



# **Marine Ingredients from Pelagic Fish in Peru**

**By**

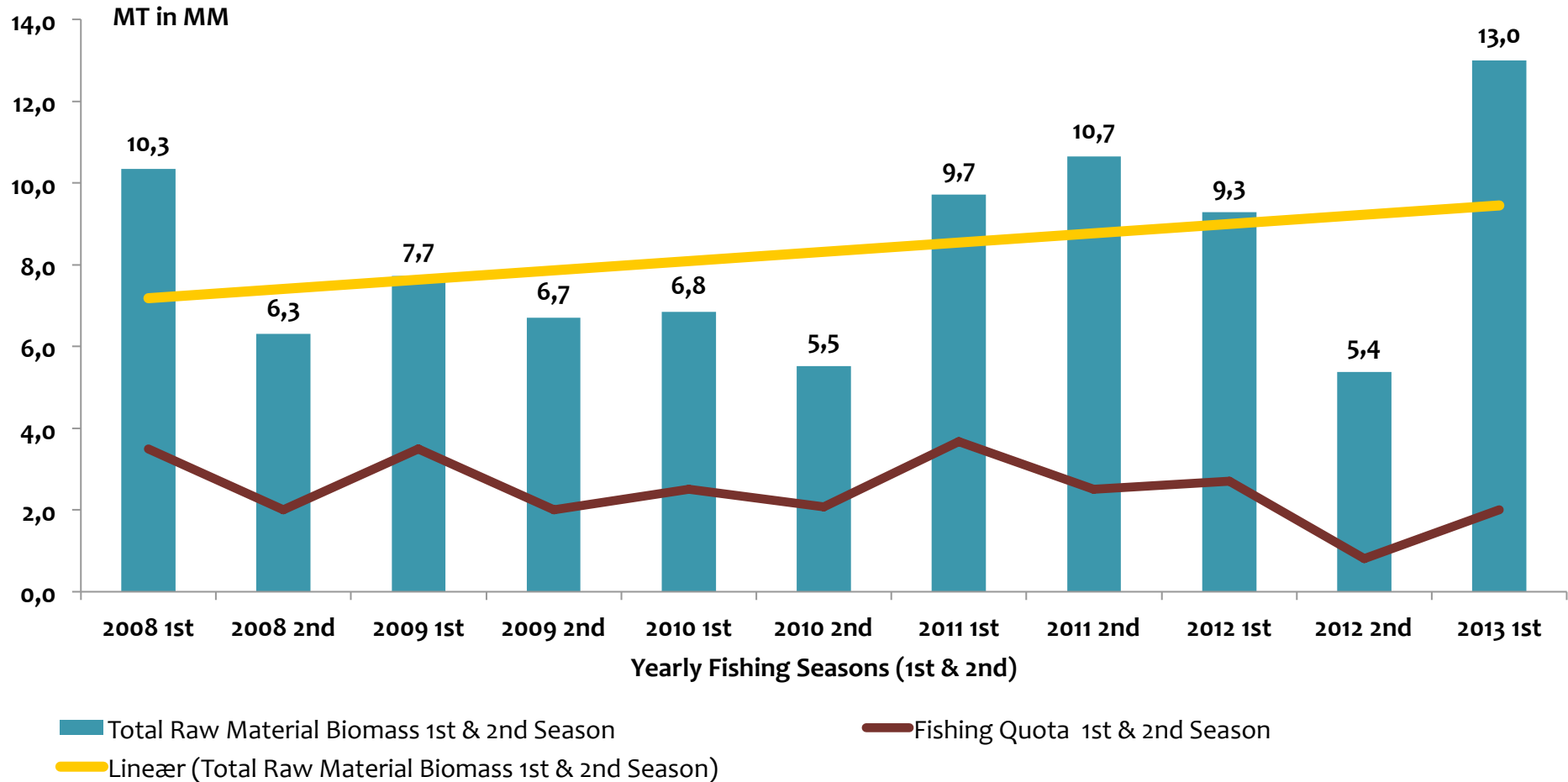
**Carlos Pinillos  
CEO TASA**



# Content of the Presentation


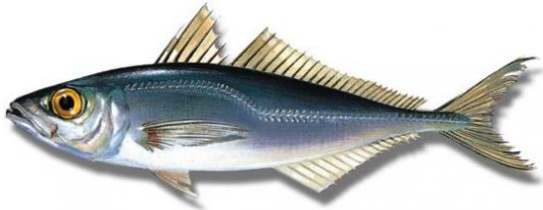


- **Raw Material Sustainability in Peru**
- **Peruvian Fishery Sector Analysis**
- **TASA**
- **Marine Ingredients**
- **Principal Trends**

# Raw Material Sustainability (Anchovy)



*Fishing Quotas assigned before 2012 were approximately 30% of the total biomass, but recently the quotas assigned have been close to 25%, which in turn keeps the anchovy biomass in a healthy state with good management from IMARPE*

