- That said, US antidumping duties might explain the rising prominence of some countries in EU markets. Between 2004 and 2005 China and Vietnam – the most heavily penalised countries - increased their EU imports by 185% and 2,600% respectively

- SPS (hygiene) and related regulations may be a more important consideration given the sensitivity of the issues involved: quality, food safety, antibiotic contamination etc.

- Shrimp tends to be processed where produced for good reason – quality suffers greatly otherwise. This means that there tends to be little trade in raw or semi processed shrimp for further processing between developing countries

Fishing & farming

- Shrimp is produced by farming or by mainly inshore fisheries. Barriers to entry to the fishery (e.g. investment in vessels) are relatively low, and so most shrimp fleets are nationally owned, as of course are farms producing for international trade

- This means that the great bulk of tropical shrimp is "wholly obtained"

- There are some exceptions: some African shrimp fisheries rely upon foreign fleets (Mozambique, Sierra Leone) and farms occasionally import seed (postlarvae). In these cases there is a small risk that raw material could not be originating

Conclusion on the value of preference: Shrimp is a major EU seafood commodity and one where developing countries are significant suppliers. Preference advantage is substantial so this should be a major factor, but surprisingly it has not been a determining factor for the industry's development. **Real competitive advantage and external factors appear to be the decisive factors rather than preference**. That said, preference it clearly does benefit some preferred producers.

6.2 Impacts of RoO change upon developing countries

Two things are overwhelming clear from the forgoing analyses

(i) **Preference has radically different importance to different segments of the fisheries sector**. For tuna canning it is critical, for shrimp processing it is helpful – the distinction being that between "need-to-have" and "nice-to-have". This means that RoO change will similarly have completely disparate effects according to the segment involved

(ii) There is one common feature though – **no segment of the sector would be able to consistently meet the added value threshold proposed under changed RoO as currently formulated**. This is true for the lower EBA/GSP+ threshold of 50% as well as the 60% level. The reason is simple – the high cost of raw material, which translates to a major proportion of sale price (or production cost). This was true of all species groups assessed here and is believed to translate across the sector to all groups

(iii) The only prospect for achieving the value added threshold would be through production of highly value added products where the fish or shellfish component is a minor element. In effect this means ready meals where ancillary ingredients account for the bulk of the product. Most of the developing countries favoured by EU preference are not equipped to produce these advanced products, and anyway could effectively be disqualified from the growing fresh ready meal market by distance.

(iv) Quite how RoO change will affect different products varies, sometimes with dramatic differences between apparently similar items – a finding made by previous researchers as well as by this study. The Impact then needs to be assessed on a product by product basis, for each key product group. This is done immediately below:

Canned tuna

Tuna products (loins and canned tuna) will not be able to achieve even the lower of the value added thresholds specified (50%) consistently. Even if some parts of the industry were to be able to achieve the threshold, this would be borderline and highly subject to changes in raw material prices. This could in turn make the industry subject to becoming randomly ineligible for preference for reasons beyond their control – clearly a risk no producer can entertain. For example, the measure would apply differently to different can sizes, and so could make eligibility a function of product range. The new RoO would leave the tuna processing sector in its current position, i.e. dependent upon originating raw material. This is overwhelmingly the case, though there may be some minor opportunities for added value products which could exceed the threshold e.g. pouched or canned tuna salads etc

There are implications for the tuna fisheries though. These are potentially longer term effects which may or may not materialise. The ***new RoO could undermine the EU tuna fleet's ability to maintain their high seas operations.*** Preferred developing countries that lack fleets would then lose their key suppliers of originating tuna. As their canneries would then be unable to meet the value added threshold they would lose the preference, that is vital to their continued viability. Collapse of the industry would follow with severe negative socio-economic implications in some cases.

One solution to this problem that is favoured by some developing country commentators would be to deem all fish caught within a given country's EEZ to be originating irrespective of how or by whom it is caught (i.e. extending the current 12mile regulations to the EEZ 200 mile limit). This would certainly widen the sourcing options for developing countries and may reduce prices. It would though be very much against the interests of the EU high seas tuna fleet.

Frozen hake (whitefish)

Hake proved to be unique amongst the products studied in that one of its product categories was able to exceed the value added threshold. This was hake fillet in branded retail packs destined for the EU market. This was not representative of the industry, the majority of hake products undershot the threshold substantially. Processed hake is then mostly in the same position as tuna and requires originating raw material, i.e. the new RoO will have little impact, as the opportunity to process imported non originating hake will still be denied.

In this case, the position of the fishery is different though. Hake is not migratory and is found relatively

close to shore on the continental shelf. The resource is more closely tied to the country concerned than is tuna. Also, although it is fished by industrial scale vessels, these are far less expensive than tuna purse seiners. The barriers to entry are consequently lower for developing countries and they are better placed to build up their own fleets. Thus the prospects for maintaining a domestic fishery to guarantee originating raw material are far better, and much less subject to any decisions that might be made by EU fleet owners.

One important point that did emerge from the hake industry study was that, although some products could attain the new RoO value added threshold, they may still be ineligible for preference if not wholly obtained. This is because they are unlikely to be deemed to be "manufactures" in spite of this value added – because as uncooked fillet they retain the same HS classification as raw minimally processed fillet (even at the 8 digit HS level). The definition of "manufacture" would therefore be critical to the application of the rule.

Processed shrimp
Preference does not seem to have played much part in the development of this fast growing trade with the EU. ***The obvious corollary of this is that RoO change will similarly not have a decisive effect on preferred suppliers***. Furthermore, the fact that the great bulk of shrimp in these countries is originating anyway adds to the likelihood that RoO change will not be an issue for this industry. The chances of benefiting from the value added rule are very small anyway, because value added is particularly low in this industry. Thus RoO change will leave the shrimp sector's position unchanged. Perhaps the main point to note here is that an opportunity will be denied – that to import non-originating raw shrimp for processing by preferred countries. However there is little sign that this is an important element of the business, and anyway this is to the advantage of the preferred countries primary producers (farmers, fishers) through ensuring demand for their shrimp by their national processing industry

There is though a possible issue with shrimp farming where ***current RoO could render some farmed shrimp non-originating*** on the grounds that seed (post larvae), upon which origination depends, was imported. Again the application of the new RoO rule would depend on the inclusion of aquaculture in the definition of "manufacture". This seems to be both a minor technicality and an unlikely eventuality, but not an inconceivable one.

6.3 Impacts of RoO change upon the European Union

The impact of RoO upon the EU seafood industry might be expected to be the reciprocal of its impact upon comparable industries in preferred developing countries. In fact this is not the case, showing that the relationships involved are far more mutually supportive than might be expected. Competition is then less important than cooperation; what benefits one party does not necessarily damage the other (and vice versa).

The tuna fleet: The EU tuna fleet is a case in point. Preference drives the economics of the EU tuna fleet, because RoO requirements regarding raw tuna origination makes captive markets of countries seeking preference but lacking their own fleet. It has been argued that this could be deemed to be a subsidy to the EU fleet as it allows them to charge higher prices than otherwise would be the case. The cost of this is paid indirectly through the preference advantage that is granted to processors who buy their tuna. This means that in the long run, this mutual benefit to fleet and processor is funded by EU consumers paying above the "true" market price for canned tuna. Thus, as neither fleet nor processor are paying, and both are gaining, the mutual support for the status quo is understandable. The question is whether RoO change will actually threaten this arrangement.

The current RoO clearly promote a situation where developing countries dependence on the EU is enhanced. This arises because preference – which is essential for these industries survival – is implicitly linked to sourcing from the EU fleet or chartering EU approved vessels for their fleets. The bilateral Fisheries Partnership Agreements entered into by the third country and the EU are also involved, since these agreements in turn reinforce the relationship in a number of important ways. One of these is by in effect contributing part of the access fees for the EU fleet. Another is by supporting policy measures in favour of responsible fisheries. such as investment in improved fisheries control systems.

This is a complex web of independency and there is a perception that the new RoO could put it at risk. This is a serious concern for the preferred countries, but also obviously for the EU fleet. The level of risk is probably small, at least as far as RoO are concerned because the desire to maintain the status quo is mutual. In fact the real threat to the arrangement probably comes from international bodies concerned about the extent to which subsidies may be considered implicit in these relationships – subsidies that global policy makers increasingly wish to unwind (e.g. via the Doha Agenda). There are also pressures from developing countries for less constricting arrangements, such as the suggestion that fish caught in a country's EEZ should be deemed to be originating purely on that basis, irrespective of who has caught it. The conclusion must be that the current arrangements between third countries and the EU tuna fleet are under threat, but probably not from RoO change. However, it is clearly no accident that the fate of the EU tuna fleet was the aspect that elicited most interest from EU stakeholders during research for this study.

Tuna canners: EU tuna canners have become increasingly dependent upon imported tuna loins to keep their businesses viable. By, in effect, outsourcing the labour intensive stages in tuna processing to low cost areas, they retain a competitive edge. Should the changed RoO allow them to source more widely (and thus more cheaply) that would be to their advantage and they perceive it as such. What they may not realise is that at current threshold levels, there is little chance of tuna loins complying with the RoO that would allow this wider sourcing.

Whitefish and shrimp industries: The proposed RoO changes seem to have little potential impact upon either the whitefish or shrimp industries in the EU. That appears to be the case when seen from the developing country supplier's viewpoint, and from the consultants' analysis of the situation. The EU industry apparently endorses this as, for the most part they saw no need to make a case when offered the opportunity.

European Seafood Importers represent a different interest group with a different perspective. They are not concerned about the RoO per se, but are worried about a reform suggested for the wider administrative system – the proposed reassignment of responsibility for declaring origin from competent authority to the exporter in the ACP/GSP state. This is seen as essentially a transfer of responsibility from state administrators to commercial operators. This greatly increases the risks to these EU commercial operators who are liable for duties if preference is falsely claimed. This may express itself through (i) reluctance by EU seafood importers to trade with preferred states or (ii) EU importers requiring large price discounts to compensate for the risk. The result would then obviously be the exact reverse of that sought by RoO reform – that being improved outcomes for export-orientated seafood producers in developing countries.

6.4 Broader context – RoO & Global Seafood Trade

This study was based upon a series of specific case studies and this raises the question as to how representative this approach is. Three segments of the global fisheries trade have been covered (tuna, whitefish and shrimp) collectively valued at over US$35 billion on FAO primary production data, or 26% of the fisheries sector total. Thus only a quarter of the whole sector has been covered, albeit highly strategic segments in terms of trade and development. This section takes a very brief look at the sector as a whole to attempt to assess where RoO issues might arise and highlight other aspects that might prove important

In this case the approach adopted differs from that employed for the case studies. This involves an analysis of trade flows to establish where RoO issues might be expected to arise. Two matrices below (set out in tables 43 and 44) link product to location and to preference regime. The tables then deal with broad global seafood trade flows where two levels of activity are considered (raw material production and processing).

The interaction between these two key activities is investigated for three groups of operators: (i) those in the EU, (ii) those in preferred developing countries - ACP, GSP(+) & EBA - and (iii) those in other (3rd) countries. In table 43, the level of activity is noted (i.e. how important the segment in question is) and then the body of the table represents an attempt to identify areas where significant trade related implications might be expected. In final column the specific seafood segments involved are noted so highlighting the key segments from a trade and development perspective. Those shown in red are the industries covered by the case studies.

Table 43: Global Seafood Trade: Primary Production & Processing Interactions & impacts

Scenarios		Level of Activity	EU		ACP/GSP		3rd country		Examples
Raw	Processing		fleet/	Proc	fleet/	Proc	fleet/	proc	
Material			Farm		farm		Farm		
EU	EU	√√√	√√√	√√√					EU multi species fisheries sector
EU	ACP/GSP	√√	√√√		√√√	√√√	√√	√√	EU fleets tuna canned in the ACP
EU	3rd country	√√	√√		√	√	√	√√√	Chinese & Thai processing of EU fish
ACP/GSP	EU	√√	√√√	√√√	√				African whitefish & tuna sent to the EU
ACP/GSP	ACP/GSP	√√			√	√	√		Tuna canned or frozen, shrimp frozen
ACP/GSP	3rd country	√			√√√	√	√√	√√√	Tuna canned in Thailand etc
3 country	EU	√√√	√	√√√	√	√	√	√√√	EU salmon, tuna, shrimp processing
3 country	ACP/GSP	√√			√√√	√√√	√√	√√	ACP tuna canning,
3 country	3rd country	√√√			√	√	√√√	√√√	SE Asian seafood industries

Key:
√√√ ¦ significant interaction ¦

The table shows a broad and confusing spread of interactions, with some between the EU and third countries (which are not covered by this study) evidently significant. Third country and ACP/GSP interactions are also seen as important, though many of these are competitive where third countries threaten ACP/GSP producers' viability. There are then evidently many trade aspects not covered by this study, although comfort can be taken from the high representation of case study topics highlighted in the final column of the table.

Table 44 takes the analysis further by attempting to identify broad areas where impact that specifically arises from RoO change might be anticipated. The same matrix framework is used, but in this case positive or negative outcomes form the basis for comparison. Again, the judgements made are qualified by a series of notes in the final column

Table 44: Global Seafood Trade Areas where RoO change has potential for impact

Scenarios			EU	ACP	3rd	Notes
Production point		Impact		GSP (+)	Country	
Raw	Added	If RoO	Benefit/	Benefit/	Benefit/	
Material	Value	Changed	Negative	Negative	Negative	
EU	EU	√	-	+		ACP processors become more competitive as input costs drop
EU	ACP/GSP	√	-	+	++	EU fleet loses out to 3rd country fleets supplying ACP GSP & EBA
EU	3 country	√	-	+	++	EU fleet loses out to 3rd country fleets supplying ACP GSP & EBA
ACP/GSP	EU	√		--	++	ACP fleets/farms loose out to 3rd country competitors
ACP/GSP	ACP/GSP	√		+/-		Little change, limited activity anyway apart from farmed shrimp
ACP/GSP	3 country	√√		++	--	ACP more competitive processors so 3rd country processors lose
3 country	EU	√√√	---	+/-	+++	3rd country supply ACP processors so EU processors lose
3 country	ACP/GSP	√√√	---	+++/----	+++	3rd country supply ACP processors gain but ACP fleets/farms lose. EU fleets lose
3 country	3 country	√√	-	++	--	ACP processors more competitive take some 3rd country market

The underlying assumption in table 44 is that the reforms "work" i.e. they achieve their objective by allowing preferred developing country producers to gain competitive advantage though increased flexibility (not a given by any means with the currently proposed RoO). However, if this benefit does emerge, the balance of advantage clearly moves from the EU to their ACP/GSP/EBA preferred partners. The EU fleets and processing industries lose whilst the preferred country processing sectors are the principal gainers. What is most striking though is the way that this change would benefit third countries more, and especially those with efficient fleets or aquaculture industries.

There is of course a considerable degree of arbitrary subjective judgement expressed in these matrices and they reflect a view rather than an analysis in depth. The matrices do though suggest that (i) the case studies do represent a relevant "transect" across what is a very complex seafood trading

network and (ii) the benefits of the RoO change will pass to preferred countries, though non-preferred third countries may well do better. The second statement comes with a very important caveat – that this will only be the case if the RoO change works as anticipated, an assumption that is challenged repeatedly by this study

6.5 Discussion & overall conclusions

This section finally takes the analysis from the particular to the general through attempting to identify key relevant aspects that have a common currency throughout the fisheries sector. Following the arguments set out at the beginning of this chapter where firstly the value of preference was assessed and subsequently the effect of RoO change evaluated in the light if this, we start with preference. As with many of the findings of the study, it was evident that the ***value of preference is more a function of the industry segment (species group) concerned than either the preference regime or the country involved***. That said, preference clearly did have value, and this ranged from the critical (canned tuna) to the relatively minor (processed shrimp). This will then define the potential impact that RoO change can have on the sector. This is now assessed, starting with the value added rule that is central to the proposed reform

6.5.1 The core value added rule

What is very clear is that the new value added rule will not work for most fisheries products. This is because the proposed value added thresholds of 50-60% mostly cannot be met. As table 45 shows, this is true for the sample products assessed through the case studies and, by implication, likewise for fish and shellfish generally. Only one product exceeded the 60% threshold, hake fillet in retail packs (which may be disqualified on grounds that it is not regarded as a manufactured product). This is the outcome of our independent analysis by modelling, and confirmed by a near unanimous objection to the new value added rule by all stakeholders canvassed on the subject. The only areas where there was little concern about the new RoO scheme was where it did not apply by virtue of the industry in question being so structured that products are naturally wholly obtained, and so origin is not an issue.

Table 45: Summary of value added for the target products in selected countries

Stage	Tuna			Whitefish	Shrimp	
	Seychelles	Ecuador	Kenya	Namibia	Bangladesh	Indonesia
Primary production						
Fishing	Originating	Originating	Originating	Originating	Originating	Originating
Farming	NA	NA	NA	NA	76%-96%	85%-91%
Primary processing	25%-26%	29%	32%	51%	8%-9%	25%-26%
Secondary processing	23%-24%	15%-18%	NA	14%	29%	2%-11%
All processing*	48%-50%	44%-47%	NA	65%	37-38%%	27%-37%

* Full value added from raw material to final secondary processed product

It then seems clear that there is a generic problem with the added value criteria in seafood as defined by the proposed new RoO. The reason for this is high raw material costs, exacerbated by the effect of extracting usable meat (fillet yield with 30-70% weight loss in the process). There are a number of ancillary points that need to be made

- Failure to reach the threshold is particularly prevalent for the type of labour intensive primary processing most suited to developing nations – exactly the countries this legislation is intended to benefit.

- The only seafood products that seem likely to attain the threshold would be sophisticated highly processed products such as ready meals which most developed countries are ill equipped to produce. Furthermore, relatively low value-to-volume ratios might rule ready meals out on freight cost grounds

- Another problem for the value added rule is, as mentioned above, the radically different outcomes for different species groups, with a high impact on tuna canning but minimal impact on shrimp producers. This obviously undermines the ambition to devise a “one-size-fits-all”

system that is coherently applicable across the fisheries sector. It reinforces the findings of previous research that the impact of value added based RoO upon the fisheries sector would be erratic and unpredictable with minor changes in product specification able to radically affect originating status, thus introducing unforeseen distortions of trade.

- The high proportion of costs attributable to raw material – which is the nub of the problem anyway - creates an additional hazard when applying the value added approach. This is the excessive sensitivity of value added to changes in raw material costs (which are highly variable in the global market and have a powerful leverage effect on the value added proportion). This means that value added as a measure is anything but a manageable fixed function, but rather a highly variable factor, subject to rapid change that is beyond producer's control. Needless to say, change in currency exchange rates aggravates this risk further.

***An alterative scenario was also investigated, one where all inputs, not just raw materials come under origination scrutiny*.** This means that cans and additives for canned tuna and packaging, spare parts etc for other items would need to pass the origination test. Table 46 summarises the result of this test as a comparison with the central case where raw material is the sole origination issue (Table 45 above). In this series of analyses it was assumed that all items that could conceivably be imported were imported. So this is the extreme position. In practice, many of these inputs are originating - for example tuna cans are usually partly originating as they are fabricated in-country from imported tinplate, whilst packaging and labels are increasingly home-produced.

Table 46: Summary of value added for the target products in selected countries where value added is deemed to be all non originating items

	Species	Tuna			Whitefish	Shrimp	
Stage	Country	Seychelles	Ecuador	Kenya	Namibia	Bangladesh	Indonesia
Aquaculture		NA	NA	NA	NA	59% -72%	47%-58%
Processing*		16%-23%	19%-25%	29%	41-51%	34%-35%	25%-34%

** Full value added from raw material to final secondary processed product*

In this case, the value added reduces to levels below that for tuna loins at 15%-25%. In all cases value added is reduced, but with wide differences with a 25-30 percentage point reduction for canned tuna whilst there is only a 3 point reduction for some frozen products. This seems to show that it is the processes that tend to be thought of as typically "manufacturing" that see the largest reduction in value added in this scenario. Clearly this approach will require a substantial lowering of the value added thresholds that the industry is required to meet, especially for canned tuna.

There are some aspects that have not been considered in these calculations – i.e. the cost of intangibles such as branding or trade relationships. Should these also be deemed to be non-originating, value added would be further reduced. An example would be the use of a foreign brand to allow sales that add substantial value, as in the case of some Namibian retail products. How these could be accounted for in this scenario would clearly present a challenge, quite apart from the further reduction in value added implied. .

The potential impact of this alternative scenario on shrimp farming has also been investigated. If shrimp farming is deemed to be a manufacture, then imported feed as well as imported seed could be regarded as a potentially non-originating input. The impact of these being deemed non-originating would similarly be a significant lowering of value added, in this case from 75%-95% down to 50%-70% (i.e. towards levels below the thresholds proposed for RoO).

Unsurprisingly, then, most parties canvassed – in both developing countries and in the Member States - were against RoO change as currently formulated. The only other stakeholder reaction was indifference because RoO change was seen a having little impact because their industries are structurally wholly originating. Opinion was that a value added threshold as low as 25-30% would be needed if this rule were to be effective for HS chapter 3 an16 seafood products. For the alternative scenario (all inputs tested for origination), the threshold would obviously have to be even lower. Of course the risk would then be that this might not be high enough to deter the abuse of "product laundering" by non-preferred countries to avoid duty.

6.5.2 Possible Alternatives to the Value Added Rule

If the added value rule seemingly presents so many problems for the fisheries sector, at least at the threshold levels postulated, what alternative options are there for RoO reform? The following are some prospects discussed in recent research or that arose during stakeholder interviews

Maintaining the status quo
No change was the preferred option by most stakeholders canvassed, with the single exception of the vessel crewing rule to which no one seemingly objected. This option would also have the powerful advantage of being a known quantity with which the industry is familiar and knows how to operate

Use of HS nomenclature Tariff jump (CTH)
Change of tariff heading or "tariff jump" in the customs code has been postulated as an alternative to value addition by some commentators. However, this too suffers from a fundamental problem for seafood. The reason for this is inconsistencies in coding within the HS nomenclature. On one hand, some products that are highly differentiated in processing terms are classified together at the 8 digit level (i.e. within the same HS code) For example; peeled, cooked and de-veined shrimp is coded identically to raw whole shrimp - as 0306 1350 for frozen *penaeids*. On the other hand near-identical products can be widely separated in the coding: raw frozen tuna fillets (HS 0304) can be separated from cooked tuna fillets (HS1604) by a full HS chapter.

Moreover, the degree of differentiation varies widely at species level. For example, virtually all freshwater whitefish (including important groups like tilapia, *pangasius* and Nile perch) are lumped together within a single code, whilst frozen yellowfin tuna – a single species - is disaggregated into seven separate categories (030342-12/18/32/38/52/58/90) just on size grounds. This random inconsistency is largely a result of the time it takes for legislation to catch up with evolving change in trade patterns. However, whatever the cause, it fatally undermines the use of this approach to provide the simple comprehensive one-size-fits-all system that is one goal of this reform.

6.5.3 The Definition of Manufacturing

"Specific processing" is another criteria that has been discussed as an alterative to the value added rule. This depends upon the definition of manufacture and the "sufficient transformation" rule and is anyway linked to RoO reform as a counterpart criterion to the value added rule. Although this is not a subject for this study, as defined by the Terms of Reference, it is clearly central to this topic and will play an important part in rationalising the RoO system for seafood. Accordingly, we discuss it here.

There are clear anomalies in the definition as it would currently apply to seafood. For example, raw fillets are not deemed to be manufactures (even though much of the real labour-intensive value added is achieved in this process) whereas cooking the fillets - a simple step - does confer manufactured status. Acceptance that primary processing, as defined in this report, does constitute manufacturing would then at least provide a logically consistent basis for applying the value added rule. It could also differentiate fillet type products from those simply treated for preservation (frozen whole).

Table 47: Production costs for canned tuna: loining & canning components

	Seychelles Yellowfin	Seychelles Skipjack	Thailand Yellowfin	Thailand Skipjack	Average
	%				
Loining component	69	73	71	80	73
Canning component	31	27	29	20	27
whole cost	100	100	100	100	100

Table 47, based upon data collected in the case studies, makes this point by referring to the tuna industry. In this table, primary and secondary processing components (i.e. loining and then canning the loins) are separated and costs attributed to each in their own right. This is done for two product qualities (yellowfin in oil and skipjack in brine) and two very different producer countries. In each case production cost is unitised on raw tuna input (rather than product output, the convention elsewhere in this report). This was done to provide a common basis through which both loins and canned products could be meaningfully related to each other. This shows clearly that the bulk of production cost (70-80%) resides in the primary processing stage. For tuna loins this is recognised by designating loins as

a processed product (classified in HS chapter 16). For other species this is not recognised, and even though comparable levels of transformation occur, filleting is not deemed to be processing. Indeed it is only the fact that tuna loins are cooked rather than the work of filleting that confers manufacturing status in their case.

The final point to make here is that under current RoO none of this matters particularly. List Rules require fisheries products (HS Chapters 3 &16) to be wholly obtained and so transformation is not an issue. It would only be under the changed rules where a manufacturing definition will become an issue. Thus the need to consider it at this point

6.5.4 The Tolerances Rules

The use of tolerances is already a difficult issue under the current RoO, and it seems this could become more so under the proposed new RoO. Firstly there is a question as to whether this represents a renewed flexibility or a constraining "criteria". This needs to be resolved, because how this is interpreted will have a very significant impact. The two possible interpretations are as follows

- **If it is a measure designed to allow flexibility** (i.e. by allowing 15% of raw material to be non-originating) then its main impact will be to return the position to that under the current RoO. This is because the inability of the industries to qualify under the value added rule would make them dependent upon originating raw material, as now. Flexibility in raw material sourcing could then depend upon use of tolerance.

- **If the measure is in fact a restrictive criteria**, then, it acts very differently. In effect it would negate the value added rule by requiring all but 15% of raw material to be originating - even if the value added threshold is met. This clearly undermines the entire philosophy underlying the proposed RoO reform,

Of course, this distinction is somewhat academic as most seafood would fail the value added test. The issue is then simply whether what is proposed does potentially allow preferred countries to use 15% non originating raw material or not

Two options for this tolerance rule are defined – 15% by weight or 15% by value. The value option is the clear favourite for understandable reasons – high raw material cost mean that value represents the larger quantum. Moreover weight loss during primary processing – the level of processing mostly involved here – militates against the weight-based option (see box below)

Failure to use tolerances
The developing country seafood industry rarely uses the existing tolerances, and this is cited as an indication that the industry already has adequate flexibility in raw material sourcing – if they didn't they would use the tolerances, runs the argument. The realty is somewhat different, and there are three reasons for this reluctance on the industry's part:

(i) The people involved (plant managers) simply do not understand the tolerance rules, and in some cases know nothing about them at all.

(ii)Tolerances are too complex and administratively cumbersome to apply.

(iii) There is a perceived risk of contravening the rules and so losing preferred status – a risk taken very seriously by many in the industry.

Tolerance calculations

Tolerance Calculations

There are two possible tolerance options: 15% of the ex-works total by value or by weight. The table shows how value is the better option, taking tuna canning as an example. Here it is assumed that 50% of the ex-works price is attributable to raw material whilst the equivalent for weight is 65% of the final product weight – both reasonably representative figures.

	By value	By weight	
	%		
Raw material proportion	50	65	of ex-works total
Ex-works total (quantum)	100	100	
Tolerance level	15	15	of ex-works total
Effect in terms of allowable input	30	23	raw material

The value option is clearly preferable because raw material represents a lower percentage of the end product in price terms than in weight terms. Thus by basing the tolerance on the final product quantum, the proportion of raw material that 15% "buys" is larger in value terms than weight terms

6.5.5 Development and environmental implications

The main focus of this study has been economic, but the adoption of the value added rule would also have wider implications. If the rule proves to be inapplicable (for example if the threshold is set too high) then of course its impact will be negligible unless some of the longer term effects mentioned above materialise (e.g. eventual departure of the EU fleet leading to critical shortages of originating raw material). If, however the rule were to be adapted so that the value added threshold could be met, then the effects could be potentially significant and relatively immediate.The following impacts are forseen in relation to sustainable development and the environment.

- Raw material supplies would be sourced more widely with price the governing factor. This would discriminate against the EU fleet which is bound by access agreements to fish responsibly. It would favour the vessel operators who cut the most corners to produce – i.e. those who pay least to their crew and tend to adopt IUU fishing practices. As most fish resources are regarded as fully exploited, the outcome would be a substitution of the responsible by the less responsible, with clearly detrimental effects on the resource (in most cases RFMOs are trying to maintain or reduce fishing effort, as stocks are believed to be fully exploited)

- An indirect effect of this would be a reduction in the reliability of some key data. Traceability would, for example, diminish along the supply chain, particularly regarding the source of the initial raw material. As raw material sourcing ceased to be an issue, so would concern about its origin. The quality of resource data would decline correspondingly as would the reliability of SPS (food safety) information.

- Another knock on effect could be weakening of the value of FPAs and subsequently EPAs. Should the EU fleet reduce or cease activity in preferred states' EEZs, then the rationale behind these agreements would unwind – there would be no justification for payments for fishing rights that are no longer taken up. As the financial contribution provided by these agreements is largely targeted on a mix of developmental and resource management objectives, these too would suffer.

- The domestic fleets of some preferred nations would also probably be damaged in some cases. This would be especially true in cases where a fleet is being built up and is struggling against established competition. Thus the outcome could be a stifling of the development of national capacity in some preferred countries

- Linked to this, there would also be a negative effect on other primary producers-small scale

fish and shrimp farmers. These could face foreign competition that might undercut them. It seems then that the processor's gains would at least be partially offset by losses by primary producers.

6.5.6 Other Aspects

There are some other important aspects that arose during the research, including serious concern about the proposed RoO administration systems and reactions to the proposed change in rules on vessel crewing.

European Seafood Importers liability
Importers are concerned about proposed reform of the RoO administrative system and reassignment of responsibility for declaring origin from competent authority to the exporter in the ACP/GSP state. In their view this will greatly increase the risk to EU commercial operators who are liable for duties if preference is falsely claimed. Whilst this is an issue that is not directly related to RoO changes considered here, some of its wider impacts may be. One corollary of this could be reluctance by EU seafood importers to deal with developing countries, or importers requiring large price discounts to compensate for risk. This would then jeopardise developing country exports to the EU, potentially undermining the gains sought by RoO reform. Another effect would be reduced control over quality and SPS by importers as their ability to identify the sources of products inputs with certainty is diminished (a point already made above)

Vessel crewing:
The proposed abandoning of the vessel crewing stipulation that formerly required 50%-75% of the crews of vessels to come from either the preferred state or an EU member state met with general approval. Abandoning this rule was generally seen as lifting a constraint that benefited no one, a view taken by stakeholders from both the EU fleet and the developing countries. This mostly applies to the tuna industry and here employment opportunities with the tuna fleet are generally not valued by the developing countries, whilst inability to source from the lowest cost labour pool frustrated EU feet managers. Similar arguments apply to the whitefish fleet, though in the case studied, Namibia, a localisation policy negates this liberalisation anyway. Shrimp fleets are mostly locally owed and operated anyway, and so with the exception of some African fisheries, the former ruling had little currency anyway.

There is though a disadvantage to this proposal from a development perspective. There are some countries where vessel crewing presents welcome employment prospects (West African countries that have a fishing traditions). Here the loss of an imperative to crew locally would (i) lead to potential job losses and (ii) put pressure on national crews to accept less advantageous terms (or be replaced)

6.5.7 Overall Conclusions

Finally, it is hard not to conclude that there is an across the board misalignment in the system of RoO applied to Community trade in seafood products. This applies to both current and proposed future rules, all of which seem more appropriate to conventional manufacturing. This poses the question as to how to develop the RoO system as it applies to seafood. Key outstanding issues that might usefully be addressed at this point could include the following.

- The **HS coding** system bears little relationship to product differentiation from a practical processing view point. Some major contributors to supplies are still aggregated whilst other less important products are segmented to a possibly unnecessary degree

- Proposed **definitions of manufacturing** do not reflect the processing involved or the level of value added. This could relegate some activities that involve extensive and sophisticated working to non-manufacturing status

- **Aquaculture** is emerging as the leading contributor to many categories of seafood. The legislation, which has traditionally been orientated towards wild-caught supplies, needs to adjust to this emerging reality. The way originating status is currently determined by source of seed rather than that of major cost inputs like feed is a case in point.

- There may be an advantage in rationalising processing into **primary and secondary stages** with each stage being assessed for both manufacturing status and value added. The intention is to find a coherent basis for assigning the relevant status to seafood processing operations

- **Originating status for wild caught seafood** is complex and processors find it confusing. There is pressure from some sources to link origination to "ownership" of the resource (i.e. the EEZ) rather than ownership of the means of exploiting it (i.e. the fleet). This approach would find little support amongst EU fleet operators.

- **Tolerances** are seen by stakeholders as being too cumbersome, too complicated and too risky to use, and so are forgone by most producers. Simple derogation is preferred by ACP countries, even though quantities are small and allocating this between competing users has been problematic. Simplifying the tolerance system or replacing it with derogations that better reflect need would do much to provide the flexibility that developing country processors require.

In conclusion, the proposed value added approach if applied to seafood would not be effective, because processors will not be able to meet the thresholds that are likely to be set. If these thresholds were to be set a great deal lower, then this might allow the system to work, but at the possible risk of allowing product laundering by non-preferred countries. However, even if the value added RoO system were to be to be implemented effectively, then other problems seem likely to arise in relation to possible negative impacts on sustainable development and responsible fisheries. Not least of these are the following:

- The EU high seas fleet would lose markets and may decline

- Local fleets in some developing regions would face similar problems

- The aquaculture industry and especially its small scale practitioners would also face lower demand and lower prices.

- There is the possibility that there would be more IUU fishing activity should the EU fleet withdraw and be replaced by less regulated third county fleets as suppliers to processors in preferred countries

- A knock-on effect would be reduced relevance of FPAs (and EAP's fisheries elements) if the EU fleet begins to withdraw from these areas.

- This would lead to a reduction in the developmental and resource management initiatives supported by FPAs, exacerbating resource management problems - i.e. management capacity would decline just when most needed because of possibly increased IUU activity

- The new RoO are meant to reduce complexity, but the change itself will add to complexity for the users as they have to adapt to the new system

This raises the question of what advantage the proposed new RoO might actually bring to the seafood sector. The proposals seem unlikely to simplify systems in this case, and there appear to be substantial developmental and environmental disadvantages. Thus though the value added rule might seem to be an elegant and logical solution it appears not to stand the test of practical worth in the fisheries and aquaculture arenas. The practical difficulties of applying the systems and the complex ramifications that might arise from their implementation are apparently not balanced by commensurate advantages. Moreover benefits to downstream processors are seemingly matched by disadvantages to upstream primary producers. It is hard to escape a conclusion already reached by most of the sector's practitioners – that the system will not work as anticipated and retaining the existing arrangement would be preferable.

6.6 Recommendations

The context for our recommendations is clear: the proposed new seafood Rules of Origin, as currently

formulated, will not achieve the stated policy objective of assisting developing country producers and so fostering economic integration of these countries. This is because the proposed value added rule will be almost universally inapplicable to the seafood sector as processors will be unable to meet the thresholds set.

Understandably, these RoO changes find few friends in the sector, amongst either developing country or EU stakeholders. At best they will provide no improvement. In the worst case they could conceivably undermine a complex network of symbiotic arrangements that bolster segments of both the EU fisheries industry and that of the developing world. Minor benefits are recognised from some related measures - relaxation of the crewing requirements for foreign vessels is apparently universally welcome.

Seafood has a special role in trade between developing countries and the EU. It represents a high value sector in which developing countries can participate effectively, whilst providing products that are in much demand but are in deficit in the EU. It can then underpin a long term trade-driven development process. Resolving these issues satisfactorily is extremely important. The following suggestions are put forward in this context for consideration.

- **Set lower value-added thresholds** for the fisheries sector products of HS 03 and HS1604 chapters. These would have to be much lower than currently proposed levels to be meaningful, to levels closer to 25-30% than 50-60%. The levels would need to be even lower were the definition of value added to change so that all inputs were to be screened for originating content, rather than just raw material. Then thresholds would need to be reduced to 10%-25%.

  This need not necessarily increase the risk of "product laundering". This is because **high raw material costs set all the barriers lower**, including those for marginally processed items. The reasoning behind this is that even to achieve a low 25% added value requires significant processing, setting this well apart from simple trading activities or those devised purely for preservation. Thus the very factor that makes low thresholds essential would similarly help prevent this abuse of the system. However were the alternative value added approach to be adopted (where all inputs are assessed for origination) then the threshold levels required would be so low that the risk of product laundering would almost certainly become problematic

  However, it should be noted that such a recommendation would have a negative impact upon EU high seas fleets and on sustainable fisheries. EU fleets (and the tuna fleet in particular) could lose their strategic advantage of captive markets, as processors turned to cheaper alternatives from fleets with lower operating costs and which pursue less responsible fishing policies. The benefits to Community and third countries to be derived from development of sustainable fishing through the Fisheries Partnership Agreements would be reduced. The Agreements would thus be undermined. In this respect, the change in rules of origin lacks a degree of coherence with the external dimension of the Common Fisheries Policy.

  Arguably this de-linking of the EC fleet from third country processing operations could happen anyway if Doha reforms proceed, and in this respect the proposed RoO change could be seen as a progressive step to prepare for this. This issue then might have to be addressed through the new EPAs, at least in the near term.

- **Refine definition of manufacture:** Another check and balance for the system would be provided through the manufacturing definition. This would require the rationalising of the classification of manufactures within the fisheries sector, especially within the 03 HS Chapter. The primary and secondary processing stages suggested in this report might provide a logical basis for such rationalisation. This would be needed so that the value added criteria can be applied to key seafood processes that currently are not classed as manufacturing.

- **Alternatives to value added such as "tariff jump" or "sufficient transformation".** This has been discussed at length but these approaches are not considered to be viable alternatives by this study. It seems that they would anyway offer little assistance here, though change in the definition of manufacturing is required as mentioned above

- **Address EU Importers risk implied in the new RoO administrative arrangements.** Responsibility for the veracity of origin statements is to pass from state organisations to commercial operators. This means that commercial risk will reside with EU importers who will have to reimburse duties where preference is claimed fraudulently or erroneously. The alternative where financial responsibility was genuinely devolved to the exporters, would clearly present the EU Customs authorities with great difficulties, but the suggestion itself does make the point that this approach unfairly increases risk for EU importers. The direct regular involvement of a state organisation in the exporters country would provide some security for the importers, albeit at the cost of dilution of this reform

- **Clarify the tolerance rule in the new RoO.** There is a question as to whether these tolerances constitute a flexibility or a constraining criteria, a distinction that will have a very significant practical impact. This boils down to whether producers will benefit from a 15% non-originating raw material allowance or whether it is a limiting criteria even after value added thresholds have been passed. Clearly this needs to be resolved.

