

Analysis of the Effect of European Union Fish Standards and Regulations on Ghanaian Fish Export

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Outline of Presentation

- Introduction
- Problem Statement
- Objectives
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- Conclusion
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Introduction

- The fisheries sector has contributed about 7 percent of Ghana's agricultural GDP and 1.4 percent of the national GDP (GSS,2013)
- Ghana's marine fisheries are in crisis as a result of IUU fishing with devastating impact on food security and biodiversity Bilijo (2014)
- Africa is losing out shares in the global fish market due to:
 - lack of market and trade infrastructure
 - deficient policy and institutional framework
 - barriers such as asymmetric information in the industry

Introduction

- lack of proper packaging and storage and processing
- lack of harmonization and enforcement of trade policies
- lack of uniform standards, regulations and conformity assessment regimes governing fish trade
- Ghana is no exception to these general situation in Africa

Problem statement

- Fish exporters in developing countries are faced with a technical barriers when exporting fish to the EU and other parts of the industrialized world.
- The technical barriers such as standards and regulations are trade restrictive and add up to the series of costs faced by exporters.
- Between 2010 and 2014, the denial of Ghana's agro-food products (fish products) from entering the EU has been as a result of failure to comply with EU safety standards (Saavedra *et al.* 2014).

Problem statement

- EU had denied and reject number of fish exports to its market due to due to non-compliance. (Olayinka Idowu Kareem,2014). Therefore this study seek to ask:
 1. Does standards and regulations have effect on Ghanaian fish export?
 2. What are the profile of fish exporting companies and which one is likely to influence the rate of rejections

Problem statement

3. Is the volume of fish exports affected by the established standards and regulations?
4. What are the factors that influence compliance to the EU fish standards and regulations by Ghanaian fish export?

Objectives

Primary Objective

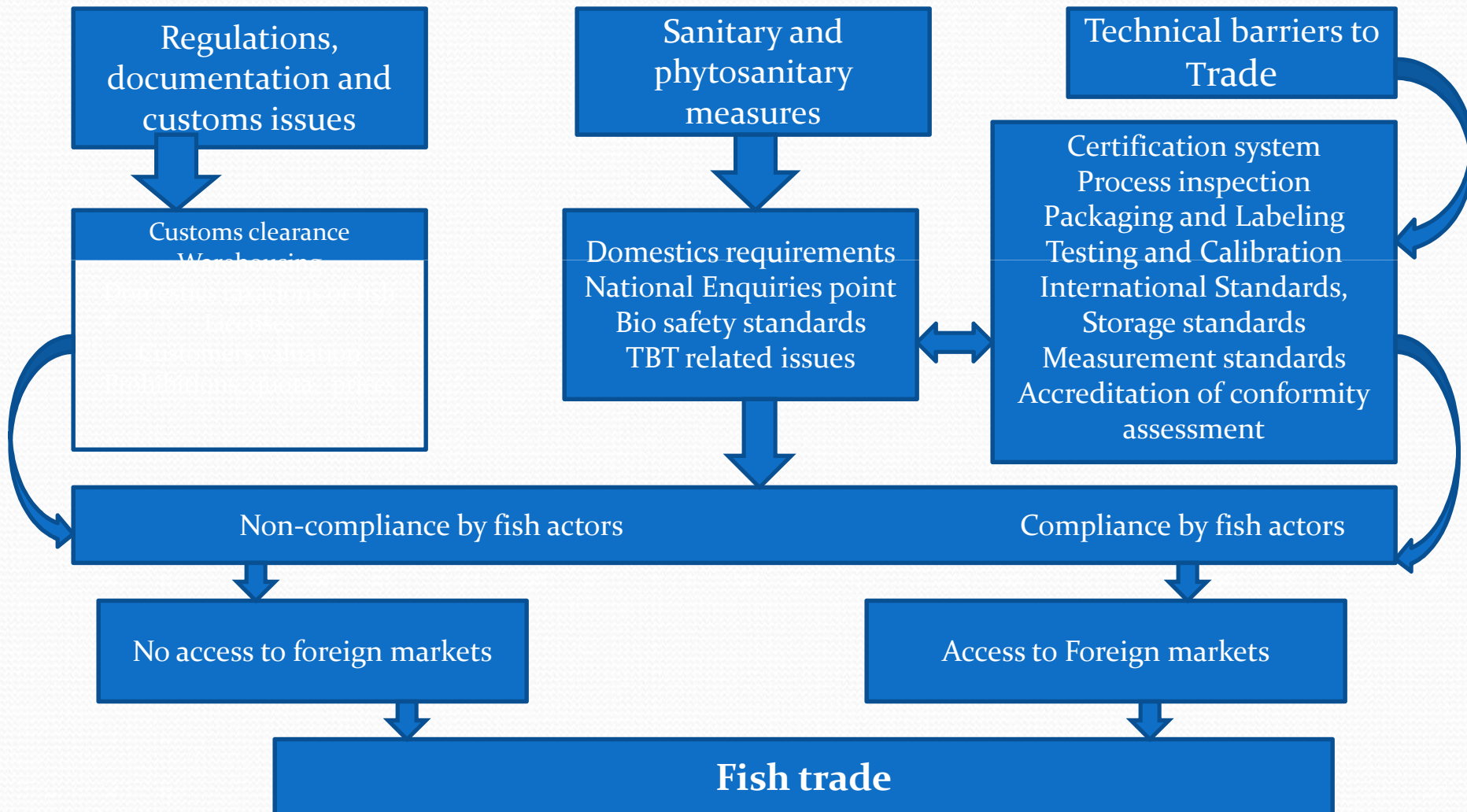
- To analyze the effect of EU Fish standards and regulations on Ghana's fish export.