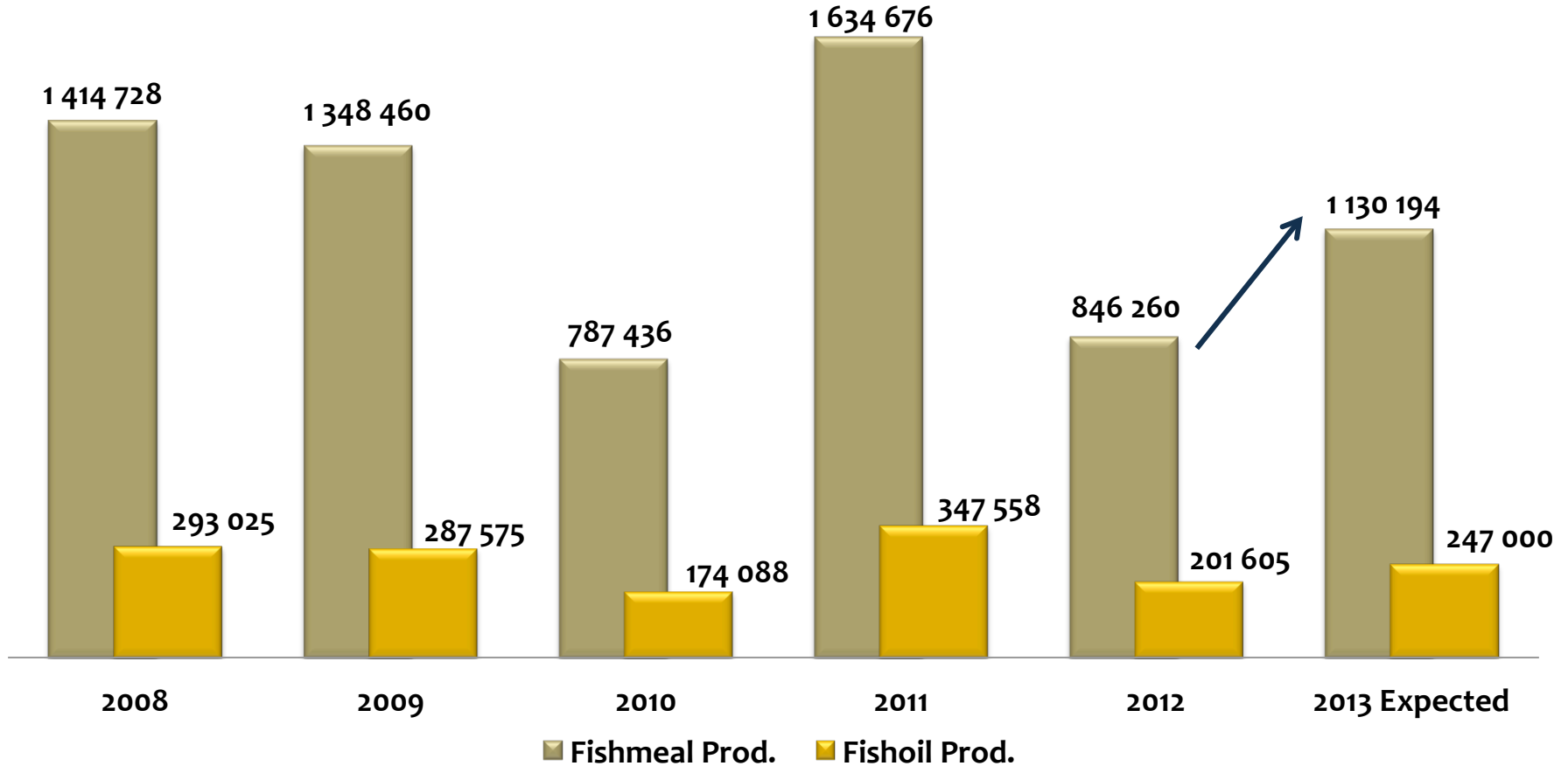
# Main species for Marine Ingredients & Products

		<u>Raw Material Landings</u> (Ave 2009-2012)	<u>Products &amp; Ingredients</u>
<b>Anchovy</b> ( <i>Engraulis Ringens</i> )		<b>5,026,078 TM</b>	<ul style="list-style-type: none"> <li>✓ Fishmeal</li> <li>✓ Fish Oil</li> <li>✓ Frozen</li> <li>✓ Cured</li> <li>✓ Canned</li> <li>✓ Hidrolisates</li> <li>✓ Protein Concentrate</li> </ul>
<b>Horse Mackerel</b> ( <i>Trachurus murphyi</i> )		<b>130,228 TM</b>	
<b>Mackerel</b> ( <i>Scomber japonicus</i> )		<b>46,629 TM</b>	<ul style="list-style-type: none"> <li>✓ Frozen</li> <li>✓ Canned</li> <li>✓ Fresh</li> <li>✓ Cured</li> <li>✓ Other ingredients</li> </ul>
<b>Giant Squid</b> ( <i>Dosidicus gigas</i> )		<b>354,069TM</b>	

The Peruvian sea is highly populated with resources due to the cold Humboldt current creates a flourishing effect that carries nutrients to our sea which creates a vast source of phytoplankton for our fish

# Peru is the # 1 producer of Fishmeal & Fish Oil worldwide

## Raw Material Extraction and Production in MT



Source: PRODUCE

# Modern Regulations create Raw Material & Environmental Sustainability

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**Pre 2008**

## Olympic Race System

- No limits per vessel
- Competition between companies to finish national Quota

**2008 - Present**

## Quota System

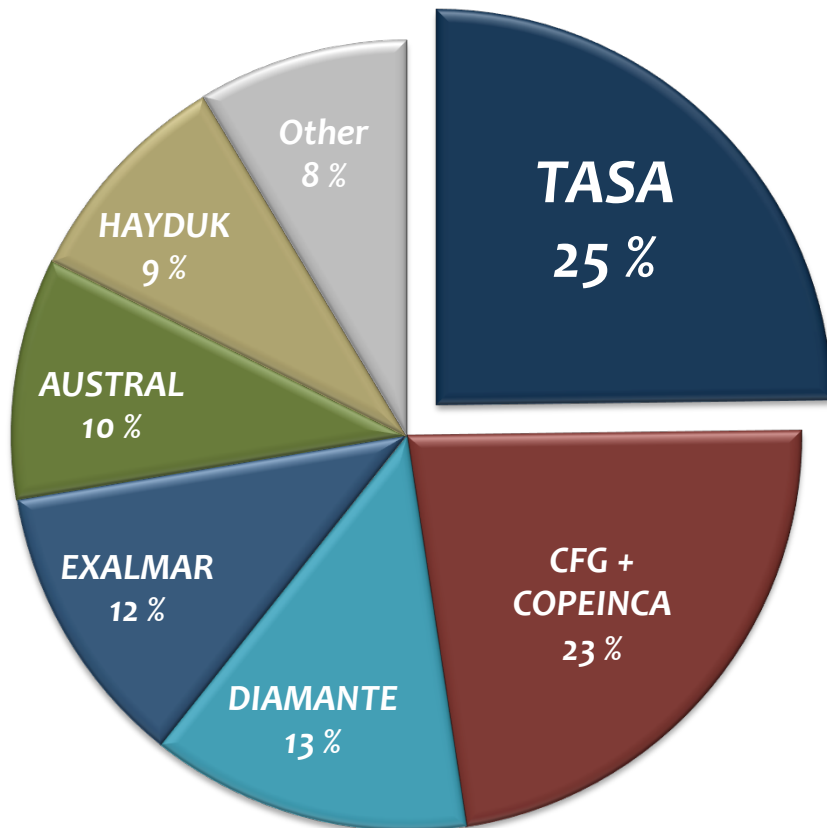
- Established Maximum fishing quota per vessel
- Reduced number of fishing vessels