- **Rationalise the tolerance and derogation regimes.** Derogations are the flexibility that developing countries value most as they are simpler to apply. Implementing tolerances are fraught with practical difficulty, and this, coupled with ignorance, appears to be the main reason for their low uptake. Some rationalisation of the system to either increase derogation volumes – perhaps at the expense of tolerances – or through making tolerances more user-friendly would unquestionably help preferred country producers

- If these reforms prove to be impractical, then **retain the existing RoO system** or a modified variation of it as departures from this appear to generate substantially more disadvantages than advantages for the seafood sector

- **Devise an educational/awareness programme.** That there is much confusion concerning the current RoO system within the industry became very evident during this study. This was true for both the developing countries and the EU. Some players clearly did understand the system but others either did not or were in complete ignorance about aspects of it. Any change to the system must surely exacerbate this problem, and so a coherent programme of industry education will be critical. This will entail preparation of very clear A to Z explanations of the new systems in user-friendly terms coupled with an industry–wide awareness generating programme. Directions to easily accessible web pages setting this out would help, as would publications circulated to EU Delegations and other EU bodies that have potential for interface with the seafood industry in both the EU and the preferred partner countries

One final point should be made: in spite of some of these potentially negative outcomes, the value-added rule is essentially a fine tuning measure and the most likely result is actually little change, provided that former flexibilities can be retained. Indeed, compared to the potential impact of the Doha Development Agenda (wholesale preference erosion and WTO led duty & subsidy reduction), should this eventfully be agreed and implemented, the impact will be at most minor.

ANNEX 1: TERMS OF REFERENCE

PREFERENTIAL RULES OF ORIGIN IN PREFERENTIAL TRADE ARRANGEMENTS
- NEW RULES IN THE FISHERY SECTOR -

TERMS OF REFERENCE

Content

I. Introduction

1. Preferential rules of origin are designed to guarantee that the benefits of the preferential trade access granted to trade partners actually go to the targeted countries and not to other nations using preferential states as a free entry to the EU market. Our trade partners are not obliged to apply these rules if they do not wish to benefit from the trade preferences granted to them. These rules are conditioning a preferential access to our market.

2. For fishery products, current preferential rules of origin are the following:

Origin of fish caught outside the territorial waters of the trade partners, i.e; in the high sea and in their EEZ[3]– 4 criteria for the fish to be wholly obtained

a. Registration/recording
b. Flag
c. Crew: minimum percentage of the crew, generally between 50% (i.e. ACP group) and 75%, and additional nationality criterion for masters and officers in the GSP scheme, must be either from the beneficiary country or group of country (i.e. ACP group) or EC.
d. Ownership: minimum conditions pertaining to the nationality of vessel owners.

Origin of the processed fish – sufficient transformation

For the time being, for any processed product to be wholly obtained, the raw material (fish) must already be originating. No transformation can change the origin of the fish. The origin of other raw materials (tins, oil, etc...) is not relevant. A "tolerance" rule allows the processors to make use of non originating fish having a value which may not exceed 15 % of the ex-work price of the finished product (10 % for the GSP autonomous regime). For canned tuna, which is a representative product, this "tolerance" rule implies that around 30 % of the total input of raw materials (fish) can be non-originating. However, this rule seems to be seldomly used.

3. On 16 March 2005, the Commission adopted a Communication on the future of preferential rules of origin in preferential trade agreements[4]. The proposals having an impact on fishery products are the following:

- Elimination of the crew requirement (for wholly obtained fish);
- Determination of a simplified and adequate property requirement (wholly obtained fish) to be explored;
- Replacement of the product specific rules for processed products by a value-added method to determine their origin Within this context, the Communication states that: "in a number of sectors including agricultural, fishery or textiles products, moving to a new method for the determination of origin will represent a major change whose impact needs to be properly evaluated in advance

4. Two studies have been commissioned by the Commission in the perspective of this reform: one focusing on the impact on developing countries of a move to the value-added method and the second one focusing on the textiles sector.

[3]Fish caught inside the territorial waters is entitled to the preferential treatment guaranteed to the trade partner, irrespective of the vessels or other catch gears.
[4] COM(2005) 100 final of 16 March 2005

II. Specific object of the study

The current study will only focus on one of proposals put forward in the Communication, namely the origin of processed fishery products. Both the crew requirement as well as the simplified and adequate property requirement for fishing vessels will remain outside the present project. However, should EU or non-EU operators identify specific problems with the possible withdrawal of the crew requirement, this should be communicated to DG FISH and included in the conclusions of the study. With regards to the value-added method, the question of "positive definition of manufacture" will also be left out of the scope of the present study. The current study will only concentrate on points 2 and 3 below.

The **new value-added definition,** as emerging from internal discussions within the Commission, would lead to a combination of three criteria.

1. A positive definition of **manufacture** (1st decisive criterion) to ensure that the operations taking place in the benefiting countries are genuine and economically justified (not only to get the preference without bringing real benefit to the countries benefiting from the preference) – this definition is still subject to analysis and will no be part of the present study. It aims at replacing the list of exceptions related to the insufficient working or processing operations.

2. The **value-added** rule based on ex-work prices (this is a change from the Communication proposal which was based on net production costs). The rule proposed would be the following:

For example, "the sufficient processing threshold for products which are not wholly obtained in a beneficiary country shall be:
- in the case of countries benefiting from trade arrangements with the EU - **60% of the ex-works price of the product;**
- **50 % of the ex-works price** of the product for the LDCs and the GSP+ beneficiaries (list in Annex)

3. Specifically for processed fishery products – **additional criterion** for which two options are possible, the first based on the value of the raw material and the second on volumes:

Chapter 03	Fish and crustaceans, molluscs and other aquatic invertebrates	Manufacture in which the **value** of non-originating materials of Chapter 3 used does not exceed **15%** of the ex-works price of the product

Chapter 16	Preparations of meat, of fish or of crustaceans, molluscs or other aquatic invertebrates	Manufacture in which the **value** of non-originating materials of Chapter 3 used does not exceed **15%** of the ex-works price of the product

OR

Chapter 03	Fish and crustaceans, molluscs and other aquatic invertebrates	Manufacture in which the weight of non-originating materials [5]of Chapter 3 used does not exceed **15%** of the total weight of materials of Chapter 3 used

[5] Non-originating materials as in the current tolerance rule (15 % for ACP countries and 10 % for GSP countries), which would then be no more relevant.

Chapter 16	Preparations of meat, of fish or of crustaceans, molluscs or other aquatic invertebrates	Manufacture in which the weight of non-originating materials [6]of Chapter 3 used does not exceed **15%** of the total weight of materials of Chapter 3 used

III. Objectives

1. **An impact study assessing the advantages and/or disadvantages of a shift to new rules of origin**: Assess the effects for economic operators, in third countries but also in the EU, of the application of rules of origin based on the value added approach in comparison with the currently used system.

2. The impact study of changeover to a new system as compared with the current one should also take into account questions such as the relative **simplicity/complexity of administering the new system** as well as the methods for calculating and proving the value addition.

3. The current assessment of the impact of switching to a value added criterion in the fishery sector should focus on both the **GSP scheme** and the **EPA**s with the ACP states. Some specific and pertinent examples or case studies should be included to illustrate and support the various conclusions. Countries should be chosen to guarantee a balanced representation of the different geographical regions concerned as well as the different specific situations of our trade partners..

Taking into account the traditional trade flows from GSP beneficiaries as well as the ACP partners in fishery products, the following sectors and the countries should form the subject of deeper analyses in the present study: Canned tuna from Seychelles (ACP), tuna loins from Kenya (ACP), frozen fillets of hake from Namibia (ACP), processed shrimps (Chapter 3 and sub-Chapter 1605) from Indonesia (GSP) and Bangladesh (EBA) and canned tuna from Ecuador (GSP+).

4. In carrying out such assessment, it should be borne in mind that the objective of the current rule (raw material must be wholly obtained) is to **avoid that developing countries become mere platforms for processing of materials coming from non-beneficiary countries**. Indeed, rules of origin should ensure that the activities which take place in the beneficiary country represent a real positive economic input for the entirety of the interested sectors.

The following enumeration of factors to be taken into account by the study is not exhaustive and all other relevant elements may be added:

Factors or elements to be considered by the study would comprise, inter alia:

- The Communication mentioned above favours the approach of a single value added rule, which would have to be modified in accordance with the definition in point II above.

[6] Non-originating materials as in the current tolerance rule (15 % for ACP countries and 10 % for GSP countries), which would then be no more relevant.

- This assessment should also analyse what could be the possible impact on beneficiary countries of a switch to a value-added rule which would allow processors to **source themselves from other suppliers than local ones complying with the origin rules for unprocessed fish or which would attract new investors to process materials from non-beneficiary countries**. What threshold (see additional criterion for fishery products in point 3) could allow some flexibility for local processors while at the same time **protecting local suppliers** (in the country or in the region) of originating raw material?
- The possible impact on fishery stocks and their management induced by an increase in the local production for export to the European Community and, primarily, by the diversification and increase of outsourcing of raw material (not locally or regionally), for which the identification of the country of origin as a flag state will become less relevant.
- Although the main aim of the present study is the impact on economic operators, should other possible impacts, be they social or environmental be identified in the course of the research, they should also be included in the study.
- Suggestions to change (increase or decrease) the proposed percentages in the value-added method (as proposed in Point II) which might be expressed by our own operators or trade partners should also be included in the study.

IV. Contractual and technical aspects of the study

In undertaking the study it will be advisable for the contractor to be retained to seek all available information or assistance from commercial and industrial operators working in the EU and in the preferential countries. Otherwise, the contractor will be free so suggest a methodology to be followed in attempting to assess the application of the value added criterion for the determination of preferential origin for fishery products.

ANNEX 2: METHODOLOGY

Methodology for the research

1 QUESTIONNAIRE FOR EU STAKEHOLDERS

We are a group of European consulting companies (Oceanic Développement & Megapesca[7]) jointly conducting a study for DG Fisheries and Maritime Affairs of the European Commission concerning the **potential impact of some changes to the rules relating to EU import tariffs for the seafood trade**[8]. These changes concern the system whereby favoured countries (i.e. developing countries) are allowed to export seafood to the EU at preferential (i.e. reduced or zero) duty and quotas[9]. One underlying objective is to simplify the system to make it less onerous for all involved and, especially, to promote economic activity in beneficiary developing countries.

Amongst these changes, which are due to be completed by the end of this year, is a **proposal to change the Rules of Orgin (RoO) arrangements**. As you probably know, these concern imported raw material and other inputs that developing countries use to manufacture the products that they export to the EU. Under currently rules, raw seafood has to be sourced from the beneficiaries (or EU) waters and caught by their (or EU fleets) to be deemed eligible or "originating"

The proposed change is to **replace this rule of origin with one where eligibility is simply dependent upon the attaining of a minimum of value added by the beneficiary country**. Current thinking is that this value added should amount to 50% or 60% of the ex-works price to be eligible, **irrespective of the source of raw material.** This will have implications for EU seafood firms, and especially for-

- Those supplying raw materials to developing countries (eg EU high seas fleets)
- Those operating or owning processing plants in developing countries
- Those importing seafood from developing countries
- Those competing with developing country producers

Understanding these implications for EU stakeholders is an important part of the study and we would greatly appreciate your response to the questions below. Brief replies highlighting the impacts would be most helpful. However, any quantified evidence, such as - for example - a cost increase or percent cost increase that the change might engender, would make the case especially persuasively. These questions are:

Question 1 Do you believe that the proposed Rule of Origin change could affect your business?

Question 2 If so, will it do so significantly or only marginally?

Question 3 if the effect is significant; please outline the problem (or advantage) you anticipate – guided by the following headings

3.1 in upstream activities (fishing or aquaculture)
3.2 in primary processing (filleting, shrimp de-heading)
3.3 in secondary processing (canning loins, ready meals)

[7] Websites: www.Megapesca.com www.oceanic-dev.com
[8] Attachment 1 provides the text of a letter from DG Fisheries of the EU confirming that we are undertaking this study on their behalf (a scan of the original can be forwarded if you require)
[9] Attachment 2 provides details of the technical context in case you are not familiar with this

Question 4: Areas where such impacts might be expected could include:

- *Loss of markets for EU fleets as developing countries can source elsewhere*
- *Increased competitiveness by preferred (eg ACP) states threatening EU firms*
- *Reduced costs of imported products from preferred countries*
- *Developing countries currently uncompetitive may be able to enter the market*
- *Reduced or increased bureaucracy for EU importers*

Do any of these scenarios apply to your firm/industry or are other possible effects?

Question 4 What measures would reduce negative impacts (or enhance positive outcomes) for your industry?

Question 5 Are there any related aspects that you would like us to consider in relation to EU trade preference policy and its related rules of origin?

You can answer the questions by typing responses to each question under the question here or by replying separately – whatever suits you best

This is an opportunity for you to ensure that your views, and the interests of your industry, are relayed to policy makers in the European Commission. We hope that you can find time to participate.

Consultants from the companies undertaking the study will be at the European Seafood Expo (ESE) in Brussels from 24-26th April and would be glad to meet you to follow up with discussion if you would find this helpful.

ATTACHMENT 1: Letter form DG Fisheries of the European Commission explaining our role

ATTACHMENT 2: EU Seafood Trade 7 Rules of Origin

KEY DEFINITIONS

Preference agreements: treaties and other agreements which allow exports from most favoured nations (MFNs) to enter the EU markets with reduced duties (import tax) and/or quota (allowable volume of reduced-duty imports) restrictions. These agreements are variously termed ACP (for the ACP countries), GSP & EBA for the poorest developing countries *canned tuna from the ACP countries enters EU markets duty free – that from highly competitive non preferred countries faces 24% duty*

Rules of Origin (RoO): RoO qualify the preference regime by defining how raw materials (or semi processed items) should be sourced to allow the eventual manufactures to qualify for preference. Essentially these inputs must come from a favoured nation, **the intention being to prevent un-favoured nations from "laundering" exports via MFNs to avoid duty** *e.g raw tuna for canning/loining in the ACP must be caught by ACP/EU vessels with at least 50% ACP/EU crew for the product to qualify*

Some specialised terms define the rules. **"Originating"** raw material means that deemed to come from the preferred nation, whilst **wholly "obtained"** products means those where all items (from raw material onwards) are sourced within a MFN country and so fully eligible for EU preference. **"Tolerance"** refers to a qualification designed to assist preferred states where a proportion of raw material can come from ineligible sources without compromising preference benefits – 15% for ACP and 10% for GSP. Other such terms include **"cumulation"** which refers to the build up of value-added through a series of countries that are serially processing a product – under certain rules (where the countries all belong to a bloc like the ACP) the country of final manufacture is deemed to be the exporter (with that country's full preference privileges)

Table 1: Current Rules of Origin for processed seafood summarised –
i.e. current eligibility requirements

Rule	ACP group	GSP groups	New rules
Territorial waters 12mile	All caught within the 12 mile limit qualifies		No change
ACP/GSP EEZ (200 mile limit)			
• Vessel registration	ACP or EU state	GSP or EU state	No change
• Vessel flag stipulation	ACP or EU state	GSP or EU state	No change
• Crew stipulation	50% ACP/EU nationals	75% GSP/EU nationals	Eliminated?
• Ship's officers stipulation	50% ACP/EU nationals	75% GSP/EU	Eliminated?
• Ownership (% by whom)	50% ACP/EU nationals	75% GSP/EU nationals	Under review
Tolerance for ineligible fish*	15% of ex-works price*	10% of ex-works price*	Revised option

* Non originating raw material can amount to this % of the value of the ex-works price

The new value-added rule: Central to the proposed reforms is a proposed new method for determining origin that is based upon value-added. This replaces previous criteria (that were based upon (i) definitions of processing activities and (ii) origin of raw materials) with a hopefully simpler system where what matters will be the ***value actually added in the exporting country*** in question. Possible options being discussed include the following:

Devising an overall **manufacturing** definition that will encompass all eligible activities – this is ongoing.

Determining the eligibility of a product by an **value added** factor – provisionally defined as 50-60% of the ex-works price of the product (i.e. ineligible raw material can be no more than 50-40%)

Fine tuning the system for seafood products by reverting to the previous **tolerance regime** where 15% of raw material can still come from ineligible sources (this to be determined as either by value of the ex-works price or weight of raw material input – a matter still to be resolved by the Commission)

2. TUNA COST OF PROCESSING ANALYSIS

IOT Seychelles

TUNA PROCESSING COSTS: CANNING

DRAFT: INDICATIVE COSTS & PARAMETERS
DEVELOPING COUNTRY PRODUCERS

TABLE 1 ASSUMPTIONS: PRICE & OPERATIONAL PARAMETERS

PRINCIPAL ASSUMPTIONS						
		Exchange rate: $US per Euro			1,35	
Specific cannery/loin production parameters						
Annual tuna input (round/live weight tuna)				Input	90.316	tonnes/year
Annual canned tuna output			312	million cans	6.500.000	cases/year
				Canned outp	57.545	tonnes/year
				Loin output	34.320	tonnes/year
	5	lines	250	days per yea	46	ton/line/day
General physical parameters				Standard yields	Yellowfin	Skipjack
					46,0%	38,0%
Canning	**European standard**					
Product weight (inc filler)	8,85	kg/case (6.5oz "halves")			184,4	gm/can
Tuna weight (fillet*)	5,28	kg/case	60%	fish	110	gm/can
Yield	72	cases/ton of round tuna		Fillet yield	38%	of round tuna
				Product weig	64%	of round tuna
Filler weight				Oil/water etc	74,4	gm/can
Loining						
Yield: loining				Fillet yield	38%	of round tuna
	5,28	kg/case			110	gm/can
Yield: canning from loins	186	cases/ton of loins			98%	of input wt
Weight conversions						
Product units: cans	48	6.5 oz (184gm) cans per case			113	cases/tonne
Product units: loins	4	kg finished loins			250	loins/tonne
Cost parameters					Euro	
Fish cost		Skipjack		1.100	815	per tonne
		YF<10kg		1.600	1.185	per tonne
		YF loins			2.900	per tonne
		Albacore			2.230	per tonne
Labour cost		Foreign	€ 2.985		12	per day
		Local	€ 5.633		23	per day
Cans					4,68	per case
Vegetable oil filler/additive				1,03	-	per kg
Olive oil filler				2,08	-	per kg
Brine filler/additives					0,08	per kg
Labels					4,34	per 1000
Packaging (outer case)					0,35	per case
Salt/additives					0,19	per kg
Freight: S E Asia-Europe			Reefer (frozen loins)		250	per tonne
			Dry goods (canned tuna)		150	per tonne

* cleaned fillet wt, not pressed fillet (95gm/can) nor "drained" weight which includes absorbed oil/water filler

TABLE 2 TUNA PROCESSING FINANCIAL MODELS

CANNED PRODUCTION: COST PER CASE & PER TONNE OUTPUT	Unit cost	Yield		Cost/tonne	Cost/case	Proportion
	Euro	Quantity		Euro	Euro	percent
Fixed overhead				25	0,22	1%
Variable overhead (labour, marketing)				281	2,49	12%
Cost of fish (solid pack)	815	38%	Skipjack	1.279	11,32	57%
Cans				529	4,68	23%
Brine filling	0,08	3,57	kg/case	32	0,29	1%
Salt	0,19	0,11	kg/case	12	0,11	1%
Labels	0,004	0,21	per case	24	0,21	1%
Case (outer)	0,35	each		40	0,35	2%
Freight to Europe	150	per tonne		150	1,33	7%
Less by-product revenues	0,98	per case		(111)	-0,98	-5%
				2.260	**20,01**	**100%**

TABLE 3 TUNA PROCESSING: ANCILLARY CALCULATIONS

VARIABLE OVERHEAD COSTS					
			No	Unit cost	Cost
		Turnover:	143.000.000	Cases produced X Euro22	
Labour					
	Workforce				
		Foreign	1.000	2.985	2.985.185
		Local	1.450	5.633	8.167.852
			2.450		**11.153.037**
Marketing costs					
	Marketing	as a % of turnover		1,5%	2.145.000
	Brokerage	as a % of turnover		2,0%	2.860.000
					5.005.000
TOTAL					**16.158.037**
			Cost per case		**2,49**

FIXED OVERHEAD COSTS					
Turnover		130.000.000	**No**	**Unit cost**	**Cost**
Management overheads					
	Senior managers		5	25.000	125.000
	Junior managers		8	8.000	64.000
Services					
	Electricity	Cold store			400.000
		Cannery			100.000
	Water				50.000
Maintenance					
	7.5% of equipment capital				192.000
	2% of building capital value				30.000
Office overheads & contingency					
					100.000
Financial charges					
	Depreciation 3% of capital value, average				125.000
	Interest				250.000
TOTAL					**1.436.000**
			Cost per case		**0,22**

BY-PRODUCTS REVENUES						
				No	**Unit value**	**Revenue**
Fishmeal production		Total fish input	Waste yield	Raw waste		
	Raw material	90.316	50%	45.158	tonnes	
	Meal @ 4.5:1 reduction		10.035	550		5.519.298
	Costs	Energy	10.035	(100)		(1.003.509)
Petfood production						
	Sale price per case			6,00		
	Cost per case (cans, packaging etc)			5,04		
	Net revenue per case petfood			**0,96**		
	Cases pet food per case solid pack			0,30	@ 12% yield	
	Revenue per case solid pack			0,29		
			6.500.000	0,29		1.880.705
						6.396.494
			Revenue per case			**0,98**

Table for text

	€/kg	%	Value
Direct costs			
Cost of fish raw m	1,28	61%	
Cans	0,53	25%	25%
Labels	0,02	1%	1%
Case (outer)	0,04	2%	2%
Oil filling	0,03	2%	2%
Salt	0,01	1%	1%
Indirect costs			
Labour	0,19	9%	9%
Variable overhead	0,09	4%	4%
Fixed overhead	0,02	1%	1%
Less by-product re	-0,11	-5%	
Total cost per kg	**2,11**	**100%**	**45%**
Total cost per star	18,68		

ANNEX 3: COUNTRY CASE STUDY: SEYCHELLES

CANNED TUNA

Glossary (Case study specific)

COP	Cost of Production
IOTC	Indian Ocean Tuna Commission
IOT	Indian Ocean Tuna Ltd, the cannery
SFA	Seychelles Fishing Authority
SMB	Seychelles Marketing Board
SRp	Seychelles rupee: Exchange rate €1=SRp 8.3
Population	86,000 (2005)

1 INTRODUCTION

The Seychelles stands out amongst these case studies as the only country where fisheries dominates the economy. Trade with the EU is crucial to the sector and so it is in the Seychelles that RoO changes might be expected to have their greatest impact. This makes this case study particularly apposite for this analysis. Furthermore, the Seychelles has interests in all stages of the production process from primary production to secondary processing with involvement in tuna fishing, loining and canning. Changes to EU market access will then arguably have more impact upon the Seychelles economy than any other country covered by this study, and this study is accordingly important.

Another important characteristic of the Seychelles is its small size and remote location, factors which lead to low economic critical mass, high transaction costs and a resultant lack of competitiveness. It then also represents an example of a small state disadvantaged by having to provide full suite of administrative functions for a population of just 84,000. Taken together, these factors limit the Seychelles' viable economic options. Tourism has provided an economic mainstay in the face of limited terrestrial alternatives, but this is a fickle business. Fisheries, with its potential for long term sustainability if properly managed then proves a welcome alternative. Indeed, it has now become the largest contributor to the Seychelles economy, and a substantial success.

Table 1: key economic and social parameters for the Seychelles.

General				
GDP at market prices:	US$	703	million	(2004)
GDP per head:	US$	8,400		(2004)
Workforce	32,382 with 3,550 unemployed			
Fisheries sector				
Fisheries output gross value	$US 212 million (2003)			
Value of fisheries exports	$US 253 million (2004)			
Value of fisheries imports	$US 70 million (2004)			
Fisheries employment (direct)	4,600 (14% of workforce)			
Fisheries employment (ancillary)	1,000 (3% of workforce)			

Sources: Central Bank of Seychelles, Annual Report. Eurostat
FAO Seychelles Country Profile, SFA annual reports. ADE report

The fisheries sector now contributes 31% to the Seychelles GDP, and accounts for over 97% of visible exports as well as employing 17% of the workforce. Seafood imports are a fraction of exports (mainly tuna as raw material for canning) and the highly positive balance of seafood trade is a major contributor to foreign exchange. (Fisheries' exports account for a massive 92% of merchandise exports, or 12.5% more than tourism in terms of earnings according to the FAO Country Profile Seychelles 2005)

Furthermore, some 2,200 families (involving some 9,000 people – over 10% of the population) depend upon the sector. Unusually though, it is not the artisanal but the industrial fishery that has responsible for this development, and this now dominate the sector – with the capture and canning of tuna the central features. These accordingly form the key focus for this study

2 Context – The Seychelles fisheries sector

The Seychelles fishery is essentially industrial which is unusual for a developing country. The reason for this is the dominance of large pelagics and especially tuna, which require large advanced vessels to catch them. This needs to be matched by large modern processing plants to provide the essential link to quality-orientated western markets. There are other smaller scale activities, including high value demersals caught artisanally and exported fresh or supplied to the tourism industry, and shrimp farming is now also becoming a contributor to exports. However, their contribution to the sector is limited in comparison with that made by the tuna industry

Table 2: The structure of the Seychelles Fisheries Sector

Tuna & other large pelagics
The tuna fishery
o Transhipment
o Vessel servicing
o Seychelles fleet landings
o High value pelagics fisheries (swordfish)
The tuna cannery,
Other elements of the sector
The artisanal & semi industrial fisheries
o The demersal fisheries for prime species
o The local exporter/processors
Shrimp farming
Others: shark fin and sea cucumbers

The tuna segment comprises two quite clearly differentiated segments – the fishery and the cannery. Both are important, but in different ways and exploring how these differences affect the responses to RoO changes is central to the analysis below

2.1 Overview of Fisheries Production

Tuna account for over 90% of the Seychelles fisheries output, with all four major species represented (skipjack, yellowfin, bigeye and albacore). Other species of importance are some other large pelagics (billfish such as swordfish caught by the "semi-industrial" fleet), and demersal fish with snapper and grouper the prime species, some of which have been exported fresh in the past.

Table 3: Fish landings by Seychelles fisheries, Units: tonnes

Species group	2000	2001	2002	2003	2004	2005
Tuna	27,600	44,523	54,580	80,093	87,992	91,862
Billfish	602	827	768	1,683	1,411	1,747
Prime demersal	692	4,992	3,770	770	991	979
Other demersal	1,378	1,304	1,344	1,450	1,457	1,415
small pelagic	2,450	1,803	2,685	1,745	2,211	2,364
Shellfish	479	367	296	1,128	1,229	1,371
Total	**33,201**	**53,816**	**63,443**	**86,869**	**95,291**	**99,738**

Source: FAO Fisheries Yearbook 2004.. 2005 is a projection as is 2004 for minor species

Overall output by the Seychelles fishing sector is, naturally, dominated by tuna. Four of the industry's principle segments involve tuna:

(i) Landings by Seychellois and Seychelles flagged vessels,
(ii) Tuna canning,
(iii) Production of tuna loins (a small scale activity which is declining)
(iv) Fishmeal production, a by-product of the cannery.

There are two other significant elements – the artisanal fishery and the shrimp farm on Coetivy Island, but both remain relatively minor.

Table 4: Production by Seychelles fisheries sector. Units: tonnes

Production	2000	2001	2002	2003	2004	2005
Frozen tuna landings	27,295	41,917	50,677	73,780	83,304	98,559
Canned tuna*	44,278	42,752	53,082	56,055	55,552	61,099
Tuna loins	-	3,735	3,078	2,288	585	-
Fishmeal **	5,610	5,417	6,725	7,102	7,038	7,741
Farmed shrimp	425	282	234	1,084	1,175	1,331
Artisanal catch	4,768	4,290	4,914	3,852	4,177	3,914

Source: SFA Annual Reports 2001-2004, and current estimates, 2005 is a forecast.
** official data adjusted to canned product weight by 65% factor as Data appears to quote net "drained" meat weight.*

*** meal estimated from implied by-product and conversion rate of 4.25*

2.2 The Seychelles Tuna Industry

The fishery
The tuna fishery is an industrial scale activity involving large expensive ocean going vessels with three fleets involved:

(i) A Seychellois "flagged" fleet which incorporates some locally owned vessels

(ii) A foreign EU fleet fishing under an agreement with the EU and responsible for producing the bulk of the catch,

(iii) A third country foreign fleet operating under individually negotiated commercial licenses which is mostly Asian in origin (Taiwanese, Japanese and a few S Korean vessels)

Within this structure, there are in effect two separate tuna fisheries; (a) one conducted by a purse seiner fleet which provides the bulk of the landings, most of which are lower value fish for canning – and (b) a longliner fleet with much lower production but producing higher value fish (larger, preferred species that are more carefully handled).

The purse seiner fleet is mostly EU owned, with access to Seychelles waters dependent upon an arrangement (a Fisheries Partnership Agreement - FPA) negotiated by the European Commission. There are also some European longliners, but this fleet is mostly Asiatic (Taiwanese, Japanese and a few S Korean). Catches recorded throughout the western Indian Ocean grew very rapidly during the 1980s and those for Seychelles licensed vessels have subsequently ranged between 350-400,000 tonnes annually (Table 5) This has led to two important sources of revenue for the Seychelles – firstly a proportion of this catch is taken within the Seychelles EEZ and the government receives a range of license fees and other payments for these. Secondly, the bulk of the production (81-87%) is transhipped via Mahe, contributing to the economy through a range of Seychellois port services

Table 5: Tuna production by vessels with Seychelles licenses. Units: tonnes

Catch by species	**2000**	**2001**	**2002**	**2003**	**2004**
Purse seiners	**330,340**	**295,737**	**379,253**	**408,366**	**358,261**
Yellowfin	118,738	108,501	127,156	197,781	201,728
Skipjack	191,912	166,382	218,415	189,566	137,102
Bigeye	19,690	20,854	33,682	19,030	18,850
Longliners*	**3,287**	**5,712**	**4,182**	**5,289**	**4,638**
Catch by purser fleets only					
Spanish fleet	140,475	123,754	156,784	175,915	149,809
French fleet	84,399	68,760	96,791	108,332	107,628
Seychelles	27,295	41,917	50,677	73,780	83,304
Other	78,171	61,308	75,001	50,339	17,520
Total	**330,340**	**295,739**	**379,253**	**408,366**	**358,261**
Amount of tuna transhipped in Mahe					
All species	269,673	248,454	332,860	359,379	300,937
% transshipped	81%	82%	87%	87%	83%

Source: SFA Annual Reports 2001-2004

The small scale tuna loining & exporting industry: There has been a third component to the Seychelles tuna industry which grew up alongside the cannery, producing tuna loins, billfish and prime demersals from fresh landings by local vessels. This segment is small in scale ("semi-industrial") throughout, and exports a mix of fresh fillets and frozen whole fish and tuna loins to the EU. There have been problems with billfish (heavy metal contamination) and loin exports have been declining and so this segment has become increasingly marginal. Two companies are involved now:

- **Sea Harvest** produces tuna loins, having developed from a local fishing company that was originally long lining for tuna and swordfish.

- **Oceana Fisheries** arose from the privatization of the Seychelles Marketing Board's Fish Division in 1995 and long lines for tuna and swordfish

The tuna cannery
Seychelles tuna canning is undertaken by a single company, **Indian Ocean Tuna Ltd (IOT)**. It is the country's largest manufacturing industry employing 2,500 (1,450 local, 1,000 foreign – Filipinos, Malagache, Kenyan etc). The cannery was started in 1987 as Conserverie de L'Ocean Indien, but in 1995 the US food giant H. J. Heinz acquired 60% from the Seychelles government, making the Seychelles the centre for their Indian Ocean activities.

At that time (late 1990s) Heinz was estimated to have 21% of the world tuna market with a turnover of approximately $US1bn in the tuna alone. Their acquisition of IOT was part of a global strategy to relocate labour intensive canning away from Heinz's original Starkist Los Angeles base into lower cost developing regions that had good access to raw material. Substantial investment followed with IOT's original 50 tonne/day (raw input) capacity in 1995 raised to 350 tonnes/day during the early 2000's. Output is now 55-60,000 tonnes of product per year, and IOT did also produce tuna loins for some of Heinz's remaining European canneries in Europe. It was claimed to be the world's largest cannery after Starkist's (now Del Monte's) Samoan plant, but is dwarfed by the aggregate of Samoan canners - and also by Thai Union. Both respectively can 900-950 tonnes per day in their collective units. The cannery fabricates its own cans from imported tinplate so has managed to localize some of this input – one which is often wholly imported.

Heinz's strategy appears to have been to manage its brands in key OECD markets (eg John West in UK, Mareblu in Italy and Paul Paulet "Petit Navire" in France) whilst "off shoring" production to low cost areas. Accordingly Heinz moved a significant proportion of their production to the Seychelles in the mid 1990s. This had three benefits: (i) ensuing reliable access to the resource, (ii) locating processing adjacent to the resource so reducing raw material transport costs (though this is a minor factor), and (iii) gaining ACP duty free access to the EU market. There can be little doubt that it is preferential ACP access that played a major part in this, and it can be no accident that all IOT exports - i.e. nearly all its production - goes to the EU. Heinz's cannery investment in Ghana was underpinned by similar logic

This means that Heinz's sale of IOT, alongside it's other European-focused seafood businesses in 2006 has significance – not just for the upheaval it implies for IOT but for the light it sheds on Heinz' s views regarding the "preference –driven" seafood industry. However industry commentators point out that tuna never did fit well with Heinz's core business (low risk canned vegetables where long term control of raw material inputs is routine). Erratic raw tuna supplies and high product risk (a few contaminated cans can kill both customers and brand) made exit a rational decision – notably, Heinz never sold canned tuna under the Heinz brand.

The purchasers were private equity, (investment bankers Lehmans) who have repackaged the former Heinz African & European seafood businesses as Paris-based MW Brands. The group, with an annual turnover of €680m, includes the Seychelles and Ghana tuna canneries, and EU processing plants at Douarnanez (Paul Paulet) and Peniche Portugal as well as the former Heinz-owned seafood brands

2.3 Seychelles Trade in Seafood

Seafood is the most important segment of the Seychelles' visible trade, and it is tuna that dominates this. Taken together seafood has consistently accounted for 97% of total Seychellois exports, and this has been rising (to 98% in both 2003 & 2004). The trade is not all one way, with seafood imports (nearly all raw frozen tuna for canning) substantial. However, overall there is a highly positive balance of trade within this sector, with tuna in canned and frozen form of course very much the dominant factor in both quantity and value terms.

Table 6: Seychelles seafood trade with the EU. *Units: tonnes, product weight*

Exports tonnes	**2000**	**2001**	**2002**	**2003**	**2004**	**2005**
Fresh fish	605	260	477	686	374	161*
Frozen tuna	**4,411**	**15,626**	**19,258**	**20,563**	**42,123**	**36,191**
Tuna loins	1,661	3,573	2,713	1,565	470	540
Other frozen fish	27	1,007	4,564	4,045	2,653	1,597*
Shrimp	331	230	218	899	1,111	1,098*
Squid	-	369	911	797	705	1,108*
Canned tuna	**45,186**	**45,937**	**57,437**	**52,250**	**54,007**	**57,297**
Total export	**52,221**	**67,002**	**85,578**	**80,805**	**101,443**	**99,380**
Imports tonnes	**2000**	**2001**	**2002**	**2003**	**2004**	**2005**
Frozen tuna	**46,566**	**56,570**	**57,376**	**87,094**	**72,856**	**77,060**
Other	-	948	318	22	26	0
Total import	**46,566**	**57,518**	**57,694**	**87,116**	**72,903**	**77,060**

*Source: Eurostat 2000-2004, SFA Annual Reports 2001-2005 * forecasts*

One point that should be made here is that trade data concerning tuna is confusing for a number of reasons:

(i) The data is complicated by Seychelles' multiple role as: (a) primary producer of tuna from its fleet, (b) an entrepôt intermediary for transhipped tuna and (c) consumer of raw tuna for the cannery. Transhipped tuna can be viewed as a Seychellois import from the foreign high seas fleet (as it is by the EU) and then as an export (once transhipped). Alternatively, other authorities like the SFA (and FAO) simply net out the transhipped frozen tuna, treating it as if wholly external.

(ii) Furthermore, canned tuna exports appear to be calculated differently by different authorities. The conventional approach (adopted by the EU) is to take can contents – fish and filler – as the relevant weight. In contrast, the SFA apparently considers the net tuna fillet weight (i.e. "drained" weight) as the standard, and this leads to difficulties in reconciling trade data from different sources

The EU approach has been adopted here as a rule as this sheds most light on the trade from an EU perspective and thus on the likely impact of RoO changes. However, this lack of clarity does create difficulties in reconciling IOT's canned tuna output with the various estimates of raw tuna input, and this also has implications for RoO changes.

Table 7 shows trade values, also based upon the EU approach discussed above. Tuna clearly dominates trade in value as well a volume, with frozen tuna showing a net import whilst canned tuna is generating a sizable overall positive balance for the Seychelles

Table 7: Seychelles seafood trade. *Units: €million*

Exports	**2004 €m**	**2005€m**	**2004 €/kg**	**2005€/kg**
Fresh fish	1.1		6.08	
Frozen tuna	**40.6**	**39.4**	**0.96**	
Tuna loins	1.8	1.6	3.75	
Other frozen fish	3.4		1.42	
Shrimp	8.8		8.87	
Squid	1.3		1.85	
Canned tuna	**139.6**	**145.8**	**2.58**	**2.54**
Canned in oil	34.0	49.8	2.95	2.75
Canned in brine	105.5	96.0	2.49	2.45
Total export	**196.7**			
Imports tonnes	**2004 €m**	**2005€m**	**2004 €/kg**	**2005€/kg**
Frozen tuna	**58.3**	55.1	0.76	1.03
Other	0.8			
Total import	**59.1**			

Source: SFA, Eurostat

Seychelles domestic consumption of seafood in the Seychelles, though high at 61kg/head/year is tiny compared with the domestic tuna industry and its trade. In fact domestic consumption accounts for only 5% of the industrial supply and approximately equates to the artisanal supply of mostly demersal/reef species.

