

INTEGRATED  
**SUSTAINABILITY  
REPORT**  
2017



**BIOMAR GROUP**

*Referencing GRI G4 framework and the UN SDG*

**SHAPING  
THE FUTURE**



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## A Message from the CEO

Once again in BioMar we publish our sustainability report acting as our integrated annual report. We believe it is important to disclose to all employees, stakeholders and the broader society our activities and goals to continue to drive our operations in becoming even more sustainable and responsible. We expect in 2018 to deliver continued growth in aquaculture feeds in all main markets. Despite an increasingly competitive environment we anticipate to maintain the higher market position we achieved as a global company in 2017.

In 2017 we completed the acquisition of Alimentosa which has positioned BioMar among the leading high-end shrimp feed producers in Latin America. We are supporting this new feed business by investing in R&D with an expansion to our Aquaculture Technology Centre (ATC) Network with the opening of ATC Ecuador in 2018. This year we also established a new business unit in the hatchery segment believing it has the potential for significant growth. Our focus on innovation will continue in 2018 with exciting developments in larval, RAS and functional feeds.

Sustainability and responsible raw material sourcing will remain hot topics in the coming year. It's possible that new technologies like blockchain will find their way into the traceability arena as chain-of-custody continues to increase in importance. Sustainability in the aquaculture industry begins with the feed and BioMar will continue to find alternative feed solutions to meet the demand of the market and our customers through collaborative partnerships.

The new ASC feed standard will most likely make its debut in 2018. This ambitious standard will raise the bar for what qualifies as responsible and sustainable raw materials, and hence feed manufacturers will have to adapt with better research, tools, and ingredients to produce nutritious, delicious, and sustainable seafood.

BioMar will continue with our commitment to sustainability in 2018 and by year-end we will have finalised a full source-to-market sustainability rating of our entire raw material portfolio. This comprehensive assessment tool will enable us to steer our raw material purchasing toward more sustainable solutions, and enable our customers and the wider value chain to have a more complete understanding of the sustainability of every raw material found in aquaculture feed.

I invite all stakeholders to read through this report to learn more about our business operations and initiatives as well as our commitment to sustainability. We have included a section about our code of conduct and ethics as well as a more comprehensive section on our human resources activities. We strongly believe in the importance of talent development as we here in BioMar believe, "results are created by people".

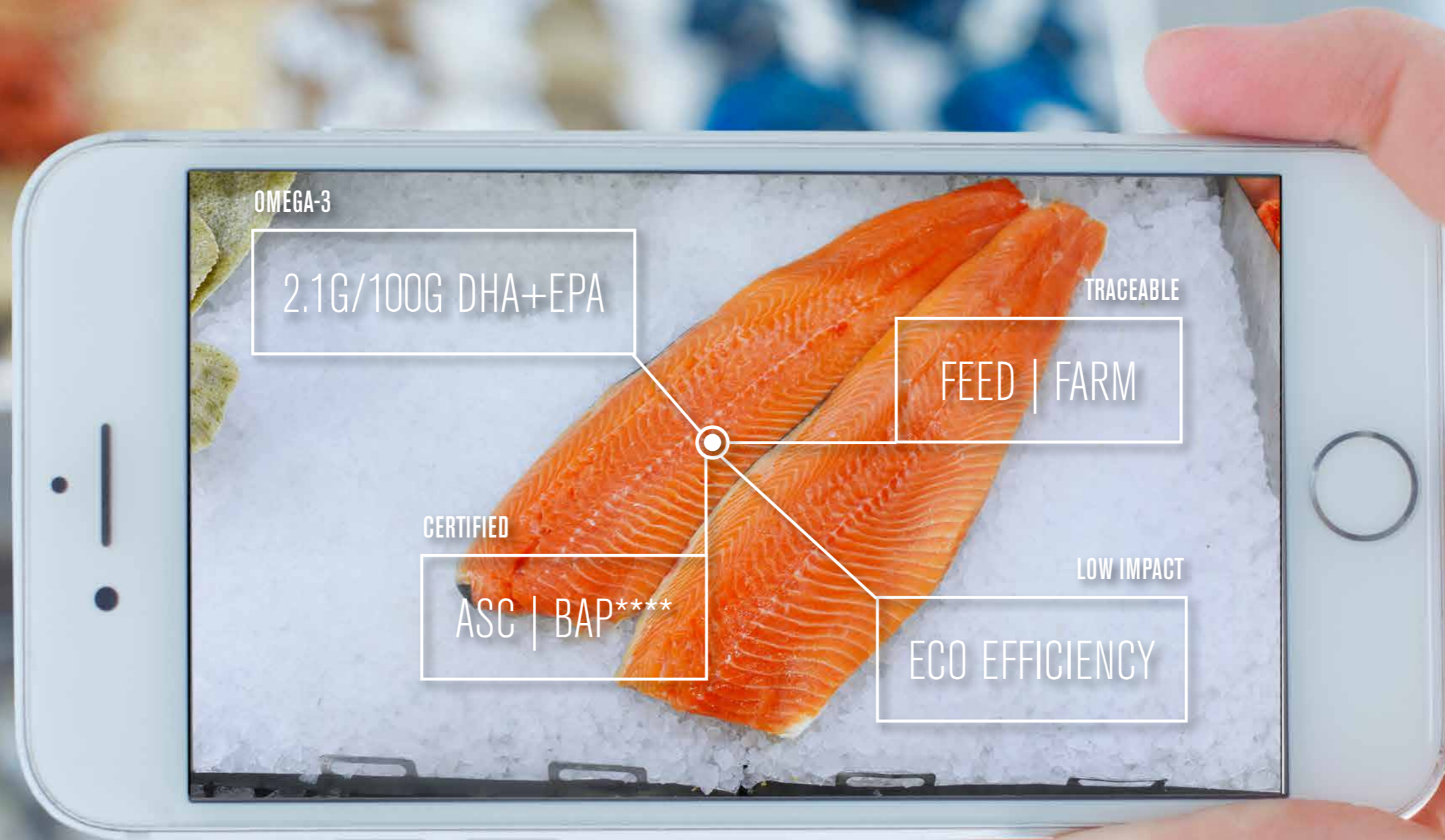
Let's innovate aquaculture and shape the future!



Carlos Diaz  
Chief Executive Officer, BioMar Group



# TRUSTABILITY IN THE VALUE CHAIN



## Big Data Analytics in Aquaculture

### Blockchain

A blockchain is a continuously growing list of records, called blocks, which are linked and secured using cryptography.

### Internet of things (IoT)

The Internet of things is the network of physical devices, vehicles, home appliances and other items embedded with electronics, software, sensors, actuators, and connectivity which enables these objects to connect and exchange data.

### Big data

Big data is data sets that are so voluminous and complex that traditional data-processing application software are inadequate to deal with them.

### Augmented reality (AR)

Augmented reality is an interactive experience of a real-world environment whose elements are "augmented" by computer-generated perceptual information.

Source: Wikipedia

Big Data concerns data sets so large or complex that traditional data processing applications are inadequate. Big Data is a hot issue in today's business world and proficiency in its management may lead to revolutionary changes in decision support. This in turn could increase operational efficiency while reducing costs and risks.

The ever expanding amount of information, often referred to as Big Data, and the ability to access and analyse this data is becoming important swiftly. Mass data is already making its way into the aquaculture sector. The SalMar Ocean Farm One alone has 20,000 sensors generating vast amounts of data that aid in the production of salmon. Today, big data analytics is also being applied to combat sea lice in commercial salmon farming.

The European Union has recognised the need for an innovative aquaculture industry to meet rising seafood demand and to enhance its commercial stocks. The aquaculture industry represents a significant source of protein for people. Globally, nearly half the fish consumed by humans come from fish farms. Global production is forecasted to increase from 45 million in 2014 to 85 million tonnes by 2030, making the aquaculture industry the fastest growing animal food producing sector in the world.

The AQUASMART project responds to the EU's Blue Growth Strategy for marine and maritime sustainable growth and the Commission's Europe 2020 Strategy by helping companies transform captured data into knowledge, and sharing this knowledge to improve efficiency, increase profitability and carry out business in a sustainable, environmentally friendly way.

Sources:

<https://www.waterfordtechnologies.com/big-data-interesting-facts/>

<https://www.dnvgl.com/assurance/viewpoint/viewpoint-surveys/big-data.html>

[https://cordis.europa.eu/result/rcn/190350\\_en.html](https://cordis.europa.eu/result/rcn/190350_en.html)

<https://www.tssg.org/projects/aquasmart/>

Many retailers have unknowingly sold fraudulent food products. With the use of blockchain, those days could come to an end.

## Transforming the Food Industry with Blockchain

Blockchain technology can benefit the feed industry by increasing trust and transparency in supply chains, and by stimulating new business opportunities for data services. The technology has also the potential to tackle food safety and fraud by enabling immediate traceability to the point of origin.

### Transparency and traceability

Blockchain is a way of linking, storing and sharing information across a network of users in an open virtual space. It allows for users to look at all transactions simultaneously and in real-time. In the food supply chain, a retailer could track the transactions of their suppliers to display the entire supply chain network. Additionally, since transactions are not stored in any single location, it is nearly impossible to manipulate the information and it must be correct to begin with.

For consumers, blockchain technology builds trust through full transparency. By Augmented Reality or by scanning a QR-code with a smartphone, information such as feed raw material type and origin, fish farm or harvesting location, and fish welfare / health status can be easily conveyed to the customer.

### Food safety and fraud prevention

Blockchain allows specific products to be traced at any given time, which can help to reduce food waste. For instance, contaminated products can be traced easily and quickly, while unaffected food would remain on the shelves and not be discarded.

Current practices in the food industry are much more open to human error. Much of the compliance data today is audited by trusted third parties but stored either on paper or in vulnerable databases. Even though blockchain operates anonymously, the technology provides a method where records are kept permanently. It will therefore facilitate data sharing between different actors in a food value chain in a trustworthy manner. Many retailers have sold fraudulent food products unknowingly. With the use of blockchain, those days could come to an end.

### Challenges of blockchain

Today's traceability systems are inadequate, and blockchain technologies could be the evolution they need. Given its architecture, blockchain technology offers affordable solutions to all kinds of organisations. However, there are noteworthy limitations. Crucial for realising the benefits of blockchain is the interface between the physical and digital world. The amount of information which can be processed is still limited and balancing confidentiality with transparency would need to be worked out. Nevertheless, the most important challenge for blockchain technology remains participation. A successful integration of the blockchain requires the engagement of all participating industries and organisations.