Specific Objectives

1. Describe the profile of fish exporting companies in Ghana.
2. Estimate the effect of the standards and regulations on the volume of Ghanaian fish export.
3. Examine the factors influencing the Ghanaian fish exporting companies' compliance to EU fish trade standards and Regulations.

CONCEPTUAL FRAMEWORK

STANDARDS AND REGULATIONS COMPLIANCE IN THE FISHERY SECTOR



EU requirements to Export Fish

- Labeling Requirements
- Food Additive Regulations
- Microbiological Criteria
- Residues of Veterinary Drugs and Chemical Contaminants
- Certification and Inspection Requirements

Products standards specification

- Microbiological contaminant
- Veterinary Drug Residues
- Heavy Metals
- Product compositions
- Industrial Contaminants
- Biotoxins / Contaminants
- Organoleptic
- Bad or Insufficient Control
- Traceability origin and Labeling
- Wrapping and Packaging
- Allergies
- Food Additives
- Histamine / scombrototoxin

Method of Analysis

Objective 1: Describe the profile of exporting companies in Ghana.

- Descriptive statistics: frequency distribution, graphs and tables was used to describe and analyze discuss data.

Objective 2: Estimate the effect of the standards and regulations on the volume of Ghanaian fish export.

Method of Analysis Cont'd

- The gravity model which postulates that the trade flows between two countries are an increasing function of the size of the countries represented by their GDPs and a decreasing function of the cost of transportation cost which is represented by the geographical distance between two countries.

$$F_{ij} = G * M_{ij} / D_{ij}^2$$

Where;

F_{ij} = the attractive force

M_{ij} = the masses

D_{ij} = distance between the two objects

G = is a gravitational constant (Kuratani 2004; Head 2003).

Method of Analysis Cont'd

- The augmented gravity equation employed for the analyses is as follows

- $$\text{LnTTEU} = \beta_0 + \text{STDSEU} + \beta_1 \ln \text{GDPGH} + \beta_2 \ln \text{GDPEU} - \beta_3 \text{INFLA} + \beta_4 \text{EXRATE} + \beta_5 \ln \text{PR} + \beta_6 \ln \text{RTA} + \beta_7 \ln \text{POPEU} + \beta_8 \ln \text{POPGH}$$

Where;

LnTTEU denotes natural log of export from Ghana to EU

- STDSEU denotes Standards and Regulations of the European union

Method of Analysis Cont'd

- $\ln(\text{RGDPGH})$ denotes the natural log of Real GDP Ghana
- $\ln(\text{RGDPEU})$ denotes the natural log of Real GDP EU
- INFLAT denotes the Inflation rate
- EXRATE denote Exchange Rate
- $\ln\text{PR}$ denotes the natural log of Price of the fish
- RTA denotes Regional trade agreement between Ghana and EU
- $\ln\text{POP Gh and EU}$ = the natural log of EU's population
- $\ln\text{POP Gh and EU}$ = the natural log of Ghana's population

$\beta_0, \beta_1, \beta_2, \dots, \beta_8$ are parameters to be estimated.