## New Environmental Regulations

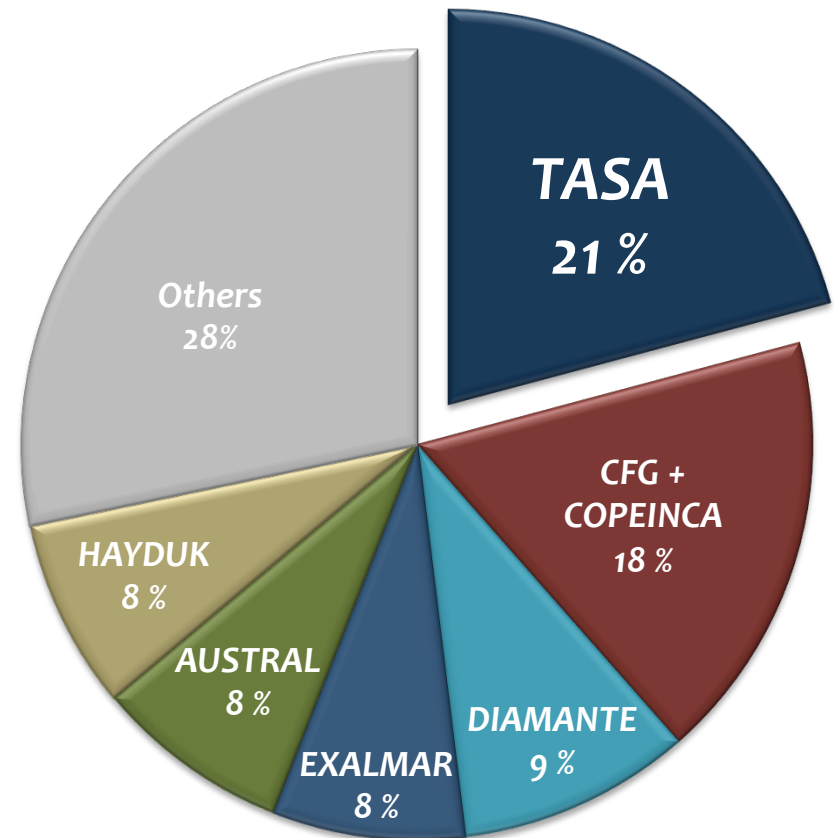
- Established maximum permissible limits for effluents to the ocean and emissions
- Created an awareness of environmental issues
- Currently most of the Fishmeal produced in Peru is Steam Dried

# TASA is the largest Fishing Company in Peru

% Anchovy Landings Participation (2012)



% Participation of total Exports (2012)



# TASA is part of the BRECA Group

## FINANCIAL SERVICES

BBVA Banco Continental

**RIMAC**  
Seguros

## HEALTH SERVICES

Clínica Internacional

**RIMAC**  
EPS

## PETROCHEMICAL

**NITRATOS**  
DEL PERU

## CORPORATE CENTER

**estratégica**

## INDUSTRY

**EXSA**

**QROMA**  
COLOR Y PROTECCIÓN

**melón**

## REAL ESTATE

**CUBICA**  
GESTORA INMOBILIARIA

## FISHING

**TASA**

## MINING

**COMPAÑIA MINERA SURELL**  
1999

**MINSUR**

**TABOCA**

## TOURISM

**LIBERTADOR**  
HOTELS, RESORTS & SPAS  
PERU

## CONSTRUCTION

**AESA CONSTRUCCIONES**

## AGRICULTURE

**Agrícola**  
HojaRedonda

**FINCA**  
VERGAS DE  
**ORO**

## SPECIAL SERVICES

**centria**

**AESA**  
INFRAESTRUCTURA Y MINERIA

**FUNSUR**

**PROTEVIDA**

BRECA Group is one of the largest corporate conglomerates in Peru, which employs 40,000 workers



# TASA has a competitive advantage with its plant locations

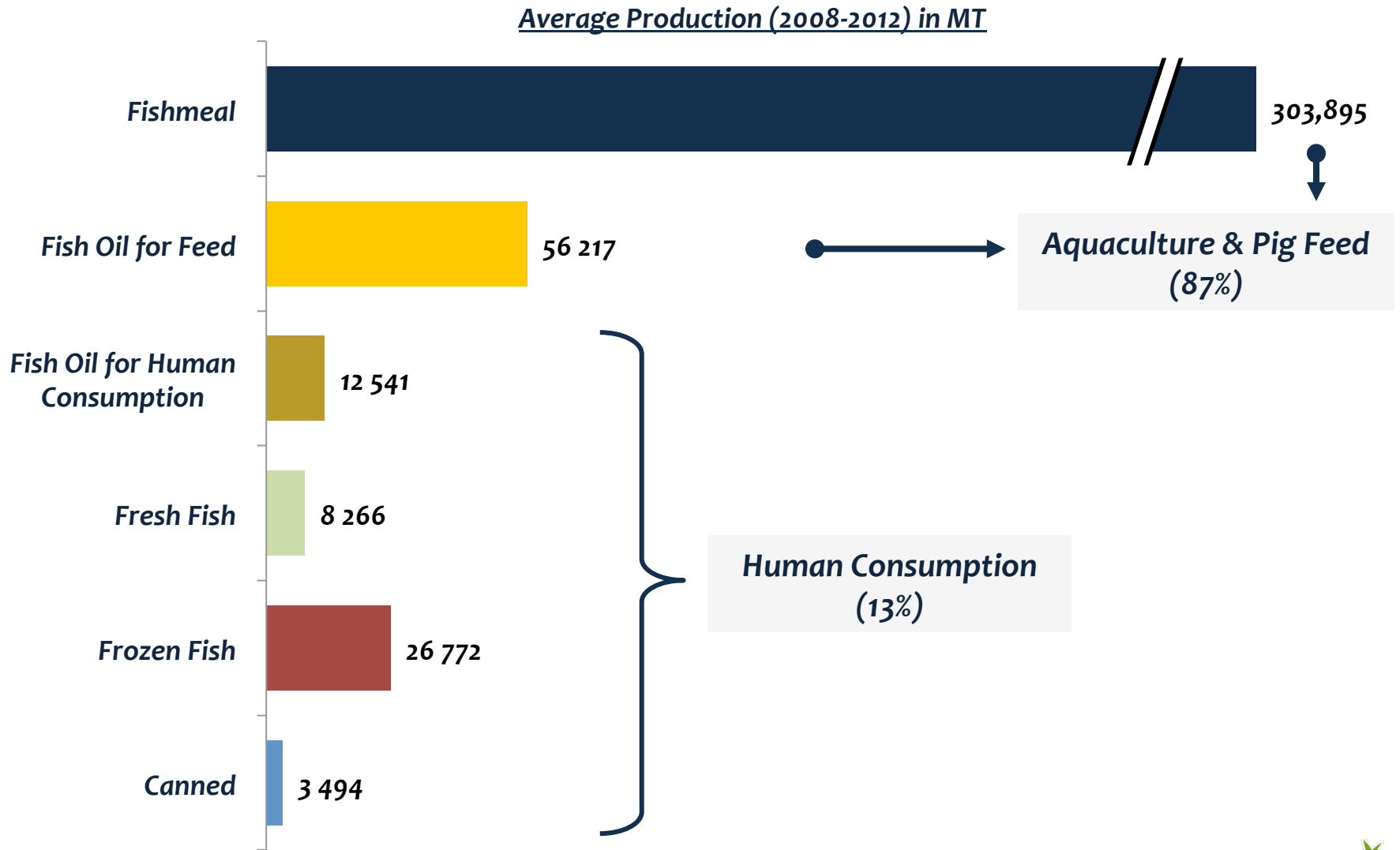
- TASA has approximately 1 plant every 200 kilometers along the Peruvian coast
- The Frozen Fish plant is located in the center for greater efficiency for production and shipment