Sources:

<https://www.feednavigator.com/Article/2017/12/15/Benefits-of-blockchain-lower-costs-transparency-and-gains-for-SMEs>

<http://theconversation.com/how-blockchain-technology-could-transform-the-food-industry-89348>

BioMar is investigating blockchain opportunities in aquaculture.

# Driving Cooperation in the Value Chain

PARTNERSHIPS

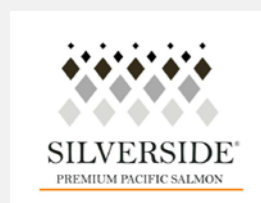
SILVERSIDE

BioMar together with Chilean salmon farmers Ventisqueros and the raw material producer Corbion joined forces to create Silverside, a premium Coho salmon. At BioMar, we believe a collaborative effort is required to bring fully traceable and sustainable seafood to market as this ensures sustainability across the value chain.

Ventisqueros is a boutique salmon company based in Northern Patagonia who are focused in producing healthy, sustainable and top-quality salmon. Corbion are the producers of AlgaPrimeDHA a novel source of marine omega-3s from microalgae. BioMar worked together with these partners to create the nutrient rich feed that is able to deliver a FFDR ratio of 0.5 to 1.0 which is less than half of the average salmon product, making Silverside one of the most sustainable salmon products on the market today.

Silverside Coho salmon has full traceability from the retailer right back to the raw materials found in the fish feed. This is only possible when close collaboration is established between trusted partners. Ventisqueros is a fully vertically integrated company, managing its own hatcheries, sea licenses and processing plants. This combined with the BioMar Sustainable Solution Steering® tool allows for complete transparency.

According to AC Nielsen, 72% of global seafood consumers agree that in order to save our oceans we should only consume seafood from sustainable sources. It is therefore important for the aquaculture industry to work together to offer products and brands like Silverside that can deliver on consumer assurance. With 66% of global consumers saying they are willing to pay more for sustainable brands and 62% looking for Trust Brands, sustainability and traceability is becoming even more an important part of the consumer equation



To mitigate risk and act responsibly, BioMar continually works within our value chain to source the most sustainable and high-quality ingredients available. We believe that taking leadership in this field, along with our suppliers and customers, will create new opportunities in the value chain.



PARTNERSHIPS

PANGHEA: GUAR

BioMar is dedicated to searching the world for raw materials that not only deliver the highest quality feed for farmers, but have a positive impact on the environment and the societies where they are grown. Together with our partners Panghea, we have identified a by-product from guar gum production that is a great source of protein for aquaculture.

Panghea specialises in supplying innovative and sustainable feed raw materials that minimise: emissions, water consumption, land use impacts, and farming inputs. They are one of the largest suppliers of high quality guar protein from India, a raw material with best-in-class environmental characteristics compared to other vegetable protein sources. In addition, large guar-growing regions are dominated by smallholders, where price stability and initiatives such as the Sustainable Guar Initiative are contributing positively to combat poverty and empower women in local communities.

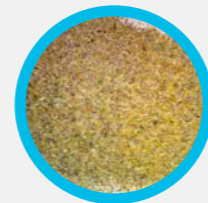
Guar *Cyamopsis tetragoloba* is an arid region plant with tolerance to drought and high temperatures, making it a great crop option in desert regions. The climate in Northwest India and Southeast Pakistan has periods of monsoon and drought cycles, to which the guar plant has become adapted over millennia. These environmental adaptations and the nitrogen-fixing ability of legumes, means that guar requires minimal irrigation and nitrogen fertilizer inputs. Guar is naturally resistant to many pests and under normal growing conditions, does not require the intensive use of pesticides or insectoids. The main application for this crop is guar gum powder, which is an ingredient used for heavy machinery, food and cosmetics. The proteinaceous meal that we source is a by-product derived from the plant's germ. This by-product is high in protein, devoid of process chemicals, and GMO free through the entire value chain.



95% of the world's guar is cultivated in India and Pakistan



Guar is produced with minimal inputs of irrigation water and process chemicals.



Guar is mechanically processed into meal without the use of chemicals

# State of World Fisheries and Aquaculture

Aquaculture continues to gain importance in the global food supply. At the same time, consumer perceptions of aquaculture products shift. More people are aware that the fish they eat is farmed and not caught in the ocean, and more people choose to purchase fish according to where and how it is farmed. The result is not only increased demands for responsible practices in the aquaculture industry, but also opportunities for targeting consumer segments who view sustainability as one of their purchasing criteria more actively.

The seafood industry is the most global business of any animal protein producing industry. Global trade in fish and fishery products continued its growth in 2017 with a change over 2016 of 7.8%. The total of USD 153.5 billion traded in 2017 exceeded the all-time high from 2014 of USD 148 billion. Aquaculture is still responsible for the entirety of production growth, already accounting for the majority (53 percent) of the fish we eat directly and, if current trends continue, set to overtake capture fisheries in absolute production terms by the year 2020.

“If current trends continue, aquaculture is set to overtake capture fisheries in absolute production terms by 2020”

– FAO 2017



	PRODUCTION QUANTITY		PRODUCTION VALUE	
	kT	SHARE	mUSD	SHARE
<b>GRASS CARP</b> <i>Ctenopharyngodon idellus</i>	6 068	8%	13 909	6%
<b>SILVER CARP</b> <i>Hypophthalmichthys molitrix</i>	5 301	7%	11 664	5%
<b>COMMON CARP</b> <i>Cyprinus carpio</i>	4 557	6%	9 547	4%
<b>JAPANESE CARPET SHELL</b> <i>Ruditapes philippinarum</i>	4 229	5%	6 960	3%
<b>NILE TILAPIA</b> <i>Oreochromis niloticus</i>	4 200	5%	7 914	3%
<b>WHITELEG SHRIMP</b> <i>Penaeus vannamei</i>	4 156	5%	24 405	11%
<b>BIGHEAD CARP</b> <i>Hypophthalmichthys nobilis</i>	3 527	4%	8 207	4%
<b>CATLA</b> <i>Catla catla</i>	2 961	4%	4 947	2%
<b>ATLANTIC SALMON</b> <i>Salmo salar</i>	2 248	3%	14 388	6%
<b>ROHU</b> <i>Labeo rohita</i>	1 843	2%	3 197	1%
TOP 10 SPECIES	39 088	49%	105 136	45%
OTHER SPECIES	40 981	51%	126 662	55%
<b>WORLD TOTAL</b>	80 069	100%	231 799	100%

Table 1. World aquaculture production of fish, crustaceans, molluscs, etc., by principle species in 2016 (FAO, 2018).

**The Aquaculture Stewardship Council (ASC)**

is an independent, international non-profit organisation that manages the world's leading certification and labelling programme for responsible aquaculture. Their vision is a world where aquaculture plays a major role in supplying food and social benefits for mankind by transforming aquaculture towards environmental sustainability and social responsibility using efficient market mechanisms that create value across the chain.

ASC set the standard but do not assess farms or sites. Certificates are issued by an independent conformity assessment body (CAB).

# ASC Feed Standard

Aquaculture is the fastest-growing animal protein production sector in the world. Of all farmed species, 70 per cent are dependent on formulated feed to complete their production cycle. The production of feed for aquaculture puts ever increasing pressure on the available resources. With a finite amount of arable land and wild fish, the responsible use of these resources is increasingly important. One tool to help recognise and reward more responsible aquaculture feed is the development and implementation of a global feed standard.

The upcoming ASC Feed Standard will define requirements for both responsible factory practices, and requirements that define parameters for responsible ingredients for the three main ingredient groups used in aqua feed: marine ingredients, terrestrial plant ingredients and terrestrial animal ingredients.

The feed standard aims to minimise the environmental and social impacts of the production of feed and feed ingredients whilst ensuring economic viability for the industry.

The principles, criteria and indicators of the feed standard will be verified at the feed mill level. Even though applied on this level, the standard will contribute to the protection of the environment in areas where raw material for key ingredients are produced, whilst recognising that feed mills and their suppliers are not solely responsible for protecting the health of the ecosystem.

Release of the Feed Standard is expected by the end of this year.

## CONSUMER PREFERENCES

BioMar engages in local and regional manufacturing and sales. Even though we have a global profile, there are and there will be, differences in national and regional regulations and customer preferences. This is a challenge when it comes to company policies and positions. We identify the common denominators and raise the bar enough to have ambitious, yet achievable, goals everywhere.

Consumer preferences are important to us. There are differences between markets when it comes to tolerance and acceptance of feed raw materials. As an example, there is a higher reluctance to genetically modified material (GM) in European regions and therefore we do not use GM raw materials there. In other parts of the world the consumer tolerance is higher and transgenic ingredients may therefore occur in products made in, and for, those markets.

## SOURCING



	FM&FO	CROPS	CROPS	CROPS
UNIT OF CERTIFICATION*	GLOBAL	GLOBAL	GLOBAL	GLOBAL
GEOGRAPHICALLY STRONGEST IN	GLOBAL	GLOBAL	GLOBAL	GLOBAL
FISH IN : FISH OUT (FIFO)		N/A	N/A	N/A
CARBON FOOTPRINTING				✓
SOCIAL IMPACTS		✓	✓	✓
TRACEABILITY	✓	✓	✓	✓
DEFORESTATION (HCV HABITATS)		✓	✓	✓
NON-GMO		✓		✓
ECOSYSTEM / HABITAT INTEGRITY	✓	✓	✓	✓
OCCUPATIONAL HEALTH AND SAFETY	✓	✓	✓	✓
GOOD INDUSTRY PRACTICE	✓	✓	✓	✓

\* F = Fisheries; A = Aquaculture

## PRODUCTION



	A	A
UNIT OF CERTIFICATION*	GLOBAL	NA, SA & ASIA
GEOGRAPHICALLY STRONGEST IN	GLOBAL	NA, SA & ASIA
FISH IN : FISH OUT (FIFO)		✓
CARBON FOOTPRINTING		
SOCIAL IMPACTS		
TRACEABILITY	✓	✓
DEFORESTATION (HCV HABITATS)		
NON-GMO		
ECOSYSTEM / HABITAT INTEGRITY		
OCCUPATIONAL HEALTH AND SAFETY	✓	✓
GOOD INDUSTRY PRACTICE	✓	✓

\*\* Fish must be non-GMO. Feed may contain GMO material, but must be labelled if more than 0.9% of the recipe

## CONSUMER LEVEL



	F & A	F	A	F & A
UNIT OF CERTIFICATION*	NA	GLOBAL	GLOBAL	GLOBAL
GEOGRAPHICALLY STRONGEST IN	NA	GLOBAL	GLOBAL	GLOBAL
FISH IN : FISH OUT (FIFO)	✓	✓	✓	
CARBON FOOTPRINTING		✓	✓	✓
SOCIAL IMPACTS			✓	✓
TRACEABILITY	VIA MSC	✓	VIA MSC	✓
DEFORESTATION (HCV HABITATS)			✓**	
NON-GMO	✓	✓	✓	✓
ECOSYSTEM / HABITAT INTEGRITY			✓	
OCCUPATIONAL HEALTH AND SAFETY			✓	
GOOD INDUSTRY PRACTICE			✓	

Table 2. Global standards impacting different stages in the aquaculture value chain. Based on in-house qualitative assessment by BioMar.