- U_{ijt} denotes error term

A priori expectations and Description of Explanatory Variables

Variable	Description	Measurement	Expected sign
GDPGH	Gross domestic product of Ghana	U.S\$	+
GDPEU	Gross domestic product of Europe	U.S\$	+
STDSEU	EU standards	Dummy	-
EXRATE	Exchange rate	US\$	+
RTA	Regional Trade Agreement Between Ghana and EU	Dummy	+
PR	Price of the fish and fishery products	US\$	+
POPGH	Population of Ghana	Number	±
POPEU	Population of EU	Number	+
INFLA.	Inflation in the domestic country	US/GH currency	-

Method of Analysis Cont'd

- The study employed the Lagrange –multiplier to test for autocorrelation among the variables.
- Normality was tested using the Jarque-Bera test.
- ADF was used to check the stationarity of the time series data.
- The times series are integrated of order 1 [I(1)], stationary at first differences and have long-run equilibrium relationship. (i.e. Co-integrated).
- The Co-integration and Error correction modelling was employed.

Method of Analysis Cont'd

- **Objective 3:** Examine the factors influencing the Ghanaian fish exporting companies' compliance to EU fish trade standards and Regulations.

Descriptive statistics such as frequency distributions, graphs, tables and percentages were used to describe data.

Method of data collection

Primary data was collected using a well-structured questionnaire.

Data was collected in the Greater Accra and Central Region. Most of the fish exporters are located in the Greater Accra Region (Tema Fishing Harbor) due to easy access to the raw material.

Data was also solicited from Ghana Standard Authority (GSA), Ghana Fishery commission Ghana (GFC) and Food and Drug Authority.

- Secondary data from Ghana Export Promotion (GEPA) on volume of fish export.

Method of data collection

- The sample size was twenty (20). There were limited fish exporters who export through formal route.

TABLE 1: DEMOGRAPHICS OF THE RESPONDENTS

	Frequency	Percent
GENDER		
Male	20	100
Female	0	0
AGE		
30-35	4	20
36-40	4	20
41-45	4	20
46-50	2	10
51-55	0	0
56-60-	4	20
61 and above	2	10
MARITAL STATUS		
Single	4	20
Monogamous	16	80
HOUSEHOLD SIZE		
1 to 3	4	20
4 to 6	14	70
7 to 9	1	5
10 and above	1	5

TABLE 2 :DEMOGRAPHICS OF RESPONDENTS

	Frequency	Percent
HIGH LEVEL OF EDUCATION		
J.H.S	1	5
S.H.S	2	10
FIRST DECREE	2	10
HND	6	30
POST GRADUATE	4	20
OTHER	5	25
POSITION IN COMPANY		
Managing director	2	10
AG. SHIPPING MANAGER	1	5
OPERATIONS MANAGER	7	35
QUALITY ASSURANCE MANAGER	6	30
SUPERVISOR	1	5
PLANT MANAGER	1	5
ACCOUNTANT	1	5
FINANCE OFICER	1	5

TABLE 3: Results and Discussion

PROFILE OF FISH EXPORTING COMPANIES

Table 3: YEARS COMPANY IN FISH EXPORT BUSINESS

Years in Business	Frequency	Percent
Between 1-5 years	5	25
Between 6-10 years	1	5
Between 11-15 years	2	10
Over 15 years	12	60
Total	20	100