2.4 Other Issues: Tariffs, Subsidies & the Trade Environment

(i) Tariffs

The relevance of tariffs here is of course their application elsewhere and the protection that this affords the Seychelles from more competitive producers through preference. In short, they are a measure of the competitive advantage Seychelles has (through exemption) vis a vis these competitors in European markets The relevant tariffs are those applying to canned and processed tuna (i.e. in the CN 16 chapter) which includes tuna loins. Frozen tuna exports (HS section 0303-4) may also be affected in the future, but only were the duties to be re-imposed (they are currently suspended). Table 8 lists the main relevant duties relating to ACP countries (Appendix 1 provides wider details).

Table 8: EU tariffs generally applying to products imported from the Seychelles

Item*	**CN Code (Eurostat)**	**Conventional Duty**	**Preference Advantage**
Frozen yellowfin tuna	0303 42	20-22%	Duty suspended
Frozen skipjack tuna	0303 43	22%	Duty suspended
Frozen tuna loins	1604 14 16	24%	24%
Canned tuna	1604 14 11/18/70	24%	24%

Sources: see Appendix 1

(ii) Non tariff barriers

The principle NTBs faced by Seychelles seafood exports are the EU's food safety & hygiene requirements (SPS- sanitary and phyto-sanitary), met by the Seychelles authorities in concert with the companies. As a rule, processors generally maintain rather more stringent standards than required and this is no doubt the case with IOT who are well aware of the huge damage to markets that even a few contaminated cans will cause. There are cost penalties but also price advantages as the guarantee of quality that a well run SPS programme provides can enhance sale revenues.

One aspect that is directly relevant here is heavy metal contamination (mercury for tuna and cadmium for swordfish) which are both significant concerns. Cadmium contamination led to an EU restriction in the past that damaged the Seychelles semi-industrial fleet, whilst mercury in tuna remains an issue, offsetting those strongly positive aspects of tuna consumption that are still losing out to negative lobby groups in the media.

(iii) Subsidies

Subsidies are peripheral to RoO, but they are an important background issue. Whilst the Doha round is primary focused on reducing NAMA tariffs, it is also concerned with reducing subsidies, particularly those "red-box" subsidies that perversely exacerbate over fishing. They are then crucial to the overall policy dialogue, and deserve mention here Three types of intervention that affect the Seychelles fisheries industry have been identified:

(a) **Direct subsidies** by the government to the fisheries sector, expressed in cash or kind, or in the forgiveness of tax, are the easiest form of subsidy to define as such. Seychelles has had a fuel incentive scheme, based upon a subsidy to the artisanal fleet and subsidised credit to local artisanal and small scale fishermen. However, neither of these has much impact upon the tuna industry.

(b) **Indirect subsidies** to the sector through government (or donor) support to the sector or the communities involved. This includes projects assisting the artisanal fisheries, start-up support for new seafood industries or assistance with marketing. Again there is little impact upon the current tuna industry, though the Seychelles domestic high-seas tuna fleet did benefit in the past. Arguably though the tax that IOT has been forgiven does constitute a subsidy – since 1995 the company has operated under the International trade Zone (ITZ) Act which exempts the company from trade and business taxes

(c) **External subsidies**: There is an argument that the EU FPA agreements, negotiated on behalf of the EU high seas fleet and with "compensation" payments made by the EU, could be deemed to be a subsidy to the EU fleet. Moreover, this could be regarded as a perverse subsidy that increases exploitation. Thus if the Doha round does eventually succeed, these arrangements might be questioned. The arguments are complex, with EU payments directed towards resource management so negating claims that the system is environmentally negative. Furthermore, the EU FPA system places some onus on responsible behaviour by the EU fleets which again enhance the potential for rational stock management.

(iv) Other trade issues.
Ethical, environmental and organic aspects are rising in importance, and whilst still minority issues are becoming mainstream, as the involvement of chains like Wal-Mart and Dardens (Red Lobster) heralds. Certification by organisations such as the Marine Stewardship Council (MSC) is consequently becoming more important, and can be expected to impinge increasingly on the tuna sector. Indeed, the requirement to be "dolphin-friendly" has already set the agenda for the tuna industry.

3 Economic implications of the Seychelles tuna industry

This section narrows the focus of the study to its specific target – the tuna industry. The objective is to lay the groundwork for the subsequent analysis of RoO change impacts by understanding the economics that underpin this industry. Alongside this, pointers towards aspects likely to be sensitive to RoO change are noted. Ignoring the small scale loining business, there are two main elements of the Seychelles tuna industry – the fishery and the cannery which act as separate entities. They need to be treated as such from an economic standpoint, and the report is subsequently structured accordingly

3.1 The Tuna Fishery

The tuna fishery alone contributed at least $74 million to the Seychelles economy in 2004, to which should be added the value of Seychelles own tuna landings and the ancillary spin-offs from the fishery within the local economy (Table 9). At 10% of GDP, this is an impressive contribution. The principle contributor to vessel expenditure is the tuna fleet's spending on goods & services sourced in the Seychelles, but a large proportion of this is fuel (64% in 2004) which is of course imported and so generates relatively little net local benefit. Stevedoring, victualling, chandlery, repairs account for the balance of the fleets' contribution whilst licensing is becoming an increasingly important element. Any threat posed to this by RoO change will then have a significant impact.

Table 9: Revenues from Seychelles industrial fisheries. Units: US$ million

Revenues	2000	2001	2002	2003	2004
Vessels expenditure	50.2	45.9	46.5	53.2	62.6
Company expenditure	0.6	0.9	0.9	1.2	1.1
Fishing licenses	4.3	6.5	6.3	6.8	10.6
Total	**55.2**	**53.4**	**53.8**	**61.1**	**74.4**

Source: SFA Annual Reports 2001-2004

One area which might be affected by RoO change is the license revenues received from, and on behalf of the EU fleet. These are defined by the FPA schemes (and their earlier equivalents) and involve two sets of payments – part from the EU commission and part by the vessel owner/operators as follows:

Table 10: Seychelles tuna resource revenues: structure of receipts

EU payments	1 A blanket multi-annual payment, based on an implied payment per tonne caught by the EU fleet 2 A top up payment per tonne caught above an agreed annual limit
Vessel owner payments	1 An annual license fee based upon an implied annual catch 2 A top up payment per tonne caught above an agreed annual limit

Table11 summarises the broad parameters of the EU/Seychelles licensing regime. Provided that the allowable catch limit is reached, these complex arrangements actually amount to a payment of €100 per tonne of round tuna caught, 75% contributed by the EU and 25% by the fleet owner.

Table 11: EU tuna fleet licensing agreements for Seychellois waters, summarised

Period	Jan 1999-Jan 2002	Jan 2002-Jan 2005	Jan 2005-Jan 2011*
Licensed EU fleet			
Seiners	47	40	40
Longliners (surface)	15	32	12
Catch allowed	46,000 tonnes	46,000 tonnes	55,000 tonnes
Blanket EU payment	€9.9m	€10.35m	€24.75m
Of which, payment p.a.	€3.3m/year	€3.45m/year	€4.125m/year
Implied payment/tonne	€71.7/tonne	€75/tonne	€75/tonne
Vessel charge/tonne	€20/tonne	€25/tonne	€25/tonne
Licenses: seiners	€7,500/yr	€10,000/yr	€15,000/yr
Longliners <150>GRT	€1,000-1,375/yr	€1,500-2,000/yr	€2,250-3,000/yr
Total receipts for the EU fleet**	**€ 3.67m/year**	**€ 3.91m/year**	**€ 4.76m/year**

** Actually signed 11/2005. Source EU Parliament Protocol: PE 309.186 A5-0086/2002*
*** provided catch limit not breached*

The issue here is whether a RoO change would be likely to impact upon this arrangement, and this is central to the subsequent analysis. What can be assessed here is the relative value of the EU arrangements compared with those made by third country fleets. Although purse seiners and long liners both participate, it is the seiners that account for the bulk of the catch, and Table 12 assesses the relative returns from EU and non EU vessels. This compares actual license yield from EU fleet per seiner with those from "private" seiners, but makes some broad assumptions – eg assuming that all vessels catch approximately the same amount of tuna - and so its conclusions must be tentative

Table 12: Estimate of overall actual payments by EU fleet vs other pursers

License source		**2002**	**2003**	**2004**
EU Commission	$million	2.452	2.300	4.675
EU fleet/vessel owners	$million	1.163	0.678	2.211
EU payment total	**$million**	**3.615**	**2.977**	**6.885**
Per EU vessel	$000s	95.1	82.7	196.7
Per other vessel	$000s	93.5	63.7	56.6
Other/EU vessel*		98%*	77%*	29%*

***Sources**: SFA Annual Reports 2001-2004, Sustainability Impact Assessment of proposed WTO negotiations, Final Report for the Fisheries Sector Study, NRI/IARC May 2006*
** Proportion of "other" vessels, payments as percentage of those made by EU vessels*

This analysis suggests that the revenues from EU vessels do now exceed those from other vessels by a substantial margin (over three times higher), and so if this arrangement were to be threatened, the implications for government licensing revenues could be severe. That said, the threat to this posed by RoO must be a great deal lower than that implicit in the Doha NAMA reforms which could possibly deem this to be a subsidy by the EU, and so require FPAs & EPAs to abandon this kind of arrangement

Other advantages include environmental benefits from resource monitoring – assisted by the requirement that there should be Seychellois observers and up to two Seychellois crew on each seiner. The EU seiners also have obligations to supply the cannery at negotiated prices that reflect international norms (so arguably strengthening the cannery's negotiating position), to land by-catch in Mahe and to source supplies there. Bipartite agreements with Japan and Taiwan (long lining) and Mauritius (cannery supply) are believed to generate much lower levels of benefit.

3.2 The Tuna Cannery

The value of tuna exports to the EU is effectively the value of the output of the IOT cannery, accepting that an allowance should be made for shipping to the EU of say €150/tonne. This would mean that in 2004 the value of output was €131million and in 2005 was €137 million. Within the Seychellois economy, this means the cannery (and the tuna sector in general) has a huge economic footprint. The sector's workforce of 1,000 for servicing the fishery (stevedoring, repair, supplies etc) plus 2,500 cannery workers represents 54% of fishery employment and 8% of all Seychelles employment, whilst the cannery purchases 8% of national power supply (IDDRA study 2004)

Table 13: Seychelles trade balance with the EU 2004 & 2005

2004	Seychelles exports			Seychelles Imports			Net trade	
Product	**Volume**	**Value**	**Unit Value**	**Volume**	**Value**	**Unit value**	**Volume**	**Value**
Frozen tuna	***Tonnes***	***€000s***	***€/kg***	***Tonnes***	***€000s***	***€/kg***	***Tonnes***	***€000s***
Yellowfin	28,351	€ 29,276	€1.03	24,722	€ 20,919	€ 0.85	3,629	€ 8,357
Skipjack	12,983	€ 10,611	€0.82	36,187	€ 25,043	€ 0.69	-23,204	-€ 14,432
Others	789	€708	€0.90	11,947	€ 9,085	€ 0.76	-11,158	-€ 8,377
Total	**42,123**	**€ 40,595**	**€0.96**	**72,856**	**€ 55,047**	**€ 0.76**	**-30,733**	**-€ 14,452**
Tuna loins	470	€ 1,761	€3.75				470	€ 1,761
Canned tuna								
Canned-oil	11,556	€ 34,035	€2.95				11,556	€ 34,035
Canned-brine	42,451	€ 105,534	€2.49				42,451	€ 105,534
Total canned	**54,007**	**€ 139,569**	**€2.58**				**54,007**	**€ 139,569**

2005	Seychelles exports			Seychelles Imports			Net trade	
Product	**Volume**	**Value**	**Unit Value**	**Volume**	**Value**	**Unit value**	**Volume**	**Value**
Frozen tuna	***Tonnes***	***€000s***	***€/kg***	***Tonnes***	***€000s***	***€/kg***	***Tonnes***	***€000s***
Yellowfin	27,383	€32,955	€1.20	13,435	€ 13,072	0.97	13,948	€ 19,883
Skipjack	7,864	€5,563	€0.71	45,080	€ 27,083	0.60	-37,216	-€ 21,520
Others	944	€904	€0.96	18,545	13,465	0.73	-17,601	-€ 12,561
Total	**36,191**	**€39,422**	**€1.09**	**77,060**	**53,620**	**0.70**	**-40,869**	**-€ 14,198**
Tuna loins	540	€1,635	€3.03				540	€ 1,635
Canned tuna								
Canned-oil	18,112	€49,788	€2.75				18,112	€ 49,788
Canned-brine	39,185	€96,025	€2.45				39,185	€ 96,025
Total canned	**57,297**	**€145,813**	**€2.54**				**57,297**	**€ 145,813**

Source: Eurostat

Table 13 assesses the Seychelles' tuna trade balance in 2004 and 2005, the latest years for which full year data is available. The table shows that the Seychelles is exporting raw yellowfin tuna to the EU but "importing" skipjack (i.e. retaining EU caught skipjack as it passes through the transhipment system). This then suggests that the balance between skipjack and yellowfin delivered to the cannery is 70% to 30% - a significant finding as it ties in with production data sourced independently and discussed below. .

The net Seychelles import varied between 31,000 and 41,000 tonnes, i.e. this was the quantity of EU tuna needed to fulfil cannery demand for originating tuna. Added to Seychellois landings of around 80,000 tonnes, the available supply for the cannery is then 110,000 to 120,000 tonnes of originating raw tuna. In fact only 90,000 tonnes is actually used in the cannery (as is shown below) so the balance of Seychellois catch must be exported to third countries. Again this is believed to be yellowfin (and some bigeye), the higher value component of the catch. Confusing differences in the ways trade data are reported make this difficult to confirm from Seychelles trade data, for reasons mentioned above in the trade section. What it does clarify though is that the canneries need for originating tuna is well catered for on a gross annual basis, though periodic minor off-season shortages have been reported.

The Landell Mills EPA study made an estimate the financial penalty that the collapse of the IOT cannery could generate in a worst case scenario (complete closure). The study reported that the net contribution to foreign exchange (i.e. export proceeds less imported costs, including foreign labour) made by the cannery as $US22 million in 2003, a figure estimated by the Ministry of Economic Planning and endorsed by IOT management. This provides an estimate of the foreign exchange loss that closure would cause. However the wider negative impact on the Seychelles economy would be a lot higher - $50million a year being the estimate made in 2004.

3.2.1 Model Analysis of the Cannery

The item that benefits most from preference (and is most dependent upon it) is evidently canned tuna. If RoO change is to have a significant impact on the sector, this is the product that is likely to be most affected.

This section investigates this through a model-based analysis of canned tuna production cost in Seychelles. The model is built up from known parameters (yields, input costs, overhead and marketing costs etc) coupled with Seychellois costs for key items. The fact that corporate production data is confidential, and so understandably not available to a study that could be viewed widely, leaves few alternatives for this type of analysis. The resultant model provides a simple tool for comparing the Seychelles industry with global competitors.

Of particular interest here, is the opportunity it provides for assessing the added-value component under various scenarios though "what-if?" interrogation of the model. This approach follows on from analyses in a series of previous studies including "Tuna Loins Supply & Demand Study", Tender XIV/1999/one, Landell Mills Ltd, 1999 and "Sustainability Impact Assessment of proposed WTO negotiations, Final Report for the Fisheries Sector Study", NRI/IARC May 2006.

Table 14: Indicative ex-works cost structure for canned tuna in the Seychelles

Seychelles tuna canning	**Yellowfin**	**Skipjack**
	in oil	**In brine**
Unit production cost	**production cost per kg**	
Item	**€/kg**	**€/kg**
Direct costs		
Cost of fish raw material	1.54	1.28
Cans	0.53	0.53
Labels	0.02	0.02
Case (outer)	0.04	0.04
Oil filling	0.31	0.03
Salt	0.01	0.01
Indirect costs		
Labour	0.18	0.19
Variable overhead (marketing etc)	0.09	0.09
Fixed overhead	0.02	0.02
Less by-product revenues (fishmeal)	-0.09	-0.11
Total cost per kg	**2.65**	**2.11**
Total cost per standard case (48 halves)	23.5	18.7

Table 14 summarises the result of this model analysis. It shows that **production costs** are estimated as €2.65/kg and €2.11/kg for canned yellowfin and skipjack respectively, with a weighted average cost of €2.27/kg (€20.1/case). The product mix assumed in this calculation was approximately 70:30 brine/oil pack, based upon Eurostat data with the assumption that cheaper skipjack predominates in the former (brine) product, yellowfin in the latter (oil pack). Table 15 provides a basis for estimating the weighted average **ex-works price** received by IOT in 2005. This was €2.4/kg (€21.2/case) based on EU import prices, discounted for freight costs. This in turn suggests that, at current average COP levels of €2.27 (€20.1/case), IOT would achieve an average profit margin of 5% (€0.13/kg or €1.12/case).

Table 15: Average EU CIF prices for imported Seychelles tuna (2004/5)

Product	**€/kg 2004**	**€/kg 2005**	**% export***
Vegetable oil pack	€2.95	€2.75	32%
Brine pack	€2.49	€2.45	68%
Weighted average	**€2.58**	**€2.55**	**100%**
Less freight	€0.15	€0.15	
Ex-works price	**€2.43**	**€2.40**	

Source: Eurostat.% by volume from 2005 Eurostat data.*

The degree to which preference is important to the Seychelles industry is made evident by comparing IOT to their strongest competitors, the Thai canners. Thailand is the worlds leading tuna canner and is generally seen as setting the standard for efficiency and low cost. The price differential between IOT and Thailand is the measure of this as Table16 shows. This is illustrative, based mostly on 2005 costs, and the approach taken has been to assess the production cost for two similar sized canneries – the IOT plant and its Thai equivalent.

In this example, the cost of raw fish is assumed to be the same for both plants, and allowance is made for by-products revenues (fishmeal and petfood). Two specific product categories are compared – (i) a high quality item ("solid" yellowfin in oil) and (ii) a lower quality item (chunk skipjack in brine). The cost of loin production is also estimated. Costs are given in Euro per tonne (loins) and per standard case (48 X 185gm cans, 8.85kg) these being the normal measures used.

Table 16: Production cost estimates for canned tuna & loins in Seychelles

Product		**Fish cost**	**Other cost**	**Total cost**	
Seychelles			**Yellowfin in vegetable oil, 185gm can**		
Canned from frozen tuna		13.6	9.9	**23.5**	€/case
Loins		2,576	398	**2,974**	€/tonne
Seychelles			**Skipjack in brine, 185 gm can**		
Canned from frozen tuna		11.3	7.4	**18.7**	€/case
Loins		2,144	381	**2,526**	€/tonne
Thai comparison			**Skipjack in brine, 185 gm can**		
Canned from frozen tuna		10.0	5.8	**15.8**	€/case
Loins		1,895	474	**2,369**	€/tonne

Source: Model analysis by Napfisheries

As the table shows, costs of producing both canned tuna and loins are markedly lower in Thailand. Thai cost of production (COP) is approximately €3 per case lower than that of the Seychelles (ie16% lower than Seychelles prices). High tuna prices may have narrowed the differential, but what this table makes abundantly clear is the importance of the 24% tariff preference differential in the Seychelles favour. Preference is clearly crucial in allowing Seychelles to compete in the EU market, even though Thailand is allowed to import a quota at reduced duty (approx 13,000 tonnes at 12%, now increased by several thousand tonnes to adjust for the widening of the European Community).

Table17 emphasises this point by adjusting Thai production costs by restating them as duty paid - at the standard rate (24%) and their quota rate (12%). This shows that on the basis of these analyses, the Seychelles industry is still challenged by Thai production suffering 12% duty and is only able to make a significant margin when Thai duty rises to 24%, especially for the key product, skipjack in brine.

Table 17: Comparative COP for Seychelles & Thai canners & value of preference

Country	**Seychelles**	**Thailand**		
Units: €/case FOB		**Before duty**	**Quota duty paid**	**Full duty paid**
Duty rate	**0%**	**0%**	**12%**	**24%**
Yellowfin in oil	€23.5	€22.3	€25.0	€27.7
Skipjack in brine	€18.7	€15.8	€17.7	€19.6
IOT product mix	**€20.1***	**€17.8***	**€19.9***	**€22.0***

*Source: Model analysis by Napfisheries **weighted average COP for 30:70 Oil:brine pack by IOT estimated on basis of balance of Seychelles exports in 2005, applied similarly to Thai production*

The reasons for Seychelles high costs are not hard to find. The Landell Mills Seychelles EPA study found that labour costs were exceptionally high there: generalized Seychelles daily labour cost was $US19 compared with only $1/day in Kenya (Mombassa) $1.6/day in Madagascar, $4.5/day in Thailand and Mauritius, and $6/day in the Philippines. Against this, and thanks to a high investment in modern equipment, Seychelles labour is, relatively speaking, highly productive with each worker processing 36.8 tonnes of raw tuna per worker per year compared with 20-21 tonnes in Mauritius and Ghana and 12.5 tonnes in Senegal (IDDRA). High input costs are generally problematic with water costs very high. The Seychelles cannery pays US$2.64/m³ compared with $0.40/m³ for Ghana (even though Seychelles water usage is efficient at 5.3m³/tonne tuna processed compared with Ghana's 11m³)

3.2.2 Other Comparable Canning Industries

The Seychelles tuna industry may be particularly threatened by low cost competitors, but it is not the only example. Similar difficulties afflict tuna industries globally to varying degrees - on mainland Africa (Ghana, Senegal and Cote D'Ivoire) elsewhere in the Indian Ocean (Mauritius, Madagascar and the Maldives) and the Pacific (the Solomon's, Fiji). The common feature is ACP or equivalent preference – a preference that allows many of these industries to remain profitable in spite of their competitive disadvantages.

The impact differs between the ACP countries involved – islands like Solomon Islands, Papua New Guinea and Fiji have high cost economies so face problems similar to those of the Seychelles. The Maldives, Madagascar, Ghana, Senegal & Ivory Coast have lower labour costs and so are more likely to be able to compete should preference erosion reduce their advantage, whilst for the latter two, strong connections with the French market provide an additional advantage. That said EU preference is clearly crucial for all these producers and its erosion would cause widespread problems for this industry.

3.3 Aspects Sensitive to RoO Change

The objective of the brief reviews of the Seychelles fisheries sector and its tuna industry has been to identify areas where preference is important and so where RoO changes are likely to have an impact. What has become abundantly clear is that EU preference is critical to the tuna industry and without it the cannery is likely to become unviable and close. The stakes are very high then, given the importance of the cannery to the Seychelles economy. The impact upon the fleet is less immediately clear as this segment is a separate business, connected to the cannery but largely independent of it.

The real threat here is the preference erosion that could result from the trade liberalisation implicit in the Doha Agenda Non-Agricultural Market Access (NAMA)
reforms – i.e. the loss of Seychelles' current advantage over highly competitive producers such as Thailand. RoO impacts will be less in magnitude and more subtle in expression, and a number of potentially sensitive areas highlighted by the review can be summarised as follows.

The tuna fishery . Access agreements (FPAs) and license revenues might be affected if the EU fleet were to lose its current advantage as an "originating supplier" and so base operations elsewhere – with possibly damaging implications for:

- Tuna transhipment at Mahe, revenues generated & employment
- Vessel servicing in Mahe, revenues generated & employment
- Seychelles fleet landing to Mahe (Inc flagged vessels)
- Reliability of raw material supply to the cannery

The tuna cannery. The critical issue is viability in the face of loss of protection against low cost leader producers. The implications, positive and negative would be:

- Ability to source raw material more cheaply in the global market place
- Conversely, loss of regular supplies if the EU fleet bases elsewhere
- Knock-on effects to the economy and environment (reduced national revenues and poorer ability to manage tuna stocks in the Seychelles EEZ) should the cannery fail

The subsequent sections focus narrowly on these key issues and attempt to forecast the potential impact of RoO change in these sensitive areas

4 Analysis – The potential impact of RoO change

This section takes arguments established in the forgoing sections forward to assess the likely impact of RoO changes upon the Seychelles tuna industry. This is done through a range of techniques – (i) where appropriate, "what-if" analyses using the models developed for this purpose above, (ii) extrapolation, based upon the characterisation of potentially sensitive elements of the industry and (iii) comment on outcomes that could logically be expected. Alongside this, and of at least equal importance, (iv) feedback from key stakeholders providing the views of those most directly affected by

the possible changes. As before, a distinction is made between the fishery (primary production) and canning (primary processing of loins and secondary processing through canning the loins). However this time we reverse the order, tracing back from the cannery to the fishery that supplies it – i.e. following the logic of the product flow back to origin.

4.1 The Tuna Cannery

(i) Current position: business-as-usual

The relevant issue for the cannery is the origin of its raw material i.e. raw whole tuna, mostly frozen. The current supply balance can be summarised as follows (table 18):

Table 18: Raw tuna supply balance for the Seychelles canner (IOT)

User/supplier	Tonnes	Source/Application of the raw tuna
Demand		
Raw tuna for the cannery	85-90,000	The 58,000 tonnes canned tuna produced requires 85-90,000 tonnes raw tuna
Supply		
Seychelles fleet	80,000	Produced by the Seychelles flagged fleet (the higher value component of which is exported)
EU fleet in the Seychelles EEZ	Up to 55,000	The EU fleet is licensed to catch 55,000 tons in the Seychelles EEZ
EU fleet in W Indian Ocean high seas	200-230,000*	High seas tuna caught by the EU fleet is also eligible, 250-280,000 tonnes are transhipped through Mahe annually.
Total potentially originating supply	335-365,000	The proportion actually used by the cannery appears in the data as a net import of 30-40,000 tonnes mostly skipjack*.

* the 55,000 tonne caught in the Seychelles EEZ has been netted off to arrive at this figure

Evidently as things stand, there is no RoO issue for the Seychelles cannery with potentially eligible supply of over 335,000 tonnes, nearly 4 times actual requirements. That said, there are occasions when the EU fleet is fishing distantly from the Seychelles and so tuna from this source is not available. Then more flexibility is required, and currently this need for non-originating tuna is met from the pan-ACP 8,000 tonne tuna derogation.

The current situation is then straight forward – Seychelles raw material is nearly all originating and so Seychelles tuna is wholly eligible for preference. Where this isn't the case, derogation provides the necessary "fine-tuning" flexibility.

(ii) The future if there is a change to the value-added rule

As RoO are currently presenting few problems to the cannery, their change is unlikely to bring much benefit. There may however be a downside risk, as the change may disadvantage the cannery. There are two aspects to this: the value-added criteria and security of raw material supply, dealt with in turn below.

(iii) Value added criteria

Table 19 assesses the value-added in the IOT cannery. Its is based upon the model described in section 3.2 above and expresses each cost item as a percentage of ex-works price (estimated as CIF EU prices less estimated freight charges).. Added value, calculated as all costs and margins other than raw material, is expressed as a percentage. Sale prices are based upon 2004 levels, which are believed to be more representative than 2005 values following recent price rises.

Table 19: Value added for representative Seychelles canned tuna products

Canned tuna production costs	**Yellowfin canned in oil**			**Skipjack canned in brine**		
Item	**Production cost**		**Added**	**Production cost**		**Added**
	€/kg	**%**	**Value**	**€/kg**	**%**	**Value**
Direct costs						
Cost of fish raw material	1.54	55%		1.28	55%	
Cans	0.53	19%	19%	0.53	23%	23%
Labels	0.02	1%	1%	0.02	1%	1%
Case (outer)	0.04	1%	1%	0.04	2%	2%
Oil filling	0.31	11%	11%	0.03	1%	1%
Salt	0.01	0%	0%	0.01	1%	1%
Indirect costs						
Labour	0.18	6%	6%	0.19	8%	8%
Variable overhead (marketing etc)	0.09	3%	3%	0.09	4%	4%
Fixed overhead	0.02	1%	1%	0.02	1%	1%
Less by-product revenues	-0.09	-3%		-0.11	-5%	
Margin	0.15	5%	5%	0.23	10%	10%
Total	**2.80**	**100%**	**48%**	**2.34**	**100%**	**50%**
Freight	0.15			0.15		
CIF EU price	2.95			2.49		

Source: Model analysis by Napfisheries

What this table makes clear is that Seychelles canned tuna is highly unlikely to meet the proposed 60% threshold for ACP countries and would clearly struggle to meet the lower 50% LDC alternative. This is the situation if other imported inputs such as cans and additives are deemed to be included in the added value category rather than raw material. Were these items deemed to be raw material, then added value could to decline to as low as 13% to 25%.

This is the result of model analysis – and is endorsed by MW Brands (the IOT cannery). Whilst understandably reluctant to give details, they confirm that at least 50% of their cost is raw tuna on average. They note that there is variance between products – raw material costs are lower for small cans (80gm) for the Mediterranean market – but as high at 80% for large catering packs where the can cost is proportionately low.

If the current supply situation persists after RoO change, this actually creates no problems. The real risk would arise if RoO change reduced the attractiveness of the Seychelles as a base for the EU fleet. A threat to the cannery would then result if its raw materials supplies (i) reduced, should the EU fleet move its centre of gravity elsewhere and (ii) come to depend upon non originating tuna from third country fleets, in which event the added value threshold would become critical. The wider ramifications of this are explored in more detail below

4.2 The Tuna Fishery

(i) Current RoO position: business-as-usual

The current rules of origin clearly provide an incentive for the EU fleet to land tuna in the Seychelles because preference, which is critical for the cannery, depends upon their tuna. This then strengthens the EU fleets' position vis a vis the cannery – it is their captive market. Arguably this raises costs for the cannery. Whether this is actually the case is hard to say, as some stakeholders believe that there is sufficient competition within the EU fleet to ensure that world prices apply. The cannery would not disagree – they wish to see the status quo maintained.

(ii) The future if there is a RoO change to the value-added rule

The principle potential effect of RoO changes on the tuna fishery have been mentioned above – a loss in the motivation for the EU tuna fleet to base itself in the Seychelles. Current RoO encourages the use of Mahe because the cannery depends upon EU vessels (whether EU or Seychellois flagged) for originating raw material. Once that imperative is removed then the EU fleet loses a captive market and thus its competitive advantage. Tuna prices should fall as Asian competitors enter the market, but this is by no means guaranteed. Seychellois stake holders fear that this potential advantage is more than

outweighed by the risk that the EU fleets will abandon Mahe – i.e. threatening future security of supply. There are various corollaries to this potential departure of the EU fleets:

(i) It would pose potentially serious difficulties for the cannery, because the new system would work perversely against it. Firstly, the resulting dependence upon 3rd country fleets would mean that the added-value test would have to be applied. The analysis above shows that IOT would not be able to reach the 60% threshold in this eventuality. The circumstances would thus turn dramatically against the cannery; with raw material origin - which had previously posed no problem – becoming a serious constraint in a "cascade" effect. The eventual expression of this could be a reduction in the Seychelles tuna "fleet" as European vessels choose to flag elsewhere, thus further diminishing the countries tuna activities. This is of course a worst case scenario, but not completely improbable.

(ii) Similarly the Mahe transhipment business would be threatened. Firstly the EU fleet's reduced activity could reduce throughput markedly. This would obviously be problematic in itself, but would likely be exacerbated by the loss of critical mass that would raise costs and reduce Seychelles competitiveness as a service centre. I.e. there would be a downwards spiral that would obviously be highly damaging to the domestic economy.

There are counter arguments to this – Mahe's highly strategic location, relatively close to the resource, and its advanced ability to service vessels provide a powerful competitive advantage for the Seychelles as a transhipment centre. In the past, price rises in Mahe led to some companies to abandon Seychelles as the base only to return in spite of the price rises. Other RoO aspects cause less concern in the Seychelles. For example, abandoning the current crewing requirements (i.e. requiring 50% domestic/ACP crews on foreign vessels) will have little impact according to Seychelles stakeholders, but it could reduce opportunities for their Indian Ocean and African ACP neighbours who could see these jobs going to Asians (eg Filipinos)

Why Mauritius has a different outlook

Mauritius is not a subject for this study but the fact that it reportedly takes a diametrically opposite position to that of the Seychelles has been mentioned. As both countries can tuna and depend greatly on EU preference for viability, this point does at least merit comment here.

Mauritius imports most of its tuna, having to depend upon relatively high cost EU seiners under current RoO. However, the Mauritian canners have less leverage in this regard than the Seychelles as their tuna resources are relatively small. Consequently, there is less transhipment activity (mainly involving Asian longliner catches). So according to the IDDRA study, RoO are currently a problem. Arguably changes to the value-added rule would then both lower raw material costs for Mauritius' Princes Tuna cannery and widen the availability of eligible tuna. However, such are the economics of canning that achieving the currently proposed value-added threshold levels would prove as challenging for Mauritius as the Seychelles, crucial given both countries dependence upon preference.

Here any similarity with the Seychelles vanishes at this point because the Mauritian economy is both far larger and far more diverse than that of the Seychelles, so fishing is a far smaller element. IDDRA estimated that seafood exports contribute $40m to exports, only 3% of the total and contribute less than 0.5% to GDP overall. Given the importance of textiles and sugar to the Mauritian economy, fisheries then carry little weight alongside these other sectors – one producing high value-added manufactures the other wholly locally obtained. The phasing out of the textiles Multi-fiber Agreement and international pressures over liberalisation of the sugar trade naturally weigh heavily there, and thus it is unsurprising that Mauritius sees things differently.

In short, Mauritius is different because fisheries interests are marginalised by other more important sectors in a larger more diverse economy. Furthermore, the Mauritian tuna sector differs structurally from that of the Seychelles in a way that means that RoO changes would assist it if the thresholds were set a little lower, so improving competitiveness with the Seychelles

4.3 The Industry's View

(i) The value added rule
The situation described above is that depicted by our model-based analyses. Discussion with the industry suggested that they view the situation similarly. Generally speaking they feel that a one-size-fits-all value added rule cannot be applied universally when there is so much cost variation between both products and producer countries. As mentioned above, the cannery would struggle to meet even a 50% value added threshold. The industry does find the current system difficult to manage, with continual concern about accountability – i.e. fears that an unintended error could pose a threat to preference. This is a very real concern given the crucial importance of preference to IOT. They would then prefer to retain the status quo in spite of the promise of simplification by the new RoO. The fact that there is a small premium (put at $100-$200/tonne by industry commentators) currently paid for originating tuna from the EU fleet is more than outweighed by the benefits they receive in what they term a win-win situation.

(ii) The tolerance rule
Advantage is rarely taken of the tolerance allowance – with Mauritius and possibly Madagascar the only Africa region countries availing themselves of it (i.e. countries without a large nearby resource or fleet –see text box for the Mauritian viewpoint). The main reason for this according to the industry is the difficulty of implementing its stringent requirements in the context of a fisheries business in a developing region. The management skills to administer the use of tolerance inputs simply don't exist, and so rather than threaten their preference privileges, canners prefer to avoid its use. Where flexibility is required, the more user-friendly derogation is used – and though small, this appears to provide the latitude necessary. New more constricting tolerance rules are then unlikely to prove helpful

5 Wider implications of RoO change

The first point that should be made is that the real threat to the Seychelles tuna industry, and particularly the cannery would be preference erosion, i.e. the Doha Agenda. The impact or RoO change would be far less disastrous, but the "cascade" effect noted above could possibly eventually prove to be very damaging. The question is then, what would be the wider impact of (i) a reduction in transhipment activity if the EU fleet moves elsewhere and (ii) the subsequent threat to the cannery were less of its production to prove eligible for preference. The potential risk is that eventually there could be a significant negative effect upon both the fishery and then in turn the cannery. This section investigates the wider implications of this

5.1 Economic, social & environmental impacts

The potential wider implications of this for the Seychelles community and its environment are investigated in table 20 below. Potential impacts are listed under three broad headings: economic, social and environmental, with a distinction made between the fishery and the cannery where appropriate (and amalgamated where not). Positive impacts are underlined, but what is abundantly clear is that most impacts are negative

Table 20: Wider implications of the effect of RoO change to the tuna industry

Economic and commercial impacts	
Cannery	• Substantial loss of IOT employment in Mahe • Loss of spending by IOT foreign workforce • Possible lowering of raw material costs (imported raw tuna)
Fishery	• Threat to employment stevedoring etc in the transhipment business • Loss of employment & wealth generated by victualling etc
Both	• Given the importance of the tuna sector, severe shock to the overall Seychelles economy • Loss of business for local ancillary firms supplying IOT/fishery • Significant negative impact on the balance of trade • Possible overall reduction in frequency of cargo vessels visiting Port Victoria as trade volume declines • Reduced government revenues • Eventual reduction in FPA payments, further diminishing government receipts
Social and socio-economic impacts	
Both fishery & cannery	• Reduced wealth and employment prospects for the Mahe workforce and that for firms supplying to IOT & transhipment • Given the local importance of the industry, significantly reduced tax receipts to pay for essential state services. • The need to import foreign labour would reduce
Fish resource management and environmental	
Cannery	• Demand for fresh water would reduce, so relieving the requirement for desalination • The high demand the cannery places on local energy supplies would reduce, in turn reducing Seychelles carbon emissions
Fishery	• Waste production and associated pollution risk would reduce • If EU fleet departs, its replacement by less regulated high seas fleets which would arguably be less likely to fish responsibly • If FPA revenues diminish, as a result there could be an impact on resource management, as FPA compensation is partly ring fenced for fisheries management, especially MCS • Loss of the vessel observer programme linked to the current EU FPA

The principle effect would be upon employment and the wealth of the Seychelles citizens, especially those of Mahe. Wider effects would include reduced government revenues and adverse effects on the balance of payments. The social consequences of this are understandably similarly negative. The impact upon resource management is less intuitively obvious but is also negative. The generally adverse reaction to the proposed RoO changes by the Seychellois authorities is then very understandable.

References

Key reports are referenced in the text by the entity responsible for undertaking them purely to provide an easy link to this reference list and avoid repeating cumbersome titles throughout the text or breaking up the flow of the text with footnotes

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APPENDIX 1
EU tariffs generally applying to products imported from the Seychelles

Item*	CN Code (Eurostat)	Conventional duty	Notes
Fresh marine fish (nei)	0302 69 99	15%	*Ad valorem* throughout
Frozen albacore tuna	0303 41	22%	Suspended
Frozen yellowfin tuna	0303 42	20-22%	Suspended
Frozen skipjack tuna	0303 43	22%	Suspended
Frozen bigeye tuna	0303 44	22%	Suspended
Other tuna (nei)	0303 49 80	22%	Quota applies
Frozen swordfish	0303 79 87	7.5%	
Frozen other fish (nei)	0303 79 98	15%	
Frozen Penaeid shrimp	0306 1350	12%	
Frozen squid	0307 49	6-8%	Various quotas@3-3.5%
Frozen tuna loins	1604 14 16	24%	4,000tn quota @ 6%
Canned tuna in oil	1604 14 11	24%	Annual quota of 25,000 tonnes for Asian producers @12% duty
Canned tuna in brine	1604 14 18	24%	
Canned tuna "flake pack"	1604 20 70	24%	
Processed shrimps	1605 20	20%	

Source: Commission Regulation (EC) No 1719/2005 to Annex 1 of Council Regulation No 2658/87. Also
nei = not elsewhere indicated (i.e. a general category)

ANNEX 4: COUNTRY CASE STUDY: ECUADOR

CANNED TUNA

Glossary (Case study specific)

CORPEI Corporacion de Promocion de Exportaciones e Inversiones (Ecuador)
Fishing associations & organisations See Appendix 3
IATTC Inter-American Tropical Tuna Commission
OPO Oriental Pacific Origin, referring to the tuna fleet
Sre Sucre, Ecuadorean currency, **exchange €1=34,050**
Population: 13.1 million (2005)

1 Introduction

Fisheries and aquaculture have grown substantially over the last 50 years to become a significant element of the Ecuadorean economy as well a being a major employer. Seafood is also a major contributor to exports, and now represents approximately 10 % of Ecuador's total export value. This places them as the second most important category after oil, having relegated bananas – a traditional Ecuadorian economic mainstay - to the third position for the past two years (table 1).