# Our Place in the Value Chain

We understand our responsibility within the value chain for the quality of raw materials and driving innovation through new feed types. In this manner, BioMar also plays a crucial role in food safety and fish health / welfare for a variety of species farmed in different conditions.

We see it as one of our most important tasks to understand and anticipate the constantly evolving demands of aquaculture value chains and to develop feed products that cater to these dynamic requirements.

As a manufacturer of feed for aquaculture, our place is in the middle of the aquaculture value chain, transforming sustainable raw materials into high quality, nutritious seafood.

Traditionally, feed comprises about 80% of the impacts in raising fish. As the feed ingredients and our operations account for most of mass and energy flows in the value chain, we have a crucial role in the overall sustainable, and the environmental and social development of aquaculture.

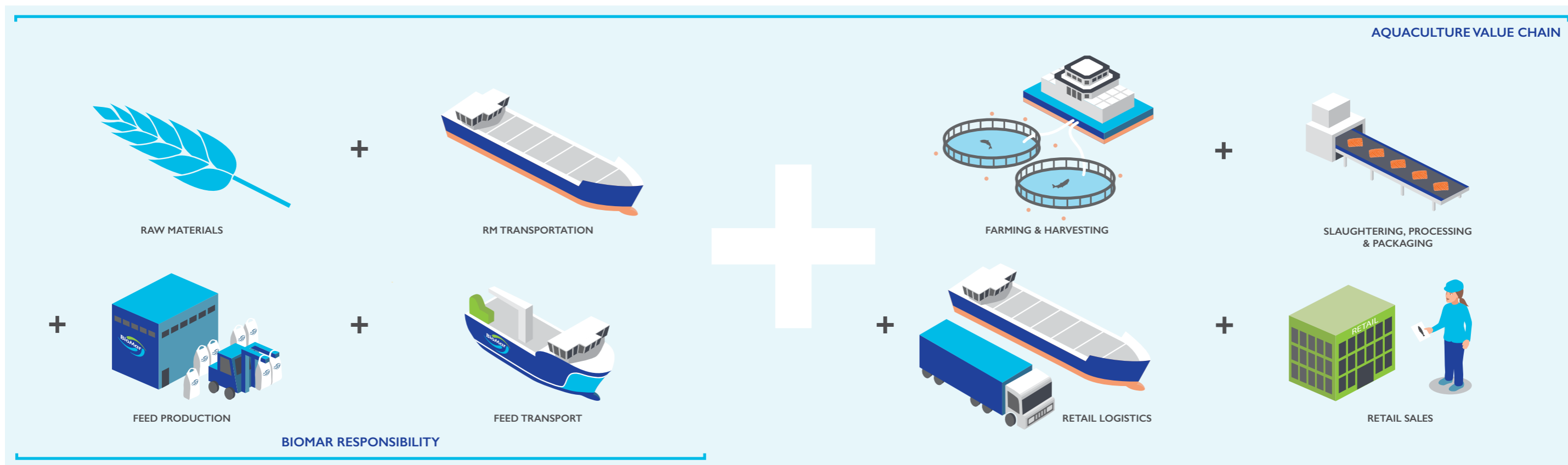
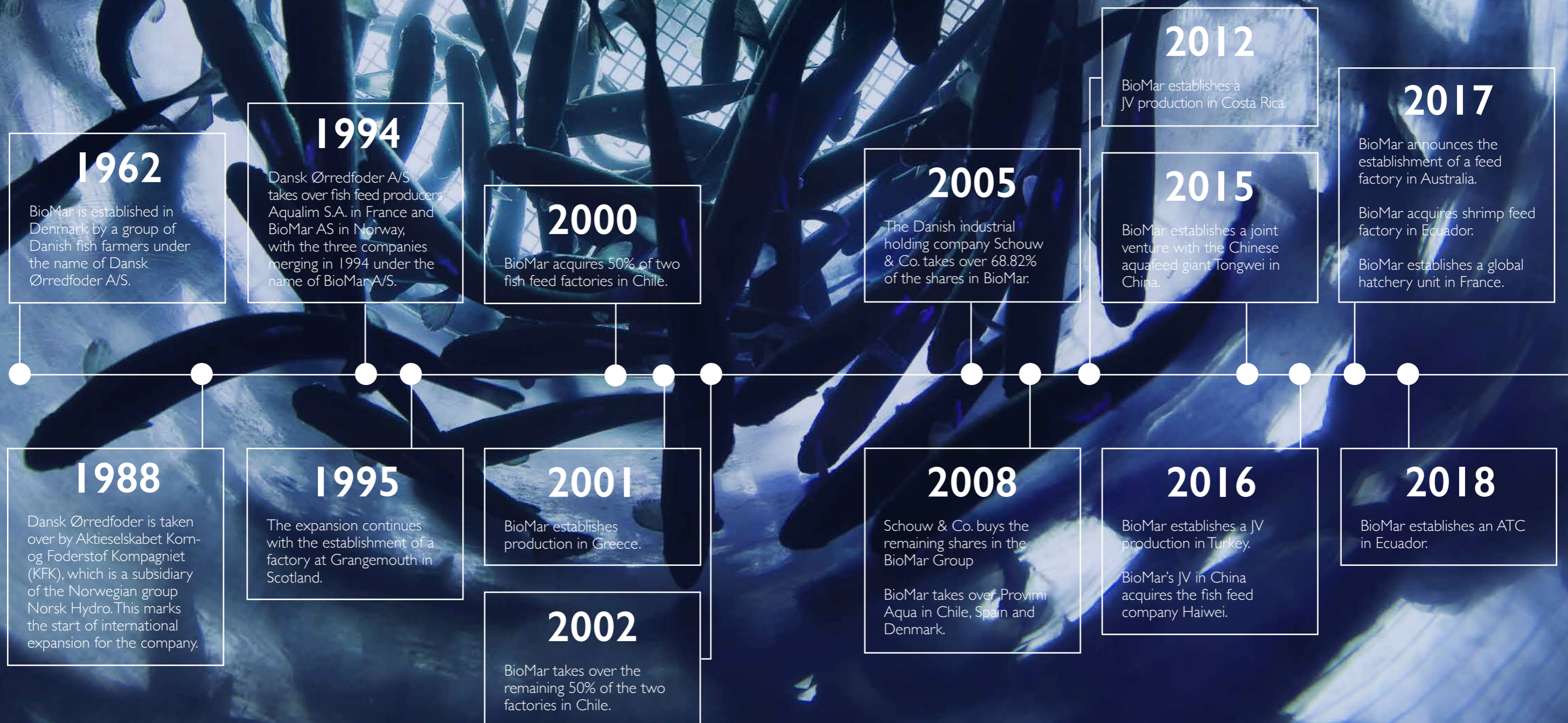


Figure 1. The aquaculture value chain, from raw material to feed transport (BioMar responsibility) and the downstream value chain to end-consumer.