*Fishmeal Plants* ●

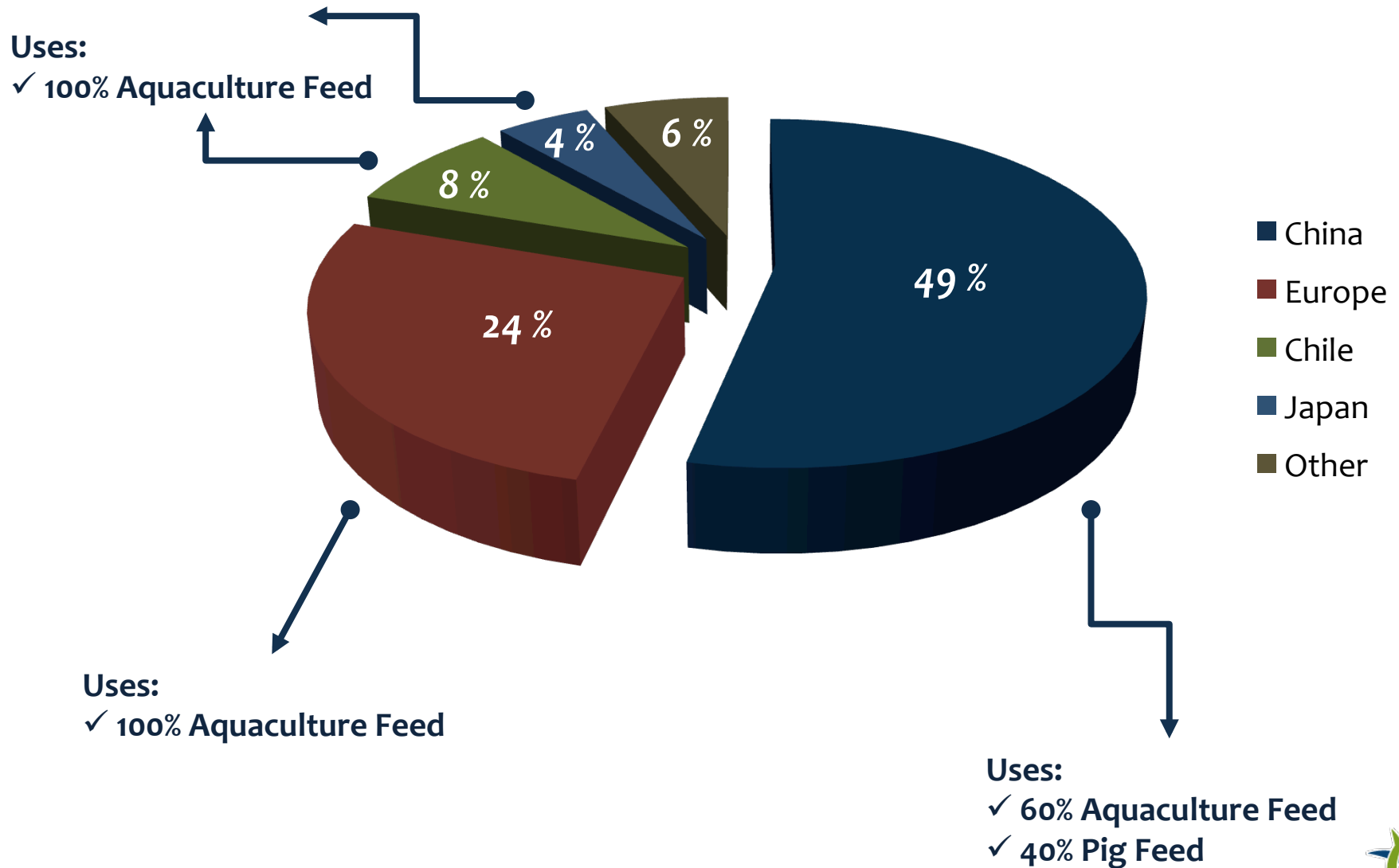
*Frozen Fish Plant* ●



# TASA makes products & ingredients for Feed and Human Consumption

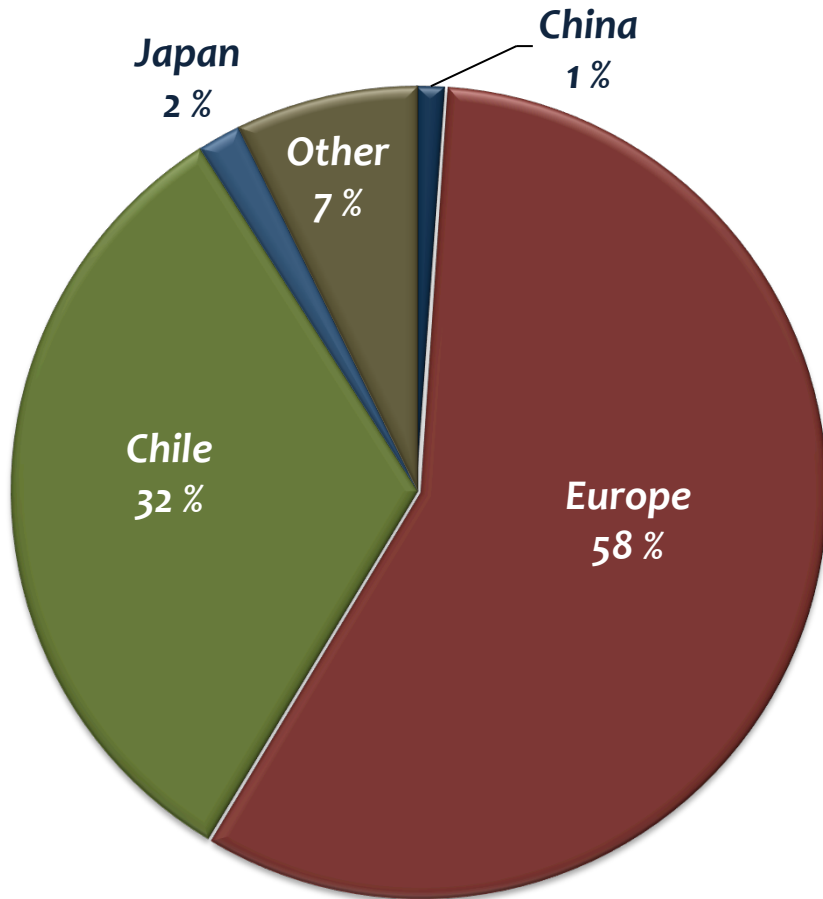


# TASA's Main Fishmeal exporting countries (average 2009-2013)

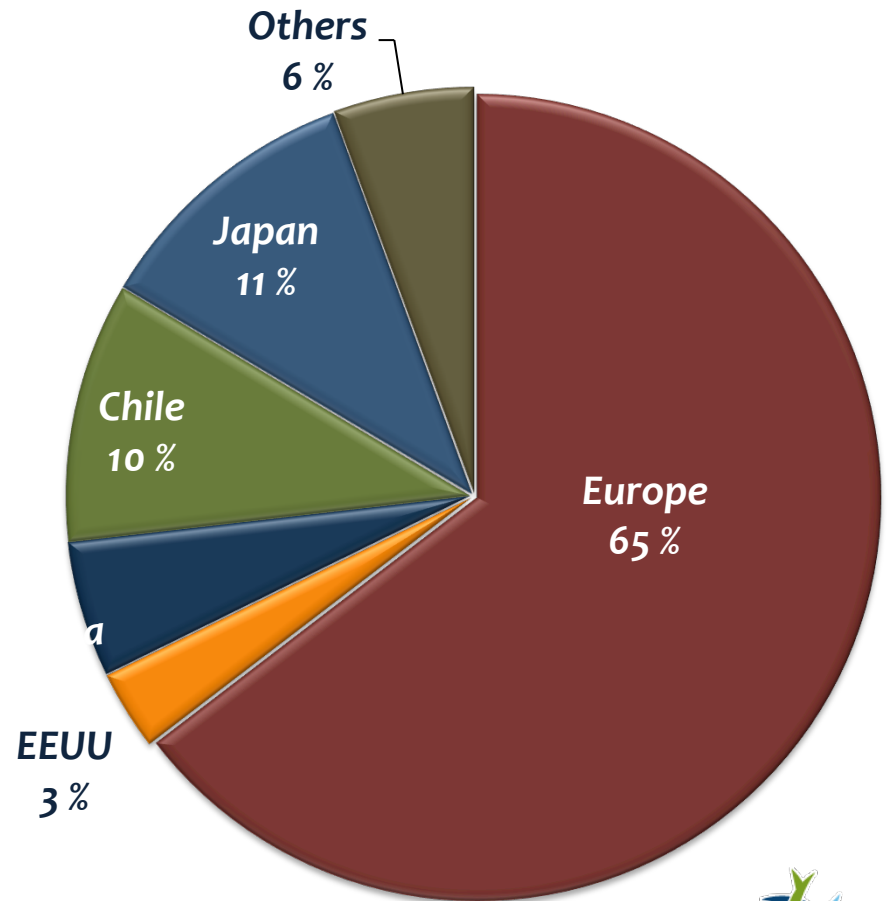


# TASA's Main Fish Oil exporting countries (average 2009-2013)

% Exports Fish Oil for Feed