Table 1: Ecuadorian Exports (Value, US$000s)

Product	2002	2003	2004	2005	2006	2006
	US$000	*US$000*	*US$000*	*US$000*	*US$000*	*%*
Oil	1,839,024	2,372,314	3,898,509	5,396,840	6,934,010	55.6
Bananas	936,578	1,062,797	984,962	1,040,609	1,148,453	9.2
Seafood	693,451	822,356	797,700	1,079,427	1,220,296	9.8
Other	1,567,143	1,965,182	2,071,829	2,572,022	3,175,426	25.4
TOTAL	**5,036,196**	**6,222,649**	**7,753,000**	**10,088,898**	**12,478,185**	**100.0**

Source: Central Reserve Bank, Ecuador

Seafood has then become an important element of the Ecuadorian economy, but tuna is neither the sole nor indeed principle contributor to this success. Ecuador has established a broad based seafood export business that depends upon a mix of species and results from dynamic development of both the culture and capture industries. Shrimp farming, which was partially pioneered by Ecuador, has revived after a catastrophic disease-caused reverse to become a major contributor to exports and fish farming is now also growing in importance.

Tuna does though remain a major element of the fisheries sector, with substantial primary production from the Ecuadorian fleet and a growing competitive processing industry producing loins as well as canned tuna, and the novel product, tuna pouches. The following sections first place the tuna industry in the wider context of this broadly based, export-led, seafood sector, and then concentrates on the tuna industry.

2 Context – The Ecuador Fisheries Sector

2.1 Overview of Fisheries Production

Ecuador has a large marine fishery that lands between 300,000 and 600,000 tonnes annually. Pelagic fish completely dominate the catch (over 80% in recent years). Much of this consists of small pelagics and this explains the huge variability in landings, as small pelagic stocks are notorious for variability (table 2). The other major category is tuna, accounting for from 25% to 50% of the total. The prime element of the Ecuadorian marine fishery is then dominated by tuna, but also includes other large pelagic fish such as mahi mahi, marlin and swordfish which are mostly processed into a semi-finished or finished products. Some prime white fish are also produced and these are filleted or exported whole - fresh, by air, or frozen, by sea. Interestingly wild shrimp, for which Ecuador was once famed, is now a tiny component of the fishery.

Table 2: Wild capture fish production in Ecuador: Units tonnes

Tonnes	2000	2001	2002	2003	2004
Pilchard	51,648	42,143	2,539	632	-
Anchoveta	12,762	75,608	89,303	52,876	91,147*
Mackerels	91,468	219,389	17,677	33,273	55,012*
Other small pelagics	30,167	25,624	20,757	43,192	38,487
Tunas	**170,499**	**149,220**	**135,460**	**194,146**	**161,886**
Shrimp	1,245	2,514	2,781	2,206	2,974*
Other species	234,758	72,065	50,125	71,539	64,050*
Total	**592,547**	**586,563**	**318,642**	**397,864**	**413,556**

*Source: FAO * Forecasts*

Manta is the main port for tuna landings from national, Spanish and OPO (Oriental Pacific Origin) vessels, and has become the principle base for the Ecuadorian tuna canning industry. Along with Guayaquil (Ecuador's premier coastal city) which hosts the canneries headquarters and some canning operations, this represents the centre of the Ecuadorian tuna industry.

Production of prime white demersal fish – the other prime export category - is mainly a matter for the artisanal fishermen located in136 fishing villages along the length of the Ecuadorian coast, with Manta again being important. The principal species caught, apart from some tuna, are marlin, swordfish and mahi mahi, followed by sea bass and grouper. The principle market for these species is the USA, accounting for 95% of the export.

Whilst wild landings have been variable at best and possibly declining, the real growth area has been aquaculture, an industry located along the coastline of Guayas province around Guayaquil. Production is mostly of shrimp but tilapia has become increasingly important (table 3). This followed on from a disastrous shrimp disease outbreak in the 1990s which hugely reduced output. Tilapia were reared as a substitute to keep the shrimp farms in business then and have emerged as a viable alternative. Shrimp are packed and frozen whole for the European market (48%) and headless for the US market (49%). Tilapia is filleted and exported fresh almost entirely to the US market.

Table 3: Aquaculture production in Ecuador: Units tonnes

	2001	2002	2003	2004	2005	2006
Shrimp	45,300	46,700	57,500	80,000	140,000	150,000
Tilapia	15,000	27,000	27,660	28,340	29,000	34,202

Source: Napfisheries database & estimates

Shrimp farming
The shrimp culture industry produces white shrimp Penaeus vannamei under "intensive" conditions throughout the year. Ecuador was a pioneer of shrimp culture and development of the industry began some 40 years ago, Now 150.000 hectares of ponds are producing shrimp, making Ecuador one of the principle producers and exporters of shrimp world-wide. The industry is backed by 247 hatcheries, 11 feed plants and 61 processing plants and widely internationally certified (ISO, HACCP, ACC, and BRC).
Around 95% of shrimp production is farm raised, with the wild landings by the small industrial fleet only contributing 5%

Tilapia farming
Ecuador has become a significant producer and exporter of farmed tilapia. There are about 5,000 hectares of ponds now producing tilapia with an estimated annual production of 20,000 tonnes and output is growing. From 2000 to 2005 the industry developed principally to supply the USA market for tilapia fillet, with Ecuador (alongside Central America) providing fresh product (air freighted) whilst cheaper frozen product comes from Asia (mainly China).

The non tuna products of fishing and aquaculture mentioned above are all exported to the EU, and taken together now account 60% of the total value of Ecuadorian seafood exports. They are important then, especially farmed shrimp, but pose no RoO issues as all are "wholly obtained" requiring no imported inputs. .

The marine fishery, aquaculture and the processing industries are regulated by the Ministry of Agriculture based in Quito, through the Subsecretariat of Fisheries based in Guayaquil, which is responsible for the regulation and policing of the industries from capture through to processing. The National Fisheries Institute (INP), also based in Guayaquil, is an autonomous government organisation that reports to the Subsecretariat and is responsible for marine fisheries research, providing data on the fish resource and recommendations on its conservation. The INP also oversees hygiene conditions in the handling of fish and shrimp, and is recognised by the EU as the competent authority for issuing sanitary certificates for fish and seafood product exports.

2.2 The Ecuador Tuna Industry

2.2.1 The Tuna Fishery

Although there are more than 250 tuna vessels in the Central American and Andean countries' fleets, only 86 are both Ecuadorian owned and registered, and carry more than a 50% national crew, including officers. The vessels that qualify under current EU RoO are those from Ecuador and its GSP+ OPO (Oriental Pacific Origin fleet) neighbours - Panama, Colombia, Venezuela and Peru (provide they qualify under current RoO). Other qualifying vessels are the fleets from EU Member States, Spain being by far the largest. Non- qualifying OPO vessels and some others (Vanuatu) operate in Ecuadorian waters but their landings are processed for markets other than the EU.

Ecuador is a member of the Inter-American Tropical Tuna Commission (IATTC) and is therefore bound by its regulations regarding tuna fishing and conservation of the resource. In this respect, a 6 week closed season is observed, starting on August 1st, as is a regulation passed in 2002 banning the addition of further vessels to the fleet throughout the IATTC area (the Eastern Pacific).

The Ecuadorian fleet lands skipjack, yellowfin and bigeye tuna and in 2006, skipjack accounted for 70% of landings, followed by yellowfin (15%) and bigeye (15%). The main tuna season runs from December to May, with lower catches from June to November. This is then the period when canneries might be expected to depend upon raw material imports. Total production by the Ecuadorian fleet has varied between 150,000 and 200,000 tonnes latterly (table 4)

Table 4: Tuna Landings in Ecuador by the Ecuadorean fleet: Units tonnes

Species	2002	2003	2004	2005	2006*	% of Total 2006
Skipjack	81,203	139,814	86,283	128,987	137,000	70%
Yellowfin	29,594	31,322	36,973	44,986	29,122	15%
Bigeye	27,919	25,606	38,630	33,430	30,382	15%
TOTAL	**138,716**	**196,742**	**161,886**	**207,403**	**196,504**	**100%**

*Source: IATTC *estimates*

According to the processors, the total landing to Ecuador from all fleets in 2006 was approximately 350,000 tonnes, of which 60% came from the 86 Ecuadorian vessels, 25% from the Spanish vessels and 15% from other OPO vessels. Precise figures were not available from the authorities, but this total does broadly equate to the tuna product tonnages exported, taking into account the weight loss in processing.

Raw whole tuna prices in Ecuador have risen recently from long term averages or around US$700-900/tonne skipjack, and US$1,200-1,400/tonne for yellowfin (as in 2005), to current prices of US$1,000-1,200 and US$1,600-1,800/tonne respectively in 2006 and 2007. These are historic highs and the trend appears to be for further increases due to currently reduced catches. Whether this will persist is unclear of course, but it does currently have a major impact upon canning costs

2.2.2 The Tuna Processing Industry

Tuna canning and loining has become a large industry in Ecuador. There are now eight large tuna plants with two in Guayaquil and six in Manta, which together account for around 90% of the total national output. These plants process raw tuna into a mix of semi-finished and finished products including loins, canned tuna and pouched tuna for the local and export markets. Tuna pouches are a more recently developed product involving flexible foil packs, produced for the US market where they

are displacing canned tuna as the preferred format. They are typically sold as ready-to-eat tuna meat with salad or other ingredients.

Seven of the leading Ecuadorean processing plants are listed in Table 5. These plants account for about 85% of Ecuadorian output, and the quoted estimates of production and other parameters are based upon interviews with the plant's management (see Appendix 2 where comprehensive details for each major plant are given). Two of the six processing plants in Manta are relatively new having started production in 1999, whilst the rest have been in operation for 30 years or more. The plants have Ecuadorian, Spanish and US owners. Production includes loins, pouches and canned tuna, with most companies producing a mix of these, though the proportions vary between plants.

Table 5: Key Ecuadorean canneries, production and workforce in 2006

Plant Units: tonnes	Loins	Pouches	Canned	Total	Workforce
EMPESEC (Starkist)	5,000	37,500	13,275	55,775	2,800
NIRSA	23,000		20,000	43,000	3,750
Conservas Isabel	3,000		21,240	24,240	1,200
Tecopesca	12,800	150	-	12,950	850
Asiservy	9,840		341	10,181	508
Eurofish	6,380	1460	1,460	9,300	800
Seafman	5,300		947	6,247	1,200
Others	9,798	5,867	8,589	24,254	1,666
	75,118	**44,977**	**65,852**	**185,947**	**12,774**
Yield factor	46%	60%	65%		
Implied raw material	**163,300**	**74,961**	**101,311**	**339,572**	

Source: interviews with company staff - see Appendix 2

An estimate is made for the production by the other minor plants and if this is included, total output for 2006 was 186,000 tonnes of product comprising 75,000 tonnes of loins and 110,000 tonnes of canned and pouched tuna. Evidently, pouched tuna production (mostly produced by US controlled plants for the US market) has already risen to 45,000 tonnes, nearly 70% of the canned total. An estimate of the raw material requirements implied by this level of output is also made in table 5. This suggests that 340,000 tonnes of tuna was required, fairly close to the informal industry estimate of 350,000 tonnes given above.

2.3 Ecuadorean Trade in Seafood

Shrimp is now Ecuador's most valuable seafood export following the shrimp farming industry's recent resurgence. At $598million this exceeds the value of all tuna products exports by over 30%. This is a recent development – until 2004 tuna outpaced shrimp by a substantial margin in value terms. However, with 120,000 tonnes of shrimp exported in 2006 and a rise of 24% in value terms over 2005 the re-ascendance of shrimp exports is not unexpected. The principal destinations are the USA (49 %) for frozen headless (tails) shrimp and the EU (48%) for frozen head-on (whole) shrimp. Other seafood exports are relatively minor with tilapia and marine whitefish together now accounting for only 8% of the total as table 6 shows.

Table 6: Ecuadorian non-tuna seafood exports: value & volume 2002-6

Units: US$000, tonnes		2002	2003	2004	2005	2006
Shrimp	Value	263,859	303,821	350,148	480,252	597,671
	Volume	46,834	57,614	72,028	96,443	120,164
Tilapia	Value	31,192	41,883	39,407	41,595	45,702*
	Volume	8,022	9,636	9,603	8,659	9,449*
Whitefish	Value		90,428	76,276	63,309	49,552*
	Volume		32,085	34,900	28,268	27,934*
Total	**Value**		**436,132**	**465,831**	**585,155**	**692,925**
	Volume		**99,335**	**116,531**	**133,370**	**157,547**

Source: National Aquaculture Chamber, and Central Reserve Bank

** Forecasts*

Although tuna has been relegated to second position by shrimp, it still accounts for 40% of Ecuador's seafood exports (though this is down from nearly 50% a few years ago). Whole fresh and frozen tuna

now account for a tiny fraction of the total export - only 2-3% in volume or value terms. The great bulk of the export is processed tuna as loins or canned product, with canned tuna the larger component (54% in both value and volume terms). There has been modest growth in export volume, of 3% annually whilst value is growing much faster at 9% pa suggesting that Ecuador is upgrading its tuna products. If anything, it is canned/pouched tuna exports that are growing faster, perhaps indicating that the novel pouched products are giving the industry a boost. However there is much variability in export volume, reflecting variability in tuna landings

Table 7: Ecuadorian Tuna Exports 2002-06, Units: Tonnes, US$000s

Units: US$000, tonnes		2002	2003	2004	2005	2006
Tuna loins	Value	114,408	150,171	115,969	155,688	206,102
	Volume	50,375	66,142	43,533	58,034	68,071
Canned tuna	Value	195,314	226,238	212,763	288,934	245,016
	Volume	80,699	102,084	94,299	112,655	85,202
Frozen tuna	Value	9,218	3,262	6,869	6,256	3,791
	Volume	9,218	3,345	6,380	5,866	4,198
Fresh tuna	Value	5,885	14,113	2,610	4,265	2,448
	Volume	1,098	2,582	626	1,241	426
TOTAL	Value	**324,826**	**393,784**	**338,211**	**455,143**	**457,357**
	Volume	**141,390**	**174,154**	**144,838**	**177,797**	**157,898**

Source: Central Reserve Bank, Ecuador

The export mix varies greatly with destination. As table 8 shows, for the EU tuna loins and canned tuna are both key products, with relatively small quantities going to the USA and a minor quantity of loins sold regionally to other Latin American canners. When it comes to tuna pouches, though, it is the USA that dominates demand as this product has seemingly made little headway in the EU as yet. There is another factor at work here though – Ecuadorian canners believe that exports to the EU are restricted by the limits that current RoO place on the amount of originating raw material that is available. They claim that consequently other markets are benefiting whilst there is what they understand to be a current tight canned tuna supply situation in the EU market.

Table 8: Ecuadorian tuna export market distribution

Product	European Union	USA	Latin America
Tuna loins	60-70%	20%	10-20%
Canned tuna	60-70%	30-40%	-
Tuna pouches	5%	95%	-

Source: Corporacion de Promocion de Exportaciones e Inversiones (CORPEI)

The rising prices for Ecuadorian canned tuna mentioned above are highlighted in table 9. This shows a significant trend in rising unit prices for both loins and canned tuna over the past four years. The fall in the US dollar over the period will however have offset this gain to a degree even though the Ecuadorian economy is linked to the dollar both as an oil exporter and through Latin America's general economic linkages to the USA.

Table 9: Ecuadorean tuna average export prices 2002-06, Units: US$/kg

Units $/kg	2002	2003	2004	2005	2006
Tuna loins	2.27	2.27	2.66	2.68	3.03
Canned tuna	2.42	2.22	2.26	2.56	2.88
Frozen tuna	1.00	0.98	1.08	1.07	0.90
Fresh tuna	5.36	5.47	4.17	3.44	5.75

Source: Data from Central Reserve Bank, Ecuador

Eurostat data provides alternative data on Ecuadorian tuna trade from the perspective of the EU importers, and this is given in table 10. This shows that Italy and Spain are the major EU importers of loins, taking most of the total of 22,000 tonnes exported in 2005. At around 40% of the Ecuadorian loin output, this is much lower than the Ecuadorian industry's estimate that over 60% of loins go to the EU (see table 8). Presumably then loin sales within the Americas must be higher than envisaged by the industry. On the other hand, at 63,000 tonnes, EU canned tuna imports do accord with the industry's estimates – average EU import levels over the past 5 years have been 66% of total Ecuadorian output, which is close to the industry's estimate that this proportion lies between 60% and 70%.

Table 10: EU imports of Ecuadorean tuna products, 2005, Units:Tonnes,€'000s

Product		France	Italy	Spain	N'lands	UK	Total
Tuna loins	Tonnes	1,345	10,539	8,836			**21,892**
1604 1416	€000s	3,163	35,019	22,299			**63,713**
Canned in oil	Tonnes	1,097	142	11,152	4,523	1,085	**20,978**
1604 1416	€000s	3,137	428	24,961	11,192	2,608	**48,585**
Canned in brine	Tonnes	3,940	296	9,090	10,929	5,330	**33,425**
1604 1416	€000s	9,011	838	21,805	23,034	10,880	**73,649**
Other canned*	Tonnes	552		6,934		80	**8,049**
1604 1416	€000s	1,126		14,380		164	**16,402**
Total canned	**Tonnes**	**5,589**	**438**	**27,176**	**15,452**	**6,495**	**62,452**

Source: Eurostat

Table 10 also shows that the breakdown between higher priced tuna canned in oil and that either canned in brine or as lower value products (eg flake tuna) is approximately 33% to 66%. This can be reconciled with the landings spilt between higher value yellow fin/bigeye and lower value skipjack of 30% to 70%, if it is assumed that most tuna canned in brine or as flake is skipjack.

Table 11 provides average EU CIF import prices for Ecuadorian tuna for 2005. When compared with the Ecuadorean export values for that year, and after making adjustment or both exchange differentials and freight costs, canned tuna prices can be reconciled between data sets. Those for loins cannot, as the EU import price exceeds the average declared Ecuadorian export value by 25%. The implication is that either the bulk of the higher priced yellowfin loins are going to the EU – or that loins are being sold elsewhere at much lower average prices.

Table 11: Average EU CIF prices for imported Ecuadorean tuna (2005)

Product		€/kg 2005
Tuna loins		**€2.91/kg**
Canned tuna		
Vegetable oil pack		€2.32/kg
Brine pack		€2.20/kg
Other canned (assumed to be flake)		€2.04/kg
Weighted average	**Canned tuna**	**€2.22/kg**

Source: Eurostat.

2.4 Other Issues: Tariffs

(i) Tariffs

Ecuador clearly does benefit from EU preference with a 24% advantage over non preferred producers of loins and canned tuna. The relevant tariffs are those that that apply to all forms of tuna, raw and processed. These include all canned and otherwise processed tuna categories (i.e. in the CN 16 chapter) a chapter which also includes tuna loins. Tariffs relating to frozen tuna exports (CN section 0303-4) are currently zero as they have been suspended, so there is no preference advantage. Table 12 lists the main relevant duties relating to GSP+ countries (Appendix 1 provides wider details).

Table 12: EU tariffs generally applying to tuna products imported from Ecuador

Item*	CN Code (Eurostat)	Conventional Duty	Preference Advantage
Frozen yellowfin tuna	0303 42	20-22%	Duty suspended
Frozen skipjack tuna	0303 43	22%	Duty suspended
Frozen tuna loins	1604 14 16	24%	24%
Canned tuna	1604 14 11/18/70	24%	24%

Sources: see Appendix 1

3 Economic implications of the Ecuadorean tuna industry

3.1 The Tuna Fishery

The bulk of tuna landed to the Ecuadorian canneries and loiners comes from Ecuadorian or OPO vessels. The output of the former is eligible for preference, and so the economics of this fishery is not an issue for this study - originating raw material qualifies for preference now and will continue to do so under changed RoO. The fact that the Ecuadorian fleet operates with very cheap fuel provided by the government gives it a considerable advantage, especially now that fuel has become such a large proportion of fishing vessel operating costs. Average seiner production costs for skipjack which were generally acknowledged to be $650/tonne in the past have risen to $800/tonne according to industry commentators.

The other eligible source of tuna is that provided by OPO vessels if from GSP+ neighbours and if they meet other GSP+ cumulation conditions. To qualify an OPO vessel must be flagged, wholly owned and majority crewed by nationals from the qualifying country. In practical terms this means OPO vessels from Panama, Venezuela, Colombia and Peru, some with foreign crews, who do deliver raw fish to Ecuador in quantity (around 150,000 tonnes on recent estimates). Some of this tuna qualifies, but that that doesn't is used for products exported to Latin American and other non-EU markets. Key suppliers are Panama and Venezuela, and many of their vessels employ Ecuadorian crew because they can no longer source trained crew domestically

Foreign vessels will find Ecuador's low fuel cost an advantage that is increasingly hard to compete with. So, as things stand, the Ecuadorian fleet's dominant position in their home market is unlikely to change. This doesn't mean that the canneries benefit from reduced prices though, as Ecuadorian boats can sell on the world market – though the canneries probably do gain some logistical advantage. However, there could be a Doha Agenda threat to this in the longer term, should these low fuel costs be deemed to be a subsidy and thus pressure brought on Ecuador to abandon them (removal of subsidies, especially "perverse" subsidies that increase fishing effort, is a Doha goal).

3.2 The Tuna Cannery

Processors in Ecuador are, as elsewhere, naturally reluctant to divulge detailed processing costs or margins. They were though prepared to give indications of the broad make up of ex-works prices, showing current levels of value added, and this is discussed below. This provides one view of the situation, but as with some other case studies, the alternative approach of modelling production cost has also been adopted. The intention is to assess the production cost of a representative product and test how RoO change could impact upon this. This section starts with the model analysis and then goes on the compare the outcome of this with the views of the industry. Throughout, the focus is on canned tuna rather than the pouched product as little of the latter reaches the EU market – the great bulk being produced by a US controlled plant for their home (US) market. Loin production costs are assessed though as loins are exported to the EU in quantity, even though they are not the target product for this particular case study

Model analysis
The bulk of Ecuadorian production is skipjack (70% of landings) and so this is the representative product for the Ecuadorean industry. This is then an industry targeting the lower priced market segments and skipjack in brine, marketed in 185-200gm cans (with 48 of these"halves" per case) is taken as the paradigm product for analysis. Currently raw tuna prices are very high (averaging $1,200/tonne for skipjack and $1.700/tonne for yellowfin tuna) and this is reflected in processors cost quotes. For the model analysis, though we use a lower raw material cost ($1,100/tonne for skipjack) that should reflect long term average values more realistically.

Table 13: Production cost estimate for Ecuadorian canned skipjack tuna

Canned in brine		**€/kg**	**%**
Skipjack	**Raw material**	**1.28**	**56%**
Added value	Costs	0.94	41%
	Margin	0.08	3%
Added value		**1.02**	**44%**
Ex-works price		**2.30**	**100%**

Source: model analysis

Table 13 provides a model-based estimate of the Ecuadorian production cost for canned skipjack. This is deemed to be a representative average – of course specific costs will vary between canneries and between products (with for example "solid" (steak) pack both costing much more and selling for much more than low quality "flake" (fragmented left overs) pack. Costs are based upon normal cannery parameters, adjusted for specific Ecuadorian fillet yields and key unit costs (eg labour). As mentioned above, they also represent a long term scenario, ignoring current very high raw tuna costs which are well above trend.

Table 14: Production costs estimate for Ecuadorian canned yellowfin tuna

Canned in oil		**€/kg**	**%**
Yellowfin	**Raw material**	**1.51**	**54%**
Added value	Costs	1.24	44%
	Margin	0.05	2%
Added value		**1.29**	**46%**
Ex-works price		**2.80**	**100%**

Source: model analysis

Table 14 gives similar data for yellowfin tuna, a higher cost and higher value product which is canned in oil rather than brine. In this case the view is taken that a long term representative average raw material price will be $1,500/tonne for good quality yellowfin. This is however a minor product, accounting for only 30 % of canned tuna exports

Table 15: Production costs estimate for Ecuadorian skipjack loins

Loins		**€/kg**	**%**
Skipjack	**raw material**	**2.14**	**71%**
Added value	Costs	0.63	21%
	Margin	0.23	8%
Added value		**0.86**	**29%**
Ex-works price		**3.00**	**100%**

Source: model analysis

Finally, in view of the importance of the Ecuadorian loining industry, and the relatively large volume of loins sold to the EU, the production cost for tuna loins is calculated in table 15. This is done along the same lines as for the canned product quoted in the preceding tables.

Employment in the tuna Industry.

The tuna industry is an important employer in coastal Ecuador. The increase in tuna processing in Manta has led to the current workforce directly involved in the processing growing to approximately 15,000, of whom between 75-80% are women according to industry sources. Our survey of the canneries in table 5 put the figure at a comparable 13,000. To this can be added those employed in associated industries such as the tuna fleet, and it's supply and maintenance, packaging industries and so forth, probably accounting for a total of 200,000. The population involved in the whole Ecuadorian fishing and aquaculture industries is estimated to amount to some 400,000 people.

3.3 Aspects Sensitive to RoO Change

RoO change does have implications for the Ecuadorian canneries. The analyses above make it clear that these canneries will generally fail to meet the GSP+ value added threshold of 50%. The higher 60% threshold set for ACP states would certainly be unattainable. However, on the face of it, currently that presents few problems, as these canneries are supplied by the Ecuadorean fleet, so product is

wholly obtained. There are potential issues though. Firstly, dependence upon the Ecuadorian or qualifying OPO fleets is a potential hostage to fortune. Should circumstances change and for whatever reason, these fleets cease to land to Ecuador, then the canneries would lose preferential access to EU markets.

That said, it appears that the position would be no worse under RoO change, as the canneries would be in the same position – i.e. reliant upon originating raw material. It seems that an opportunity would have been lost to source more widely under the changed RoO, but that opportunity does not exist currently, other than that allowed by the 10% tolerance. Understanding whether this actually is the position or not is the main focus of the subsequent analysis

4 Analysis – The potential impact of RoO change

4.1 The Tuna Cannery

Table 16 sets out the cost structure for a typical Ecuadorian cannery producing the standard product, skipjack in brine. This is based upon the model used to establish the production economics in the preceding section. Value added is shown in percentage terms and this again demonstrates that value added is unlikely to reach the 50% threshold. Indeed were cans to be deemed to be an imported input, then value added would decline to less than 30%.

Table 16: Production costs analysis for Ecuadorian canned skipjack in brine

Canned skipjack in brine	**Production cost**		**Added**
Item	**€/kg**	**%**	**Value**
Direct costs			
Cost of fish raw material	1.28	56%	
Cans	0.41	18%	18%
Labels	0.02	1%	1%
Case (outer)	0.04	2%	2%
Brine filling	0.03	1%	1%
Salt	0.00	0%	0%
Indirect costs			
Labour	0.27	12%	12%
Variable overhead (marketing etc)	0.09	4%	4%
Fixed overhead	0.13	5%	5%
Less by-product revenues	-0.05	-2%	
Margin	0.08	3%	3%
Sale price	**2.30**	**100%**	**47%**
Freight	0.10		
CIF EU price	2.40		

Source: model analysis

The Ecuadorian industry was canvassed on the new RoO as part of this study, and their views are included in the industry profiles given in Appendix 2. Taken together, they provide a concerted industry position – and put simply this is that they cannot attain the new value added threshold and would prefer to see the current RoO remain in place.

Table 17: Industry estimates of cost breakdown for canned skipjack

		€/kg	**€//kg**	**%**
Skipjack	**raw material**	**1.85**	**1.85**	**78%**
Added value	Cost range	0.33	0.48	17%
	Margin	0.11	0.11	5%
Added value		**0.44**	**0.59**	**22%**
Ex-works price		**2.30**	**2.44**	**100%**

Source: Industry interviews: costs in US$ converted to € @ $1.35/€

The industry agrees with the model analysis in as much as it demonstrates that they cannot attain the

50% threshold, but the agreement ends there. They believe that their value added is a great deal lower at levels of only 15-25% (see tables 17 and 18). This is based upon a cost structure dependent upon (i) the cost of the raw material (ii) the quantity of raw material processed in relation to the fixed overhead cost, (iii) the processing yield (fillet 43% of whole tuna). Taken together this leads to a raw fillet (loin) cost of US$1.85 to $2.75/kg at current raw fish prices, depending upon species. Costs of labour, energy, packaging and overhead add between US$0.60-0.80/kg, setting final ex works prices of between US$3.10 and US$3.30 per Kg. for skipjack and US$4.55 for yellowfin. These two tables are based upon this cost structure, expressed in Euro, and reflect the industry's position.

Table 18: Industry estimates of cost breakdown for canned yellowfin tuna

		€/kg	€//kg	%
Yellowfin	**raw material**	**2.74**	**2.74**	**84%**
Added value	Cost range	0.33	0.48	**13%**
	Margin	0.11	0.11	3%
Added value		**0.44**	**0.59**	**16%**
Ex-works price		**3.19**	**3.33**	**100%**

Source: Industry interviews: costs in US$ converted to € @ $1.35/€

There is a fallacy in this calculation though as it appears to assume that it takes 1 kg of tuna fillet to produce 1kg of canned tuna. This is not the case – the weight of filler in the can reduces tuna fillet content to 0.6 to 0.7kg depending upon product specification.

Nevertheless this does serve to make an important point – the sensitivity of the value added proportion to raw tuna prices. Table19 uses the model to test the degree to which this affects the value added component, covering the maximum credible range of skipjack prices. Clearly this does have a very considerable impact, radically changing the value added proportion – from 40% to 60%. This demonstrates an additional hazard that the value added approach faces in the fisheries sector – excessive sensitivity to raw material costs. This in turn leads to value added being anything but a manageable fixed function, but rather highly variable factor, subject to rapid change that is completely beyond producer's control

Table 19: Variation of the value added proportion with raw material unit cost

$US/tonne	Value added %
700	59%
800	55%
900	52%
1,000	50%
1,100	47%
1,200	45%
1,300	43%
1,400	42%

Source: model analysis

Apart from the concerns about value added, processors admit to finding RoO difficult to understand. Processors also believe that the rules are detrimental to EU consumers, as restrictive RoOs contribute to a higher price for raw fish than there would be if there was more competition from a larger fleet. Furthermore, finished product is being diverted to Latin American markets that could otherwise be made available to EU markets

Finally processors also commented upon the potential difficulties of ensuring that added value rules were being adhered to. They fear that this would probably require a regular inspection of their accounts by an independent authority perhaps one chosen by the EU, such as the Swiss SGS company, contracted by the EU to physically monitor and report on processing plants on a regular basis. In short, they saw the new RoO as more likely to increase than decreases management burden and administrative complexity. Tolerances are generally not used, if indeed they are used at all – the reason for this being the perceived practical difficulty of implementing them coupled with, again, a general lack of understanding of the relevant legislation.

In conclusion, the processors would prefer to continue with the current RoO. However, they appreciate that they would benefit from a less restrictive supply regime that would allow them to be supplied from

any OPO vessel irrespective of nationality for their EU destined processing. This could attract more vessels to supply Ecuador, which should reduce raw material costs through increased competition from an enlarged fleet, and so help to increase exports to the EU.

4.2 The Tuna Fishery

Whilst processing is the industry segment that is most affected by RoO, there some implications for the tuna fishery. These will probably be less severe than those for the Seychelles industry which is dependent upon the EU fleet as Ecuador has its own large viable fleet currently landing around 200,000 tonnes of tuna a year. This can theoretically yield some 90-130,000 tonnes of originating processed product, depending upon the mix between loining and canning. At recent levels of export to the EU (84,000 tonnes in 2005) demand is well covered by available originating tuna without recourse to external suppliers. Conversely the Ecuadorian fleet benefits from supplying its own canneries with the obvious logistical advantages as well as prospects for a premium for EU-destined tuna.

In conclusion, the current position would seem to be an example of dynamic stability based upon mutual advantage, but there are serious concerns within the industry. Both Ecuadorian fleet owners and processors are worried that Asian tuna producers (especially Thailand of course) could prevail in gaining WTO support for their bid to gain the same EU preference enjoyed by GSP+ and ACP countries. They fear that the point at which the current three year GSP+ agreement (which ends in December 2008) requires review (by the start of 2008), could provide the Asian producers with the opportunity to do just this. Were this to happen, then they believe that their industry would be in jeopardy. Our model based analysis would not disagree

5 Wider implications of RoO change

5.1 Economic, social & environmental impacts

Ecuadorian industry insiders believe that they are at an unfair disadvantage to the highly competitive Asian canners. This disadvantage has three dimensions - one environmental, one socio-economic and one macro-economic:

Firstly, Ecuador operates under IATTC conditions in the Easter Pacific tuna fishery, with its attendant restrictions on catch capacity etc. Asian fleets in the Western Pacific fleet and Asian canners have fewer restrictions, and so have greater reliability of supply and can source more cheaply

Secondly, there is a vast difference in pay scales. Ecuadorian labour is paid around US$1.0 per hour whilst some Asian companies have to pay only US$1.00 per day for similar quality labour (in fact Thai processing labour costs are closer to $8/day and whilst Thai labour might be more productive, the disparity in cost is much lower than perceived by the Ecuadorian industry). Asian firms are also accused of subsidising the industry but there is little evidence that this is the case. .

Finally, because of the persistent problems with its own currency (the sucre) Ecuador uses the US dollar as a commercial currency. They obviously have no control over the associated economic parameters, and believe that this puts them at further disadvantage.

It is countering these perceived disadvantages that both justifies preference and makes it crucial in the Ecuadorean industry's eyes. Without it, they believe that they would be unable to retain their position in the global market place. This would then damage a crucial national industry.

This raises the question of what would be lost were preference to be eroded significantly. The potential impact of damage to the tuna industry's viability has been explored in detail in the Seychelles case study (where the impact would be that much the more severe given the tuna industry's economic domination). There is no need to repeat this here, but points already made above bear rehearsing: 12-15,000 are directly employed in the Ecuadorian tuna industry, and when fleet employment and those in ancillary activities are concerned, there could be at least 200,000 involved. If you assume the average family size to be five, then a million individuals are probably depending upon tuna, a sizable proportion (8%) of Ecuador's 13.2million population. Obviously any decline in this industry would have

a highly detrimental social impact.

APPENDIX 1
EU tariffs generally applying to products potentially imported from Ecuador

Item*	CN Code (Eurostat)	Conventional duty	Notes
Fresh freshwater fish (nei)	0302 69 11	8%	*Ad valorem* throughout
Fresh marine fish (nei)	0302 69 99	15%	*Ad valorem* throughout
Frozen albacore tuna	0303 41	22%	Suspended
Frozen yellowfin tuna	0303 42	20-22%	Suspended
Frozen skipjack tuna	0303 43	22%	Suspended
Frozen bigeye tuna	0303 44	22%	Suspended
Other tuna (nei)	0303 49 80	22%	Quota applies
Frozen freshwater fish (nei)	0303 79 19	8%	
Frozen marine fish (nei)	0303 79 98	15%	
Freshwater fish fillets (nei)	0304 10 19	9%	Fresh fillets
Fresh marine fish fillets	0304 10 98	15%	Quotas apply
Freshwater fish fillets (nei)	0304 20 19	9%	Frozen fillets
Frozen marine fish fillets	0304 20 97	7.5%	Frozen fillets
Frozen Penaeid shrimp	0306 1350	12%	
Frozen tuna loins	1604 14 16	24%	4,000tn quota @ 6%
Canned tuna in oil	1604 14 11	24%	Annual quota of 25,000 tonnes for Asian producers @12% duty
Canned tuna in brine	1604 14 18	24%	
Canned tuna “flake pack”	1604 20 70	24%	
Processed shrimps	1605 20	20%	

Source: Commission Regulation (EC) No 1719/2005 to Annex 1 of Council Regulation No 2658/87. Also Council regulations No 975/2003 & 379/2004 for reduced duty quotas
nei = not elsewhere indicated (i.e. a general category)

APPENDIX 2: KEY COMPANY PROFILES

Name: EMPESEC (Starkist/DelMonte)
Location: Guayaquil and Manta
Owner: Facilities owned by Augustin Jimenez (Ecuadorian). Rented and managed by Galapesca, subsidiary of Starkist/DelMonte.
Raw Material supplies: 12 affiliated tuna vessels (1,000 tonnes) and 50 smaller vessels Landings: Skipjack 70%,Bigeye 20%, Yellowfin 10%
Production capacity:
Guayaquil 180 tonnes per 2 x 8 hr shifts – 250 days p.a.
Manta 70 “ “ “ “
Production: Pouches 70%, canned tuna 20%, tuna loins 10%
Output 2006: Pouches 37,500 tonnes, Loins 5,000 tonnes, Canned 1,500,000 cases
Workforce: 2,800 employees, 75% women
Cold Store capacity: Manta 4,000 tonnes, Guayaquil 2,000 tonnes
Markets: Pouches – USA, Canned- Latin America, Loins – Spain
Comment: This is the largest tuna company in Ecuador, but only a small part of its production goes to Europe. Added value s approx. US$0.80, whereas raw material is around US$ 2.50. The 50% Added Value formula would then not be attainable

Name: NIRSA (Negocios Industriales Real SA) Established 1957
Location: Guayaquil & Posorja (125 Km west of Guayaquil)
Owner: Aguirre family (Ecuadorian).
Raw Material supplies: The Company owns 11 tuna vessels registered in Ecuador
Production capacity: Loins 80 tonnes per shift, 23,000 tonnes annually, cannery 20,000 tonnes
Workforce: 3,000 to 4,500 employees, 85% women
Cold Store capacity: 11,000 tonnes
Markets. EU 80 % (Italy 30%, Spain 40% France 10%)Others 20%
Comment. This company is the second largest tuna processor in Ecuador and the first as exporter of product to the EU. In their opinion the Added Value formula is unattainable and also unworkable. They

would like to see some relaxation of the RoO

Name: Asiservy, established 1999
Location: Parque de Atun Km 5 ½ Via Manta Rocafuerte, Manta
Owner: Gustavo Nuñez (Ecuadorian)
Turnover 2006: US$ 33 million
Raw material supplies: No fleet. 2006 purchase was 22,352 tonnes
Production capacity: Loins 85 tonnes, canned 25 tonnes per day
Output 2006: Loins 9,840 tonnes, Canned 38,530 cases
Workforce: 485-530 employees. 70% women
Cold Store capacity: 1300 mt
Markets. Spain 75% Italy 10%, Germany,Belgium, Portugal 15%
Comment: The company saw the Added Value formula as far too high and were not too impressed with the idea, as it would be difficult to manage. Having no fleet of their own, they favoured a relaxation of the current RoO, as long as it did not open the doors to the Western Pacific fleets.