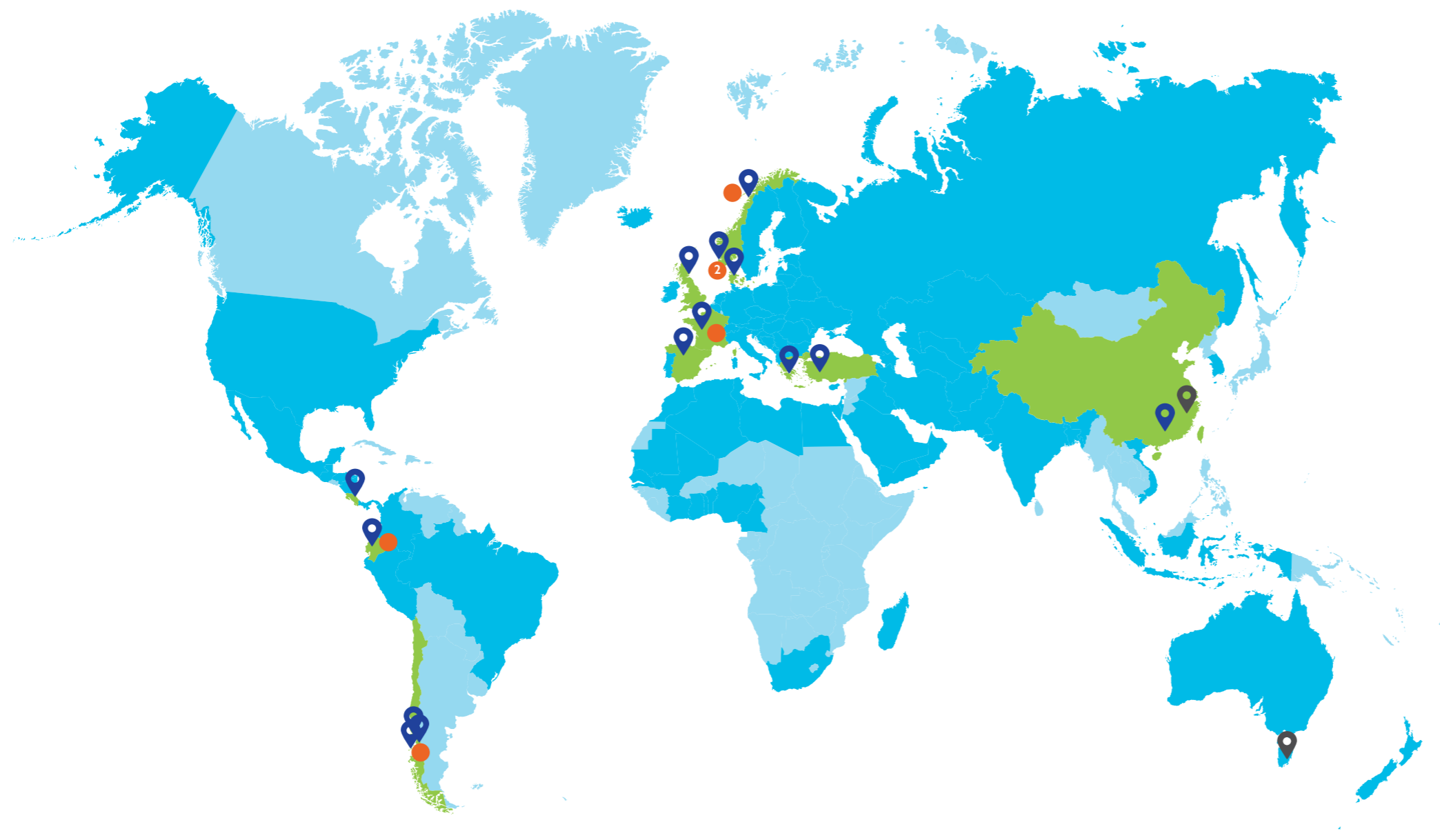
# BIOMAR GROUP

## Company History



### BIOMAR FISH FEED TYPES

BioMar feed types cover the full life cycle of fish, including larvae feed, fry feed, smolt feed, grower feed and brood stock feed. BioMar produces feed pellets in sizes ranging from 0.4 mm to 22 mm, as well as granulates and agglomerated feed particles from less than 0.1 mm, along with live feed enrichment products for artemia and rotifers.



- SALE
- PRODUCTION & SALE
- R&D CENTRE OR FEED TRIAL UNIT (ATC)
- 📍 FACTORY
- 📍 FACTORY UNDER CONSTRUCTION

Figure 2. BioMar markets and production by country including manufacturing units.

## BioMar Markets and Operations

BioMar Group has its head office in Aarhus and has divided its operations into three divisions: Salmon, EMEA and Emerging Markets.

Currently, the Salmon Division covers operations at the factories in Norway, Scotland and Chile with an upcoming foothold in Australia. The EMEA Division covers the EMEA region and involves all operations other than salmon in Denmark, France, Spain, Greece and Turkey. The Emerging Markets Division encompasses operations in Costa Rica, China and Ecuador; and focuses on new territories and business development activities.

Our main business areas are feed for salmon and trout in Norway, the UK and Chile, feed for trout, sea bass, sea bream meagre and eel in Continental Europe, and feed for shrimp, cobia and tilapia in South and Central America. With the recent acquisition of Alimentos in Ecuador, BioMar highlights shrimp as an important growth segment. In China, our main business is feed for Japanese seabass and Snakehead.

Worldwide, the BioMar Group supplies feed to around 60 countries and to more than 45 different fish species. BioMar is one of the leading suppliers of high performance fish feed to the aquaculture industry worldwide and is aimed at addressing the various markets using the most appropriate business model. This approach will encourage knowledge sharing, promote best practice and capitalise on synergies across geographical markets and is explained more in detail in the Governance chapter in this report.

# Top Species Supplied by BioMar in 2017

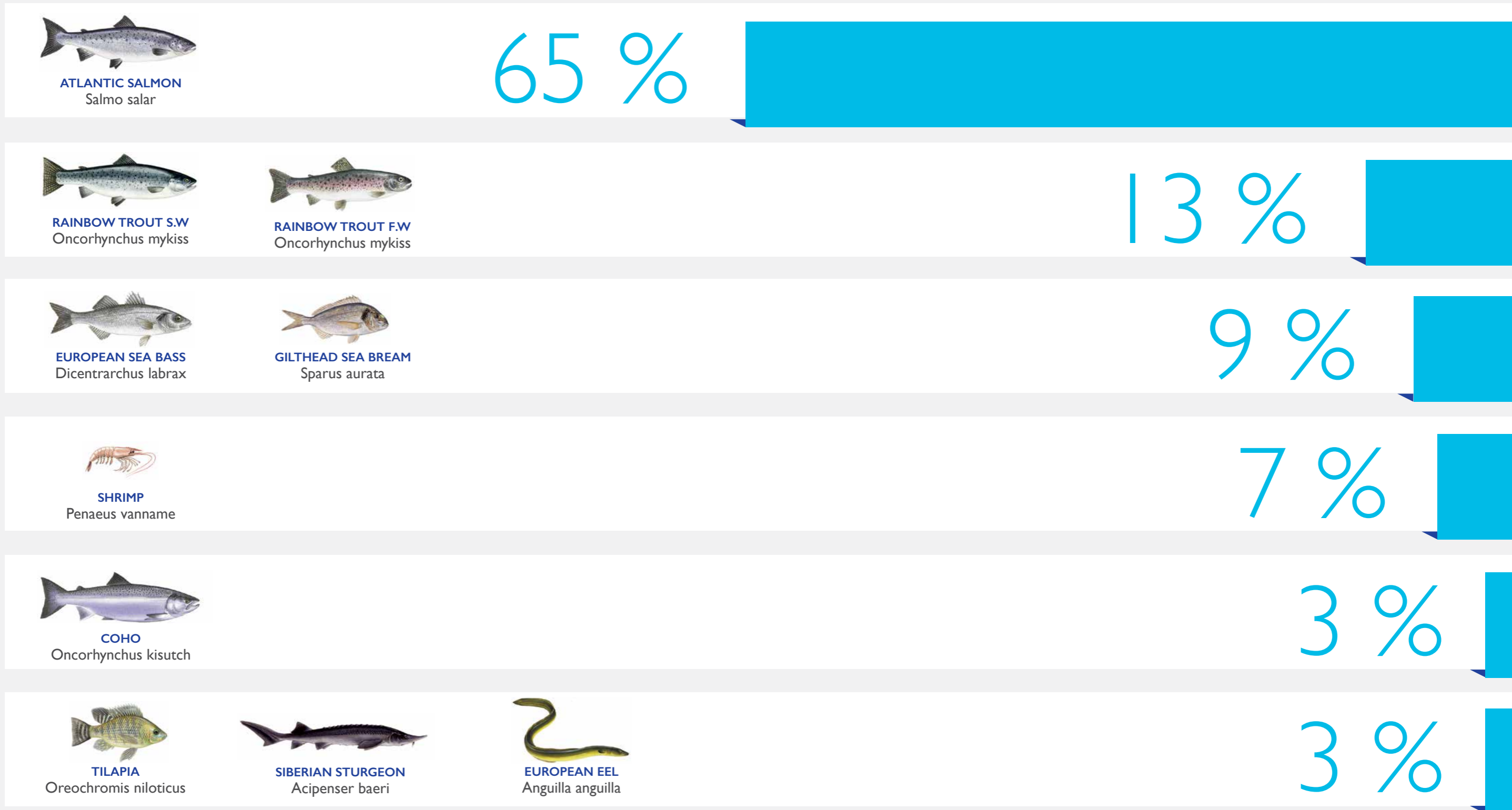


Figure 3. Top ten species where BioMar supplied the most feed. Worldwide, BioMar supplies feed to more than 45 different species.

# Growth Ambitions

## GROWTH IN HATCHERY

We have identified the hatchery feed business as an area for significant growth potential. This year we have established a new business unit and appointed a team of dedicated hatchery specialists based in Nersac, France.

The new business unit for hatchery products will play a key role in putting BioMar's signature in the hatchery segment. It is responsible for developing our hatchery feed business further by expanding into new geographical markets. Along with providing feed for shrimp and marine fish hatcheries we will be developing feed for new species.

Beside the establishment of the business unit, we have also made heavy investments in research and production development with the implementation of new feed production technology to enable new product techniques. BioMar's ambitious goals for the business unit include streamlining product lines and the creation of new products based on market demand and in close collaboration with our customers and partners.



## GROWTH IN SHRIMP

Our growth ambition is to become a major player within the high-end shrimp feed globally. To achieve this we have this year completed the acquisition of Alimentsa which has positioned BioMar among the leading shrimp feed producers in Latin America.

Shrimp production in Ecuador is considered of the highest quality not only due the optimal conditions that allows up to three production cycles per year but quite low farming densities compared to other markets allowing much better and sustainable sanitary conditions.

The acquisition of Alimentsa enabled us to immediately deliver an attractive value proposition to the shrimp farmers in Latin America. The combination of Alimentsa's strong position in Ecuador and BioMar's strength in sustainability and innovation enabled us to build on the foundations established by our business unit in Costa Rica. For our hatchery business there is also an important market in Ecuador.

BioMar Group has a 70% sharehold of Alimentsa and have invested 119 million USD. We estimate that the market will prove to be very attractive with a growth potential rate of 8-12 %.



## GROWTH IN SALMON

We believe in the importance to continue providing the salmon industry with the very best, high performance fish feed and to do that we must invest in the latest and best technologies that minimise our impact on the natural environment.

### KARMØY LINE 3

The highly sophisticated new production line showcases some of the most innovative technologies for the efficient and sustainable production of salmon feed for the future. BioMar has invested in a highly efficient air processing system that handles all air emissions from the factory in four scrubbing towers that use cold seawater to scrub emissions. This seawater also provides cooling for the production line, making for a high degree of energy efficiency and an environmentally friendly cooling system. The installation of Line 3 represents a total investment of NOK 450 million and an increased capacity of 140,000 tonnes annually, resulting in a 70% increase in total production at Karmøy. The line has the highest hourly output capacity of any single production line of fish feed anywhere in the world.

### MS NYKSUND

As part of the process of modernizing BioMar's shipments of fish feed we launched this year another new, highly environmentally friendly vessel. The MS Nyksund has a LNG-powered engine was created by Rolls-Royce and accompanies its sister vessel MS Høydal – the first gas-powered ship of its type in the world. The vessel has larger and more powerful thrusters and a DP system for optimum maneuverability. The ship is fitted with fish feed handling equipment that is both efficient and gentle on the feed. The ship was designed in collaboration with ship designers NSK Ship Design and measures an impressive 81.5 m in length. The MS Nyksund is owned and operated by NSK shipping and is the most advanced vessel in their fleet fitted with leading-edge equipment throughout and has a cargo capacity of 2,700 tonnes of fish feed. NSK already owns the MS Høydal and the MS Nyksund II (formerly the Nyksund), both of which form part of BioMar's fleet.