% Exports Fish Oil for Human Consumption



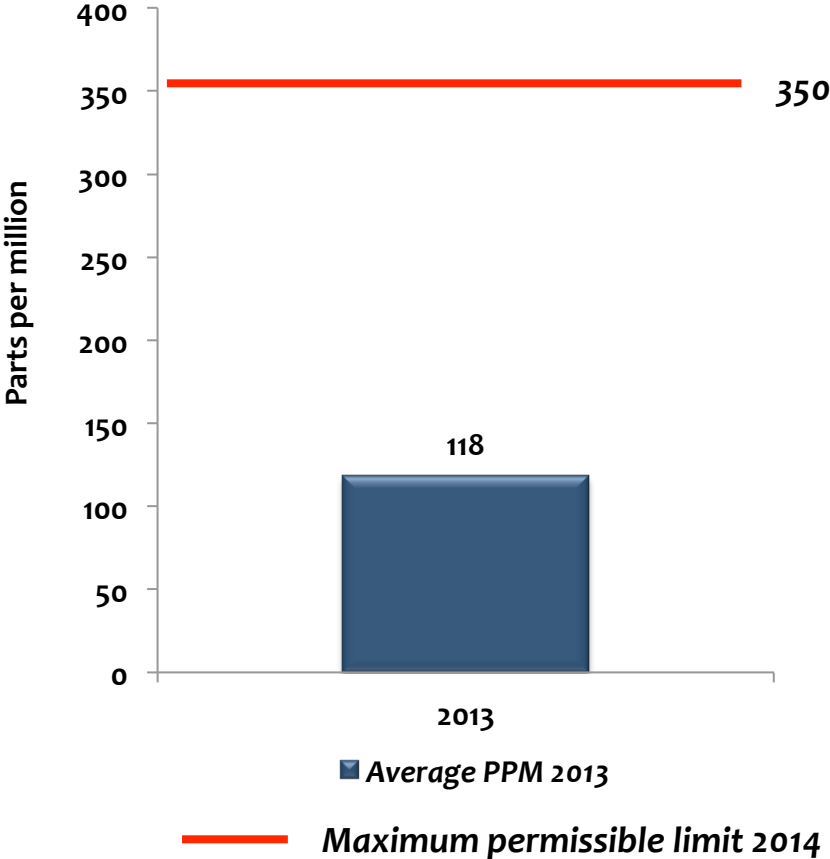
# We have high social responsibility standards

- We have 6 distribution centers for frozen fish:
  - ✓ We have 5 distribution centers in the highland region at 2,500 – 3,000 meters above sea level
  - ✓ Since 2008 we have increased consumption per capita in those regions by 80% on average to 2.2kg of fish per person