Name: Eurofish, established 1999
Location: Manta
Ownership: Ecuadorian
Raw material supplies. Company has no fleet and must buy in.
Production capacity: Loins 100 tonnes per 10 hour shift
Output 2006: Loins 6,360 tonnes, Canned and pouches 2,920 tonnes
Workforce: 800 employees. 75% women
Cold store capacity: 3,000 tonnes
Markets: Loins EU (Italy, France, Spain, Portugal) 55%, USA 25% Lat. America 20%
Canned EU (as above) 37%, USA 3%, Latin America 60%
Comment: The company would like to see the RoO relaxed to allow more vessels from the Pacific Orient Origin (OPO) to supply for the EU market. Looking at their canned sales to Latin America, it is clear that they have to buy from non-qualifying OPO vessels. The company said that the Added Value formula was not workable, and also made it clear that they did not want the Western Pacific fleet to enter the Ecuadorian market.

Name: Seafman (Sociedad Ecuatoriana de Alimentos Frigorificos Manta)
Location: Manta
Ownership: Seafman Holdings, Panama
Turnover: US$60 million
Raw material supplies: No fleet, so buys in raw tuna.
Production capacity: 11,000 tonnes tuna loins p.a.
Output 2006: Loins 5,300 tonnes, canned tuna 107,000 cases
Workforce: 1200 employees. 90% women
Cold store capacity: 3,000 tonnes
Markets: Loins – Italy 80% Spain 20%
Canned – EU 60% (England, Germany France), Latin America 40%
Comment. The Added Value formula would be unworkable. Recommend a relaxation of the RoO rules to allow more OPO vessels to provide for the EU market.

Name: Tecopesca, Established 1999
Location: Manta
Ownership: Ricardo Herrera (Ecuadorian)
Turnover 2006: US$ 47million
Raw material supplies: No fleet. Material bought in
Production capacity: Loins. 200 tonnes per shift. Canned - 1,200 cases per day
Pouches- 24 containers per month
Output 2006. Loins 12,800 tonnes Canned output - just starting, pouches 150 tonnes
Workforce. 850 employees. 70% women
Cold store capacity: 4,000 tonnes
Markets: Loins –Spain 80%, other EU 20%. Pouch EU 100%
Comment: Cannot see how the Added Value formula will work and could be detrimental to the industry. Would prefer to see a relaxation of the RoO, to include more OPO vessels. This company operates a programme of social responsibility for the improvement of workers lives.

Name: Conservas Isabel, Established 1976
Location: Manta
Ownership: Conserva Garavilla 100% (Spain)
Turnover: US$ 60million
Raw material supplies: The company owns four 1000mt tuna vessels. Two registered in Ecuador, two in Spain
Production capacity: 145 tonnes of raw material per two 8 hour shifts. Cannery production 12,000 cases per day.
Actual output 2006: Loins 30,000 tonnes. Canned 2,400,000 cases
Workforce: 1200 employees, of which 80% women.
Cold store capacity: 4,000 tonnes.
Markets. Loins- Spain 100%. Canned tuna- USA 50%, Latin America 50%
Comment: The Added value of 50% is totally unattainable and the company would not like to see its introduction at any level. They would prefer a relaxation of the current RoO rules, but are in a fairly strong position with a fleet of their own of 4 vessels.

APPENDIX 3: KEY ECUADORIAN FISHERIES ASSOCIATIONS & ORGANISATIONS

Five separate organisations, with which most key players are associated, represent the various interests of the fishing, aquaculture and processing industries.

- Chamber for National Fisheries Guayaquil – Represents the boat owners, processors and exporters of fresh & frozen fish & tuna products
- Association of White Fish Exporters. (ASOEXPEBLA) Manta - Represents the white fish exporters
- Association of Ecuadorian Tuna boat owners (ATUNEC) Manta - Represents the Ecuadorian tuna boat owners.
- Chamber of Ecuadorian Tuna Processors (CEIPA) Manta - Represents the processing industry
- National Chamber of Aquaculture Guayaquil – Represents the processors, exporters, laboratories and balanced feed industries for aquaculture

These associations were formed by their members to promote and to protect the interests of their various fishing sectors. Some duplication arises from these associations being in Guayaquil and Manta, representing their members' interests in these two important fishing ports.

ANNEX 5: COUNTRY CASE STUDY: KENYA

TUNA LOINS

Glossary (Case study specific)

AFIPEK	Kenya Fish Processors and Exporters Association
AGOA	African Growth and Opportunity Act, 2000, USA
COMESA	Common Market of Eastern and Southern Africa
EAC	East African Community
SACU	Southern Africa Customs Union
TDCA EU	South Africa Trade and Development Cooperation Agreement
KSh	Kenya shilling Exchange rate €1=92 KSh
Population:	35.6 million (2005)

1 INTRODUCTION

Kenya presents a marked contrast to the two other tuna processing industries assessed as case studies (Seychelles and Ecuador). Fisheries are a minor component of an economy that is widely diversified into agriculture, tourism and, increasingly, manufacturing. The tuna industry is similarly a minor activity, where domestic landings are minimal and processing depends wholly on fish landed to Mombasa by foreign high seas fleets. Processing itself involves tuna loining by one company, Wananchi and whilst production has grown rapidly and is now substantial, it plays a small part in Kenya's economy. Thus though locally important in Mombasa, this is then not an industry where change will have a substantial national impact.

Fisheries, as a sector, does have socio-economic importance though. Much of Kenya's 32.4m population depends upon fisheries for income and protein food. This is particularly true inland, where the freshwater fishery of Lake Victoria is especially important. Here a range of species fulfils community needs over a broad spectrum: small lake pelagics (omena) provide artisanal subsistence and, when dried a cheap durable protein food, tilapia supplies local demand for quality fish whilst Nile perch supports a sophisticated export industry.

2 CONTEXT – THE KENYAN FISHERIES SECTOR

2.1 Overview of Fisheries Production

Kenyan Fisheries

In spite of having a lengthy coastline, Kenya is not a significant maritime fishing nation. The marine catch is only 7,000 tonnes, and in fact it is the freshwater fishery that is by far the most important contributor to supplies. This is true for production of fish for both domestic consumption and export - the Lake Victoria fishery for Nile perch has underpinned a significant export industry for several decades now. The disparity between marine and freshwater fisheries is well demonstrated by the landings statistics with the 130,000 tonnes freshwater catch (mostly from Lake Victoria) nearly 20 times that of its marine counterpart.

Table 1 Kenyan fisheries production 2001-3, Units tonnes

Units: tonnes	**2001**	**2002**	**2003**	**2004**	**2005**
Rabbit fish	404	369	382	363*	365*
Scavenger	469	414	421	387*	380*
Parrotfish	258	166	238	201^	236*
Other demersals	1,603	1,621	1,801	1,862	2,142
Total demersal	**2,734**	**2,570**	**2,842**	**2,812**	**3,123**
Pelagics					
Tuna	184	165	267	288^	363*
Jacks	118	144	163	187*	207*
Other pelagics	1,105	1,678	1,389	2,259	1,999
Total pelagic	**1,569**	**2,091**	**1,938**	**1,929**	**2,080**
Other fish	841	909	1,039	1,262	659
Shellfish					
Shrimp	687	576	383	393	162
Crabs	137	122	142	147	124
Squid & octopus	226	286	313	326	405
Other shellfish	272	307	311	747	270
Total shellfish	**1,322**	**1,291**	**1,149**	**1,613**	**961**
Total marine landings	**6,466**	**6,861**	**6,968**	**7,805**	**6,823**
Nile perch	**78,534**	**58,432**	**54,700**	**61,440**	**52,368**
Other freshwater	79,151	79,219	57,854	58,528	79,835
Total freshwater & marine	**164151**	**144512**	**119522**	**127,773**	**139,026**

*Source: Department of Fisheries, Nairobi, FAO. * forecasts*

The marine catch is diverse, mostly artisanally caught and can be broadly characterised within three

segments: the demersal fishery much of which includes reef and lagoonal species, a pelagic fishery, mostly for small pelagics and a shellfishery where shrimp is the most important species. The latter segment of this fishery, the shrimp fishery, is the sole industrial element, using trawlers to catch high value wild black tiger and white (banana) shrimp. This operates in northern Kenya off the Tana and Athi (Sabaki) estuaries where the brackish water encourages wild shrimp production. Otherwise, the Kenyan fishery involves small craft, many sail propelled, fishing well within the 12 mile limit. Some 2,700 such craft, crewed by an estimated 8,000 fishermen provide the bulk of this catch.

What is clearly missing is a significant tuna fishery. Domestic tuna landings are tiny (only a few hundred tonnes annually) but the potential resource in the Kenyan EEZ is seasonally significant. As the discussion below shows, high seas (non-Kenyan) fleets are catching as much as 60,000 tonnes annually as the seasonal migration passes through the Kenyan EEZ (June to September). With western Indian Ocean tuna production exceeding 800,000 tonnes (FAO area 51), the potential could be higher – since the Tanzanians developed an effective MSC programme recently, they have been able to demonstrate that they have a seasonally valuable tuna resource in their EEZ.

Kenyan seafood processing

The Kenyan marine processing industry is small and fragmented. There are nine export-orientated companies that have installed processing facilities that meet EU standards and have been given EU export reference numbers. Seven of the larger companies are listed in Table 2, two of which are sizable entities. Firstly, there is Wananchi Marine Products, Kenya's only tuna processor with a turnover of €30 million annually. The other major processor is the Alpha group, a leading diversified East African food group with interests in meat, dairy and fisheries. Alpha group's main fisheries activity is Nile perch processing where its plants in Kenya, Uganda and Tanzania make it the largest Nile perch producer. Alpha does produce some tuna products (high value fresh tuna from their two longliners) but its principal marine activity is shrimp trawling in Kenya and Tanzania. The principal characteristic of the marine plants is a shortage of raw material (as indeed is increasingly the case for Nile perch processors).

Table 2: Kenya's Marine-Fishery Based Processing facilities

Company	Products and activities	Utilisation % *
Wananchi Marine Products Ltd	Cooked & frozen tuna loins & tuna flake in containers	75%
Seaharvest Ltd	Frozen octopus, squid & lobster tails:	40%
TransAfrica Fisheries Ltd	Frozen lobster tails, octopus & squid	40%
Alpha Group: • Alpha Manyana • Alpha Serengeti • Alpha Amboseli	Factory trawlers producing frozen shrimp: Black tiger & banana prawns. Also the leading player in Kenya's Nile perch industry	40%
Basta and Sons Ltd	Factory trawling producing frozen black tiger & banana prawns	40%
MV Crustacea Ltd	Frozen lobster tails	30%
Banner Ltd	Frozen lobster tails	30%

* Utilization %: the proportion of available capacity actually used on average

The one exception to this is tuna processing as table 2 shows – whilst most plants are operating at only 30-40% of capacity Wananchi's tuna plant is using 75% of its capacity. Tuna is evidently the one seafood raw material in adequate supply in Kenya.

Kenya's processing industry has had problems exporting in the past. Hygiene/food safety problems led to a ban on Kenyan Nile perch exports to the EU from 1999 to 2000. The impact of this can be seen in the Kenyan export data over the period (table 3) - following this ban, trade virtually collapsed for a period. As a result, much attention has subsequently been paid to Kenyan seafood quality control systems. These have been harmonized with the respective EU systems since January 2004, and Kenya can now export fish and fishery products to the EU without preconditions, as long as agreed procedures are followed. As the EU is generally deemed to be one of the mostly strictly SPS regulated market for seafood, this effectively allows Kenyan companies to export freely to the US, Australia, Japan and the Middle East without being subjected to SPS barriers

Table 3: EU imports of Nile perch fillet, Unit: tonnes.

	1997	1998	1999	2000	2001	2002	2003	2004	2005
Tonnes	7,488	2,447	1,121	30	2,747	3,972	5,086	6,737	5,176

Source: Napfisheries data, Eurostat

.The industry also manages it own parallel self regulation systems through an industry Code of Practice, administered by the Kenya Fish Processors and Exporters Association (AFIPEK). All companies in Kenya exporting fish and fishery products from Kenya belong to this association, which in turn has a formal working relationship with the government

2.2 The Kenyan Tuna Industry

2.2.1 The Raw Tuna Supply

Kenya's industrial tuna supply depends upon imports, or rather landings to Kenya by foreign vessels. This is a high seas fishery, which Kenya is ill equipped to exploit, lacking the very large and highly expensive vessels required (eg purse seiners). The tuna is landed frozen in the purse-seiner anchorage, located by the Wananchi factory compound. The vessels find this convenient because they frequently visit Mombasa port for refuelling during the height of fishing season, i.e. when the tuna migration has brought tuna to the vicinity, which is usually from June to September.

However, Wananchi's limited cold storage capacity (and the lack of alternatives public cold storage in Mombasa) means that it is hostage to the seasonal nature of the fishery, facing high prices or shortages when the fleet is operating distantly. This is exacerbated by poor Kenyan credit facilities, making it difficult for the company to finance purchases in bulk (i.e. of a whole purse seiner load) and so gain economies of scale. Also as Wananchi is the only Kenyan tuna processor, there is no scope to spread the load of bulk purchases with others, further limiting the company's freedom of action. The result is a lack of bargaining power, so forcing Wananchi to pay prices higher than those in the island ports in the South West Indian Ocean. If these constraints are to be lifted, better access to credit will be essential, allowing development of adequate cold storage facilities. This would also encourage other companies to invest in tuna processing, so increasing the Kenyan industry's critical mass. This will also require access to suitable coastal land for construction of better fishing port facilities with adequate anchorages

Kenya's domestic tuna catch is tiny and it is landings by the international high seas tuna fleets that account for virtually the entire Kenyan supply. According to the industry, catches by these fleets in Kenyan waters had risen to over 60,000 tonnes by last year (table 4). Of the 35,000 tonnes of this catch that actually passed through Mombasa's port annually, about 15,000 tonnes were used for processing in Kenya whilst the 20,000 tonne balance was transhipped

Table 4: Tuna production within the Kenyan EEZ: 2000-6, Units: tonnes

Year	2000	2001	2002	2003	2004	2005	2006
Landings	11,600	11,750	7,340	9,160	30,448	48,640	63,600

Source: Department of Fisheries, Kenya, and Wananchi Marine Products ltd

Tuna landed in Mombasa from the South Western Indian Ocean Region is about 60% yellowfin and 40% skipjack according to the industry. Prices are believed to be some 0.1-0.2US$/kg higher than those for tuna from the Pacific, largely because there is a higher proportion of yellowfin. However an alternative explanation might be that this represents the EU tuna price premium of $100-200/tonne, a differential mentioned by tuna traders in the region.

Catches made in Kenya's EEZ have evidently been rising, but as table 5 shows they still represent a small proportion of the Western Indian Ocean total. Whilst there may not be great potential for expanding production overall (with catches close to estimated maxima) there would seem to be real scope for Kenya to increase its share.

Table 5: Tuna Stocks and catches in the Indian Ocean, Units: tonnes

Units: 000 tonnes	Estimated MSY	2004 Catch
Skipjack tuna	Approx 500	330
Yellow-fin tuna	280-350	421
Big eye tuna	89 – 102	90
Total		**841**

Source: IOTC, 2003, FAO 2004

2.2.2 Tuna Loining

There is one processing plant producing loins in Mombassa, Wananchi Marine Products. In some ways, this acts more as a contract processing operation than a fully independent processor, such is its dependence upon the distant water fleets. Figure 1 shows the plant's role and outputs diagrammatically.

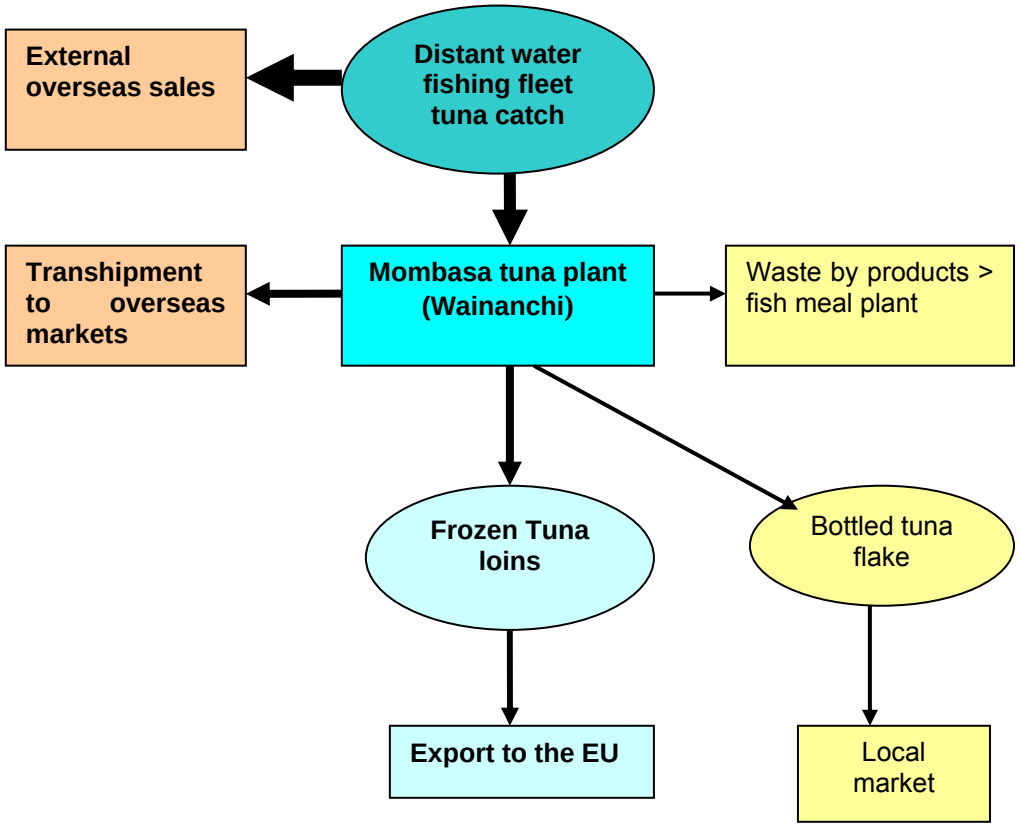

Fig 1 Kenyan tuna industry

The plant produces two products – frozen tuna loins and, as a marketable by-product, tuna flake (which comprises the fragments left after skinning and cleaning the loin fillets). The processes involved are thawing, cooking and filleting, the latter requiring the bulk of the labour. Loins are packed and frozen for export whilst flake is bottled for sale on the domestic market. Separately, inedible waste is rendered to fishmeal, now a valuable product in itself. Annual input to the plant in 2004 was some 15,000 tonnes of raw tuna which yielded about 7,000 tonnes of tuna loins.

2.3 Kenyan Trade in Seafood

Nile perch exports have led Kenya's seafood trade for the past two decades. This trade peaked by 2003, and resource related constraints suggest that it will at best remain at current levels. The dynamic new element has been the emergence of tuna loining as an expanding industry which started in 1996 with exports of 500-1,000 tonnes to Italy. This trade has grown rapidly, with significant expansion evident after 2003.

Table 6: Kenyan seafood product exports 2000 to 2006, Units tonnes

Year	2000	2001	2002	2003	2004	2005	2006
Nile perch fillets	15,826	17,947	16,456	16,546	15,728	13,769	11,846
Nile perch maws	310	337	393	392	385	431	537
Nile perch skins	-	104	-	667	416	310	364
Tuna loins	**4,058**	**4,700**	**3,229**	**3,747**	**10,651**	**17,997**	**22,117**
Swordfish	-	-	-	-	-	-	192
Lobsters		38	72	165	208	33	8
Octopus	137	207	659	828	602	276	665
Prawns	137	480	729	209	232	289	495
Cuttlefish & squid	-	12	99	9	18	9	26
Total	**20,510**	**23,825**	**20,712**	**22,563**	**28,240**	**33,114**	**36,368**

Source: Department of Fisheries, Kenya

The tuna loin situation is rather different if looked at from the EU import respective. As Table 7 shows, EU imports fairly closely mirrored Kenyan export data up to 2003. They then began to diverge with reported Kenyan loin exports substantially exceeding EU imports from then onwards (i.e. 18,000 tonnes compared with 9,000 tonnes in 2005). This suggests that either loins are now being exported in quantity to destinations outside the EU or there are errors in the data. The latter would seem to be the more likely explanation given the preference advantage of exporting to the EU

Table 7: Kenyan tuna loin exports to the EU 2000 to 2005. Units: tonnes

Tuna loins 1604 1418	2000	2001	2002	2003	2004	2005
France	983	1,041				
Italy	3,748	5,724	2,340	2,945	7,044	7,971
Spain	0	171	145	97	467	1,159
Total (tonnes)	**4,731**	**6,936**	**2,485**	**3,042**	**7,510**	**9,130**
Value (€000s)	**13,709**	**23,658**	**8,767**	**9,353**	**23,218**	**30,115**
Unit price (€/kg)	**€ 2.90**	**€ 3.41**	**€ 3.53**	**€ 3.07**	**€ 3.09**	**€ 3.30**

Source: Eurostat

The principle EU importer of Kenyan loins is Italy, as it has been from the outset. France did import some loins and recently Spanish imports have been increasing, but Italy still accounts for nearly 90% of the total. As table 8 shows, by 2005 Kenya accounted for a small but significant proportion (12%) of EU imports. One anomalous aspect is the apparent import by Spain of around 900 tonnes of canned tuna in 2005 (1,030 tonnes in 2004), when Kenya is supposedly canning no tuna. The explanation for this could be that some of the tuna flake preserve by-product from Wananchi is being exported. Alternatively, this could be simply a misclassification or other error

Table 8: Kenyan tuna loin exports to the EU 2005 compared to total EU imports

		Italy	Spain	Total
Tuna loins	***Tonnes***	7,971	1,159	**9,130**
1604 1416	***€000s***	27,209	2,907	**30,115**
Tuna canned in brine*	***Tonnes***		896	**896**
1604 1418	***€000s***		2,220	**2,220**
Total EU loins imports	***Tonnes***	36,996	33,963	**77,858**
	€000s	126,745	98,132	**241,611**

*Source: Eurostat * assumed to be flake product – by-product of tuna loining*

The serious problems that the Kenyan industry experience with food safety/hygiene have been mentioned above. The damage that this did to Kenyan seafood trade led to major changes in the industry's hygiene management. The Department of Fisheries has a regional office in Mombasa, which provides support services to the processors to facilitate export health certification. Through this, the fishery inspectors, together with the trade association (AFIPEK) help factories in the region to meet export requirements. This was a major improvement on the previous system (five years ago) which required exporters getting documentation from several ministries before exporting.

This is matched by other key facilities in Mombasa including quality control laboratories, as well as the standards organisations, SGS and Kenya Bureau of Standards (KeBS), who offer services to the exporters. These include quality assurance (such as routine microbiological tests on water, fish, personnel swabs and chemical tests) and instruments calibration services. This capacity is additional to that provided by in-house laboratories at each factory. There is however a lack of appropriate facilities for the rigorous heavy metal tests required for tuna (eg for mercury and cadmium) which are contracted out to overseas laboratories.

The system still has drawbacks though - final export health certificates are prepared in the Nairobi Department of Fisheries HQ, involving a three day delay which can be costly. However steps are being taken to allow issuance of certificates in both Mombasa and Kisumu, Kenya's two seafood processing centres, so reducing delays and costs.

2.4 Other Issues: Tariffs

Currently two principal sets of tariffs apply to Kenya's EU exports – those covering Nile perch and tuna products. For tuna only one tariff is important, that covering loins where Kenya gains a competitive advantage of up to 24% depending upon the non-preferred competitor that provides the comparison

Table 9: EU tariffs generally applying to tuna products imported from Kenya

Item*	CN Code (Eurostat)	Conventional Duty	Preference Advantage
Frozen yellowfin tuna	0303 42	20-22%	Duty suspended
Frozen skipjack tuna	0303 43	22%	Duty suspended
Frozen tuna loins	**1604 14 16**	**24%**	**24%**
Canned tuna	1604 14 11/18/70	24%	24%

Sources: see Appendix 1

3 Economic implications of the Kenyan tuna loining industry

3.1 The Tuna Fishery

Kenya has no fleet capable of participating in the high seas tuna fishery, but it does benefit from the fishery to a minor degree through licensing. Total license fees in 2005 amounted to US$840,000, but this was only 1.4% of the value of the estimated 60,000 tonnes of tuna caught in Kenyan waters, arguable worth more than $60 million at first sale. The catch may actually be considerably higher, but Kenya has limited monitoring, control and surveillance (MCS) capacity to police its EEZ, lacking a vessel monitoring system (VMS), aerial surveillance or suitable patrol boats. Consequently Kenya is largely unprotected against Illegal, unregulated and Unreported (IUU) fishing activities in its EEZ.

Kenya also has very little interaction with the high seas fleet, partly because there is no effective national legislation regarding crewing licensed vessels in its EEZ. There is also no requirement for national ownership of high seas vessels nor the companies operating them (as there is in Namibia, for example). There is also no legislation either governing transhipment at sea or requiring any landings to be made in Kenya. Thus any vessels that choose to land or tranship in Kenya or to employ Kenyan crews, do so purely at their own volition. This has all meant that Kenya has arguably gained less from the tuna fishery than comparable ACP states, and there are those in the industry who see this as a major development opportunity missed.

3.2 The Tuna Processing Industry

The key Kenyan processing activity is tuna loining and this section assesses the production economics for this. In effect this means production costs for the sole processor, Wananchi. Actual costs for the plant are of course commercially confidential, but can be assessed through use of a model based upon key Kenyan factors and unit costs. This is done in table 10 which shows an indicative average production cost of €2.9/kg (based upon €2.14 for fish and €0.76 for other costs). This is assumed in the model to involve a mix of skipjack and yellowfin loins, whilst minor revenues received for by-products are treated as discounts from production costs.

Table 10: Production cost estimates for loins in Kenya

Loins		**€/kg**	**%**
Skipjack	**raw material**	**2.14**	**71%**
Added value	Costs	0.76	25%
	Margin	0.12	4%
Added value		**0.88**	**29%**
Ex-works price		**3.03**	**100%**

The ex-works price quoted in the estimate was derived from EU import data after these CIF values have been adjusted for freight costs. Table 11 show Italian imports to be significantly more highly priced than Spanish imports (as they have been for the past five years), suggesting that Italy is importing the bulk of Wananchi's yellowfin loins

Table 11: Unit CIF prices of Kenyan tuna loin exports to the EU 2005

		Italy	**Spain**	**Total**
Tuna loins	€/kg	3.41	2.51	**3.30**
Tuna canned in brine	€/kg		2.48	2.48
Total EU loins imports	€/kg	3.43	2.89	**3.10**

Source: Eurostat

3.3 Aspects Sensitive to RoO Change

The Key issue for Kenya is clearly the source of tuna supply, and with no fleet of its own, Kenya's loining industry is obviously entirely dependent upon the international high seas fleet. This means relying upon either landings from that fleet or imports, and in both cases they must of course come from an originating source. This effectively limits the source to the EU fleet. However, in practical logistical terms it is only EU vessel landings, made during transhipment visits to Mombasa, that can provide the supply as there are insufficient storage facilities in the port to allow bulk deliveries (i.e. imports from carrier vessels). This is then a constraint on the industry's development.

The implication is that access to non originating fish would assist the industry. This would allow it to benefit from landings by the other Indian Ocean fleets (mainly Asian), so widen the potential supply base. The central question is then would it be able to achieve the value added threshold set for the new RoO. If not, then the new RoO do conceivably pose a potential problem should they serve to diminish the EU fleet's activities in the Western Indian Ocean. This could then in turn prove to be a threat to the availability of eligible raw material

4 Analysis – The potential impact of RoO change

4.1 The Tuna Processing Industry

The crucial consideration here is whether Kenyan loiners can achieve the value added threshold set by new RoO at 60%. Quite clearly they cannot, and even the lower limit set for EBA nations of 50% is similarly unattainable. Table 12 shows that value added is at most 32%, representing €0.84-0.97/kg depending whether direct costs are included or not. The industry believes its "overhead" to be between €0.8/kg and €1.1/kg and if this is assumed to approximate to added value, then this too lies between 30% and 40%.on industry estimates.

Table 12: Added value Production cost estimates for loins in Kenya

Item	Production cost tuna loins		Added
	€/kg	%	Value
Direct costs			
Cost of fish raw material	2.14	71%	
Packaging	0.05	2%	2%
Case (outer)	0.04	1%	1%
Refreezing	0.10	3%	3%
Indirect costs			
Labour	0.04	1%	1%
Fixed overhead	0.36	12%	12%
Utilities & services	0.26	9%	9%
Less by-product revenues	-0.09	-3%	
Margin	0.12	4%	4%
Sale price	**3.03**	**100%**	**32%**
Freight	0.27		
CIF EU price	**3.30**		

This means that two different approaches to estimating added value apparently agree that Kenyan loiners will not be able to archive the value added threshold by a margin of 20% to 30%. Thus, the industry has little to gain from the new RoO and will remain dependent upon obtaining originating fish. The corollary from this is that the industry has something to loose – i.e. the risk that the new RoO could persuade the EU fleet to move away from the Western Indian Ocean, or could damage the fleets viability to the point where it retrenches. This would then trigger the concern mentioned above, i.e. a threat to the availability of eligible raw material for Kenyan loiners. This risk may not be great (compared with others such as the Doha agenda and food safety) but it does mean that RoO change is on balance, negative for Kenya

The Kenyan view

The analysis above represents an independent view of Kenya's position. However, an important task of this study is to assess the perception of the stakeholders and see if this concurs with the independent view. The principal concern for the Kenyan industry is the potential for problems in finding originating raw material. Were all tuna caught within the Kenyan EEZ to be deemed to be originating, irrespective of by whom they were caught, then that would solve the problem in Kenyan eyes. Indeed, the fact that this tuna is apparently not deemed to be Kenyan is seen as an infringement of the UNCLOS in that it suggests that fish within the Kenyan EEZ does not actually belong to Kenya by sovereign right.

Conversely, the perception is that the 50% crewing and ownership rule should work in Kenya's favour. Were this to be incorporated into Kenyan law then it would generate both employment and economic benefit along the lines of that seen in Namibia, leading to the development of a true national industrial fishery. It could also lead to much improved rental revenues from the resource through higher license receipts. The possibility of the abandoning of the crewing requirement in the new RoO is then potentially unhelpful.

That said, currently this rule is seen as one sided, as it implies that ACP countries have to land their own fish to be eligible for preference – clearly completely impractical for small nations given the huge investment that these fisheries demand. So though this should promote ACP development, in fact it favours the EU fleets through effectively making the use of EU vessels and crew mandatory whilst ensuring that the EU firms don't have to invest in ACP facilities. This has denied the ACP partners revenues from transhipment and other services, unless these happened to be embodied in FPAs or other agreements. The Seychelles case study and an Ifremer 1999 study showed these revenues to be potentially much higher than license fees.

Thus there is a perception in Kenya that while RoO change is certainly needed, the options currently proposed fail to do so constructively. One alternative solution suggested involved the current derogation arrangement, but to be effective, this would require a much larger EU import quota than that currently available, i.e. 10,000 tonnes of either loins or canned tuna for Kenya alone. Alternatively, a greatly increased permitted "tolerance" level to at least 30% of value (up from the current 15%)

would be sufficient to provide the flexibility that Kenya's loiners need to source on the open market. Though the tolerance rule has not been invoked yet, there is an intention to do so now, but this will involve a small quantity – 2-300 tonnes- to allow the exploration of the prospects of using tuna from the Asian fleet.

The proposed RoO changes then find little favour amongst Kenyan stakeholders, a response which endorses the independent analysis above. Furthermore, as far as the complexity of the process is concerned, the belief is that a value added system would add to bureaucratic load. This will be the case unless some simple system such as change of tariff heading (CTH) is employed, as otherwise customs verification costs will, for example, increase (maybe by 5%).

5 WIDER IMPLICATIONS OF RoO CHANGE

5.1 Economic, Social & Environmental Impacts

Tuna loining in Kenya clearly provides some employment in Mombasa and makes a contribution to exports. Apart from that, its impact economically or socially is limited. Arguably, as Kenya has no fleet, its relative impact upon resource exploitation is even smaller. Kenya competes as a processor among others, and is a small one at that, and so the issue is more one of substitution than increasing pressure on the resource. The wider implications of any change that the new RoO might bring about are then likely to be very minor

APPENDIX 1

EU tariffs generally applying to seafood products imported from Kenya

Item	HS/CN Code	Conventional duty
0302 Fresh whole fish Fresh freshwater fish (nei)	0302 69 11	8%
0303 frozen whole fish Frozen tuna (all sp)	0303 41-49	22% suspended
Frozen freshwater fish (nei)	0303 79 19	8%
Frozen marine fish (nei)	0303 79 98	15%
0304 Fish fillet Freshwater fish fillets (nei)	0304 10 19 fresh	9%
Fresh marine fish fillets	0304 10 98	15%
Freshwater fish fillets (nei)	0304 20 19 frozen	9%
Frozen marine fish fillets	0304 20 97	7.5%
0306 Crustacea Fresh/frozen rock lobster	030611	12.5%
Fresh/frozen Penaeid shrimp	0306 1350/1380/2390	12%
Fresh/frozen crabs	0306 1490/2480	7.5%
0307 Molluscs Frozen squid	0307 49	6-8%
1604 canned/processed Frozen tuna loins	1604 14 16	24%
Canned tuna in brine	1604 14 18	24%
Canned tuna "flake pack"	1604 20 70	24%

Source: Commission Regulation (EC) No 1719/2005 to Annex 1 of Council Regulation No 2658/87.

nei = not elsewhere indicated (i.e. a general category)

ANNEX 6: COUNTRY CASE STUDY: NAMIBIA

HAKE

Glossary (Case study specific)
MFMR Ministry of Fisheries and Marine Resources
MTI Namibian Ministry of Trade and Industry
TDCA South African/EU Trade and Development Cooperation Agreement

N$ Namibian dollar Exchange rate €1=N$9.2
Population: 2.02 million (2005)

1 INTRODUCTION

Fisheries are important in Namibia. There is a substantial resource of some valuable species (hake in particular) and this supports a significant industry. The sector has consistently contributed more than 5% to Namibia's GDP with processing an important element. What is perhaps surprising is that, in this developing country, the fisheries sector is almost wholly commercial, with very little artisanal participation. This is essentially an industrial fishery using large commercial vessels to produce fish in quantity using modern techniques

Table 1: Economic Importance of Namibia's Fisheries Sector (2000-2004)

Units: Constant 1995 prices – N$ million	**2000**	**2001**	**2002**	**2003**	**2004**
GDP at market prices	15,100	15,462	16,494	17,068	18,084
Fishing contribution	641	631	703	732	666
Fish processing contribution	241	204	183	277	271
Total contribution by fisheries	**882**	**835**	**886**	**1,009**	**937**
Fisheries % of total GDP	5.8%	5.4%	5.4%	5.9%	5.2%

Source: Bank of Namibia (2006)in the PWC report

Although the fisheries sector doesn't contribute to the economy through supporting coastal artisanal communities, it does have a substantial positive impact. This includes its contribution to exports, the employment it generates and the ancillary industries it supports. In short, very much the role played by fisheries in developed countries. The industry is accordingly advanced and sophisticated.

In 2005 some 13,500 people were employed by the fishery industry, 80% of whom were Namibians (Namibians accounted for 68% of sea-going employment and 98% of on-shore employment in 2002 according to the Meyn report). This reflects the success of a government policy designed to encourage processing of fish on-shore through linking the rights of foreign fleets to fish in Namibian waters to the establishing of post harvest activities there. The advanced nature of the Namibian fishing industry has then been the result of partnerships with European (Mainly Spanish) and South African industry leaders, driven by a policy framework that has been widely admired.

2 Context – The Namibian fisheries sector

2.1 Overview of Fisheries Production

Namibian waters produce around 400-600,000 tonnes of fish in most years. Much of this is small pelagics (65% on average), and this explains the variability in production. The main high value component is quite clearly hake which contributes 30% to the total quantity and a great deal more to total value. All other species contribute minimally to supplies, accounting for less than 10% collectively. There are a few other high value items, chief of which are monkfish (angelfish), kingklip, albacore tuna and geryon crab. These have specialised markets and are also exported, with monkfish the most important item. However, their contribution is marginal in value terms.

Table 2: Namibian fish & shellfish production 2000 to 2005, Units tonnes

Species	2000	2001	2002	2003	2004	2005
Hake	**171,397**	**173,277**	**156,499**	**192,275**	**173,902**	**158,060**
Horse mackerel	344,314	309,381	359,183	366,912	314,538	324,489
Pilchard	25,388	7,940	4,176	22,255	28,605	27,266
Monkfish	14,358	12,390	15,174	12,867	8,991	11,087
Kingklip	3,922	6,607	7,926	7,238	7,538	5,620
Albacore	2,418	3,419	2,962	3,275	3,328	2,787
Chub mackerel	1,641	6,329	3,530	4,650	55	2,562
Anchovy	146	2,133	41,203	1,646	2,212	1,969
Lobster	365	363	358	250	214	248
Red crab (geryon)	2,700	2,343	2,471	2,128	2,467	2,500
Other	23,255	23,316	31,409	22,800	26,877	16,108
Total	**589,904**	**547,498**	**624,891**	**636,296**	**394,825**	**552,695**

Source: FAO, Ministry of Fisheries & Marine Resources

Hake is premier fishery of Namibia, based on a fleet of large demersal trawlers, most (over 80%) Namibian owned. These trawlers also catch the much smaller quantities of high value demersal fish like monk fish mentioned above. The pelagic fishery depends upon a sizable fleet of midwinter trawlers (for horse mackerel) and a purse seiner pelagic fleet for pilchards, whilst smaller boats concentrate on specialized fishing such as crab, lobster or inshore “linefish” for the top end of the domestic and regional markets

There is a little aquaculture in Namibia, with oyster production the main contributor (300 tonnes in 2005, and 600 tonnes estimated for 2006). Surprisingly for such a dry country there is also some freshwater culture, driven by Government initiatives. By the end of 2006, some 50 tonnes of tilapia and 20 tonnes of catfish were produced as a pilot stage. If successful this activity will have a small scale community focus, unlike much of the marine fishery.