# Outlook and Financial Statements

## Financial Performance

BioMar's reported Q4 2017 revenue was slightly higher than expected, while EBIT was well ahead of expectations, bringing full-year 2017 revenue to DKK 9,955 million, a 12% increase on DKK 8,867 million in 2016.

The higher-than-expected revenue was based on a 20% increase in volumes sold relative to 2016. All three divisions contributed to the volume increase, with the salmon market being the biggest contributor. The global salmon biomass grew in 2017 relative to 2016, and market developments were generally positive in Norway, Scotland and Chile, which all had favourable biological conditions for fish farming during the year. The Emerging Markets division contributed to the growth performance mainly through the acquisition of Alimentsa in Ecuador, which was included in the consolidated results for the last four months of the year with revenue of DKK 164 million.

In the crucial Norwegian market, BioMar generated significant increases relative to 2016 in terms of both volumes sold and revenue. The new production line at Karmøy gave BioMar the extra production capacity needed to generate growth and to increase its market share in Norway in 2017.

The operations in Chile improved on both revenue and volumes sold in 2017, mainly because the Chilean market normalised following last year's setback caused by the natural occurrence of severe algal blooms in the spring of 2016. Nevertheless, volumes sold in Chile in the second half of 2017 fell slightly short of expectations, as BioMar failed to fully grow its market share as much as had been expected.

The EMEA division reported increased volumes sold in several markets in northern and southern Europe. How-

ever, Greece generated volumes sold in line with 2016 due to the long, cold winter in that market. The Turkish joint venture increased sales by a significant margin year on year, as the factory began commercial operations in mid-2016. The Turkish operations are not recognised in consolidated revenue and EBIT. The same applies to the joint venture operations in China. As expected, the Chinese operations, a part of the Emerging Markets division, reported revenue and earnings improvements for 2017 after acquiring the Haiwei factory in a deal that closed in November 2016. On a 100% basis, the non-consolidated feed businesses reported 2017 revenue of DKK 699 million and EBIT of DKK 39 million. The nonconsolidated feed businesses also include the fish farming company Salmenes Austral and the LetSea and ATC Patagonia research centres. The nonconsolidated companies are recognised in the 2017 consolidated financial statements at a share of profit of DKK 38 million after tax.

EBIT for the year was DKK 559 million in 2017 against DKK 581 million in 2016, the latter figure including significant income streams relating to special circumstances that did not recur to the same extent in 2017. The increase in volumes sold had a positive effect on full-year EBIT, particularly in the Salmon division, but due to the increasingly competitive market in Norway in 2017, the larger volumes only to a limited extent made up for the drop in earnings.

The reported EBIT exceeded the most recent guidance range of DKK 530-550 million as was announced in the Q3 2017 interim report. The EBIT improvement was mainly attributable to an increase in volumes sold, a stronger operational performance, which included optimised margins, and the effect on earnings from the acquisition of Alimentsa. Also contributing to EBIT was other operating

income deriving mainly from margins on the sale of fish and a minor fair value adjustment of fish inventories. In addition, the group's bad debt provision for 2017 was below the historical average, but in line with 2016.

Developments in foreign exchange rates had a negative overall impact of about DKK 170 million on revenue and of about DKK 10 million at EBIT level, mainly due to lower USD, GBP and NOK rates relative to DKK.

Working capital increased from DKK 414 million at the end of 2016 to DKK 672 million at the end of 2017, among other things due to the acquisition of Alimentsa and the fact that BioMar chose not to use supply chain financing to the same extent as last year. ROIC excluding goodwill remained high, at 30.1% at 31 December 2017, but still lower than the rate of 35.8% reported at 31 December 2016.

## Business Development

BioMar acquired a 70% stake in Ecuadorian shrimp feed producer Alimentsa in September 2017, with the former owners staying on as non-controlling shareholders.

Construction of a new production line at the existing factory in Karmøy, Norway, was completed in July. The project also involves expansion of warehouse and other efficiency-enhancing facilities, which are scheduled for completion in 2018. In addition, BioMar is investing in new functional feed types and new logistical solutions and has for that purpose signed a long-term lease for a new, natural gas-powered ship. The ship was delivered and brought into operation in 2017 at the same time as the new production line at Karmøy. The ship transports feed from Karmøy to fish farmers along the coast in central Norway.

The EMEA division increased its sales to BioMar's traditional European markets, where the company has a strong market position. BioMar continues to expect to strengthen its position in these markets, in part owing to the building of a strong market position in Turkey, one of Europe's most important aquaculture markets. In addition, consolidation of the Greek fish farming industry is expected to be growth supportive.

As part of its strategy, BioMar has identified the hatchery segment (feed for fish and shrimp farming during the early life stages) as being an area of significant potential, and working closely with its existing organisation BioMar has established a new hatchery business unit. Based in Nersac, France, the new hatchery unit will oversee the further development of BioMar's hatchery operations.

In the first quarter of 2017, BioMar acquired a 30% interest in the Aquaculture Technology Center Patagonia (ATC Patagonia), one of the most complete and modern research centres in the southern hemisphere. Having good R&D facilities is a basic requirement for achieving reliable test results that can be used to develop high-yielding feed products that, by extension, can create value for BioMar's customers. In November 2017, BioMar also announced plans to invest in a new research centre in Ecuador. Its focus will be on shrimp, which will further strengthen the group's global product development capacity.

BioMar increased its ownership interest in the Chilean fish farming company Salmenes Austral to 22.9% in the third quarter of 2017, and the company is now recognised as an associate. BioMar expects the company to achieve good results in the years ahead.

In China, BioMar is constructing a new fish feed factory in Wuxi near Shanghai

in a joint venture with Chinese partner Tongwei Co. Ltd. Expected to begin operations in the second half of 2018, the factory will have an annual capacity of 50,000 tonnes of fish feed. The new factory will complement the existing Haiwei factory located close to Hong Kong.

In March 2017, BioMar announced an almost DKK 300 million investment in a new feed factory in Tasmania, Australia. Preparations at the factory are progressing to plan, including obtaining local regulatory approval, and BioMar continues to expect the new facility will be ready by the end of 2019 with an annual fish feed capacity of about 110,000 tonnes.

## Outlook

BioMar anticipates moderate growth rates in its core markets in 2018. In addition, the group expects to increase volumes sold in emerging markets like Ecuador and China. Unlike in 2017, Alimentsa will contribute full-year revenue and earnings in 2018, and the new factory at Wuxi in China is scheduled to begin production in mid-2018. It should be noted, however, that the operations in China are not consolidated.

BioMar expects all three divisions will contribute to increasing volumes sold in 2018. Moderate growth in total feed volumes is expected in Norway and Chile. The market is expected to expand, reflecting positive developments in biological conditions and fish farmers generally being able to respond to biological challenges. The market in Chile has recovered following the algal bloom difficulties in 2016, and developments going forward will depend on how the authorities and the fish farmers regulate and manage growth.

General market conditions are expected to remain challenging in 2018, as moderate growth will combine with intense competition in core markets.

Competition accelerated considerably in the Norwegian market in 2017, and the effects will also impact 2018 earnings. Competition in Scotland will also intensify in 2018, as Marine Harvest is expected to start up its own fish feed production, which will reduce the accessible market.

BioMar will defend its market share and expand its position by developing and implementing new products and continuing to strongly focus on optimising margins, enhancing efficiency and on customer communication. Prices of farmed fish, including salmon prices, are expected to remain at a level that will provide solid earnings for fish farmers, which will reduce BioMar's risk of bad debts.

Changes in foreign exchange rates and shifts in product mix are expected to reduce average selling prices per tonne relative to 2017.

Against this background, BioMar expects to generate full-year 2018 revenue of about DKK 10.0-10.5 billion, but as always changes in raw materials prices and foreign exchange rates may impact revenue. The full-year EBIT will also depend on how foreign exchange rates develop, but based on the current outlook, BioMar expects to generate EBITDA in the range of DKK 720-770 million compared with DKK 712 million in 2017.

Associates and joint ventures, which are recognized at a share of profit after tax, are expected to contribute profit of about DKK 50 million in 2018 compared with DKK 38 million in 2017.

	2017	2016
Volume (thousands tonnes)	1,156	966
Revenue	9,955	8,867
- of which relates to the North Sea	5,420	4,593
- of which relates to the Americas	1,957	1,903
- of which relates to Continental Europe	2,578	2,371

## INCOME STATEMENT

Revenue	9,954.6	8,867.5
Gross profit	1,223.1	1,133.2
EBITDA	712.0	722.4
Depreciation and impairment	153.2	141.4
<b>OPERATING PROFIT (EBIT)</b>	<b>558.7</b>	<b>581.0</b>
Profit after tax from associates and joint ventures	38.0	12.6
Financial items, (net)	14.2	-16.4
<b>PROFIT BEFORE TAX</b>	<b>610.9</b>	<b>577.1</b>
Tax for the year	-145.7	-148.4
<b>PROFIT FOR THE YEAR</b>	<b>465.2</b>	<b>428.7</b>

## CASH FLOWS

Cash flows from operating activities	296.1	884.2
Cash flows from investing activities	-1,027.3	-375.6
Cash flows from financing activities	-657.0	-633.7

## BALANCE SHEET

Intangible assets	1,273.0	405.9
Property, plant and equipment	1,207.4	1,049.3
Other non-current assets	496.8	374.1
Cash and cash equivalents	240.7	329.5
Other current assets	3,081.3	3,408.6
<b>TOTAL ASSETS</b>	<b>6,299.2</b>	<b>5,567.4</b>

Equity	2,489.9	2,347.7
Interest-bearing debt	1,201.1	668.6
Other creditors	2,608.2	2,551.1
<b>TOTAL LIABILITIES AND EQUITY</b>	<b>6,299.2</b>	<b>5,567.4</b>

## FINANCIAL KEY FIGURES

EBITDA margin	7.2%	8.1%
EBIT margin	5.6%	6.6%
ROIC ex goodwill	30.1%	35.8%
ROIC incl. goodwill	19.5%	24.4%
Working capital	671.9	413.7
Net interest-bearing debt	726.0	-234.1



Schouw &amp; Co.

Innovating for the future and continuous growth of BioMar is supported by investors that believe in the company's vision.

## Ownership

The BioMar Group is fully owned by Schouw & Co., a Danish industrial conglomerate listed on the Nasdaq Copenhagen Stock Exchange.