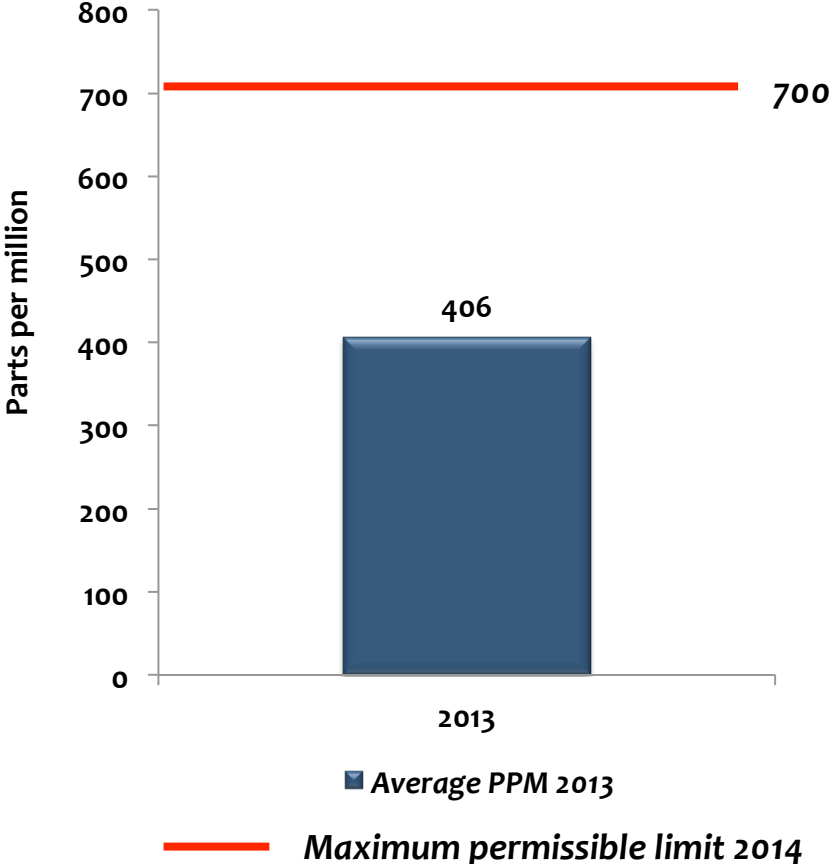


# TASA is the first to comply with the maximum permissible effluent regulations

Parts Per Million of Fat Content in TASA's Fishmeal Plants Effluents

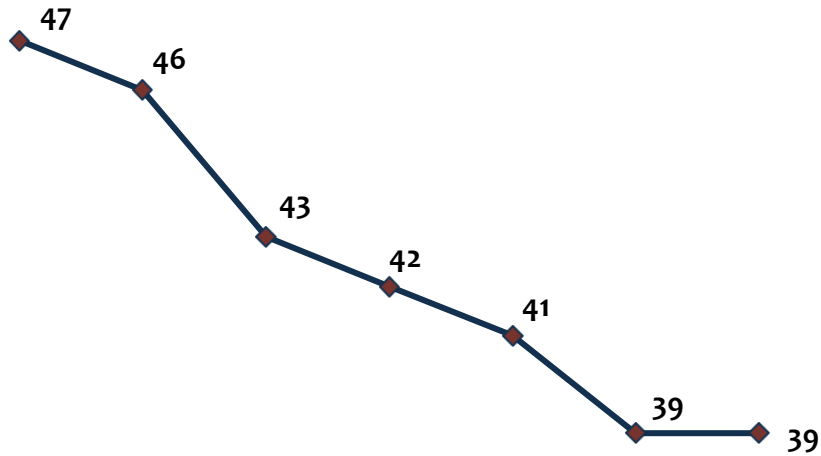


Parts Per Million of Suspended Solids in TASA's Fishmeal Plants Effluents



# Internal innovation has increased our efficiency over the years

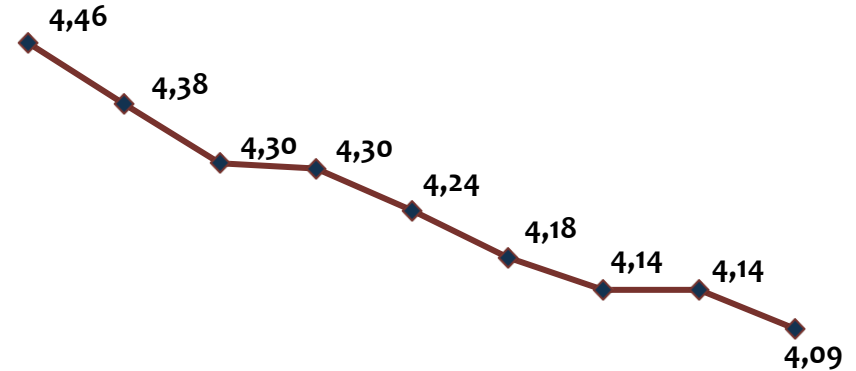
Gallons/ Fishmeal MT



Energy consumption has decreased 15% from 2007-2012

2007 2008 2009 2010 2011 2012 2013

Raw Material MT/ Fishmeal MT



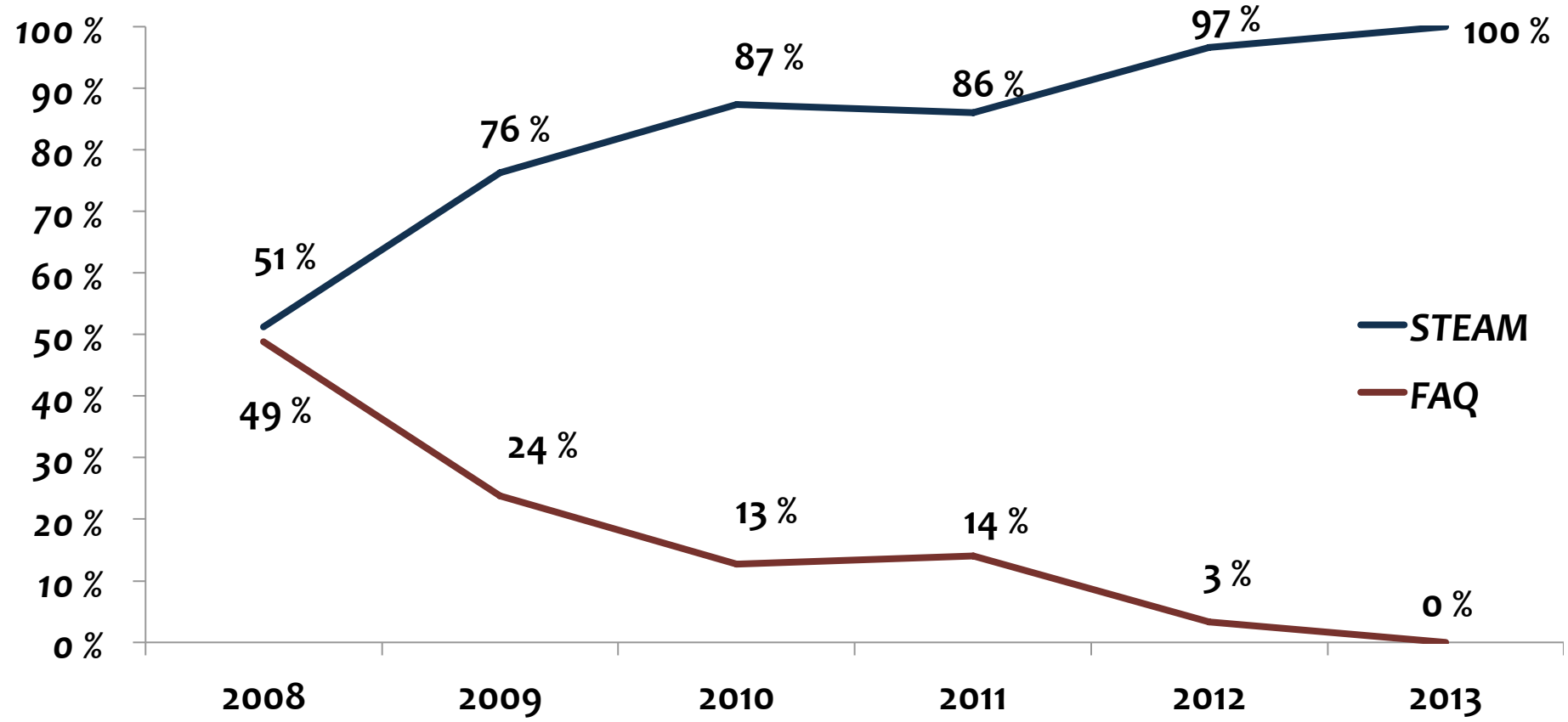
Gain of 8% of total production from 2005-2013 an extra 14,300 MT on a normal year

2005 2006 2007 2008 2009 2010 2011 2012 2013

We have the industry's leading efficiency ratios for extraction and production of fishmeal