Table 4: KEY EXPORT PRODUCT

Product	Frequency	Percent
FROZEN/TUNA	13	65.0
CANNERIES	3	15.0
SMOKED FISH	2	10.0
SHARK OIL FISH AND CRABS	1	5.0
CUTTLE FISH AND OCTOPUS	1	5.0
Total	20	100.0

Table 5:Source of product

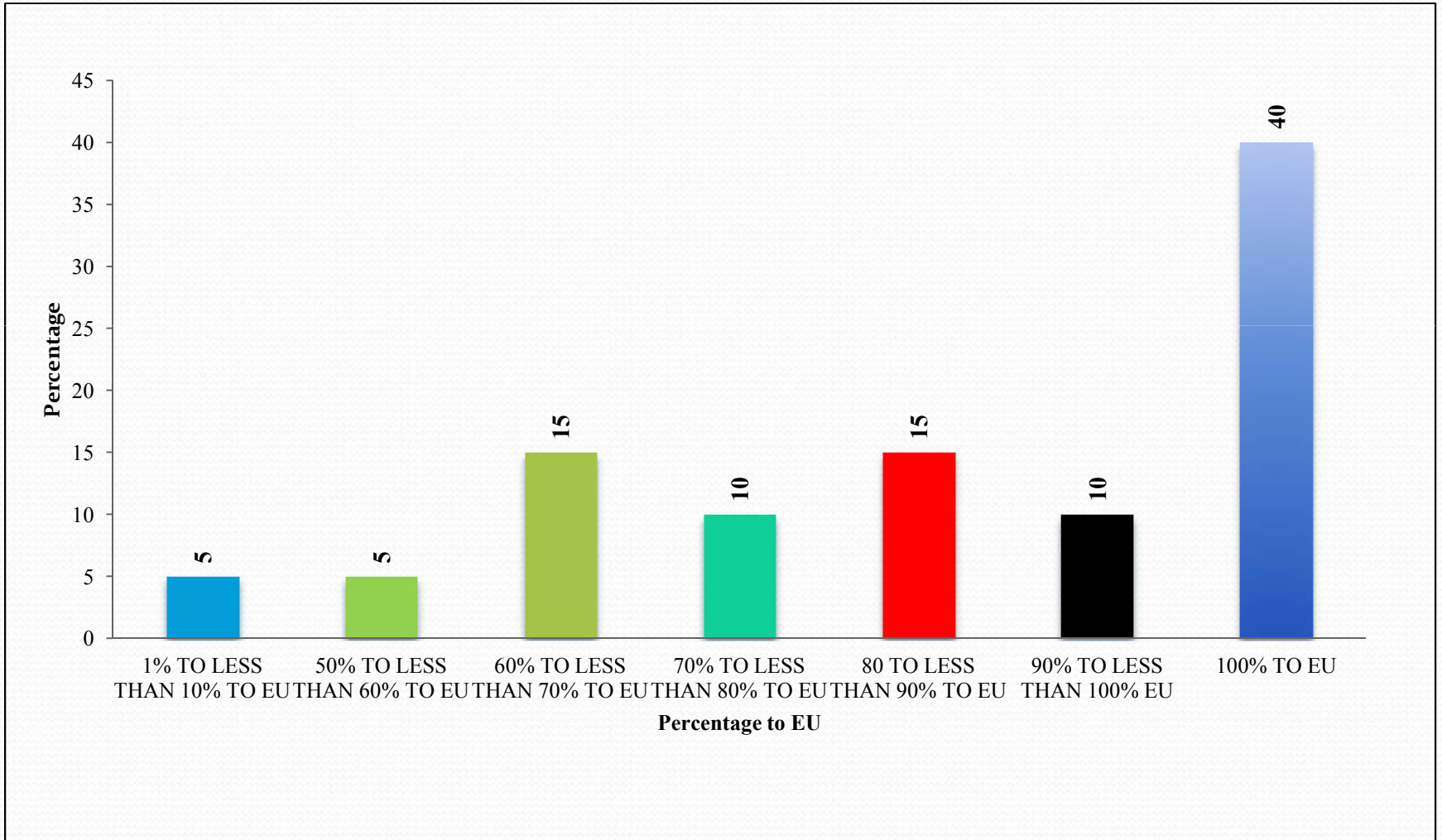
SOURCE OF PRODUCT

Sources	Frequency	Percent
GHANA	5	25.0
GHANA AND OTHER AFRICAN COUNTRIES	15	75.0
Total	20	100.0