Processing mostly involves whitefish, fresh and frozen, whole and filleted, and this is the subject of the next section. Alongside this there is a canning industry, also export oriented, based upon the pilchard catch. This is profitable but does depend upon the availability of pilchards which exhibit the normal small pelagic characteristic of great periodic variability in abundance.

2.2 The Namibian hake Industry

2.2.1 The hake fishery

Most hake is caught by large industrial demersal (bottom) trawlers, and there are two types of operation involved – fresh fish trawlers which hold fish on ice (mostly whole or headed and gutted) and freezer trawlers which freeze the fish at sea, usually after a degree of processing. The latter are deemed to produce the best quality as fish is frozen so soon after capture. These vessels are then effectively floating processing plants as well as fishing platforms, and some are now able to produce high quality sophisticated products.

There is also a small long line fishery for fresh hake which produces very high quality fish that are exported fresh whole gutted. This is a high unit value fishery that handles the fish well from hook to market, keeping it chilled on ice throughout. It has been Namibia’s good infrastructure coupled with access to South African airports that has allowed this fishery to develop – and achieve prices of €2.3/kg for whole fish – nearly twice the average.

2.2.2 The Hake Processing industry

To a large extent, Namibia’s fishing industry has been, and still is, a raw materials producer. Most of the production is exported as fresh, chilled or frozen primary products; with limited value addition in Namibia. However, recently there has been development of some added value capacity. One possible indicator of success here is the way unit export price has increased for Namibian seafood exports

since 2002, possibly attributable to more value added products being developed and exported. However recent rises in the world prices or hake have probably had something to do with this.

Primary products
The traditional raw material is fresh hake, as landed by wetfish trawlers. This is processed onshore into frozen products, ranging from headed and gutted fish to calibrated portions in retail packs. Products regularly produced within this range include:

- Whole gutted hake
- Headed and gutted fish
- Steaks or cutlets (i.e. vertical sections through the fish)
- Skin-on and skin-off (i.e. skinless) fillets, which can be "deep-skinned" to remove all traces of non white meat
- Fillets with "pin bone in" and "pin bone out" (i.e. removal of the small lateral bones),
- Portion controlled retail packs – clearly an added value item.

There is also emphasis on utilization of all hake by-products to maximize value, examples being tail pieces; heads; frames (hake backbones); roes; and minced blocks from meat off-cuts. Even hake tongues can be used, packed as a delicacy for markets such as Spain.

The typical primary hake product is the frozen catering pack, aimed at the international food service and wholesale sectors. Generally packed in 5-10 kilo boxes, these include frozen headed and gutted fish, or frozen fillets (skin-on or off), as well as products such as loins, fish mince, blocks, sausages and roes. The majority of Namibian hake has been exported in this form over the years.

Value added (secondary) products
Increasingly the market is demanding customized products for foodservice and retail, i.e. value added items, and this is driving the move towards value added generally. This can be highly labour intensive, but given the relatively high cost of labour in Namibia, technical alternatives have also been adopted. The computerized production lines of Hangana Seafoods in Walvis Bay, where lasers cut fillets into exact portions to meet customer specifications is a case in point. This demonstrates the level of investment in technology that the Namibian industry has been making.

As a result, Namibian companies with Spanish shareholding are now producing value added retail and foodservice products, for sale under their own European brands. Namibian companies with little or no overseas shareholding are now joining in, but due to the enormous cost of developing an internationally recognized brand, are doing so under other companies' established labels. This makes sense as it allows these companies to benefit from value added production at relatively low up-front cost. The barrier to entry would otherwise be insurmountable.

The categories of product that are emerging as key value added items in Namibia are frozen retail packs. These are not the highly processed items such as prepared meals that are normally thought of as value added, but then the key market is Spain where traditional home cooking still holds sway. Here what the consumer wants is refined raw materials that are "kitchen-ready" rather than ready-to-eat. The typical product specification is shown in the box below

Frozen retail pack specification. Calibrated portion products, cut from fillets, aimed directly at the consumer via the retail chains. Typically supplied in 400-600 gm packs they are well presented with consumer appeal a key concern. Hangana Seafoods, Tunacor, Novanam, Merlus, and Seawork are Namibian producers, all except for Hangana, sell under their Spanish parent companies brands in Spain and elsewhere in Europe. Hangana sell under their own brand name, but at this stage, only in Namibia.

Namibian hake products are then a mix of commodity and value added items. The main distinction seems to be responsiveness to the market, with value added status being conferred by tailoring products specifically to meet customer's needs. This is believed to lead to more stable prices and a closer customer relationship.

Commodity products, on the other hand are sold through general importers, with no differentiation

shown by the market, and the price dictated by international supply and demand. Once the commodity product is sold overseas, the Namibian supplier has little idea of its fate. Some is sold for further processing, implying a loss of value adding opportunity for Namibia (and thus a missed prospect for increasing employment). Periodically prices for commodity hake can be high, though, so maintaining some capacity to supply the commodity market is seen as a sensible strategy.

The processors
Of Namibia's 25 EU-registered seafood processing companies, eleven based in Walvis Bay and Luderitz handle the bulk of the country's hake processing. Together they have the capacity to process around 160.000 tonnes raw whole hake, i.e. the bulk of average Namibian hake landings. Novanam (Pescanova) is the largest (22% of the total) but no company has a dominant position, and most account for 5-10% of the total.

Table 3: Namibian Hake Processors, Units tonnes

Fish Processing Company	Key Products	Capacity (tonnes)*	Type
Cadilu Fishing (Pty) Ltd., Walvis Bay	Frozen H&G, and frozen foodservice fillets and portions	15,000	Frozen
Corvima Fishing (Pty) Ltd., Walvis Bay	Fresh long line caught whole gutted hake, and fresh fillets	3,200	Fresh
Etale Fishing Company (Pty) Ltd., Walvis Bay	Frozen H&G, and frozen foodservice fillets and portions	15,000	Frozen
Hangana Seafood (Pty) Ltd., Walvis Bay	Frozen H&G, and frozen retail and foodservice fillets and portions	22,000	Frozen VA
Marco Fishing (Pty) Ltd., Walvis Bay	Fresh long line caught whole gutted hake, and fresh fillets	2,000	Fresh
Merlus Seafood Processors (Pty) Ltd., Walvis Bay	Frozen retail fillets and portions	19,000	Frozen VA
Novanam Ltd. Group, Luderitz (Pescanova Group)	Frozen retail H&G, fillets and portions	35,000	Frozen VA
Overberg Fishing Group, Walvis Bay	Frozen H&G, and frozen retail and foodservice fillets and portions	18,000	Frozen VA
Seaflower Whitefish Corporation, Luderitz	Frozen H&G, and frozen foodservice fillets and portions	10,000	Frozen
Seawork Fish Processors (Pty) Ltd., Walvis Bay	Frozen H&G, primarily frozen foodservice fillets & portions, some retail fillets & portions.	11,000	Frozen VA
Tunacor Group Ltd., Walvis Bay	Frozen H&G, and frozen retail and foodservice fillets and portions	7,000	Frozen VA
Total		**157,000**	

*Source: in-country research * Estimated capacity based on whole round fish input (tonnes)*
Key
H&G = headed and gutted hake
Fillets = skin-on and skin-off
Portions = loins, fillet central cuts, belly-flap cuts, moulded portions (eg formed loins & steaks)

The processing plants are differentiated along the product lines describe above. Two plants produce fresh products, the other nine frozen products, and six of these also produce some value added items.

2.3 Nambian Trade in Seafood

Namibia exports seafood in substantial quantities from all segments of the sector. Indeed, the export profile mirrors that of production by the fishery fairly closely, and the reality is that the fisheries exist primarily to export. The Namibian population is small, and tends to favour meat anyway, and so domestic demand doesn't play a large role in the industry's market.

Table 4: Namibian seafood product exports 2000 to 2004. Units: tonnes

	2000	2001	2002	2003	2004	2004
Hake						**$milion**
Whole frozen	**80,417**	**54,442**	**68,114**	**29,693**	**25,957**	**45**
Frozen fillets & meat	**0**	**0**	**0**	**0**	**35,043**	**100**
Frozen fillets	**72,173**	**25,482**	**31,391**	**26,219**	**6,394**	**20**
Frozen monkfish	14,070	11,800	14,178	11,800	7,800	16
Other whole frozen	0	65,758	22,174	15,000	14,934	19
Fresh fish	11,285	9,021	5,136	3,549	6,001	17
Frozen small pelagics	181,557	117,312	129,597	132,548	151,924	76
Canned pilchards	11,016	13,188	5,276	6,245	5,567	8
Other fish products	40,680	45,129	87,964	116,657	39,841	52
	411,198	**342,132**	**363,830**	**341,711**	**293,461**	**352**

Source: FAO/MFMR

Hake in its various product forms is a major contributor to exports, accounting for 60,000 tonnes in 2004. In previous years, it seems hake fillet was aggregated with other fillets in the general category. EU import data suggests that this is the case, and also that even in 2004, some hake fillets were still being misclassified. The other large volume export is small pelagics, but when looked at in value terms the dominance of hake becomes apparent – $145m to $165m, up to 50% of total export receipts and twice the value of small pelagic exports

Table 5: EU Imports of Namibian Hake by product category 2001-05 *Units: tonnes*

Product wt: tonnes	**2001**	**2002**	**2003**	**2004**	**2005**	
Fresh whole hake	7,712	5,587	5,042	5,806	6,140	9%
Frozen whole hake	23,604	21,874	17,452	18,833	11,025	17%
Frozen hake fillet	49,632	34,174	50,134	41,676	39,994	61%
Frozen hake meat	6,772	7,378	9,245	10,486	8,514	13%
Total EU Imports	**87,720**	**69,013**	**81,873**	**76,801**	**65,673**	**100%**
Live weight: tonnes						
Fresh whole hake	8,483	6,146	5,546	6,387	6,754	5%
Frozen whole hake	25,964	24,061	19,197	20,716	12,127	9%
Frozen hake fillet	132,352	91,131	133,691	111,136	106,651	75%
Frozen hake meat	13,544	14,756	18,490	20,972	17,028	12%
Total EU Imports	**180,344**	**136,094**	**176,924**	**159,210**	**142,560**	**100%**

Source: Eurostat

Table 5 provides an alternative view on Namibian hake exports – from EU import data. It shows that fillet is the dominant product form, accounting for 61% in product weight terms but 75% when adjusted to live weight, the real gauge of its relative importance. In live weight terms the total hake export to the EU equates fairy closely to average landings by Namibia – i.e. the bulk of landings are exported to the EU, the average being 93% of production over the 2001-2005 period on these assumptions.

The EU data doesn't tie in so closely with Namibian export data, but this is probably because prior to 2004, hake fillets were included with other species as mentioned above. After a somewhat arbitrary adjustment to compensate, the estimates in product weight terms equate more closely (98% correlation) if the anomalously low Namibian export figure for 2003 is ignored. This does then appear to confirm that all Namibian hake exports must be going to the EU.

Table 6: EU Imports of Namibian Hake by product category 2001-05 Units: tonnes

Live weight	**2001**	**2002**	**2003**	**2004**	**2005**	
Spain	152,911	113,299	149,762	131,766	114,709	80%
Netherlands	10,177	7,310	8,209	9,267	7,400	5%
Germany	2,981	2,538	3,973	5,107	5,516	4%
Italy	5,298	5,765	5,924	6,297	5,424	4%
Other	8,977	7,182	9,056	6,773	9,509	7%
EU total	**180,344**	**136,094**	**176,924**	**159,210**	**142,560**	**100%**
Import value (€million)	**230**	**171**	**204**	**188**	**164**	

Source: Eurostat

Spain is overwhelmingly the major market consistently taking over 80% of Namibia's exports to the EU (i.e. apparently of all of Namibia's exports). In fact this represents a slow decline – Spain accounted for 85% in 2001, but it doesn't change the fact that this is essentially a trade between Namibia and Spain. There has been a slow decline in this trade over the past five years in both quantity and value terms, put down to the reduction in landings since their 2003 peak. Overall, trade has declined by an average of 6% annually, but it is frozen whole hake that is showing most of the reduction (17% pa). This is balanced by gains in frozen hake meat, assumed to include value added products, again suggesting that production of value added items is on the rise

Table 7: EU Imports of Namibian Hake values 2003-05 Units: €/kg

Product	**2003**	**2004**	**2005**
Fresh whole hake	€ 4.02/kg	€ 4.00/kg	€ 4.07/kg
Frozen whole hake	€ 1.58/kg	€ 1.60/kg	€ 1.73/kg
Frozen hake fillet	€ 2.71/kg	€ 2.72/kg	€ 2.63/kg
Frozen hake meat	€ 2.12/kg	€ 2.00/kg	€ 1.72/kg

Source: Eurostat

Weighted average EU import prices showed little change between 2003 and 2005, but retained consistent differentials between products. Prices have risen subsequently with frozen hake fillet now selling for €3.2/kg after significant gains during this year.

2.4 Other Issues: Tariffs

The normal pattern for import duties is the more processed the product, the higher the tariff. This evidently doesn't apply to hake with whole fresh and frozen raw hake charged at 15% whilst frozen fillets face only half this rate at 7.5%. This means that the benefit that Namibia gains from preference reduces as it adds value. More developed added value products do have a higher rate of duty (20%) but for reasons given above, Namibia's more advanced products are unlikely to qualify (their main market, Spain, favours well packed but essentially raw products rather than those that have been highly processed)

Table 8: EU tariffs applying to shrimp products imported from Namibian

Item*	**CN Code**	**Conventional Duty**
Fresh whole hake (*Merluccius sp*)	0302 6966-69	15%
Frozen whole hake (*Merluccius sp*)	0303 7811-90	15%
Fresh fillets (other marine)	0304 1038	18%
Frozen hake fillets	0304 2055-59	7.5%
Frozen hake meat	0304 9049	7.5% (assumed)
Prepared hake (added value)	1604 1994	20%

Source: Appendix 1

3 Economic implications of the Namibian hake industry

There are three principal activities being carried out in the Namibian hake industry: capture (primary production), filleting (primary processing) and producing value added retail packs (secondary processing). This simplifies what is actually a more complex situation. Some processing involves no more than freezing and packing, and companies vary in how many of the processing stages they undertake. Some fully integrated companies carry out the whole range from catching to final product, undertaken onboard advanced freezer trawlers in some cases. Others are more traditional land based processors of fish landed to their plants. Most plants also process fish other than hake when supplies allow The distinctions below are then to a degree artificial, as the integrated nature of many of the processors makes stand-alone estimates of each hake processing stage hard to distinguish.

In this analysis costs have been estimated from responses given by the industry rather than through use of a model. Responses were received from a number of companies and the cost structures below represent a synthesis of these responses, interpreted in the context of known factors such as fillet yield and prevailing prices.

3.1 The Hake Fishery

Hake fishing's economics reflect a pattern common to fisheries worldwide where cost is dominated by three items: fuel, labour (crew) and repairs/maintenance. These three account for 70% of production costs in Namibia, the balance being licensing (quota) cost, vessel and fishing gear depreciation and a mix of minor items.

Table 9: Namibian hake fishery: production cost. Units: €/kg

Item	€/kg	%
Fuel	0.50	31%
Labour	0.35	22%
Repairs & maintenance	0.25	16%
License/quota levy	0.14	9%
Insurance	0.04	2%
harbour charges	0.06	4%
Other	0.26	16%
	1.59	**100%**

Source: synthesis of cost structures reported by Namibian processors

The principle product is assumed to be headed and gutted fresh or frozen hake, sold to on-shore processors in this example (although output is usually a mix of whole gutted and semi processed fish). By-product revenues for heads, frames, fishmeal and fish oil etc would have the effect of adding slightly to margin, and so are not shown in this breakeven cost structure analysis (where costs are estimated before profit).

3.2 The Hake processing Industry

Primary processing

Table 10 sets out an average cost structure for a Namibian plant converting whole or headed and gutted hake into skin-off fillets which are the standard export product (accounting for 75% or more of the industry's output as noted above). The costs incorporate a substantial weight loss on filleting, with whole round hake yielding between 38% and 42% of skin-off fillet, depending upon size of raw material and product specification. Headed and gutted hake are assumed to be the principle input, which converts to 65-70% fillet on our assumptions (implying a weight loss of some 30-35% on heading and gutting from round fish)

Table 10: Indicative ex-works cost structure for processed hake (fillet) in Namibia

Item	€/kg	%
Raw material	**1.51**	**49%**
Direct costs		
Labour	0.49	16%
Packaging	0.16	5%
Repairs & maintenance	0.11	4%
Other expenses	0.44	14%
Overhead	0.18	6%
Margin	0.20	6%
Total	**3.09**	**100%**

Source: synthesis of cost structures reported by Namibian processors

The analysis suggests that average processed hake cost (inclusive of raw material) is €3/kg with labour the largest cost item (after raw material costs). Raw material is just under 50% of total costs, reflecting the position seen in other case studies where raw material is consistently the dominant cost. Added value is then again substantially under 60% of ex-works price.

There is an alternative cost structure that reflects a smaller but still significant segment of the Namibian industry. This involves preparing and packing whole (i.e. headed & gutted) frozen hake, now very much a minority component of Namibian hake exports. Table 11 provides an indicative cost structure for this product. Added value is, unsurprisingly, lower than that for fillet products.

Table 11: Mark ups for added value products in Namibia

Item	€/kg	%
Raw material	0.92	56%
Direct costs		
Labour	0.24	14%
Packaging	0.11	7%
Other expenses	0.28	17%
Overhead	0.11	7%
Margin	0.29	15%
Total	**1.95**	**100%**

Source: synthesis of cost structures reported by Namibian processors

Clearly, for both of these commodity products, value added is less than 60% of the ex-works price threshold. There is though a value added activity that seemingly could allow hake products to meet this threshold. This is the production of retail products, i.e. packaging fillet and other primary products in consumer ready, fully labelled, portion and quality controlled packs. As mentioned above, this is not value added in the manufacturing sense, as these packs remain essentially primary products. However as table 12 shows, this activity is allowing producers to attain substantial mark-ups which average over 54%.

Table 12: Mark ups for added value products in Namibia

Product	Input cost	Sale price	Mark-up	Value added
Skinless fillets	€ 2.22	€ 4.28	€ 2.06	48%
Skin on fillets	€ 1.89	€ 3.77	€ 1.88	50%
Medallions	€ 1.76	€ 4.38	€ 2.62	60%
Cutlets (Hake steaks)	€ 2.03	€ 5.00	€ 2.97	59%
			Average	**54%**

Source: synthesis of cost structures reported by Namibian processors

These mark-ups apply to the process of portioning, trimming, quality management, accurate portion control and sophisticated packaging of the fillet (or other material packed), not the cost of filleting. The mark-ups also of course represent the value of the relationship with the EU distributor who provides

the brand label and markets the product. The processing option that would lead to higher added value is the combination of this process with "commodity" filleting shown in table above in table 10. Assuming that the end product would attain a comparable price to that quoted for retail products in table12 (i.e. €4.3/kg) then this would raise the level of value added to 65%, potentially comfortably above the 60% threshold.

3.3 Aspects Sensitive to RoO Change

The PWC report considered that RoO are mostly not a concern for the Namibian fisheries sector. This study would concur with this for a number of reasons:

I.

II. Raw material is originating as it is caught by Namibian, Namibia flagged or EU vessels.

III. The crews of most of these vessels are eligible, because even if EU member states crews are not available, the governments Namibianisation policy favours crewing by Namibian nationals rather than those from 3rd countries.

IV. The major importing country, Spain, is also heavily involved in the fishery so fostering linkages driven by strong mutual interests (though not always congruent interests, of course)

V. Namibia's fisheries policy obliges foreign fishing companies to develop land based assets in Namibia. This underpins these linkages by demanding long term commitment from foreign participants coupled with generating visible local benefit

VI. Third country fishing concerns (eg South African) that have invested in Namibia are minority shareholders so the industry is essentially Namibian owned

As the main foreign partners are European, this web of relationships provides an EU centred stability to the arrangements that effectively obviates the need for RoO. There are some potential issues though:

I. Relaxation of the crewing requirement would allow some cost reduction by using cheaper 3rd country crews (labour is 22% of vessels production cost). However, this would conflict with Namibian government policy of maximising national employment, so would face serious constraints.

II. The more important aspect concerns a current trend that is likely to shape the industry's future. Namibia has, with competent foreign partners, developed an efficient fish processing industry. This is underpinned by a national fish resource currently, but the signs are that the industry wishes to expand by importing raw material. Indeed it is doing so already – from South Africa and Argentina.

There is then potential growth that the current RoO are constraining (i.e. by preventing a potential increase in exports to the EU made from non-originating raw sources). A value added RoO alternative might release this constraint through allowing the use of non-originating raw material. The industry could then make best use of, and expand output from, their well developed Namibian processing base. The key question is of course would the rules as now formulated allow this, and this is central to the discussion below.

4 Analysis – The potential impact of RoO change

The processing industry is the principal focus for this analysis, but it cannot be divorced from the fishery that it depends upon, not least because some processing occurs on board the freezer trawlers. This blurs the distinction, as does the fact that much of the industry is fully vertically integrated from catching to final retail product. Nevertheless, the two elements are treated separately here, with the bulk of the analysis focussing on the processing segment.

4.1 The Hake Processing Industry

Most hake processing in Namibia will clearly fail to achieve the value added threshold set by the new RoO. This much is evident from the foregoing analysis and is reiterated in table13 below. The differential may not be large as the 50% threshold can apparently be passed, but basing expectations on reliable achievement of this would be rash for various reasons, chief of which is the variability of hake prices.

This is because, whilst bulk commodity cod fillet and its Alaskan pollack equivalent have been remarkably price stable, hake has not. Cod and pollack fillet prices have remained in fairly narrow bands around $4/kg and $2/kg respectively over the past 20 years. In contrast, hake fillet prices have ranged between these two extremes, i.e. from around $2 to $4/kg, and are close to the latter now. Given the very high proportion of processing costs attributable to raw fish, these price swings could determine whether the threshold was reached or not. Thus they could lead to the random disqualification of Namibian products from originating status in a manner entirely beyond the control of either the industry or it's administrators (MFMR),

Table 13: Value added estimate for Namibian hake fillets products

Item	**€/kg**	%	**Value added**
Raw material	**1.51**	**49%**	
Direct costs			
Labour	0.49	16%	16%
Packaging	0.16	5%	5%
Repairs & maintenance	0.11	4%	4%
Municipal taxes	0.12	4%	4%
Factory rental	0.11	3%	3%
Other expenses	0.22	7%	7%
Overhead			
Admin & finance	0.13	4%	4%
Depreciation	0.05	2%	2%
Margin	0.20	6%	6%
Total	**3.09**	**100%**	**51%**
Freight	0.15		
CIF EU	**3.24**		

Source: synthesis of cost structures reported by Namibian processors

This is then the position for the "commodity" segment of the market that exports in bulk to processors and foodservice. In short, the new RoO would provide marginal benefit, but also minimal disadvantage. The industry is so positioned as a wholly obtained supplier that the outcome would be effectively neutral. This is not the case universally though. There is a more advanced Namibian product – retail packs - that seem well able to exceed the value added threshold - see table 14.

Table 14: Value added estimate for Namibian hake retail fillet packs

Item	**€/kg**	%	**Value added**
Raw material	**1.51**	**35%**	
Direct costs	**1.20**	28%	28%
Overhead	0.38	9%	9%
Commodity fillet production cost	**3.09**	**72%**	
Retail pack costs & margin	1.21	28%	28%
Retail pack ex-works price	**4.30**	**100%**	**65%**

Source: synthesis of cost structures reported by Namibian processors

There does then appear to be one seafood product that is able to exceed the value added threshold, a unique finding amongst these six case studies. However, there is a serious difficulty with this, because this form of essentially primary product may not be deemed to be "sufficiently transformed" to qualify as a "manufacture", in spite of the relatively high value added. The fact that that this value has been added through sophisticated packaging and presentation may be irrelevant as the product would still be viewed as raw fillet (and would demonstrate no tariff jump, even at 8 digit level, sharing the same designation as its frozen fillet precursor of HS 0304 2055). This would then disqualify manufacturers of

retail fillet packs the benefits of changed RoO, i.e. the freedom to source more widely.

4.1 The Hake Fishery

The key RoO change that could affect the fleet would be allowing greater crewing flexibility. Foreign vessels (including EU vessels) are involved in the fishery but within tight licensing rules that impose strictures equivalent to current RoO requirements, quite independently of EU import requirements. This is because the Namibianisation policy ensures that both the workforce and company ownership remain Namibian as much as possible. Foreign majority ownership of companies is allowed but that of fishing quota is not, and this means that, in practice, companies have to be Namibian controlled to have access to the resource. Novanam (Pescanova) is apparently an exception, but is the only such exception. Risks that fish might not be originating are consequently much reduced. Indeed the potential freedom to employ 3rd country crews to reduce labour costs that RoO change promises is probably illusory as the government would not allow it.

Apart from the Namibian fishery, the main other potential sources of raw hake are currently South Africa and Argentina. Argentinean fish is clearly non-originating, but there is some confusion about the status of seafood materials from South Africa. As the PWC report rightly points out, fish and fish products are specifically excluded from cumulation with neighbouring South Africa while the fisheries sector remains outside of the ambit of the TDCA and continues to be subject to tariffs (Article 6.7 and Annex XIV to Protocol I to the Cotonou Agreement).

However, the exclusion list (Annex XIV, specifying South African fish products that are deemed not to have “ACP cumulation status”) omits some hake products. Thus raw hake (fresh or frozen) originating from South Africa can presumably be deemed to be effectively originating in Namibia through cumulation - an assumption that at least some Namibian industry appears also to have made. There are exceptions: Frozen hake meat (HS 0304 9049) and prepared hake products (i.e. added value, HS 1604 1994) are specifically excluded, so the exemption (i.e. allowing originating status in Namibia) applies to raw South African hake only.

Stakeholder feedback is an important part of this study and in Namibia’s case this primarily concerns the large fishing and processing companies based in Walvis Bay and Luderitz. Five companies were sampled and these generally viewed RoO change as having very little impact upon them, principally because they all source their raw material in Namibia or South Africa (though the latter source is becoming too expensive for some). One supplier did though believe that need for originating material had a cost, put at an effective surcharge of $150/tonne or an 8% premium vis a vis the non originating alternative. Even so no companies were using the tolerance rule, mainly because either they didn’t understand it or the alternatives sources were too expensive (which rather contradicts the previous argument regarding a “surcharge” for Namibian originating fish).

Views on the practical net value of preferential access to Namibia producers varied from 5% to 12% of sale value, but there was a common perception that it was a real benefit. Where there was less consensus was (i) whether RoO change would reduce regulatory complexity (on balance, a neutral view but this disguises a variety of mildly positive and negative views) and (ii) what level of value added threshold would be attainable. A range of thresholds from 30% to 50% were postulated, but clearly where the stakeholders did agree was that they would struggle to attain the 60% target.

5 Wider implications of RoO change

5.1 Economic, social & environmental impacts

RoO change will probably have little impact upon Namibia's hake industry and so by implication few economic, social or environmental impacts. If there are such impacts, they are likely to be at the margin anyway. Such possible effects could include:

- Inability to use foreign raw material could increase pressure on Namibian stocks to supply the EU market as the only originating supply. However, Namibia's fisheries are well managed and so there are credible counteracting measures in place to protect the resource

- Conversely, if the value added threshold could be met, RoO change might allow the industry to expand. On the one hand this would increase employment and economic spin off whilst on the other hand arguably pressure on hake stocks elsewhere would be increased.

There is one major impact that would follow, should the Namibian hake stock collapse for any reason. If, as seems likely, the Namibian industry is mostly unable to pass the new RoO criteria, then it would be unable to import raw material to supply its major market (the EU). This would leave the industry very exposed. The follow-on effects would be possible collapse of many plants, with severe consequent economic and social impacts on employment, ancillary businesses and government revenues.

The impact on communities would go beyond the coastal centres because earnings are relatively high (twice as high as the African average) and there is a significant level of remittances made to the rural communities from where much of the workforce originated. Thus the impact of such a decline of the hake industry would be both serious and nationwide.

The situation will of course be little different from that under current RoO, and so this is a case where RoO change would be failing to generate any potential benefit. Conversely, and by the same argument, current and future RoO also constrain prospects for expanding the Namibian processing industry beyond its own resource base, through importing raw material.

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APPENDIX 1
EU tariffs generally applying to hake products imported from Namibia and their competitors

Item*	CN Code (Eurostat)	Conventional Duty
Fresh hake (*Merluccius sp*)		
Cape hake (*M capensis*) & deepwater hake (*M paradoxus*)	0302 6966	15%
Southern hake (*M australis*)	0302 6967	15%
Other *Merluccius* hakes	0302 6968	15%*
Urophycis hakes	0302 6969	15%
Frozen hake (*Merluccius sp*)		
Cape hake (*M capensis*) & deepwater hake (*M paradoxus*)	0303 7811	15%
Argentine hake (M hubbsi)	0303 7812	15%
Southern hake (*M australis*)	0303 7813	15%
Other *Merluccius* hakes	0303 7819	15%*
Urophycis hakes	0303 7890	15%
Fresh fillets (other marine)	0304 1038	18%
Frozen hake fillets		
Cape hake (*M capensis*) & deepwater hake (*M paradoxus*)	0304 2055	7.5%
Argentine hake (M hubbsi)	0304 2056	7.5%
Southern hake (*M australis*)		7.5%
Other *Merluccius* hakes	0304 2058	7.5%
Urophycis hakes	0304 2059	7.5%
Frozen hake meat		
Merluccius hakes	0304 9047	?
Merluccius & Urophycis hakes	0304 9048	?
Urophycis hakes	0304 9049	?
Prepared hake (added value)	1604 1994	20%

Sources: Commission Regulation EC 1719/2005 27 Oct 2005

ANNEX 7: COUNTRY CASE STUDY: BANGLADESH

PROCESSED SHRIMP

Glossary (Case study specific)

Aratdar:	Commission agent trading shrimp
Bagda	Black tiger marine or brackish water prawn *Penaeus monodon,*
BFFEA	Bangladesh Frozen Food Exporters Association
DoF	Bangladesh Department of Fisheries
GAA	The Global Aquaculture Alliance
GoB	Government of Bangladesh
Golda	Giant freshwater prawn (*Macrobrachium sp*)
HLSO	Headless shell-on, i.e. unpeeled shrimp tails
IQF	Individually quick frozen (a high quality freezing process)
MoFL	Ministry of Fisheries & Livestock
pL	Post larvae – shrimp fry or "seed" used to stock farm ponds
PD	Peeled & de-veined shrimp tails
WSSBV	White Spot Syndrome Baculovirus complex, WSSBV]).
Tk	Taka, Bangladesh currency, exchange rate €1=Tk90.
Population:	153.3 million (2005)

1 Introduction

Bangladesh was selected for this study as an example of an LDC (Least Developed Country) with MFN (Most favoured nation) status. This means that Bangladesh qualifies for preference under the EBA (Everything but Arms) preference regime, and so this case study explores how this particular preference regime might be affected by RoO change. The product in question in this case is shrimp, which is an important export earner for Bangladesh. This involves three industries – a wild shrimp fishery, shrimp culture and a processing industry which services both fishery and farming segments. This farming segment is further subdivided into (i) the culture of marine shrimp (*Penaeids*) in coastal brackish water and (ii) that of giant freshwater prawns (*Macrobrachium spp*) in inland water bodies. However, for this study it is the distinction between primary shrimp production and its subsequent processing that is the most important one, and this study is structured accordingly

Fisheries are a key economic sector in Bangladesh, playing an important role in both rural employment and poverty alleviation. It accounts for 4.9% of GDP and 5-6% of foreign exchange earnings, as well as providing a huge 63% of the domestic animal protein supply (Infofish Report). With the Bangladeshi population standing at 149.7m (2004, FAO), this is a very significant achievement, and underlines the sector's high socio-economic importance.

Administratively the sector is divided into two components - marine and inland fisheries, with farmed marine shrimp deemed to fall within the 'inland' component as it takes place on coastal land. The data presented here reflects the systems adopted by the Bangladesh authorities, and in particular, their statistical reporting year which runs from July to the following June, i.e. spans two calendar years. It should also be noted that as much of the industry is artisanal in nature, the data is subject to the degree of error that is naturally inherent in any highly fragmented, widely dispersed and informal activity

2 Context – The Bangladesh fisheries sector

2.1 Overview of Fisheries Production

Bangladesh has a large fishery landing more than 2 million tonnes annually (2.22 million tonnes in 2004/5 total according to the MoFL report). Inland production (freshwater and coastal brackish water) accounted for the great bulk of this – nearly 80% (Table 1). Of this aquaculture (mostly of freshwater fish) accounted for approximately half. Throughout, the emphasis is clearly on small scale and artisanal production, with this dominating both marine and freshwater production.

Table 1 Bangladesh fisheries production 2004/5 year

Category	Tonnes	%
Marine industrial	34,114	1.5%
Marine artisanal	440,483	19.9%
Marine Total	**474,597**	**21.4%**
Inland capture	859,269	38.8%
Freshwater culture	761,381	34.4%
Brackish water culture	120,710	5.5%
Culture Total	**882,091**	**40.0%**
Inland Total	**1,741,360**	**78.6%**
Grand Total	**2,215,957**	**100.0%**

Source: Dept of Fisheries

Brackish water shrimp farming is seemingly a very minor contributor to output, representing only 5.5% of production by weight. This is deceptive, though, as shrimp generated US$243 million (Taka 17 billion) in exports, equivalent to 3.6% of the country's total export revenue of US$6.713 billion

Marine fisheries
Landings from marine fisheries represented 21% of total production over the 2004-2005 year. However, of the 475,000 tonnes produced, only 34,000 tonnes (i.e. just 7%) came from the "industrial" trawl fleet - this is then essentially an artisanal fishery. Within the limitations of the statistical data it appears that there has been a small but steady increase in landings over the last 10 years. Whilst up-to-date resource survey data are limited, it is generally believed that marine fish stocks within the Bangladesh EEZ are being fished to their maximum, or are being over fished. The Department of Fisheries, with funding from the Islamic Development Bank, plans to initiate a program of fisheries resource surveys that would provide much needed data on the state of the coastal and offshore resource and assist proper planning and management.

Inland fisheries
Inland fisheries production involves both capture and culture, and includes the production from both inland freshwater and coastal brackish water areas. Capture contributes most to output (860,000 tonnes in 2004/5) of fish, mainly of carp. Freshwater fish culture adds a further 760,000 tonnes again mostly of carp. The distinction between wild fisheries and culture in this system is a fine one, but the outcome is a massive production of carp - 770,000 tonnes or 44% of all freshwater output. The species produced are low priced – a mix of Indian major carp and exotic carps – and this is clearly a fishery fundamentally orientated towards fulfilling domestic demand rather than export. It involves a range of natural water bodies including rivers, estuaries, flood plains and lakes.

Alongside this, a further 121,000 tonnes were produced in coastal brackish water farms including 83,000 tonnes of shrimp and 38,000 tonnes of estuarine fish. In the early 1960s, inland capture fisheries represented more than 90% of Bangladesh's total annual fisheries production. What changed over the subsequent decade was the rise of aquaculture now producing almost half of inland output and accounting for an impressive 34% of the national fisheries total.

Shrimp production
195,690 tonnes of shrimp were produced over the 2004-2005 statistical year according to the Department of Fisheries. Of this, 44,260 tonnes came from 'marine fisheries', (mainly caught artisanally by set bag nets, as just 3,311 tonnes were caught by the trawl fleet). The balance of 151,400 tonnes is attributed to 'inland fisheries' of which 82,700 tonnes came from shrimp farms. There is general consensus that freshwater prawn production is of the order of 12-17,000 tonnes annually but estimates of farmed tiger prawn output vary widely – from 30-36,000 tonnes (by DoF and local businesses) to 65-75,000 tonnes by international commentators (eg GAA). 40-45,000 tonnes is regarded as the best current estimate.

With exports, which mainly comprise tails of black tiger and freshwater prawns, of 45,000 tonnes the total supply must be of the order of 70-80,000 tonnes depending upon the mix between shrimp and prawns, and between tails and whole product. Trade statistics suggest that the bulk of this trade involves Penaeids destined for OECD markets i.e. black tiger (see trade section below). Then either the higher estimate of farmed black tiger output is correct or the coastal artisanal fishery must be making a major contribution. Logistical constraints on the artisanal segment suggest that the former is the more likely, but given the highly extensive nature of Bangladeshi prawn culture, deciding where farming stops and the fishery begins is another matter of fine judgment

2.2 The Bangladesh Shrimp Industry

2.2.1 Shrimp Farming

Shrimp and fish were being cultured in coastal areas of Bangladesh long before the advent of modern shrimp farming methods in the 1970s. This was a very low input traditional activity, but change began during the 1960s when coastal polders were constructed to protect agricultural land from saline intrusion. This initially brought a temporary halt to traditional brackish water aquaculture in these tidally exchanged areas. However subsequently, as the international shrimp market began to expand in the 1970s, farmers in Bangladesh turned to production of shrimp inside the new polders, often in rotation with rice (the Ahmed report).

As the new industry developed during the 1980s and early 1990s, much of area under shrimp farming land came under the control of elites, partly because the owners of small individual landholdings were

unable to operate them independently from those of their neighbours in these seasonally flooded polders. Instead they rented their land to wealthy outsiders who came to control production over large areas, and this of course led to a number of social problems. However, when shrimp farming was struck by disease in the mid 1990s, the elites withdrew. Smallholders then reclaimed control of their land and, through development of low-cost means of dividing up polders with earthen dykes, started a new phase for the industry - one of much greater benefit to the local communities.

During this process, two shrimp culture industries developed in Bangladesh. The traditional brackish water industry involves penaeid shrimp - mainly black tiger shrimp, *Penaeus monodon,* known locally as *bagda*, and grown in coastal areas. Alongside this culture of freshwater prawn developed based on *Macrobrachium rosenbergii* (known locally as *golda,* grown in freshwater and marketed variously as 'prawn' or (incorrectly) 'scampi'.