Schouw & Co. acquired 68% of BioMar in 2005 and achieved full ownership in 2008 by merging the parent company, BioMar, into Schouw & Co. The acquisition of BioMar has made Schouw & Co. both larger and stronger. Schouw & Co. generates most of its current revenue and earnings from BioMar, while BioMar's performance has been a strong contribution to Schouw & Co. A/S.

Schouw & Co. is an industrial conglomerate. Through its subsidiaries, the company manufactures fish feed for aquaculture, non-woven textiles for personal care and industrial applications, spare parts and accessories for the agricultural sector, and hydraulic components.

Table 3. BioMar financial figures for 2016 and 2015 in DKK millions.

DKK MILLION	2017	2016	2015	2014	2013
<b>REVENUE AND INCOME</b>					
Revenue	17,032	14,369	12,566	11,784	11,645
Operating profit before depreciation (EBITDA)	1,568	1,472	1,214	1,070	1,039
Depreciation and impairment losses	475	434	383	363	354
Operating profit (EBIT)	1,093	1,038	831	708	685
Profit/loss after tax in associates and joint ventures	42	566	86	28	-21
Net financials, net of value adjustment of listed securities	-30	-27	-46	-35	446
Profit before tax	1,105	1,578	871	701	1,109
Profit on continuing business	875	1,339	645	428	860
Profit/loss on discontinued operations	0	0	0	0	508
Profit for the year	875	1,339	645	428	1,368

## CASH FLOWS

Cash flow from operating activities	763	1,598	1,171	628	667
Cash flow from investing activities	-2,763	-395	-569	-355	522
Of which investment in property, plant and equipment	-809	-828	-354	-233	-346
Cash flows from financing activities	818	-925	-324	-563	-687

## INVESTED CAPITAL AND FINANCING

Invested capital (ex. goodwill)	7,337	5,416	4,464	4,528	4,045
Total assets	14,389	12,273	10,516	9,882	9,696
Working capital	2,505	1,727	1,598	1,775	1,424
Net interest-bearing debt (NIBD)	1,275	-1,028	-511	44	-23
Share of equity attributable to shareholders of Schouw & Co.	8,317	7,797	6,656	6,071	5,743
Non-controlling interests	15	18	21	3	3
Total equity	8,332	7,814	6,677	6,074	5,746

## FINANCIAL DATA

EBITDA margin (%)	9.2	10.2	9.7	9.1	8.9
EBIT margin (%)	6.4	7.2	6.6	6.0	5.9
EBT margin (%)	6.5	11.0	6.9	6.0	9.5
Return on equity (%)	10.9	18.6	10.2	7.2	26.4
Equity ratio (%)	57.9	63.7	63.5	61.5	59.3
ROIC excluding goodwill (%)	17.6	20.2	18.3	16.9	16.1
ROIC including goodwill (%)	13.8	16.6	15.1	14.0	13.3
NIBD/EBITDA ratio	0.8	-0.7	-0.4	0.0	0.0
Average no. of employees	6,087	4,108	2,382	2,139	2,052

## PER SHARE DATA

Earnings per share (of DKK 10)	36.85	56.56	27.48	18.08	57.46
Diluted earnings per share (of DKK 10)	36.63	56.41	27.38	18.02	57.28
Dividends per share (of DKK 10)	13.00	12.00	10.00	8.00	6.00
Net asset value per share (of DKK 10)	346.99	328.38	282.10	258.44	240.49
Share price, end of year (per share DKK 10)	581.50	526.00	387.00	290.00	222.50
Price/Net asset value	1.68	1.60	1.37	1.12	0.93
Market capitalisation, end of year	13,939	12,489	9,131	6,812	5,313

Table 4. Schouw &amp; Co. A/S financial figures and ratios: a five-year overview.

# PURPOSE & GUIDING PRINCIPLES



“We are innovators dedicated to an efficient and sustainable global aquaculture”



# Purpose & Guiding Principles

## INNOVATION

At BioMar, we promote and encourage a culture of innovation in all parts of the company. We support cross disciplinary projects and knowledge sharing between BioMar employees and our research or commercial partners. We continuously invest in conducting our own research and development (R&D) and dedicate 1% of our gross revenue to R&D, in addition to actively seeking out research grants.

**LET'S  
INNOVATE...**

## COOPERATION

We embrace long-term commitment towards and with our stakeholders and focus on nurturing and maintaining long-term partnerships with our customers and suppliers. We empower each employee to engage in external relations. Investing in relationships, both internally and externally builds social capital and trust, two key outcomes of cooperation central to our purpose.

**LET'S BE  
PARTNERS...**

The BioMar purpose is rooted in our heritage and our commitment to aquaculture. Through cutting edge knowledge and long-lasting partnerships with our stakeholders, we strive to develop and deliver truly efficient, sustainable and healthy feed solutions. We are dedicated to innovating aquaculture.

## SUSTAINABILITY

We are "all in" on sustainable aquaculture. We constantly reduce our own environmental footprint through process and technological innovation, responsible sourcing, and continual improvement programs. For customers, we provide support services to improve the sustainability of their farming activities. We use sustainably sourced raw materials, delivered by responsible suppliers. We enhance transparency and traceability throughout the supply chain and are always on the lookout for more sustainable raw materials.

**LET'S MINIMIZE  
OUR FOOTPRINT...**

## PERFORMANCE

We are committed to providing feeds that enable long-term, profitable production of safe and healthy seafood. We work with our customers to ensure the most efficient and responsible feeding practices possible. We strive to lower feed conversion ratios and optimize the value chain within our own organisation. We develop high-performing talents and invest in human capital. We run thorough management systems and comply with accredited.

**LET'S THINK  
LONG-TERM...**

# STRATEGY



# Strategy

“Shaping the Future”, our corporate strategy towards 2020, builds on the promise of our purpose “the BioMar Why”, which is founded on our four pillars and guiding principles: Innovation, Cooperation, Sustainability and Performance.

BioMar continuously strives to improve its ability to innovate. Indeed, we will ensure that growth happens in a robust and efficient way. We are determined to embrace long-term commitments to working with stakeholders, as well as building lasting partnerships across the value chain and broader

community. BioMar is devoted to developing sustainable aquaculture and ready to lead by example through new and more sustainable ways of doing business. BioMar will offer superior growth performance, as well as continue to produce healthy and safe seafood to feed the world.

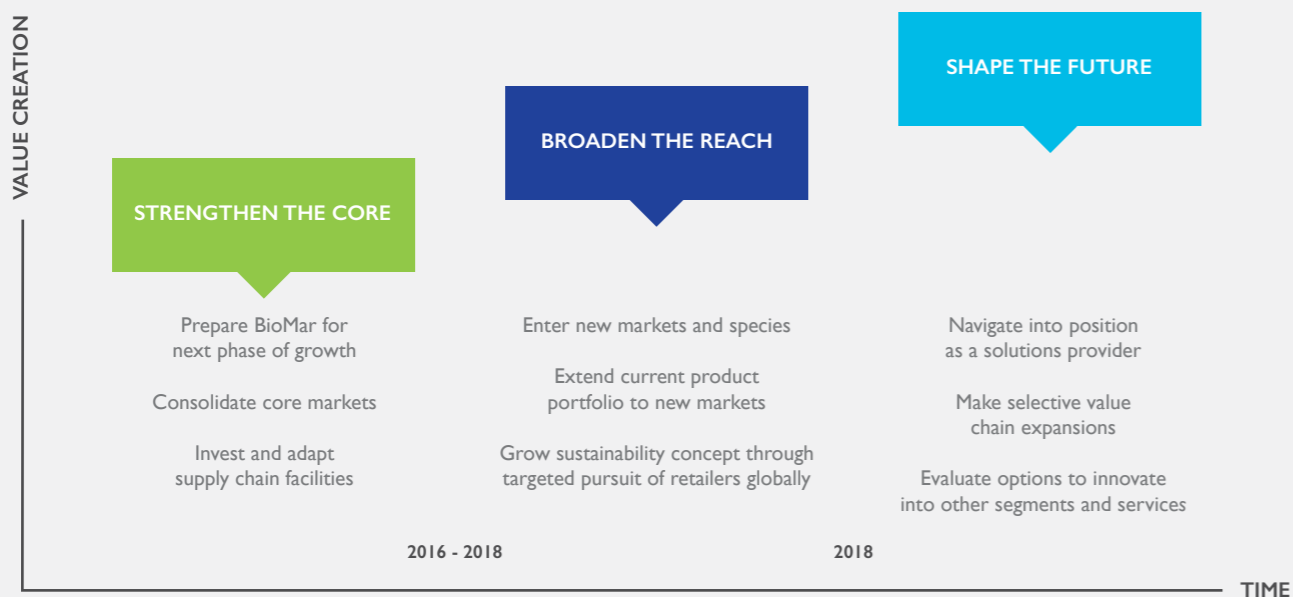


Figure 4. Stages in our strategy “Shaping the Future” towards 2020.

## SHAPING THE FUTURE – 2020

Based on our values and principles, we DO strive to establish ourselves as the industry’s most agile, reliable, and forward-thinking aquaculture feed supplier. By agility, we mean being a focused feed supplier with flexible and effective production set-ups to meet customer requirements. We seek strategic partnerships and pro-activeness in the market to drive value for our customers.

Our global, functional excellence is catalysed by strong processes and high-performing talents. We ensure sustainable growth by being an important player with critical mass in all main markets, while opportunistically seeking out new species and markets. We seek inorganic growth to consolidate our industry role and aim for 50% growth in tonnage sold.