# We invest in higher quality production & protecting our environment

% FAQ vs Steam Dried Fishmeal Production

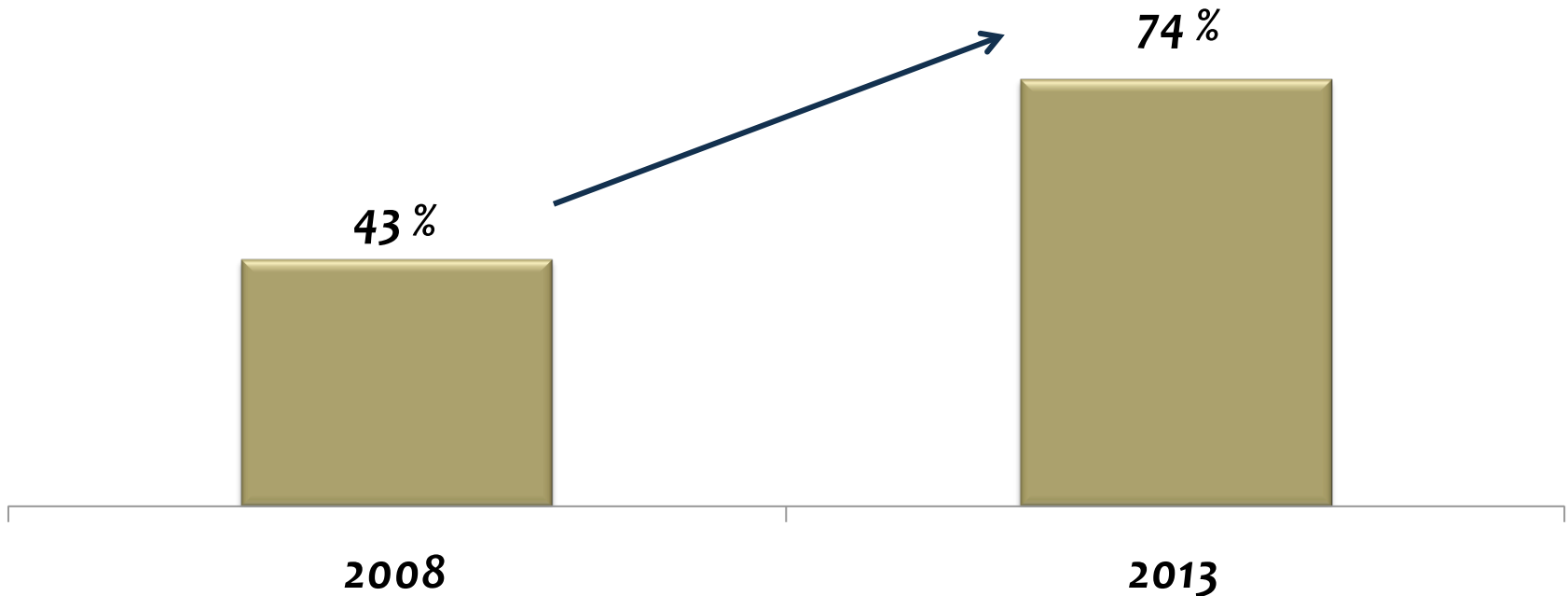




# Markets demand high quality ingredients

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TASA's % High Quality Fishmeal Super Prime & Prime



*It is expected that Peruvian Fishing companies will produce higher quality Fishmeal in the long term*

# We adhere to international standards of excellence



BRC Global Standard - Food



BUSINESS ALLIANCE FOR SECURE COMMERCE  
CERTIFICADO BASC  
PERU/M0103



ASOCIACIÓN ISLÁMICA  
DEL PERÚ



# Fishmeal will be sold by its composition in the future

<b>Fishmeal Composition</b>	
<b>Protein Content</b>	<b>65 - 69%</b>
<b>Amino Acids</b>	
Histidine	1.9 – 3.5%
Lysine	4 - 6%
Methionine	1 – 2%
Taurine	0.5 – 0.8%
<b>Lipids Content</b>	<b>6 - 9%</b>
<b>Omega 3</b>	
EPA	14 - 18%
DHA	16- 19%