Penaeid shrimp (Black tiger)
There are some 55 penaeid shrimp hatcheries, almost all located in the Cox's Bazaar area close to the supply of broodstock that are caught by trawlers off the coast. In addition, Penaeid seed (postlarvae) are also collected from the wild, and some estimates suggest the wild catch accounts for 50% of the total supply of seed. Wild seed sell at a higher price than hatchery seed, farmers believing that wild pLs are stronger and show better survival in grow-out. The shrimp farms are distant from the hatcheries, mainly located in the brackish water river delta areas around Khulna and Satkhira. Many of these areas are now poldered but the conditions remain more suitable for shrimp grow-out than for instance they are in Cox's Bazaar.

By 2004-2005 there were 217,877 hectares of coastal shrimp farms producing 82,660 tonnes of shrimp and 38,050 tonnes of fish. This is equivalent to an average unit production of shrimp of 379 kg/ha/yr. As many of the estimated 37,400 farms involved produce several crops a year (the BFFEA report), this productivity is very low in comparison to yields in major shrimp farming countries such as Thailand, China or Vietnam (several thousand kg/ha/yr). The ATDP report concluded that in 2004 average production from 600 farms surveyed was only 100 kg/ha - a productivity that was actually below the estimated break-even point of 148 kg/ha, and so farmers were making up their income through other activities.

However, despite the relative ease with which productivity could be much increased, Bangladesh has seen little investment in upgrading technologies. This is though partly deliberate – Bangladesh has opted for low input culture termed "enhanced extensive culture" as this is seen as most appropriate to their community-based artisanal approach which is favoured for social reasons. It also ties in with Bangladesh's specialisation in premium large shrimp – 50gm black tiger and freshwater prawns.

Macrobrachium
38 hatcheries support the freshwater prawn industry, and as with penaeids, postlarvae are also collected from the wild. This wild supply similarly might account for 50% of the total supply, and again, wild seed sells at a higher price as it is perceived as being more viable. These hatcheries are nearly all located in freshwater areas in the west of the country, around Khulna, Satkhira, and Mymensingh.. Freshwater prawns need brackish water for their early life stages and hatcheries truck in brine from the Cox's Bazaar area to adjust the salinity of the rearing water for the larval stages. Currently it is cheaper to truck in the brine than transport broodstock to, and post-larvae from, an area where seawater is available, (such as Cox's Bazaar).

Farmers occasionally stock prawns in monoculture, but more usually polyculture prawns with fish, using planktivores or herbivores (silver carp, catla and grass carp) which do not compete with prawns for feed. Because of fresh water prawns' differential growth patterns with males growing much faster, most farmers maximize their returns by selectively harvesting the large blue-claw males every two months or so, followed at the end of 9 or 10 months by a final harvest of the fish and female prawns left in the pond. This leads to regular harvesting of small volumes, forcing many farmers to sell to intermediaries at prices below those achievable if they could deliver direct to processing plants. Small quantities are sold domestically, especially during the 'off' season (March to October), but most macrobrachium is destined for export.

2.2.2 Shrimp Processing

The principle way shrimp is processed in Bangladesh is, as elsewhere, freezing whole or freezing as

tails after the "head" (front third of the shrimp for penaeids, front two thirds for *macrobrachium*) has been removed. Packing in retail/wholesale cardboard packs (typically of 2kg) completes the process. Currently there is limited secondary processing occurring in Bangladesh, if this is defined as processing that adds value beyond simple de-heading, packing and freezing shrimp. The total output of such products is certainly less than 10% of total Bangladeshi shrimp exports. This does not involves breading, but there is some limited production of peeled tail-on shrimp for the US market (perhaps 1%), some "butterfly" peeled shrimp (less than 1%), and some peeled and de-veined second grade product (a few %). Indeed Bangladesh currently has difficulty maintaining good export quality for simple processed formats such as headless shell-on, and so any large scale move into advanced value-added product forms is unlikely for some years

Shrimp caught by the marine fleet is processed on board vessels and the marine fish catch goes almost wholly directly to the domestic market. Thus the land-based plants have to compete for supplies of farmed penaeid shrimp and freshwater prawn, this being the only raw material still available. There are a reported 135 seafood processing plants in the country, with a total processing capacity of 270,000 tonnes per year according to the body representing the industry, the Bangladesh Frozen Food Exporters Association (BFFEA). This represents a huge overcapacity though, as only 23% is currently being utilized. In spite of this there are said to be five more processing plants in 2006 than there were in 2005 despite the lack of product to supply them.

The explanation for this apparent anomaly lies in the incentive package the GoB offers for the agricultural processing sector (discussed below).As a result, faced by stiff competition for product supply, many of the plants maintain a minimal throughput to demonstrate that they are still in operation and so avoid any risk of their loans being called in. This means that insufficient attention tends to be paid to product quality with plant owners little motivated to support the improving of farm production and quality through extension and training. These factors contribute to the poor reputation for seafood quality that Bangladesh has on the world market

2.3 Bangladesh Trade in Seafood

Seafood is a significant export commodity for Bangladesh with 63,000 tonnes of seafood products exported in 2004/5 (the last year for which reliable data is available). It has been growing rapidly (at 13% annually) in volume terms due mostly to growth in trade in the two main product categories – shrimp and frozen fish. The latter is growing the faster (19% pa), but remains a fraction of shrimp exports which are clearly the dominant category (table 2)

Table 2: Bangladesh seafood product exports 2000 to 2005, Units tonnes

Quantity: tonnes	2000/1	2001/2	2002/3	2003/4	2004/5
Shrimp	29,713	30,209	36,864	42,943	46,533
Frozen fish	7,965	9,864	8,846	10,229	15,763
Dried fish	137	517	333	472	272
Salted fish	838	293	526	377	770
Crab	154	336	630	116	38
Sharkfin	181	263	172	4	1
Total	38,988	41,482	47,371	54,141	63,377

Source: Bangladesh Export Promotion Bureau

The dominance of shrimp is even more striking in value terms, as table 3 demonstrates. Shrimp has consistently accounted for around 90% of seafood exports over the past five years, outpacing the value of frozen fish by around 10 to 1. Shrimp is then the main reason for the significant contribution seafood makes to Bangladeshi export earnings (of 5-6% of the national total). Growth in value terms has, however been more muted at 5% annually as the global fall in shrimp prices have affected Bangladesh as elsewhere. Prices fell from €7/kg to €5.5 over the period, reflecting the average EU import price for tropical shrimp. In contrast, fish exports have been growing rapidly in value terms (28% annually). Even so, fish remains a minority export category.

Table 3: Bangladesh seafood product exports 2000-05, values & indicators

Value €000	2000/1	2001/2	2002/3	2003/4	2004/5
Shrimp	209,444	160,889	191,111	239,222	253,556

Frozen fish	10,556	15,222	17,667	22,444	28,444
Shrimp unit price	€7.05/kg	€5.33/kg	€5.18/kg	€5.57/kg	€5.45/kg
Shrimp export %*	93%	88%	89%	91%	89%
Fish unit price	€1.33/kg	€1.54/kg	€2.00/kg	€2.19/kg	€1.80/kg
Total	225,889	181,889	215,778	262,667	285,667
Seafood as % of total export* revenue	5.8%	4.8%	5.1%	5.7%	

***** *as a % of total export value*
Source: Bangladesh Export Promotion Bureau

The key Bangladesh seafood export is then shrimp which has shown steady long term growth over the past twenty years, except for a decline in 1997-1999, probably due to the first outbreaks of white-spot disease (WSSBV). The export product mix includes farmed black tiger shrimp *Penaeus monodon* and *Macrobrachium* as well as quantities of wild white shrimp from both the trawl fleet and artisanal fisheries. Discussion with industry commentators suggests that as freshwater prawn farming has been steadily increasing, this species probably represented about 20-25% of total shrimp exports in 2004-2005. Black tiger shrimp accounted for 50-55%, whilst trawl-caught wild shrimp provided less than 5% and artisanal fishing in inland water bodies or along the coast accounted for the remaining 20-25%.

As Table 2 above shows, 46,500 tonnes of shrimp products (mostly of shell-on tails according to traders) were exported in 2004-05, and whilst export data for the year 2005-2006 are not yet available, industry estimates are that 50,000 tonnes of processed shrimp were exported in the calendar year 2006 with a value of approximately US$400 million (€305million) showing further growth.

Table 4: Imports of Bangladeshi shrimp by major OECD markets 2002-06

Volume tonnes	**2002**	**2003**	**2004**	**2005**	**2006**
EU Total imports, of which	**18,000**	**22,040**	**20,472**	**23699**	**24,935***
UK	7,954	8,535	7,772	8973	8,882*
Belgium	5,207	8,034	7,667	9494	10,724*
USA imports	**6,937**	**5,894**	**11,361**	**12,855**	**19,424**
Included in which are					
US Peeled shrimp import	0	0	0	0	5,264
US Added value import	0	0	0	0	465
Japan	**3,241**	**3,004**	**3,415**	**3,194**	**4,000**
Total	**28,178**	**30,938**	**33,926**	**39,748**	**48,359**

Sources: NMFS, Infofish Newsletter, Eurostat category 030613 * Forecasts

The EU has been the principle destination for Bangladeshi shrimp exports. In 2002-3 67% by value went to EU countries, a figure which dropped somewhat in 2003-4 to 57%. The USA was formerly the second largest importer accounting for 26% by value in 2002-3 and 35% in 2003-4. The early stages of the imposition of anti-dumping duties by the USA against some of Bangladesh's main competitors might have something to do with this – implying that the US is likely to become a larger importer of Bangladeshi shrimp. Table 4 suggests that this has in fact been the case, with US imports more than trebling since 2003 and the Bangladeshi contribution to US imports rising from 1.2% to 3.3%.

Interestingly, this has included some more highly processed products in 2006, with over 5,000 tonnes of peeled shrimp and nearly 500 tonnes of value added items imported from Bangladesh by the USA. EU imports have remained relatively static latterly, whilst Japan continues to be a minor destination for Bangladesh shrimp taking only 3-4,000 tonnes annually (around 1.5% of total Japanese imports)

Within the EU, the UK and Belgium were the major buyers, together accounting for half of all Bangladesh shrimp exports by value in recent years – the UK importing US$83m in 2002-03 and US$80m in 2003-4, whilst Belgium accounted for US$75m in 2002-03 and US$94m in 2003-4 (BEPD report).

2.4 Other Issues: Tariffs, Subsidies & Trade Environment

(i) Tariffs
Tariffs are a measure of the competitive advantage over non-preferred competitors that Bangladeshi

exporters receive (through exemption) in European markets The relevant tariffs are those applying to a mix of fresh, frozen and canned shrimp (i.e. in the CN 0303 23-, 0303 13 and 16 chapters). Table 5 lists the main relevant duties relating to ACP countries (Appendix 1 provides more detail). The last column shows the reduced duty now applicable to Thailand and some other Asian countries, key competitors with Bangladesh. This has, since 2006, reduced the effective protection received by Bangladesh.

Table 5: EU tariffs applying to shrimp products imported from Bangladesh

Item*	CN Code (Eurostat)	Conventional Duty	Discounted duty *
Fresh penaeid shrimp & freshwater prawns	0306 2390	12%	4.2%
Frozen Penaeids	0306 1350	12%	4.2%
Frozen other, inc freshwater prawns	0306 1380	12%	4.2%
Canned & potted shrimp	1605 2010/91/99	20%	7%

Sources: Commission Regulation EC 1719/2005 27 Oct 2005

(ii) Subsidies

The development of substantial processing overcapacity has been mentioned above. One explanation for this apparent anomaly lies in the incentive package the GoB provides to the agricultural processing sector. Machinery and equipment can be imported duty free, a 9 year tax holiday is granted, and bank loans can be obtained from the state agricultural banks at two-thirds the commercial interest rate. The processing of loans is slow, but so is pursuit of defaulters, particularly those with political influence. This is not solely the case for the agricultural banks, as recent press reports have suggested that there is a massive Tk110 billion (€1.2bn) outstanding in defaulted loans currently owing to state banks.

In addition, a 10% incentive is paid for exported seafood, though this is largely passed back upstream to suppliers. The actual subsidy rate is lower as it is based upon an notional maximum export value of US$4.49/kg which now under-represents true value (so in reality this subsidy amounts to 5-7% rather than 10% of export value).
Nevertheless, this has resulted is a system that promotes an industry more focused upon the incentive framework than the underlying economics of processing seafood. Commercial players now use the sector to finance or reduce taxes on other businesses, and the sector remains attractive to new entrants despite strongly negative fundamentals such as the severe overcapacity mentioned above.

(ii) The effect of US anti dumping measures

An ancillary point that should be mentioned is the advantage that the current USA anti dumping campaign is providing for Bangladesh. As a significant producer not afflicted by antidumping duties, Bangladeshi exporters effectively have a US preference advantage vis a vis some of their most highly efficient competitors. This " preference" ranges widely between 4% and 55% (depending upon country) and will remain in force as long as the USA is able to maintain this action in the face of numerous WTO challenges. The advantage is greater than the simple percentage suggests though, as US rules demand the posting of large bonds by exporters (the notorious "C" bonds covering future duties payable and possible upward reassessment of the tariff) as well as the assumption of significant risk by US importers. Dealing with Bangladesh, despite the quality issues, then makes good sense – a clear explanation for the recent surge in Bangladesh shrimp exports to the USA

(iii) Food safety and hygiene issues

One aspect that was frequently raised by the Bangladeshi industry was the difficulties experienced in dealing with EU SPS regulations. This rather than RoO was the key issue for many industry insiders. In view of the quality issues raised in this report, this is not entirely surprising and must represent in large part an own goal by the Bangladeshi industry. That said specific administrative issues were mentioned repeatedly. For example there is a belief that inspection systems vary – Rotterdam is seen as is a fast moving port where there is less likelihood of rejection whilst Hull and Felixstowe are stricter and more likely to reject on the basis of antibiotics and nitrafurans contamination. System problems were also raised – for example the SPS certificates need to show transport details that cannot logically be available in Bangladesh conditions where containers have to be transhipped from the feeder

vessels that service their small ports.

3 Economic implications of the Bangladesh shrimp industry

The shrimp processing industry is the main focus for this case study, but the shrimp culture industry and, to a lesser extent, the fisheries are also relevant. Their economic parameters are investigated below as a precursor to assessing the impact of RoO changes

3.1 The Shrimp Fishery

The fishery is a minor contribution to Bangladesh shrimp exports – with the industrial trawl fleet producing only 5% of the total according to estimates given above. The artisanal fleet does contribute a further 20-25% but much of this must be of questionable quality given the difficulty of maintaining freshness under artisanal conditions. Trawlers can freeze shrimp on board but artisanal fisheries have to depend upon ice and rapid access to the processing plants. These then probably mostly supply low end shrimp used for peeling etc to try to reverse the loss of quality.

3.2 The Shrimp Culture Industry

Shrimp culture essentially consists of three stages: producing eggs, rearing these to juveniles that can be stocked in ponds (i.e. postlarvae, produced in the hatchery) and growing these juveniles on to market sized shrimp.

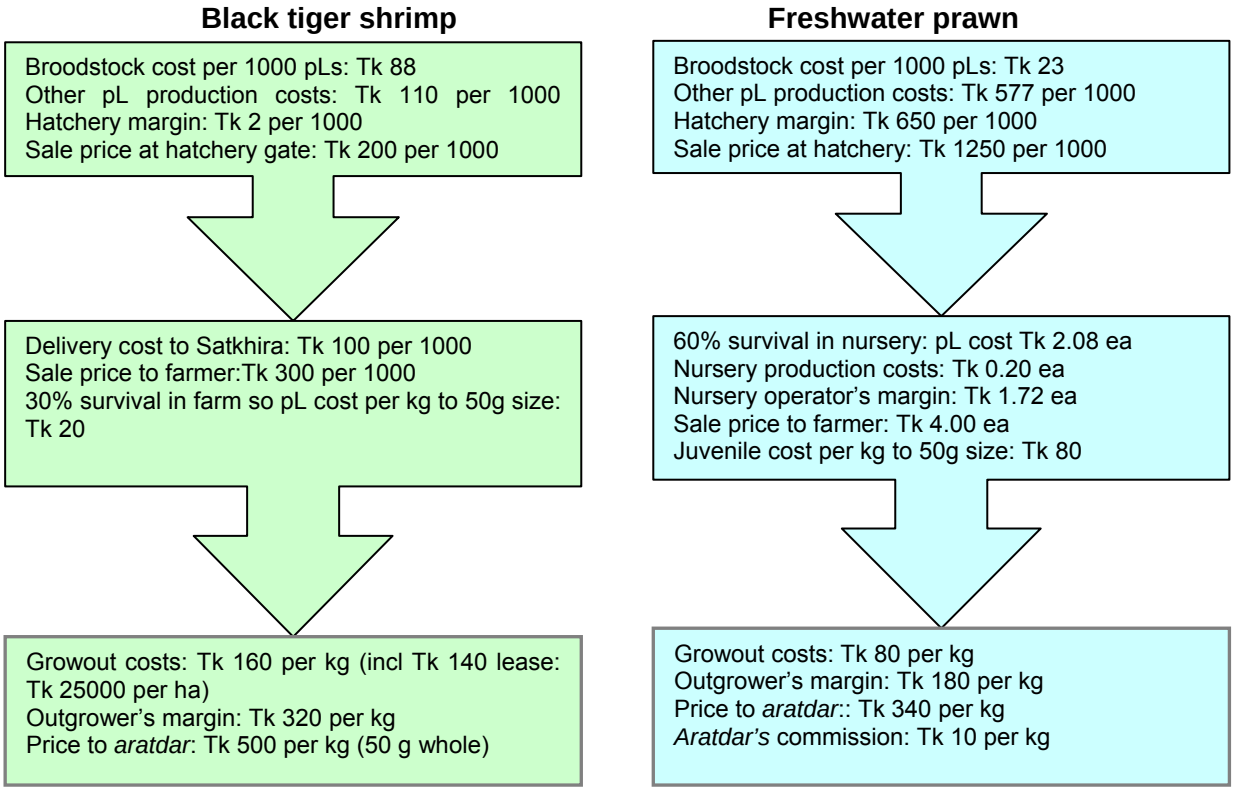

Figure 1: diagrammatic representation of culture of shrimp & freshwater prawn

The process is essentially similar for marine and freshwater shrimp as figure 1 shows, but there are crucial differences – for example black tiger shrimp requires wild broodstock as reliable breeding from domesticated stock continues to elude farmers. This means that a fishery is also involved, and this may also have implications for RoO (an aspect explored below)

Table 6: Farm production cost for farmed marine shrimp & freshwater shrimp showing value added

	Production cost		**Value added**	
Species **Cost item**	**Black tiger**	**Freshwater prawn**	**Black tiger**	**Freshwater prawn**
Average size (whole)	***50gm***	***50gm***	***50gm***	***50gm***
	€/kg	**€/kg**	**€/kg**	**€/kg**
Post larvae cost	0.22	0.89	**Value added**	
Grow-out cost*	1.78	0.89	1.78	0.89
Growers margin**	3.44	1.89	3.44	1.89
Traders margin	0.11	0.11	0.11	0.11
Ex farm price	**5.56**	**3.78**		
Added value			**5.33**	**2.89**
Added value %			**96%**	**76%**

Source: Composite estimate from interviews with processors
**Feed and other direct costs ** Including overhead*

Table 6 expresses the sequences shown in figure 1 as unitised production costs for large farmed black tiger shrimp and freshwater prawns, showing these to be €5.6/kg and €3.8/kg respectively. What is clear is that if seed (post larvae) are deemed to be the input that defines origination (see analysis below), then the value added is considerable – 96% for black tiger and 76% for freshwater prawns, well exceeding the indicative thresholds set for the new RoO (50% to 60%)

3.3 The Shrimp Processing Industry

Shrimp processing as carried out in Bangladesh essentially involves grading, de-heading, freezing and packing shell-on tails. There is some more elaborate processing undertaken (peeling the tails and removing the gut or "vein") but this is a minority activity. A typical processing plant would then comprise: a receiving and washing area, a de-heading, sorting and manual grading area, 500kg/hr IQF capacity, plate freezers capable of handling 0.5 to 1 tonne in 3 hours, a cooking line, cold storage plus ancillary facilities

Whilst there are some pioneering processors striving to improve quality and gain a good reputation with overseas buyers, much of the industry does not concentrate on the production of high quality export shrimp. Surprisingly profitability is apparently not universally a priority, and indeed some processors appear to be content to operate their plants at cost, or at a small loss. Partly this is a result of the subsidy regime described above, but that cannot explain this fully.

What makes this apparent willing ness to ignore economic fundamentals more strange is the high investment cost involved: a new plant equipped along the lines described above could now be built for US$2-3 million with a further US$0.75-1 million required for working capital. For example an existing plant of broadly comparable capacity that was visited had originally cost $1.8 million to generate 5,700 tonnes of product annually.

The suspicion is that the low cost loans available for aquaculture are being used to invest in other more profitable activities that are ineligible for these soft loans. The fact that enforcement against default is ineffective merely serves to reinforce this abuse. This is believed to explain why new plants continue to open whilst existing plants are operating at only 25% capacity – and why some plants maintain a nominal throughput of product, to show that they are still active, whilst seemingly showing little concern about margins. There are cases where dealers appear to pay a higher price to the farmer than can eventually be received by the exporter, which is clearly irrational. There is then a fundamental problem in assessing processing costs – in that these are probably cross-subsidised cryptically by other unrelated business activities.

Table 7: Generalised processing costs for marine shrimp (black tiger & white)

Species	**Black tiger**	**White shrimp**
Average size (whole)	***50gm***	***10gm***
Product	***HLSO***	***PD***
	€/kg	**€/kg**
Gross raw material cost	5.61	1.72
Processing yield (%tails)	0.67	0.67
Net raw material cost	**8.37**	**2.57**
Other input costs	0.02	0.02
Packaging cost	0.08	0.13
Labour cost	0.08	0.06
Contractor processing:	NA	0.15
Total Direct costs	**0.18**	**0.36**
Total overhead	**0.16**	**0.34**
Margin/mark-up	0.39	0.83
Ex-works price	**9.10**	**4.10**

Source: Composite estimate from interviews with processors
HLSO – headless shell-on, i.e. unpeeled shrimp tails
PD – peeled & de-veined shrimp tails

Given the fact that this economic distortion is prevalent, the costs set out in this section have been based upon three of the more commercially orientated plants which process both large black tiger shrimp and freshwater prawn. Their parameters were synthesized into generalised cost breakdowns with some subjective interpretation. These are shown in table 7 for black tiger and white shrimp and table 8 for freshwater prawns.

Table 8: Generalised processing costs for freshwater prawns

Species	**Freshwater prawn**
Average size (whole)	***50-75gm***
Product	***HLSO***
	€/kg
Gross raw material cost	3.89
Processing yield (%tails)	50%
Net raw material cost	**7.78**
Other input costs	0.02
Packaging cost	0.08
Labour cost	0.08
Total direct cost	**0.18**
Total overhead	**0.16**
Margin/mark-up	0.39
Ex-works price	**8.51**

Source: Composite estimate from interviews with processors
HLSO – headless shell-on, i.e. unpeeled shrimp tails

There is obviously a question as to how meaningful these processing cost analyses are when some plants are apparently not reflecting normal economic motivation, at least as far as the shrimp industry is concerned. However, the processing costs calculated do reflect international levels which are typically in the range US$ 0.50-0.75/ kg exclusive of raw material costs. Packaging costs quoted at around US$0.11/kg similarly reflect international norms as do freight costs to Europe and the USA of US$0.3/kg. This provides some justification for believing that these figures do reflect reality.

That said, identifying exact costs at the various junctures along the value chain is fraught with difficulty as there is widespread 'adjustment' of weights and counts between farm gate and processing plant. For example, village dealers use uncertified weighing scales when purchasing shrimp and then typically use a different set of weights when selling on. There is also manipulation of grading with an upward shift into more valuable grades of 10-15% as product moves along the value chain. These factors obviously make the reported prices being paid at the various stages between farm and processor less than reliable

There is also widespread adulteration of the shrimp through use of chemicals and freshwater soaking to achieve weight gains of 10-15% before delivery to the processor. A further malpractice is to inject individual shrimp with rice porridge to increase weight – this being one of the major contributors to the poor reputation Bangladesh has developed for export quality. Indeed there have even been cases of iron nails being inserted into individual shrimp to increase weight, as the US restaurant chain Darden's found to their cost a few years ago.

3.4 Aspects Sensitive to RoO Change

There is little in the economic analyses above to suggest that RoO change will have much impact on the Bangladeshi shrimp industry as it is currently configured. This is true of the primary production level (fishing or farming) and of the processing industry whether primary or secondary processing is involved. The reason is simple – virtually all raw product and materials used in producing shrimp and processing it comes from within Bangladesh. In short all inputs are originating at all stages of the process. However, this is the current situation. The purpose of this study is to assess how the sector might develop in the future, and how that might change this benign position regarding RoO. This is the primary focus if the subsequent section

4 Analysis – The potential impact of RoO change

4.1 The Shrimp Processing Industry

This analysis is based upon the processing cost models described above. Here, all added value items are detailed so that all elements of value added can be identified. Again this is done for HLSO black tiger and freshwater prawn, a well as PD white shrimp, typifying the Bangladeshi product range.

Table 9: Processing cost for marine shrimp showing value added

	Processing cost		**Value added**	
Species **Cost item**	**Black tiger**	**White shrimp**	**Black tiger**	**White shrimp**
Average size (whole)	***50gm***	***10gm***	***50gm***	***10gm***
Product	***HLSO***	***PD***	***HLSO***	***PD***
	€/kg	**€/kg**	**€/kg**	**€/kg**
Gross raw material cost	5.61	1.72		
Processing yield (%tails)	67%	67%	**Raw material %**	
Net raw material cost	**8.38**	**2.57**	**92%**	**63%**
Other input costs	0.02	0.02	0.02	0.02
Packaging cost	0.08	0.13	0.08	0.13
Labour cost	0.08	0.06	0.08	0.06
Contract processing: peeling:	NA	0.15	NA	0.15
Overheads			-	-
Management	0.04	0.08	0.04	0.08
Energy	0.04	0.09	0.04	0.09
Marketing	0.00	0.01	0.00	0.01
Depreciation	0.07	0.15	0.07	0.15
Maintenance	0.00	0.01	0.00	0.01
Total overhead	**0.16**	**0.34**		
Margin/mark-up	0.39	0.83	0.39	0.83
Ex-works price	**9.11**	**4.10**	**0.73**	**1.53**
Transport costs to EU	0.24	0.27	**Value added %**	
CIF EU price	**9.35**	**4.37**	**8%**	**37%**

Source: Composite estimate from interviews with processors
HLSO – headless shell-on, i.e. unpeeled shrimp tails
PD – peeled & de-veined shrimp tails

What tables 9 and 10 make clear is the low level of value added achieved in these plants. Where the operation is simply one of heading, packing and freezing value added is a low as 8-9%. Where more work is done, such as peeling and de-veining (“PD” shrimp) then value added does increase but only to 37% in spite of the high labour content of these intricate processes.

Table 10: Processing cost for freshwater prawn showing value added

Cost item	**Freshwater prawn**	
Average size (whole)	***50-75gm***	
Product	***HLSO***	
	Processing cost	**Value added**
	€/kg	**€/kg**
Gross raw material cost	3.89	
Processing yield (%tails)	50%	**Raw material %**
Net raw material cost	**7.78**	**91%**
Other input costs	0.02	0.02
Packaging cost	0.08	0.08
Labour cost	0.08	0.08
Overheads		
Management	0.04	0.04
Energy	0.04	0.04
Marketing	0.00	0.00
Depreciation	0.07	0.07
Maintenance	0.00	0.00
Total overhead	**0.16**	
Margin/mark-up	0.39	0.39
Ex-works price	**8.51**	**0.73**
Transport costs to EU	0.24	**Added value %**
CIF EU price	**8.75**	**9%**

Source: Composite estimate from interviews with processors

However, in spite of this low added value, RoO - in either current or potential future form - do not present a problem for the Bangladesh shrimp processing industry. The point has already been made that virtually no imported raw material is currently used in the Bangladesh seafood industry. Imports are limited to small quantities of shrimp feed, a small percentage of packaging materials (shrink wrap from India, some high tech materials from Singapore, but thanks to the well developed Bangladesh garment industry, local packaging technology is relatively advanced). Some chemicals are also imported as are very limited quantities of shrimp brought in informally from Myanmar and the Indian Sunderbans. This means of course that tolerance allowances have virtually no relevance in Bangladesh's case. The logic of the situation suggests this and players in the industry confirm that this also their view

There is of course one scenario where rules of origin would become important – the importing of shrimp raw material into Bangladesh for processing by domestic plants. Were this to be deemed to be non-originating material (as it almost certainly would be because cumulation options are limited) then the new RoO would offer Bangladesh little scope for expansion. The low value added demonstrated by Bangladesh processing (8-35%) would clearly disqualify product based on non-originating material.

Whether this could have any practical impact upon the processing sector is debatable. The low utilisation of processing capacity would suggest that increasing throughput by widening sourcing should be a priority (even though such strictly commercial concerns seem not to be a current priority). Quite the converse in fact -Thailand currently imports shrimp from Bangladesh to fill gaps in their supplies of raw material. There is an inflow of shrimp from Myanmar, but even that is much reduced now as there are good roads into China from Myanmar and larger reefer trucks can now move product much more easily to China than across the border to Bangladesh.

4.2 The Shrimp fishery

Shrimp caught by the Bangladeshi fleet are by definition originating. This would change were a foreign fleet (under the RoO definition) enter the fishery and land to Bangladeshi processors. There seems to be very little chance of this – the industrial fleet is a very minor contributor whilst the bulk of wild shrimp landings are artisanal – a highly unlikely segment for foreign involvement. There Is however one minor aspect to consider – the collection of tiger shrimp broodstock by the trawler fleet. This could raise issues were the fleet to relocate its ownership outside Bangladesh for reasons explored directly below

So far though there have been no circumstances where fishing companies - Bangladeshi or foreign - have taken any action that might impinge upon RoO according to industry sources - re-flagging of vessels, re-location of businesses, employing foreign crews etc

4.3 Shrimp Farming

Aquaculture production is generally deemed to be originating and so raises no contentious RoO issues. There is though one aspect that merits discussion here. This concerns the fact that black tiger farming is still precariously dependent upon wild broodstock (growing farmed black tiger to maturity is a challenge, and this results in dependency upon wild caught adults). These are currently caught off Bangladesh and will in all probability continue to be so. However, if for some reason broodstock or pLs were to have to be imported then a problem could emerge.

This is because the current definition of originating for cultured raw material is that the seed (ova, postlarvae) must be originating itself. This could then lead to locally farmed shrimp being deemed to be non-originating. Were that to happen, then given the low value that is added in processing (8-35%) the processed product would similarly be deemed to be ineligible for EU preference. This is a highly unlikely scenario, but one that arises because of Bangladesh's shrimp farming industries dependence upon black tiger, and lack of more domesticated alternatives (eg *Penaeus vannemei,* white shrimp). It would only be likely to emerge were there to be a complete failure of the shrimp fishery (for whatever reason) or, say, a disease disaster for the wild black tiger stock. Even so, the risk of importing disease would militate against importing pLs.

Conversely, were the added value criteria to be applied to shrimp culture (i.e. this were to be deemed a "manufacture"), then this segment of the industry would clearly have little problem in achieving value added thresholds. As table 6 above shows, on the criteria set out here (i.e. seed being the input that determines origination), value added ranges between 76 and 96%

The fact that some shrimp feed is imported from Thailand has been mentioned already. The reason for this is because feed of similar quality is not available locally, but only a very few farmers use this feed, as would be expected given the extensive low input nature of Bangladeshi shrimp culture. Moreover, under current RoO, feed origin plays no part in determining originating status

5 Wider implications of RoO change

5.1 Economic, Social & Environmental Impacts

As the foregoing has repeatedly signalled, RoO pose few current problems for the Bangladesh shrimp industry. Consequently as things stand RoO change will have little impact upon the industry (or indeed any other Bangladeshi export-orientated fisheries activity). Thus the wider implications are similarly limited and unless some of the less likely outcomes discussed above do materialise, that will continue to be the case.

On a wider front, there was some concern about a potential future loss of EU preference, should this occur. Exporters could see their markets being damaged if others were to have their EU tariffs reduced relative to Bangladeshi levels. Indeed, generally the advantages of preference were not widely perceived by players in the industry. However, now that EU duties on Thai frozen shrimp have been reduced to 4.2%, this is perhaps unsurprising as the advantage is not great.

Moreover, Bangladesh has differentiated itself as one of the few remaining producers of large shrimp (black tiger and prawns) whilst most of their competitors are increasingly producing cheaper small white shrimp (*P vannamei*). Bangladesh is also favouring extensive systems which are arguable kinder to the environment and, now that the coastal communities have reclaimed much of the brackish water industry, can possibly claim to be relatively ethical. The scene is then set for ethical branding of Bangladeshi shrimp and these higher value niches will probably play an important part in the sector's future

Regarding administrative complexity, exporters, processors and administrators did not believe that the

new RoO would exacerbate regulatory problems, but neither did they see them lessening the bureaucratic burden. However, as origin is currently largely not an issue, this is hardly surprising.

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APPENDIX 1
EU tariffs generally applying to shrimp products imported from Bangladesh and their competitors

EUROSTAT CODES		Tariff
0306 13	Frozen & frozen cooked peeled & unpeeled shrimp	
0306 1310	Pandalids	12%
0306 1330	Crangons	18%
0306 1340	Deepwater rose (parapenaeids)	12%
0306 1350	Penaeids	12%
0306 1380	Other non penaeids inc Argentinean, also freshwater prawns	12%
0306 23	Fresh & cooked unfrozen - "Non frozen peeled & unpeeled shrimp"	
0306 2310	Pandalids	12%
0306 2331	Crangons	18%
0306 2339	dried, live etc Crangon*	18%
0306 2390	Other non pandalid, crangon so includes Penaeids & freshwater prawns	12%
1605 20	Canned & potted shrimp	
1605 2010	in airtight containers 94+	20%
1605 2091	prepared/preserved, not in containers, <2kg packs	20%
1605 2099	prepared/preserved, not containers, >2kg packs	20%

Sources: Commission Regulation EC 1719/2005 27 Oct 2005

ANNEX 8: COUNTRY CASE STUDY: INDONESIA

PROCESSED SHRIMP

Glossary (Case study specific)

MMAF	Ministry of Marine Affairs and Fisheries
MSY	Maximum Sustainable Yield
SPF	Special Pathogen Free (shrimp seed)

IRp Indonesian Rupiah, Exchange rate €1=IRp11,500
Population: 226.1 million (2005).

1 INTRODUCTION

Indonesia is quite unlike all the other countries selected as case studies for this report. It is a vast country with both fishery and population to match. This means that the situation in Indonesia represents a scale and complexity that sets it apart from the other fishery sectors selected for case studies. Bangladesh is the only country that is in any way comparable, but only partially so because the scale and range of Indonesia's aquatic resource dwarfs that of Bangladesh (which is anyway mainly limited to freshwater production).

The Indonesian shrimp industry reflects this difference in scale - Indonesia is amongst the world's top five shrimp producers, contributing 12% of the global farmed shrimp total. Even so, shrimp is not particularly important within the wider domestic economy. Indeed it is not even one of the larger elements of the Indonesian fisheries sector which is dominated by wild and farmed finfish. Shrimp does though support a processing industry that is becoming increasingly sophisticated, producing value added products.

Shrimp is produced by both fishing and farming, but it is the latter that is now leading development. This shrimp farming industry grew out of traditional coastal pond (tambak) culture, which had the advantage of having ready-made pond capacity available but which linked it to low-yielding artisanal practices. Latterly a far more intensive industry has developed involving some of the world's largest aquaculture enterprises with fully vertically integrated operations. As a result, the industry has become complex and multilayered as indeed is the Indonesian seafood processing industry generally. There are at least three tiers – at the top are large corporations who dominate the sector, either through their international muscle or their high level connections in Indonesia. Some are very able performers, others less so.

Below this major player's league is a second tier of midsize companies who struggle with the bureaucratic and infrastructural constraints for which Indonesia is renowned. Finally there is a lower tier of relatively small companies whose goal is descend below the government's radar and operate effectively through fleet-footed flexibility. Many are Chinese and links with China have become increasingly important latterly – indeed some of these companies have started to operate in China solely to supply the Indonesian market, so avoiding many of the domestic constraints mentioned above.

Though the fisheries sector may not have great national economic significance in Indonesia, its socio-economic importance is high. Fishing and farming each employ 2.6 million, many in remote rural locations where economic alternatives are few. Allowing for family members and ancillary businesses that fisheries support, arguably more than 10% of Indonesia population depends upon the sector to some degree. This then explains the relatively high political profile the sector has in Indonesia, and why it is frequently regarded as a key arena for development intervention.

2 Context – The Indonesian fisheries sector

2.1 Overview of Fisheries Production

Indonesia is one of the leading global fish producers with total aquatic production of 6.9 million tonnes in 2005. This comes from capture fisheries (marine and inland) and aquaculture, but includes 0.9 million tonnes of seaweed (mostly cultured) that should be regarded as a category of its own, and not lumped together with what is normally considered to be seafood. The 6 million tonne balance comprises fish and shellfish, with the 4.4 million tonnes of marine species the major component. As the total allowable catch (TAC) is estimated as 5.1million tonnes (itself set at 80% of estimated MSY), this is deemed to be both sustainable and capable of maintaining the growth in output that has been evident recently (3% per annum).

A multitude of marine fish species dominates the catch, with the exportable high value items very much in the minority: wild shrimp at around 200,000 tonnes annually represents only 5% of the total with tuna (exported fresh, frozen and canned) contributing a further 17%. High value whitefish (grouper and snapper) are an even smaller category. Whilst production overall has been growing, that

of shrimp has not. Reflecting a global phenomenon, the combination of aquaculture-led price declines and fuel cost increases are putting shrimp fleets out of business. This has happened in Bali already, and the Javanese fleet is reputedly also having difficulties.