Table 6: EXPORT MARKET

Export Markets	Frequency for yes	Frequency for No	% for Yes	% for NO
EU market	20	0	100	0
Asia market	6	14	30	70
Middle East	6	14	30	70
Other Africa market	2	18	10	90
Domestic market	0	20	0	100

Figure 1: PERCENTAGE OF FISH TO THE EU



Effects of the standards and regulations on the volume of fish exported

Table:7 Result from Johansen test for Co-integration.

maximum Rank	Parms	LL	Eigenvalue	trace statistics	5% Critical Value	Max Statistics	5% Critical Value
0	72	319.846	.	314.7098	156	107.4159	51.42
1	87	373.554	0.97843	207.2939	124.24	72.7292	45.28
2	100	409.918	0.92554	134.5647	94.15	56.3893	39.37
3	111	438.113	0.86653	78.1754	68.52	29.5531*	33.46
4	120	452.889	0.65197	48.6223	47.21	26.6002	27.07
5	127	466.19	0.61326	22.0221*	29.68	11.2006	20.97
6	132	471.79	0.3297	10.8215	15.41	7.6221	14.07
7	135	475.601	0.23831	3.1994	3.76	3.1994	3.76
8	136	477.201	0.10798

Results and Discussion

- From table 7, Max statistic (29.5531*) is less than the critical value (33.46). We conclude here that there exist long run relationship between fish export to the EU and Standards.

Error Correction Model

- This give the short run effects of the variables on fish export to the EU and the speed of adjustment from the short run to equilibrium in the long run.
- *=10% significance, **=5% significance and ***=1% significance

Table Results from Error correction model

	Coefficient	S Error	z-statistic	Pro. Value
ECT1	-2.559	0.3817744	-6.7	0.000***
L1.D(lntq)	0.3836	0.2289936	1.68	0.094*
L1.D(lnavpr)	0.1811	0.3437244	0.53	0.598
L1.D(lneupop)	478.3417	256.5733	1.86	0.062*
L1.D(lnghpop)	-37.9763	44.98673	-0.84	0.399
L1.D(lngdpg)	13.46717	7.121704	1.89	0.059*
L1.D(lngdpeu)	-26.3781	13.28266	-1.99	0.047**
L1.D(lnexrate)	3.648	2.283669	1.6	0.11
L1.D(lninflarate)	2.4918	0.7570024	3.29	0.001***
L1.D(stds)	-1.0704	1.632769	-0.66	0.512
L1.D(rta)	13.4977	4.715284	2.86	0.004***
Cons.	0.0051	1.291474	0.00	0.997

Results and Discussion CONT.

- From the table above, the ECT error correction term is correctly signed and significant at 1% significance level respectively.
- A more stringent standards and regulations reduces the volume of fish export to the EU by 1.0704 percent. This confirms the result of DaSilva , (2014) that EU standards have negative and insignificant effect on volume of fish export.

Results and Discussion CONT.

- From ECT1 it shows that, the economy on annual basis move or adjust towards the long run equilibrium by 255.9%.
- However, standards and regulations in the model showed the correct sign but was not statistically significant.

Factors that influence the Ghanaian fish exporting companies' compliance to EU fish standards and Regulations.

- **Quality of institutions**

- A. Existence of competent authorities (CA)

- B. Effective implementation of the rules

- C. Inspections by competent Authority

- Illegal fishing will occur only if enforcement effort by institutions are not so high as to remove the incentive to do so. (Charles et al, 1999).

- When non compliance (violation) increases effectively and the institutions enforcement is too low they do not comply.