## THE RIGHT THING TO

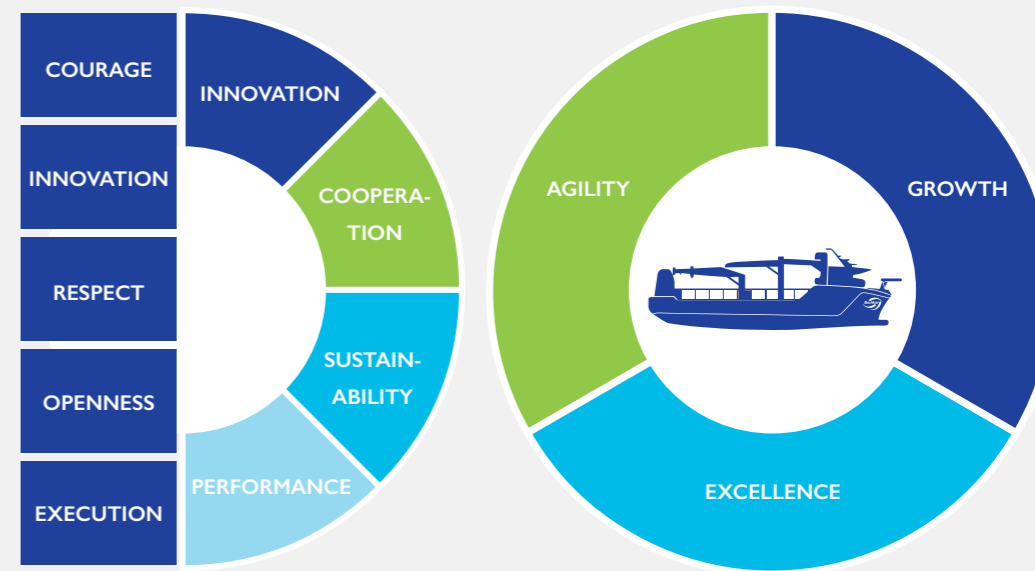
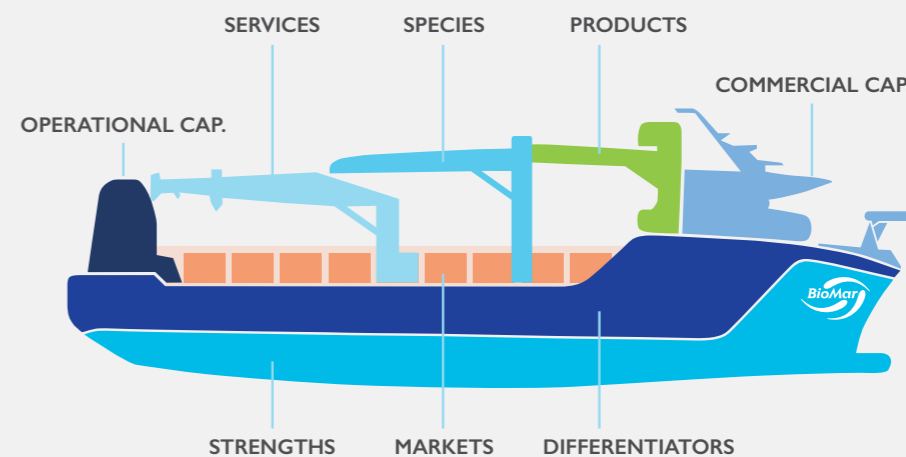


Figure 5. Our values, guiding principles and strategy provides the backbone for what we will DO to shape the future towards 2020.



OPERATIONAL CAP.	Cost competitive offerings   flexible production set-up   alternative raw materials
SERVICES	Feed specialist   advice and solutions   customer service
SPECIES	Core species focus   cross-utilized knowledge
PRODUCTS	50/50 standard and tailor-made products
COMMERCIAL CAP.	Proactive in driving value for customers in their regional markets
STRENGTHS	Responsive   adding value through sustainability   active knowledge management
MARKETS	Selected geographies   M&A agenda on core markets and new strategic priorities
DIFFERENTIATORS	Responsiveness   flexible, strategic partnerships   premium service offering

Figure 6. Our strategic pillars purposefully visualized by our high-tech, agile and low-impact feed freighter Høydal.

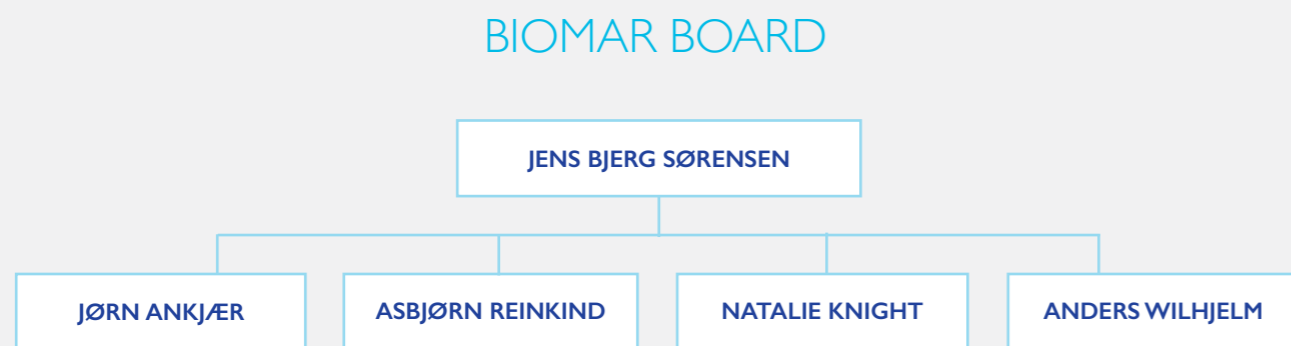
# GOVERNANCE



BioMar have a very lean agile and locally responsive organisation. However, to secure future growth, we want to further enhance our global innovation capability, including some of our corporate support functions, and our capacity to enter new markets and feed more species. Our organisational set-up considers the fact that, even though we are aiming for the same strategic position across the globe, we need to address the local market logic and our position in the marketplace in different ways. Therefore, our business model is focused around the three divisions: Salmon, EMEA and Emerging Markets.

## Executive Structure

BioMar is headed by a dedicated team of experienced executives with a shared common goal to see a sustainable aquaculture industry driven by innovation and founded in solid partnerships.



## BIOMAR EXECUTIVE COMMITTEE



Table 5. Overview of governance bodies by owner and within the BioMar organisation.

## Operational Model

The Salmon Division was created to support a segment where we have large consolidated customers who are often working in highly professional set-ups and across regions. The market trends in this segment seem to be more and more global. This applies to products, concepts, know-how, sustainability and end-consumer trends. In this division, as in others, we have a strong need for margin management, R&D, key account management and an advanced product portfolio of value-added products. We are integrating the major salmon farming markets in Chile, Norway, the UK and Australia.

The EMEA Division was created to embrace the diverse portfolio of customers in non-salmon countries in Europe, the

Middle East and Africa. In this segment, we have a high number of smaller and midsize customers. Some of the main drivers in this area involve high-service, strong logistic capabilities and high-performing feed solutions to a broad range of species. The division comprises the Baltic, West Med, Greece and Turkey business units for the time being.

The Emerging Market Division seeks to focus on building up new markets, integrating acquisitions and servicing new species. This division's name reflects the fact that it supports growing and developing markets, which are new to BioMar. The division will ensure that we effectively transfer knowledge from established markets to new business areas. Eventually, geographical areas or

species, which have been nursed and nurtured in this division, can in time grow to become a division on their own. For the time being, this division will mainly focus on the Americas, China and other Asian markets.

All functions and employees are important contributors in positioning BioMar as the leading, agile and focused aquaculture feed supplier. To support our strategic aspirations, some functions will engage directly with customers delivering our service and feed solutions. Evidently, all will contribute to delivering our value proposition through high-quality products, cost efficiency and innovation (table 6).

## BIOMAR GROUP

	SALMON DIVISION	EMEA	EMERGING MARKETS
R&D	GLOBAL		
SALES & OPERATIONS	LOCAL	LOCAL	LOCAL
TECHNOLOGY	GLOBAL & LOCAL	GLOBAL & LOCAL	GLOBAL & LOCAL
BUSINESS DEVELOPMENT	GLOBAL		
MARKETING	DIVISIONAL	DIVISIONAL	DIVISIONAL
SUSTAINABILITY	GLOBAL		
SOURCING	GLOBAL & LOCAL	GLOBAL & LOCAL	GLOBAL & LOCAL
HR & COMMUNICATION	GLOBAL & LOCAL	GLOBAL & LOCAL	GLOBAL & LOCAL
M&A	GLOBAL		
FINANCE	GLOBAL & LOCAL	GLOBAL & LOCAL	GLOBAL & LOCAL
IT	GLOBAL & LOCAL	GLOBAL & DIVISIONAL	GLOBAL & LOCAL

Table 6. Operational model supporting our strategic aspirations.

# STAKEHOLDERS AND MATERIALITY



# Stakeholder Management

BioMar has a long tradition of networking and interacting with stakeholders from inside and outside the aquaculture industry. This has contributed to shaping BioMar into the company it is today.

Throughout our history lasting more than 50 years, BioMar has engaged actively in a continued dialogue with stakeholders both inside and outside the company. There have been joint projects in improving nutritional and environmental performance of feed, and multi-stakeholder approaches for development of best practice standards in the industry. BioMar also support and involve in public research projects and local educational activities. These activities strongly contribute to developing our corporate culture and driving continuous improvements in our operations and products. In the last chapter in this report, we share more details in our case studies along with other sustainability practices.

When it comes to sustainability and CSR, stakeholder engagement is of fundamental importance. Against the backdrop of new communications opportunities, such as social media, BioMar has recognized that we must engage with stakeholders in new ways, and that both virtual and actual representation is essential. Relating external engagement to core business activities is not an easy task, while building internal awareness and interest can be challenging in a global environment. Our goal is to reach out to all interest groups to discuss and transform information, as well as learn from business intelligence. To do so, we need to map our stakeholders.

In mapping our stakeholders, we have identified those to whom we have a legal, commercial or moral responsibility, such as our regulators, customers and communities around our facilities. For employees and to some extent suppliers, are important also on an additional level since our business operations depend on them. Those who might become clients or employees in the future, such as students, are also important to us. We also value other diverse perspectives within our business, such as groups who can highlight new opportunities or areas that need attention, for example, the media and NGOs.