## Benefits

- Covers a high percentage of the essential amino acids needed for feed (aquaculture & pigs)
- Histidine helps maintain animal health (i.e. prevents cataracts in salmon)
- Lysine and Methionine are essential for proper growth of animals
- Omega 3 & phospholipids increase quality of aquaculture fish

***It is expected that in the future Fishmeal will be sold not only for its protein content & freshness, but also by its components of EPA, DHA, Amino Acids and Phospholipids***

# Fish Oil EPA/DHA profiles along the Peruvian Coast

- TASA is the largest producer of Fish Oil worldwide (26% of Peru's production)
- We have varied Omega 3 profiles throughout the Peruvian Coast

*Fishmeal Plants* ●

*Frozen Fish Plant* ●

EPA	DHA	SUM
23	7	30

Paita

Parachique

Malabrigo

EPA	DHA	SUM
22	8	30

Chimbote

Samanco

Supe

Vegueta

EPA	DHA	SUM
20	10	30

Callao

EPA	DHA	SUM
18	12	30

Pisco N

Pisco S

EPA	DHA	SUM
16	14	30

Atico

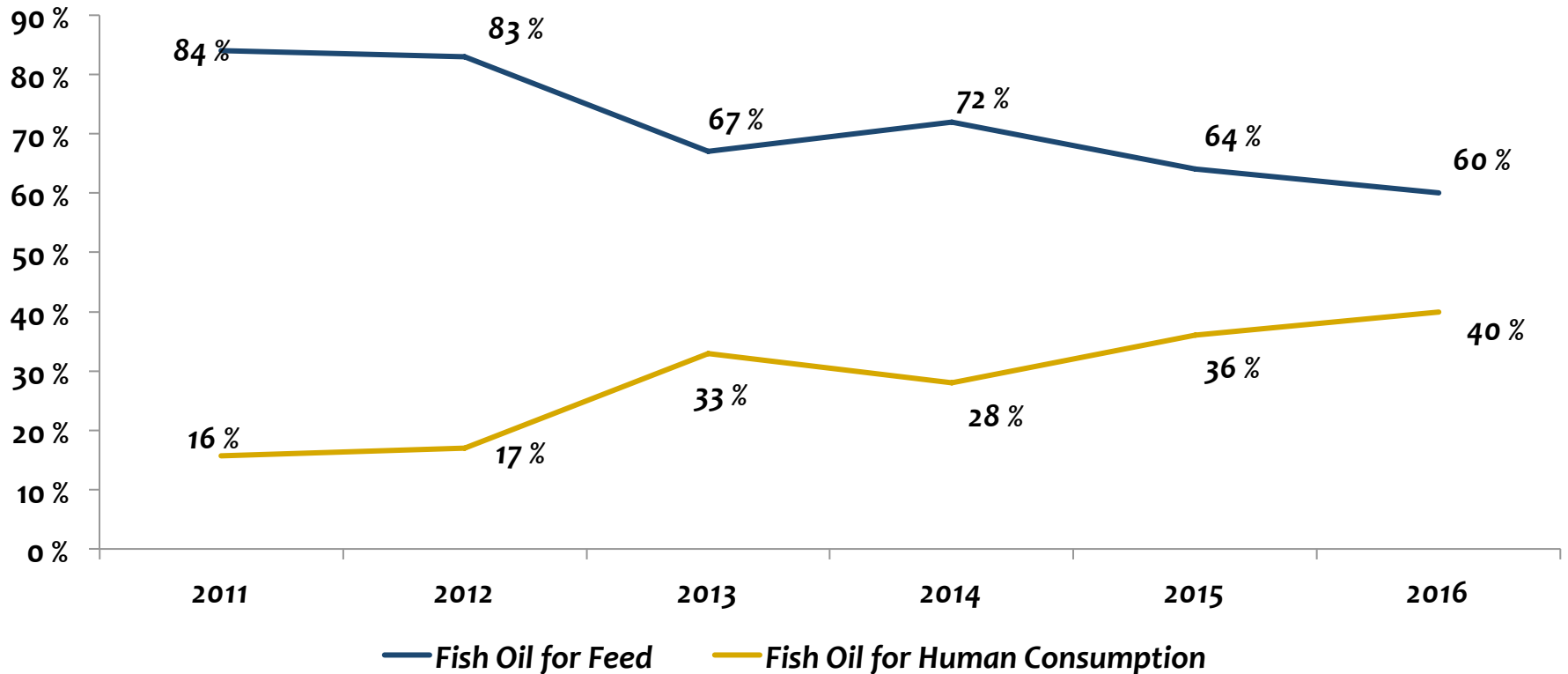
Matarani

Ilo



# **% Sales of Fish Oil for Human Consumption will increase**

% of TASA's Sales of Fish Oil



**With increases in the demand of Fish Oil for Human Consumption it is expected that Fish Oil will be sold for its Omega 3 content for the production of dietary supplements and pharmaceutical concentrates**

# Following the Omega 3 trend we have created TASA Omega



- TASA Omega will be the first company in Peru with full traceability from fish to omega 3 refined oil & concentrates.
  - ✓ Expected to start production in late 2014
  - ✓ First sales in early 2015
  - ✓ TASA Omega will use the latest technologies to refine and concentrate fish oils into high quality Omega-3 Ingredients.





# R&D focus to develop new value added ingredients and products

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- The new research facility with a constructed area of 1,000 M2 will be finished in late 2013 (labs & offices)
  
- Pilot Plant facility
  
- Current Projects: Added value from products from Anchovy and other species
  - ✓ Hidrolisates
  - ✓ Proteins (soluble and concentrates)
  - ✓ Peptides
  - ✓ Ingredients & products for human consumption (pulp, soups, burgers, and other)
  - ✓ Other sources of Omega 3 (anchovy phospholipids, micro algae)

## New Research Facility 2013



***TASA has research collaborations with prestigious institutions such as SINTEF***

# Conclusions for the Long Term

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- Anchovy biomass is sustainable in the long term
- Peruvian Fishing companies are investing in technology to protect the environment and produce higher quality ingredients & products
- We expect that Peruvian companies will produce 100% steam dried fishmeal with a quality of 75% Super Primer & Prime or more
- Fishmeal will be sold not only for its protein content & freshness, but also by its content of EPA, DHA, Amino Acids and Phospholipids
- Fish Oil sales for Human Consumption will increase in the near future, and more Peruvian companies will build facilities to refine and concentrate Omega 3 oils
- Focused in R&D to develop new marine ingredients & products for human consumption and feed from anchovy and other species





# Thank You