Table 7: Existence of institutions and compliance by fish exporters

ITEM	COMPETENCE AUTHORITY AND OTHER INSTITUTION		EFFECTIVE IMPLEMENTATION OF FISHERY REGULATIONS		INSPECTIONS BY THE COMPETENT AUTHORITY (CA)	
	Frequency	Percent	Frequency	Percent	Frequency	Percent
Compliance	17	85	16	80	20	100
Non compliance	1	5	0	0	0	0
Neutral	2	10	4	20	0	0
Total	20	100	20	100	20	100

Factors influencing compliance

- **KNOWLEDGE**
 - A. Awareness of the regulations
 - B. Training and education
 - C. Availability of information on standards and regulations
- Compliance comes not only from strong MCS, but also creating awareness of regulations.
- This is where concepts such as Community-Based Fisheries Management Committees (CBFMCs) can make contributions in terms of education and hence compliance (Kwadjosse, 2009).

Table 8: KNOWLEDGE

ITEM	AWARENESS OF THE REGULATION		TRAINING AND EDUCATION		AVAILABILITY OF INFORMATION ON STANDARDS AND REGULATIONS	
	Frequency	Percent	Frequency	Percent	Frequency	Percent
Compliance	19	95	19	95	16	80
Non compliance	1	5	1	5	1	5
Neutral	0	100	0	0	3	15
Total	20	100	20	100	20	100

FACTORS INFLUENCING COMPLIANCE

- **Punishment**

- A. Suspension and delisting of companies

- B. Border detention and rejections of fish

- C. Banishment of exporting company and the exporting country.

- Ghana in 2013 was banned from exporting fish to EU due to non compliance of the EU regulation on IUU fishing. The Ban was lifted in 2015 since measures were put in place for compliance.

Table 9: PUNISHMENT

	SUSPENSION AND DELISTMENT		BORDER DETENTION AND REJECTION OF PRODUCTS		BANISHMENT OF EXPORTING COMPANY AND COUNTRY	
	Frequency	Percent	Frequency	Percent	Frequency	Percent
Compliance	17	85	13	65	16	80
Non compliance	1	5	2	10	3	15
Neutral	2	10	5	25	1	5

Factors influencing compliance

- Kuperan and Sutinen (1998) and Hatcher et al. (2000) found that compliance in their specific fisheries studies depended on the tangible gains and losses.

Mauritian fishery export sector faces difficulties in meeting EU market's SPS requirements because of the large compliance costs associated with the implementation of these regulation (Niang , 2004)

Table 10: COMPLIANCE COST

Cost of compliance		
	Frequency	Percent
Compliance	9	45
Non compliance	5	25
Neutral	6	30
Total	20	100

CONCLUSIONS

- The major fish product exported is tuna and the EU is the major importer (market).
- The study reveal that, standards has a negative effects on volume of fish export.
- The study also shows that, quality institutions, knowledge, punishment, and cost of compliance influence fish exporters' ability to comply with the fish standards.

Recommendations

- Strengthening of institutions and effective enforcement of fishery regulations to meet EU standards
- More training and education should be given on compliance issues and their long term and short term benefits.
- Local fish farmers, producer, and traders should also be educated and trained on safety standards and fishery regulations in order to take advantage of the fish export market.

Recommendation

- Government should also reduce cost involved in acquiring certificate to catch fish and the permit
- Ghana and the EU should come in agreement in terms of certification to avoid duplication.

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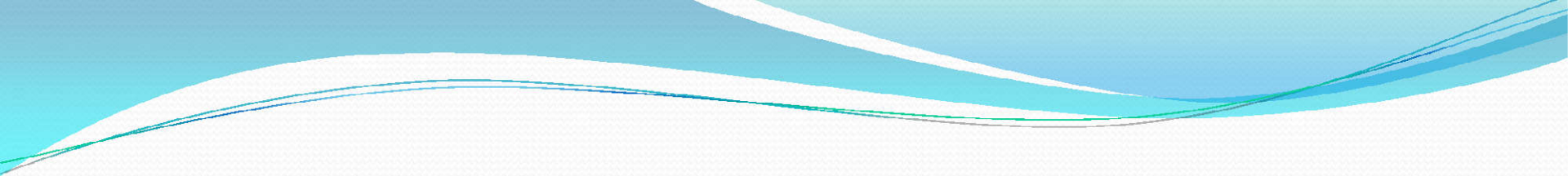
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THANK YOU