Table 1 Indonesian capture fisheries production 2001 to 2006, *Units; tonnes*

	2001	2002	2003	2004	2005	2006*
Shrimp	**263,037**	**241,485**	**240,438**	**245,913**	**208,539**	**208,512**
Tuna	600,238	618,496	627,891	720,715	745,170	780,127
other fish	2,846,151	2,889,364	3,157,465	3,112,018	3,246,770	3,357,521
Seaweed	34,450	55,731	64,610	8,677	9,670	5,643
Other species	222,604	268,430	292,699	232,918	198,350	217,794
Total marine	**3,966,480**	**4,073,506**	**4,383,103**	**4,320,241**	**4,408,499**	**4,569,598**
Inland	310,240	304,989	308,693	330,880	297370	310,480
Total	**4,276,720**	**4,378,495**	**4,691,796**	**4,651,121**	**4,705,869**	**4,880,077**

*Source: DG of Capture Fisheries, MMAF. * Forecasts*

The Indonesian fishery is huge, with a fleet of 556,000 boats, and mostly artisanal. The great majority of the fleet are small vessels with 44% simple non-engined canoes or sail boats, and 30% small outboard powered boats. In fact there are only 3,900 vessels of more than 50 tonnes, i.e. only a tiny portion of the fleet (less than 1%) could be regarded as industrial in scale. A multitude of mostly small scale fishing methods are employed, with 32% based on hand lines of various sorts and 23% on fish traps. There are 2.6 million fishers involved (80% marine), but the number is declining - down 20% since 2001, after peaking in 2003. Arguably this suggests that mechanisation is starting to have an impact, with employment dropping whilst catches continue to rise.

Aquaculture in Indonesia is similarly a very large industry, again ensuring that the country is amongst the top global players. Ignoring the near million tonnes of seaweed grown, an output of 1.3 million tonnes of fish and shellfish puts Indonesia high amongst the world leaders in aquaculture. An additional 2.6 million are employed in aquaculture, the majority in freshwater fish culture (1.96 million) but a sizable number work in brackish water culture which includes shrimp farming (0.45 million) and around 100,000 in coastal mariculture.

Table 2 Indonesian aquaculture production 2001 to 2006, *Units; tonnes*

Brackish water	**2001**	**2002**	**2003**	**2004**	**2005**	**2006***
Shrimp	**148,558**	**159,182**	**191,966**	**238,341**	**279,375**	**305,722**
Milkfish	209,525	222,317	227,930	241,438	254,067	263,517
Freshwater						
Carp	194,925	199,632	219,385	192,462	216,920	215,711
Tilapia	105,106	109,668	124,469	138,665	186,456	190,382
Catfish (basa)	38,097	49,312	71,518	75,233	101,961	113,319
Seaweed	**212,478**	**223,080**	**231,927**	**410,570**	**910,636**	**872,880**
Other species	**168,060**	**174,017**	**156,997**	**171,805**	**214,259**	**204,083**
	1,076,749	**1,137,208**	**1,224,192**	**1,468,514**	**2,163,674**	**2,165,614**

*Source: DG of Capture Fisheries, MMAF. * Forecasts*

2.2 The Indonesian Shrimp Industry

The Indonesian shrimp industry splits clearly into three main segments: two separate primary production activities (fishing and farming) and thirdly, processing. Each segment is effectively a separate industry in its own right and has developed with a relative degree of independence. This is changing though, and as we note below, large vertically integrated companies are beginning to combine aquaculture and processing into single pond-to-market businesses. However shrimp fishing still remains largely separate as a traditional activity that is less easy to integrate into modern business structures.

2.2.1 Shrimp Farming and Fishing

Indonesia used to obtain most of its shrimp from trawling and until 2001 this was still the major source accounting for over 60% of the supply (see table 3).

Table 3 Indonesian shrimp production, farmed & wild, 2001 to 2006. *Units; tonnes*

	2001	2002	2003	2004	2005	2006*
Wild shrimp	**263,037**	**241,485**	**240,438**	**245,913**	**208,539**	**208,512**
Farmed shrimp	**148,558**	**159,182**	**191,966**	**238,341**	**279,375**	**305,722**
P monodon	148,558	143,222	153,746	166,839	111,750	60,922
P vannamei		15,960	38,220	71,502	167,625	244,800
% wild	64%	60%	56%	51%	43%	41%
% farmed	36%	40%	44%	49%	57%	59%
Total supply	**411,595**	**400,667**	**432,404**	**484,254**	**487,914**	**514,234**

*Source: data from DG of Capture Fisheries, MMAF and interviews. * Forecasts*

This has changed rapidly since then and now fishing accounts for only around 40% of the total. The rising cost of fishing (fuel especially) coupled with the price decline have favoured aquaculture (which being more efficient, was of course responsible for the price decline in the first place). All the signs are that aquaculture will increasingly come to dominate the raw material supply.

Shrimp farming in Indonesia is, as with most of the nation's seafood production, mostly a small scale activity. This is partially a function of the way it has developed, through adapting existing traditional coastal fish ponds (tambaks formerly used to produce milkfish) for shrimp farming. This was always an "extensive" industry with low inputs and low outputs, and has largely retained this characteristic. Some 430,000ha of ponds are currently used for brackish water culture of both shrimp and milkfish. Of this, 40% is claimed to be used for shrimp culture (172,000 ha), segmented as follows, with extensive culture very much the dominant category.

Table 4 Brackish Water pond areas for shrimp production

Extensive	75%	129,000 Ha
Semi extensive	15%	25,800 Ha
Intensive	10%	17,200 Ha
Total		**172,000 Ha**

Overall national average yields are 1.6-1.7 tonnes/ha/year, but many farms are believed to have much lower yields. If the highly intensive farms are ignored, the average for extensive farms is probably closer to 0.7tonnes/ha/year. Usually little feed is applied (none until the 60h day in a100-120 day cycle) and there is no pumping or aeration. In contrast, labour demand is much higher than global averages – two hectares are managed per worker, but because yields are so low, this means output per worker is probably only 1.1 to1.2 tonnes/year, well below global norms (4 tonnes/ha/year plus).

This is clearly a farming system that is adapted to low income rural communities. Surveys in the past have suggested that the average family farm was only 4 ha, and so revenues per farm are low. An important corollary of this low yielding system is that potential for development must be high. Intensification to even modest "semi-intensive" levels of 2 tonnes/ha/year would double or triple output from the extensive segment if applied universally. Furthermore, the Indonesian Government has identified a further 800,000 ha with potential for shrimp culture. Future output is then likely to be a great deal higher.

If technical development has been modest, there is one way in which the industry has changed substantially. This is the move from indigenous black tiger shrimp (*Penaeus monodon*) to South American white *P vannamei*. As the table above shows, vannamei has become very much the dominant farmed species over the past 5 years, and some in the industry believe it now accounts for 90% of farmed production, with black tiger mainly the preserve of small family farmers. This means that small farmers are very dependent upon hatcheries. Originally Indonesia had been successful in developing small scale "family" black tiger shrimp hatcheries appropriate for their dispersed low intensity form of culture. Now, with imported vannamei the species of choice, control of seed supplies is believed to have passed to two or three major shrimp companies.

2.2.2 Shrimp Processing

Shrimp processing tends operate independently of small scale farming, especially where export is the objective. This is commonly the case given the investment required for a processing plant, and the need for sufficient throughput to defray fixed costs and overheads. The need for further investment to achieve required quality standards latterly has only served to distance the plants further from the artisanal scale of the farming segment. These processing plants are then commercial scale operations, set in the main population centres of the farming areas. The centre of the Indonesian shrimp processing industry is Surabaya where there are some 30 EU registered processing plants. Others are located in Medan, Lampung, Jakarta and South Kalimantan.

So far, few distinctly major players have emerged in processing, with the exception of PT BMI (Bumi Menara Internusa) and the major integrated companies. The need to have processing located close to the farms might be a factor in dispersing plants and so keeping size down. Accordingly, the processing industry is fragmented though far less so than the farming segment.

The industry's products include a mix of primary and secondary (value added) items which range from head-off shell-on tails to peeled tails, and fancy products (breaded tails, shrimp kebabs, peeled de-veined tails). Where primary processing ends and secondarily processed status starts is not always clear, but the more advanced value added items clearly belong to the latter category.

2.2.3 The New Direction: Large Integrated Companies

Latterly a new approach to shrimp farming has taken root in Indonesia. This is the large vertically integrated enterprise that undertakes the whole spectrum of activities from running hatcheries and broodstock facilities through large scale farming to processing and marketing. These companies also undertake ancillary activities such as feed production. This gives them control of the entire process from post larvae to sale of value added products. CP Indonesia is a case in point, now the largest Indonesian shrimp concern (and indeed its parent Charoen Pokfand Thailand is arguably the world's largest shrimp culture company) - see box. These units which also include PT DCD and PT Wahyuni Mandira have been built on large tracts in unexploited coastal swampland in southern Sumatra

What these "mega companies" have done is to link the formerly separate production and processing segments within a single integrated whole. They are now also bringing the small family farms within their ambit through setting up the sort of nucleus-satellite systems that have been developed so successfully in Thailand. The nucleus (the mega company) has sufficient critical mass with its own production to allow it to operate "peripherals" (hatchery, processing plant and feed mill) viably. It then inducts a large number of family farms (the satellites) into its system supplying them with critical hatchery, input and processing services.

Charoen Pokfand. PT Central Proteinaprima (CP Central) is the Indonesian subsidiary of CP Thailand but operates separately under a corporate policy of "friendly competition". CP has developed one of the world's largest shrimp farms, CP Centralpertiwi Bahari, in Lampung, Sumatra. This fully integrated company solely produces P vannamei, importing SPF broodstock from Florida, taking on the full range of activities from seed production and primary production to processing and running a feed mill The company which was started in 1996 produces 50,000 tonnes from 16,000ha at the Lampung farm – 15 to 18% of Indonesia's total farmed shrimp output and a telling indicator of the group's importance. Production is intensive, i.e. high input and relatively high output for Indonesia at 3.3 tonnes/ha/year. And CP Central is about to get a great deal larger though acquiring PT DCD (Dipasena Citra Darmaja) in Palambang (Sumatra), a farm with an even larger potential production area than CP has.

CP have become leaders in promoting nucleus-satellite systems in Indonesia. They have formed partnerships with small farmers in Sumatra (South and North, some in Aceh) and Java. Some 3,200 farmers are involved, each with a single 0.5 ha pond, so the scheme totals 1,600 ha in all. With average family sizes of 3-4, this means around 10,000 people depend upon this arrangement. Meanwhile, failure by its competitors to develop similar systems has undermined some, and thus the acquisition of DCD. CP also employs an additional 10,000 in its processing plant, hatchery, nucleus farm so this integrated operation has a sizable socioeconomic footprint.

Detractors from the nucleus-satellite approach argue that this allows the nucleus to control the satellites and squeeze them to the point where they are little more than contract growers with a "company store" relationship to the nucleus. One effect of this has been concentration of hatchery output with concern that three companies might now control 70-80% of juvenile production and 20-30% of exports. Supporters point out that this system provides the essential quality and traceability systems now mandatory for export, as well as guaranteeing crucial inputs and markets for small farmers who were previously unable to access these reliably. In reality, this system should become a mutually beneficial arrangement provided that there is adequate regulation

2.3 Indonesian Trade in Seafood

Indonesia exports nearly a million tonnes of seafood products worth over $US2 billion annually. The country is then a significant player in the global seafood trade arena. These exports have been growing rapidly at 10% per annum in volume terms, (though rather less so in value which has been rising at only 4% annually). The industry is then evidently fulfilling the MMAF PROTEKAN policy of expanding seafood exports, but doing so by increasing the proportion of lower value items (i.e. non-crustacean items)

Table 5: Indonesian seafood product exports 2000 to 2006, *Units tonnes*

Quantity: tonnes	2000	2001	2002	2003	2004	2005	2006
Shrimp	116,118	128,830	124,760	137,636	139,450	153,906	169,329
Tuna	92,958	84,206	92,797	117,092	94,221	91,631	91,822
Other fish	216,339	169,583	236,937	470,045	526,035	428,395	493,540
Crab	12,381	11,657	11,226	12,041	20,903	18,593	17,905
Other species	81,550	92,840	100,014	120,971	121,749	165,257	153,881
Total	**519,346**	**487,116**	**565,734**	**857,785**	**902,358**	**857,782**	**926,477**

Source: DG Fisheries Product Processing & Marketing 2006 MMAF

Shrimp only accounts for 18% of exports by volume, but as table 5 shows, more than half of export value (53%). Even so, as elsewhere, unit shrimp prices have declined significantly since 2000 although they have shown some recent firming. This price decline is then another cause of the relatively slower growth in export value than there has been in volume.

Table 6: Indonesian seafood product exports 2000 to 05, values & indicators

Value $000	2000	2001	2002	2003	2004	2005	2006
Shrimp	1,003,124	934,989	836,563	850,222	887,127	948,130	1,115,963
Shrimp unit price	$8.64	$7.26	$6.71	$6.18	$6.36	$6.16	$6.59
Shrimp as % of all exports^	60%	57%	53%	52%	50%	50%	53%
Total seafood export value	**1,676,074**	**1,631,999**	**1,570,353**	**1,643,543**	**1,780,833**	**1,912,926**	**2,103,472**
Shrimp export as % total national supply*		52%	52%	53%	48%	53%	55%

Source: DG Fisheries Product Processing & Marketing 2006 MMAF
^ Shrimp export value as a % of total seafood export value
** Shrimp export volume as a % of total shrimp production (adjusted to round weight)*

Export is now the major destination for Indonesian shrimp, and when allowance is made for the weight loss on processing (table 5), exports consistently account for over half of the total national supply. It is of course the fast expanding shrimp farming industry that is targeting the export market in particular. Table 6 shows that the bulk of these exports go to the major OECD markets, the proportion ranging between 70% and 80% in recent years. Japan used to be the major market for Indonesian shrimp, but the flat Japanese economy has led to a slow decline.

The EU was first market to take up the slack, but latterly it is trade with the USA that has expanded most rapidly. The reason for this is clear – Indonesia was the single major shrimp producer not penalised by the US antidumping duties in 2004. The results reflect exactly what might have been expected – a huge increase in US imports of Indonesian shrimp.

Table 6: Imports of Indonesian shrimp by major OECD markets 2002-06

Volume tonnes	2002	2003	2004	2005	2006
EU Imports	**13,544**	**27,252**	**30,625**	**26,459**	**35,000***
Frozen shrimp	9,959	20,865	25,588	20,140	27,955*
Added value shrimp	3,083	5,982	4,747	5,922	6,754*
Canned shrimp	502	405	290	397	291*
USA imports	**16,913**	**21,022**	**45,748**	**51,928**	**57,779**
Included in which: Shrimp tails	7,522	11,261	20,545	21,099	20,738
Peeled shrimp	8,155	8,754	21,617	24,836	27,612
Added value (inc cooked)	1,236	1,007	3,586	5,993	9,429
Japan	**53,608**	**52,367**	**48,623**	**45,574**	**43,665**
Total	**80,480**	**94,254**	**114,916**	**118,601**	**122,182**

*Sources: NMFS, Infofish Newsletter, Eurostat. *Forecast*

US import data is instructive in another way: it shows the growing importance of more fully processed items, with firstly the proportion of peeled shrimp tails rising to the point where it now exceeds raw (shell-on) tails by a wide margin, and latterly the rapid growth of value added value items (eg breaded and fancy preparations of shrimp)

Table 7: Imports of frozen Indonesian shrimp by EU Member States 2001-05

	2001	2002	2003	2004	2005	2006
Spain	287	560	1,659	6,808	1,084	4,432*
France	2,477	1,053	2,547	3,129	4,206	4,343*
Netherlands	969	1,202	5,005	1,652	1,185	2,267*
UK	5,731	4,218	4,677	4,900	6,186	5,620*
Belgium	1,030	1,387	4,289	5,366	3,686	5,939*
Other	2,556	1,539	2,688	3,725	3,793	5,350*
Total Quantity tonnes	**13,050**	**9,959**	**20,865**	**25,580**	**20,140**	**27,951***
Total Value €000s	**124,966**	**76,798**	**107,981**	**121,005**	**111,139**	**133,243***
€/kg	**€9.58**	**€7.71**	**€5.18**	**€4.73**	**€5.52**	**€4.77**

*Sources: Eurostat *Forecast*

Finally table 7 investigates the EU market for Indonesian shrimp. Valued at around €110-120m annually, it accounts for half EU seafood imports from Indonesia by value (with the total put at €220 million). Unusually there are no consistently dominant EU importers with countries evidently moving in and out of this particular trade. Spain appears to be particularly fickle in this regard, and quality problems or questionable trading practices by some players might provide the explanation. That said, the UK, France and Belgium appear to be the emerging as the main buyers taking 70% of the frozen export between them in 2005. The table also shows average unit prices for EU shrimp imports. When adjusted to US$ equivalents (and allowing for freight costs) the EU import values in Table 7 equate fairly closely with those shown (for all Indonesian shrimp exports) in table 5. There is perhaps a 5-10% premium paid by quality conscious EU importers, but it is no larger than this.

Indonesia does import fisheries products and until the import ban (discussed below) this included large quantities of shrimp. Now fishmeal is the major fisheries import at 86,000 tonnes ($55m) alongside fish oil (6,800tonnes), much of which is used for shrimp and fish feed. This further demonstrates how Indonesia is reorienting towards the farming of high value aquatic products

2.4 Other Issues: Tariffs, Antidumping & Food Safety

(i) Tariffs

Indonesia has GSP MFN status for all products bar those involving wood and (palm) oil, so benefits from reduced duties for seafood products exported to the EU. The degree of preference varies between seafood products, and shrimp is one of the products that does best, with MFN duty rates discounted by 65%, i.e. to rates around one third of the conventional level. So fresh and frozen shrimp of all product forms faces duty of only 4.2% whilst that for canned or value added shrimp is 7%. This is a considerable concession shared with other Asian producers such as Thailand. In comparison, duty on canned tuna remains high at 24% except for a modest quota at a reduced rate of12%

Table 8: EU tariffs applying to shrimp products imported from Indonesia

Item*	CN Code (Eurostat)	Conventional Duty	Discounted duty *
Fresh penaeid shrimp & freshwater prawns	0306 2390	12%	4.2%
Frozen Penaeids	0306 1350	12%	4.2%
Frozen other, inc freshwater prawns	0306 1380	12%	4.2%
Canned & value added shrimp	1605 2010/91/99	20%	7%

*Sources: Commission Regulation EC 1719/2005 27 Oct 2005 * discounted duty applied to Some Asian states as a concession*

The current GSP scheme will come under general review at the end of 2007, this timing reflecting the three year GSP cycle. Essentially it will entail a check as to whether countries (or sectors) still merit GSP preference or whether the country has graduated to an economic status where this is no longer warranted. This new system needs to be in place by the end of 2008. The informal expectation in Indonesia is that the current discounts applied to conventional GSP rates probably won't change (i.e. there will be a "standstill" in place) but the underlying base MFN duty rates may, so in turn changing duties in practice

(ii) US anti dumping duty

As mentioned above, Indonesia was singled out as the one major shrimp producer not to be subjected to anti dumping duties in 2004, giving the country a substantial advantage over some competitors, especially China, Vietnam and Brazil. This has led to a major expansion of Indonesian/US shrimp trade, but there are risks. One major concern has been that Indonesia might be deemed to be importing dutiable shrimp from countries penalised for dumping and "laundering" it before exporting is as Indonesian and so duty free to the USA (i.e. a RoO issue, this time for US trade).

Indeed there was a case where in 2005, seven Indonesian companies, including some major players, were accused of doing just this. Furthermore, Indonesian shrimp imports did surge, increasing by over 100% in 2004, up from a steady $10m in 2002 and 2003 to $22.5million according to US sources. The response has been the imposition of an official Indonesian ban on all shrimp imports from any source. This has been in place for two years from the end of 2004. Clearly, maintaining the current shrimp trading status with the USA is fully recognised officially for the benefit that it is. Adherence to this law by the industry will be an important test of its maturity and reliability as an international trading partner.

(ii) Food safety & hygiene

SPS regulations are a far more important issue for Indonesia than RoO. There have been far too may alerts of late and there is a general acceptance that food safety needs to be improved. This is especially true of fresh and frozen tuna products, but shrimp also faces concerns especially regarding antibiotic contamination. Small farmers use antibiotics as a husbandry aid, but lack the concerted organisational structure to ensure that this has been eliminated by the time shrimp reach the processors. Nucleus-satellite arrangements or cooperative associations are seen as a way of solving this problem, but it and problems along the supply chain generally remain a threat to the industry.

3 Economic implications of the Indonesian shrimp industry

3.1 Primary Production: Shrimp Fishing and Farming

The Shrimp Fishery
The Indonesian shrimp fishery mostly operates close to shore (i.e. within the 12 mile limit) and is wholly owned by Indonesians, operating under the national flag. Strong national resistance to foreign operators gaining control of Indonesian resource-based industries has ensured that this situation is unlikely to change any time soon. In short, then, wild caught shrimp are clearly originating in Indonesia and likely to remain that way.

There are economic problems in the industry. They reflect the global situation where farming, which is currently cheaper than capture, has come to set price levels and these have fallen considerably. At current low yields (i.e. catch per hour of trawling) many shrimp fisheries are not profitable and can only become so by reducing effort and so allowing catch rates to rise (i.e. less boats means higher catch per boat). Rising fuel prices (normally about a third of operating costs) have added to the pressure and reputedly some Indonesian shrimp fleets are suffering. There are then unlikely to be increases in Indonesia's wild shrimp catch, and wild shrimp production costs will not be undercutting the farmed alternative.

The Shrimp culture industry
Establishing a single cost structure that meaningfully reflects the diversity of the Indonesian shrimp farming industry is problematic. Best sense of the industry can perhaps be made by regarding the industry as essentially two industries – (i) a commercial intensive industry based upon mid and large sized operations and (ii) the huge traditional small scale sector that uses extensive methods. The latter is based on tambaks, originally designed to produce milkfish, and operated as family concerns, mostly with minimal inputs. In some cases tambak shrimp are poly-cultured with milkfish with virtually no inputs, whilst in others they are fed, but only in the latter stages of growth. Clearly it will be difficult to rationalise this range of culture techniques into single economic model

Intensive culture is more open to economic analysis, as the parameters are more clearly defined in economic terms. Table 9 does this below for a representative intensive operation as defined by an Indonesian growers association. This shows that Indonesia is not a particularly low cost producer – with costs of US$3.3/kg for vannamei well above that for the most competitive producers (China, Vietnam, Thailand) which lies between $2.5/kg and $3.0/kg. This is surprising given the abundance of good low cost labour in Indonesia, but reasons for these higher costs are generally assumed to be a combination of poor infrastructure in the farming regions coupled with Indonesia's notoriously bureaucratic systems, especially at regional level. Both lead to high transaction costs, thus raising Indonesia's cost base some15-20% above that of the low-cost leaders. The high energy costs due to the pumping and aeration required for the more highly intensive culture methods also contributes to the high cost base.

Discussion with commercial farmers in Indonesia confirmed that this is a reasonably representative cost structure, and further confirmation comes from an unlikely source – the US antidumping action brought against Indonesia's leading competitors. Indonesia escaped sanction in this case, and a reason for this might lie in the fact that the average effect of the duties imposed has been to level up the production costs of the most competitive producers to around $3.5/kg - i.e. to a cost level already faced by Indonesian farmers. This might provide a reason for this decision that surprised many – in short there was no need to impose a tariff in Indonesia's case as their cost base was high enough to limit the threat they posed to US producers.

Table 9: Production costs estimate for intensive shrimp farming in Indonesia

Item	$US/kg	Proportion
Post-larvae	0.31	9%
Feed	1.56	47%
Energy	0.72	22%
Medication	0.19	6%
Labour	0.22	7%
Other	0.33	10%
Total	**3.33**	**100%**

Source Shrimp Club of Indonesia.

Small scale production costs are undoubtedly lower than those for intensive production. Industry commentators suggest that they could be as low as US$2/kg when inputs are minimal, but a more representative average value would be closer to $2.4/kg. Table 10 makes an estimate of the cost of production for such an "average" farm, where there are some inputs – primarily post larvae (seed) and feed. The cost structure shown reflects that assessed during a 1996 ADB study of small scale farming in Indonesia, but this historic estimate has been adjusted to reflect current production costs. This shows feed costs as being understandably lower than those for intensive culture, whilst seed costs are much higher. This is believed to reflect the dependency upon commercial hatcheries and the high costs of distributing post larvae.

Table 10: Production costs estimate for extensive shrimp farming in Indonesia

Heading	Item	$US	Proportion
Direct	Post-larvae	0.52	22%
	Feed	0.94	39%
	Energy	0.06	2%
	Labour	0.21	9%
	Other	0.15	6%
Overhead	general OH	0.12	5%
	Depreciation	0.39	16%
	Financing	0.01	1%
Total		**2.40**	**100%**

Source: ADB/NACA Farm Performance Survey 1996, updated to 2007

The latter production cost appears to be very close to the competitive levels mentioned above for the low cost leaders. Does this then mean that the small scale family farms are the segment of the Indonesian industry best able to compete with these leaders? It seems not, because what is not factored in here is the high cost imposed by the remote and dispersed location of these farms. Collecting shrimp is consequently very expensive, whilst maintaining quality, continuity and grade regularity presents further difficulties. Accordingly, processors believe that these on-costs make artisanally farmed shrimp no less expensive than that from intensive farms.

The underlying problem appears to be the difficulty that Indonesia has had so far in establishing nucleus-satellite systems that are as successful as those in Thailand. This means that the artisanal segment is unable to benefit from effective linkages between the small growers and efficient commercial hatcheries, processing plants and distributors. Though this is now being established (and is fostered by Government policy) it might explain why efficiencies seen elsewhere have still to emerge in Indonesia

3.2 The Shrimp Processing Industry

Indonesian shrimp processing is in transition, developing from basic processing to production of sophisticated value added products. As a result, Indonesia currently produces a wide range of shrimp products, though the basic item – frozen shell-on tails-remains the mainstay of the industry. Value added items include Asian specialties such as shrimp crackers (Kerupoc) whilst western markets are supplied with peeled tails including fancy items (eg peeled de-veined tails with tail "fan" left on). Some breaded shrimp tails are also produced, as is canned shrimp.

Trade data provides some indication of the volumes produced: USA imports of value added items (mainly based on peeled tails) have risen from 1,200 tonnes in 2002 to nearly 9,500 tonnes last year (see table 6 above). The most recent available Indonesian trade data (2005) shows exports of 20,000 tonnes of peeled and cooked shrimp, whilst exports of shrimp crackers and canned shrimp were 5,800 tonnes and 2,300 tonnes respectively. Secondary processing (value added) is then already a significant element of the Indonesian shrimp processing industry.

Processing costs were obtained variously from leading integrated producers, processors' associations and smaller scale enterprises. A generalised composite of these various cost structures is set out in Table 11 which is based upon *P vannamei*, now overwhelmingly the dominant species produced and the choice of the export orientated commercial enterprises.

Table 11: Production costs for the main types of Indonesian processing, *Units $/kg*

US$/kg	Shell on tails	Peeled tails	PD shrimp	Breaded tails
Raw material cost	**3.5**	**3.5**	**3.5**	**3.5**
Yield	67%	50%	45%	65%
Net raw input cost	5.2	7.0	7.8	5.4
Packaging	0.1	0.1	0.1	0.1
Labour cost	0.3	0.5	0.6	0.8
Production overhead	0.7	0.8	1.0	1.1
Other inc export cost	0.2	0.2	0.2	0.2
Added ingredients	-	-	-	0.2
Total cost	**6.5**	**8.6**	**9.7**	**7.8**
Margin	0.5	0.9	1.0	0.8
Ex-works price	**7.0**	**9.5**	**10.7**	**8.6**

Source: Interviews with processors and their associations, MMAF data

Table 11 assesses the processing cost for four product categories – frozen tails (still the majority product), peeled tails, peeled and de-veined shrimp (PD shrimp, including fancy preparations such as "tail on" and butterfly shrimp) and breaded shrimp. In each case the yield from raw whole shrimp is shown, based upon Indonesian industry norms, with de-heading removing 33% of whole weight, peeling a further 17% and de-veining 5%, adding up to a total weight loss of 55%. When products are breaded, the weight loss is reversed of course by the added batter and breadcrumbs. In this case a coating of 20% by incremental weight is assumed. The estimates in the table are of course indicative, but do reflect the range of industry estimates in Indonesia as well as international norms.

3.3 Aspects Sensitive to RoO Change

Does this then suggest that RoO change is likely to have any impact upon the Indonesian shrimp sector? The immediate answer is no, as all shrimp is currently originating and so all processed shrimp is wholly obtained. It is not as simple as that though. Whilst wild caught shrimp is originating and likely to remains so, questions could be asked about farmed shrimp. There is also the matter of raw material imports.

Originating shrimp: There is an origination issue with farmed shrimp because of a possible interpretation of RoO that defines originating status by source of the seed (post larvae). If these are imported, then the product may no longer be deemed to be originating. Indonesia has recently changed from producing locally sourced black tiger shrimp to the imported (i.e. exotic) white shrimp species *Penaeus vannamei.* The best source is SPF (Special Pathogen Free) shrimp from the specialised suppliers in Florida and Hawaii. This grows much better than Indonesian bred vannamei, and is of course relatively disease free - a critical advantage. Broodstock is imported, and were this to be deemed to be foreign sourcing (or were the industry to start importing SPF post larvae in quantity) there could obviously be a problem. Equally obviously, this would apply to the large commercial operators – the artisanal growers are mostly in no position to import seed or broodstock.

Imported shrimp. That is the position for domestically produced shrimp, but could imported raw material raise an issue here? The answer is again no, at least for the moment. This is because

currently shrimp imports are banned in Indonesia, and so the question simply doesn't arise. However, this situation could change for a number of reasons.

The current ruling behind the ban has to be renewed every six months. Thus any assumption that it is permanent would be unwise
The ban does protect the interests of Indonesia's shrimp farmers (who are not the lowest cost producers in the region as discussed above) but they are not the only interests involved
For example, it conflicts with interests of the processors, who can buy more cheaply abroad than domestically (and indeed who used to import from Thailand and China)
The import ban may be questioned by the WTO as it conflicts with the underlying objective of freeing up seafood trade.

It is then entirely possible that the export ban will be lifted, and there is also of course the possibility of Illegal imports which, if occurring to any significant extent, would raise similar questions of origin.
Clearly then position that would result if non-originating raw material were to enter the Indonesian system again needs investigation and this is done below.

4 Analysis – The potential impact of RoO change

4.1 The Shrimp Processing Industry

Table 12 makes it clear that shrimp processing does not attain the 60% value added threshold that would be required by the new RoO. Even for the item with the highest level of processing, breaded shrimp, the value added is some 20% below threshold at only 37%. Even allowing for the wide variations in processing costs that the industry might experience, there is then little chance of Indonesian shrimp of any category attaining the required threshold. The one exception might be shrimp crackers, but these are produced in small volumes, and mainly not for the EU market. The underlying reason for the low added value is one common to many of these seafood case studies – the high cost of raw material. This is especially true for shrimp which is still a particularly expensive raw material in spite of price declines over the past five years

Table 12: Value added by the main types of Indonesian processing, *Units $/kg*

US$/kg	Yield	Raw material Cost	On-costs	Margin	Ex-works Price	Total value added
Raw shrimp	100%	3.5				
Shell on tails	67%	5.2	1.3	0.5	7.0	25%
Peeled tails	50%	7.0	1.6	0.9	9.5	26%
PD tails	45%	7.8	1.9	1.0	10.7	27%
Breaded tails	65%	5.4	2.4	0.8	8.6	37%

Source: Interviews with processors and their associations, MMAF data
PD= Peeled & de-veined shrimp tails

For reasons set out above, this only becomes as issue should the current shrimp import ban be lifted, so the crux of the matter is whether this is likely to occur. On the one hand powerful interests support the ban, with the large integrated producers in the vanguard. They see the benefit to their upstream farms outweighing the disadvantage to their downstream processing activities. They are supported by the small scale producers whose lack of influence is made up for by their voting strength – a significant point with elections due in 2009. However, accepting that the ban will inevitably have to be abandoned eventually, these players hope that this can be deferred until Indonesia has been able to improve its competitiveness (or at least be maintained for the few years it will take for labour costs in China and Thailand to rise to the point where Indonesia becomes competitive by default)

On the other hand the processors, mostly centred in Surabaya, are keen to see the ban lifted. The reason is obvious – the potential for sourcing raw material more cheaply overseas. This might be short sighted, though, as the current ban helps to maintain Indonesia's unique position as a major supplier to the USA who are free of antidumping duties. Threats to this status through accusations of shrimp "laundering" by Indonesia could well outweigh any advantage of cheaper raw materials. The processors are a powerful and concerted lobby and so it would be no surprise if they prevail – indeed major players accept that they will eventually. A reasonable assumption would though be that this will

be deferred until the current US antidumping challenge runs its course, with the ban will being lifted shortly thereafter.

Even so, raw material imports are likely to be small in relation to domestic production. This means that there should be plenty of originating shrimp that can be diverted to product destined for the EU, at least at current export levels. The problem may then be more one of accounting (i.e. guaranteeing that the right shrimp is being incorporated in EU destined shrimp)

4.2 Shrimp Fishing and Farming

There is no RoO issue for shrimp caught by the Indonesian fisheries as discussed above. There might though be an issue with farmed shrimp due to the way current RoO deem the origination of aquaculture products to be determined by that of the seed. This is also an aspect that is discussed at length above – the issue being the Indonesian white shrimp (vannamei) industry's dependence upon imported broodstock. Accordingly, the new RoO might have an impact in the, albeit unlikely, event that origination does become a problem here. Table 13 shows that in this case, value added is high (between 85% and 90%) and so clearly farmed shrimp would qualify under the new RoO provided that farming was deemed technically to be "manufacturing"

Table 13: Notional value added by intensive & extensive shrimp farming, *Units $/kg*

	Intensive	**Value**	**Extensive**	**Value**
	$US/kg	**added**	**$US/kg**	**Added**
Postlarvae	**0.3**		**0.5**	
Feed	1.6	45%	0.9	27%
Energy	0.7	21%	0.1	2%
Labour	0.2	6%	0.2	6%
Other	0.5	15%	0.7	19%
	3.3		**2.4**	
Collection, transport & quality control			0.8	21%
Margin	0.2	5%	0.4	10%
Total	**3.5**	**91%**	**3.5**	**85%**

5 Wider implications of RoO change

5.1 Economic, social & environmental impacts

Socioeconomic

The fisheries and aquaculture sectors have real social and environmental importance in Indonesia. Both are huge employers, and through this obviously have a great impact on family incomes. However, it is the disposition of this throughout the country that is particularly significant. It is the remote rural and coastal communities that particularly depend upon fisheries in this largely artisanal and small scale industry. Thus it targets communities that are both relatively poor and that lack obvious economic alternatives. It is not just the coastal communities that are involved. Whilst marine fisheries dominate employment in the capture fisheries segment, aquaculture is mainly an inland freshwater activity and in fact the workforce is split roughly between the two (55% to 45%).

Table 14: The Indonesian fisheries sector's workforce

Sub sector	Workers	Proportion
Fisheries		
Marine	2,347,000	43%
Inland	599,000	11%
Subtotal	**2,946,000**	**55%**
Aquaculture		
Mariculture	81,000	1%
Tambak culture	441,000	8%
FW pond	1,131,000	21%
FW cage	110,000	2%
Paddy	696,000	13%
Subtotal	**2,459,000**	**45%**
Total	**5,405,000**	**100%**

Source: MMAF: Marine & Fisheries Statistics 2005 handbook

Aquaculture is then almost as important as fisheries in employment terms, and shrimp culture is a significant contributor with tambak (coastal pond) culture accounting for 8% of the total. The numbers define the sector's importance. If it is assumed that at least 5 people are dependent upon each direct fisheries job as family members or in ancillary industries like processing, vessel repair etc, then some 27million are involved or 12% of the Indonesian population. To this should be added the economic multiplier effect in that by generating wealth in these rural commutes, wider economic activity is stimulated. The prominence of fisheries projects in Aceh's post tsunami recovery was then no accident.

Clearly the sector's impact is very extensive and as a significant contributor, shrimp fishing and farming plays a substantial role in this. This contribution to employment by the industry occurs in a number of ways: small scale fisheries and traditional tambak culture, jobs in processing plants and ancillary activities, and through the new large integrated producers and their nucleus-satellite schemes. In short, though a relatively minor contributor to Indonesia's economy, the shrimp industry has substantial national socioeconomic implications.

Environmental

The environmental implications are less positive. The **fishery** faces by-catch issues as well as probable overexploitation of the resource. By-catch wastage is probably less of a concern in Indonesia that other countries given the high domestic demand for fish, but capture of turtles remains an issue. The over exploitation issue seems likely to be resolved by an effort reduction enforced by the combination of a number of economic factors. These include high fuel costs, low shrimp sale prices and consequent current uneconomically low catch rates that can only be improved by fleet reduction.

Shrimp **farming** is more contentious, as its continued growth is expected to lead to greater mangrove destruction as well as increased pollution. The large integrated schemes may lead to both, though their supporters would point out that it tends to be wasteland behind the mangroves that is used. The situation with traditional tambak farmers is different as the ponds exist and the route to increasing output is to intensify culture in these ponds rather than necessarily creating new ponds.

In conclusion, perhaps the best way to address the implication of RoO change is to accept that Indonesian shrimp exports are a small but significant element of a sector that has major socio-economic implications for rural Indonesia. Thus if nothing else, support for trade preferences for the sector has real justification on this basis, unless it is leading to unacceptable environmental damage. If RoO change does eventually threaten this, then clearly it is in conflict with the development agenda that underlies this reform process. This is not the case now, but removing the import ban could make it so, and in this scenario, the new RoO would constrain duty free exports. The impact of this would be finely balanced though, because removing the import ban would itself hurt shrimp farmers whilst benefiting processors.

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APPENDIX 1
EU tariffs generally applying to shrimp products imported from Indonesia and their competitors

EUROSTAT CODES		Tariff
0306 13	Frozen & frozen cooked peeled & unpeeled shrimp	
0306 1310	Pandalids	12%
0306 1330	Crangons	18%
0306 1340	Deepwater rose (parapenaeids)	12%
0306 1350	Penaeids	12%
0306 1380	Other non penaeids inc Argentinean, also freshwater prawns	12%
0306 23	Fresh & cooked unfrozen - "Non frozen peeled & unpeeled shrimp"	
0306 2310	Pandalids	12%
0306 2331	Crangons	18%
0306 2339	dried, live etc Crangon*	18%
0306 2390	Other non pandalid, crangon so includes Penaeids & freshwater prawns	12%
1605 20	Canned & potted shrimp	
1605 2010	in airtight containers 94+	20%
1605 2091	prepared/preserved, not in containers, <2kg packs	20%
1605 2099	prepared/preserved, not containers, >2kg packs	20%

Sources: Commission Regulation EC 1719/2005 27 Oct 2005

ANNEX 9: REFERENCES

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