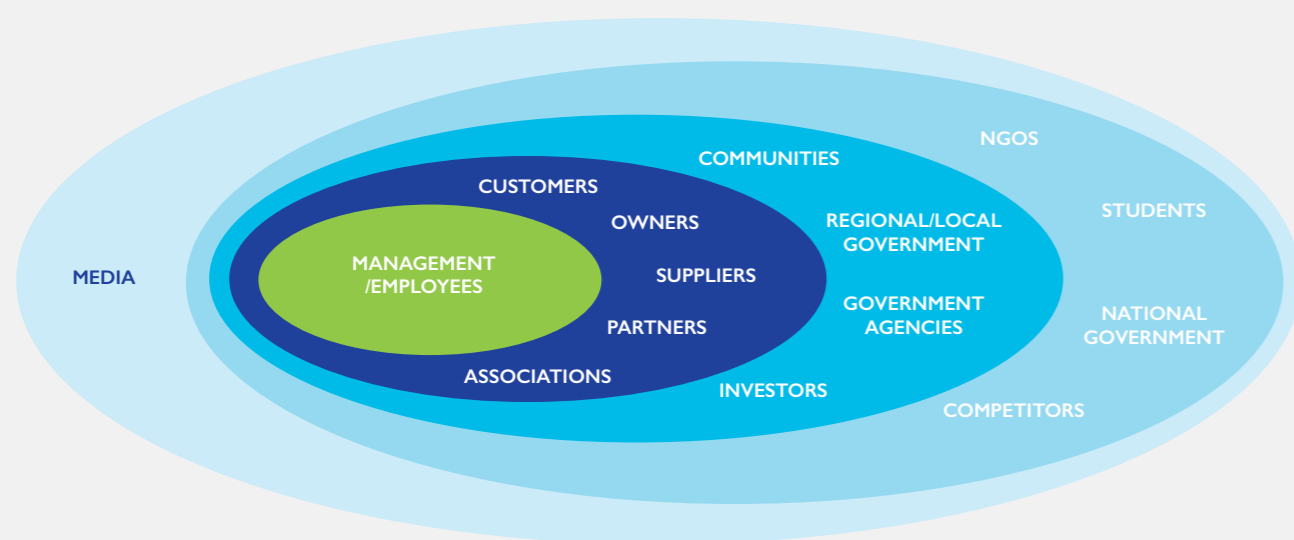


Figure 7. Stakeholder onion illustrating layers of stakeholders and interest groups of variable relevance and importance to BioMar.

# Stakeholder Engagement Activities

The largest arenas where BioMar has traditionally interacted with stakeholders, especially customers, are Aqua Nor and Aquaculture Europe. These events attract stakeholders from all over the world, even though the events are generally based in Europe.

Since 1987, BioMar has, with just a few exceptions, participated in the biennial Aqua Nor exhibition. Since 2011, BioMar has been the gold sponsor of the annual Aquaculture Europe conferences, which is a commitment we would like to continue. Similar engagements have also taken place in the Americas and Asia, where we arrange meetings, attend forums and roundtables, and involve and gather with stakeholders. We target a global

audience of customers, suppliers, policymakers, NGOs and educational institutions. In 2016, BioMar became a full member of the Global Salmon Initiative (GSI) in which we play an active role in the sustainable development of the salmon industry. An overview of some of our stakeholder activities is shown in the below table.

ACTIVITIES	COMMENTS	BIOMAR ROLE
<b>AQUACULTURE EUROPE</b> <a href="http://www.easonline.org">www.easonline.org</a>	Aquaculture Europe is the largest annual aquaculture conference in Europe, bringing together individuals and companies in the sustainable development of European aquaculture	Gold sponsor, contributor
<b>AQUA NOR</b> <a href="http://www.nor-fishing.no">www.nor-fishing.no</a>	Aqua Nor has, for more than 35 years, been an important international venue for the aquaculture industry, introducing novelties, products, services and R&D projects of relevance to the industry	Exhibitor
<b>AQUABEST</b> <a href="http://www.aquabestproject.eu">www.aquabestproject.eu</a>	Showing the potential of the Baltic region as a sustainable food production system	Partner
<b>TARS</b> <a href="http://www.tarsaquaculture.com">www.tarsaquaculture.com</a>	The Aquaculture Roundtable Series (TARS) aims to share knowledge, deliberate on critical issues and identify a clear strategy to ensure the sustainability and profitability of the aquaculture industry	Sponsor, contributor
<b>NORDICRAS</b> <a href="http://www.nordicras.net">www.nordicras.net</a>	The Nordic Network on Recirculating Aquaculture Systems (RAS) works to coordinate and strengthen R&D of RAS in Nordic countries	Member, gold sponsor, contributor
<b>PATAGONICRAS</b> <a href="http://www.biomar.com/chile">www.biomar.com/chile</a>	A new network on RAS, which works to coordinate and strengthen R&D in the Southern Hemisphere	Initiator, gold sponsor, contributor
<b>ISFNF</b> <a href="http://www.isfnf2014.org">www.isfnf2014.org</a>	The International Symposium on Fish Nutrition and Feeding (ISFNF) is the premier international forum for researchers, academics and industry concerned with the nutrition and feeding of aquatic animals	Contributor
<b>RSPO</b> <a href="http://www.rspo.org">www.rspo.org</a>	The Roundtable on Sustainable Palm Oil (RSPO) aims to transform markets to make sustainable palm oil the norm	Member
<b>RTRS</b> <a href="http://www.responsiblesoy.org">www.responsiblesoy.org</a>	Roundtable on Responsible Soy (RTRS) is a civil organisation that promotes responsible production, as well as processing and trading of soy on a global level	Member
<b>ASC</b> <a href="http://www.asc-aqua.org">www.asc-aqua.org</a>	Aquaculture Stewardship Council (ASC) aims to be the world's leading certification and labelling programme for responsibly farmed seafood	Steering committee member
<b>GLOBALG.A.P.</b> <a href="http://www.globalgap.org">www.globalgap.org</a>	GLOBALG.A.P. is currently the world's leading farm assurance programme, translating consumer requirements into good agricultural practice (GAP). A sustainability add-on module in aquaculture standard is under development	Contributor
<b>FEFAC</b> <a href="http://www.fefac.eu">www.fefac.eu</a>	The European Feed Manufacturers' Federation (FEFAC) is the only independent spokesman for the European compound feed industry at the level of the European institutions	Chair, committee members
<b>IFFO RS</b> <a href="http://www.iffonet/iffors">www.iffonet/iffors</a>	The IFFO global standard for Responsible Supply (RS) of fishmeal and fish oil. The vision comprises all marine ingredients produced globally to be sourced from responsibly sourced fisheries products and produced in a safe manner	Board member
<b>EATIP</b> <a href="http://www.eatip.eu">www.eatip.eu</a>	The European Aquaculture Technology & Innovation Platform (EATIP) works to promote innovation and sustainable technologies in European aquaculture	Board member
<b>GSI</b> <a href="http://www.globalsalmoninitiative.org">www.globalsalmoninitiative.org</a>	The Global Salmon Initiative (GSI) is a leadership initiative established by leading CEOs from around the world who share a vision of providing a healthy and sustainable source of protein to feed a growing population, while minimising their environmental footprint, and continuing to improve their social contribution.	Associate member Committee members
<b>SUSTAINABLE BRANDS</b> <a href="http://www.sustainablebrands.com">www.sustainablebrands.com</a>	Sustainable Brands is home for the global community of business innovators who are shaping the future of commerce worldwide. Since 2006, their goal has been to inspire, engage and equip today's business and brand leaders to prosper for the near and long term by leading the way to a sustainably abundant future.	Member

Table 7. Forum participation and BioMar engagements embracing various audiences.

# Materiality

Sustainability is a very broad topic, which makes it important in understanding the key priorities when aligning time, resources and investment. We have conducted an extensive materiality assessment and developed a materiality matrix based on the results. With the help of DNV GL, as an independent third party, to ensure objective input, we have revised our materiality matrix this year.

Our intention is to review and adjust the matrix every other year to meet external and business context changes, as well as ensure the matrix functions as a guide in managing our sustainability agenda. We concentrate on the highest priority items in our Global Reporting Initiative (GRI) reports. Our corporate sustainability strategy focuses on taking responsibility, minimising negative social and environmental impacts and enhancing our positive reputation. Impact and focus areas are embedded as key performance indicators (KPIs) in our core operations and we strive to achieve measurable results for each of them. Over the years, some business units have developed comprehensive metrics and goals to ensure sustainable development. Some of them have been adopted as KPIs for the entire BioMar Group, whereas others reflect a more local character or are, in other ways, difficult to address globally.

### DNV GL insights from the materiality process

DNV GL interviewed several of BioMar's major stakeholders, including customers, owners, financial institutions, environmental organisations and industry experts. BioMar's top management and key functions from sustainability, business development, HR, strategy, research and innovation also contributed with their views.

The aim of a materiality process is to identify, understand and prioritise critical sustainability topics, both from a commercial perspective and a stakeholder perspective. The findings are summarized in the materiality matrix, which will serve as the basis for future reporting and strategy development.

The main conclusion is that sustainability is a ticket to trade for BioMar: Solid sustainability performance is a prerequisite to winning contracts, getting access to finance and securing a social acceptance. Stakeholders place great responsibility and expectations towards the feed producers in improving sustainability in the aquaculture

# Key findings

SUSTAINABLE SUPPLY CHAIN IS A TICKET TO TRADE	GREAT EXPECTATIONS	CLIMATE CHANGE RISK AND MITIGATION	FINDING INDUSTRY PIONEERS
The ability to manage supply chain risk is a ticket-to-trade for BioMar. High risk commodities are BioMar's biggest concern, in particular the use of soy, palm oil, marine ingredients, GMO, animal by-products, as well as working conditions and land use related to plantations. Sourcing from certified suppliers is currently the most trusted solution among stakeholders.	Stakeholders expect BioMar to carry the torch in the quest for a more sustainable aquaculture industry. Investments in R&D and enabling a fact based public discussion are sought-after contributions.	Climate change is ranked as a key concern to stakeholders, who seek information on both the carbon footprint of products, as well as information on climate change risks to BioMar's operations.	Stakeholders recognise BioMar as an industry leader, but underlines that it is a constant challenge to stand out. Industry leadership requires constant and excellent performance in sustainability strategy and reporting. Clear and concise action plans are highly regarded, as well the ability to document objective and reliable reporting.

IMPORTANCE TO EXTERNAL STAKEHOLDERS	HIGH		Climate change: Emissions Emergency preparedness Supply chain: Environmental practices Ethics & Anti-corruption Hazardous materials	Supply chain: High risk commodities Working conditions & HSE R&D & Innovation Public health Local pollution
	MEDIUM HIGH	Climate change adaption	Supply chain: Anti-corruption Labour relations & standards & Human rights Accidental spills Training & education Waste from packaging Lobbying Impact on local economy	Stakeholder engagement Diversity & inclusion
	LOW	Security issues Charity & sponsorships	Energy source & use Fresh water use	
		LOW	MEDIUM	HIGH
		IMPORTANCE TO BIOMAR		

Figure 8. BioMar Group Materiality Matrix 2016/2017 conducted by DNV GL



## STAKEHOLDER FEEDBACK FROM MATERIALITY ASSESSMENT

“As a customer, we need to know that BioMar is sourcing with high integrity, and uses proper auditing procedures”

“R&D and industry collaboration is the primary decision-making input for us when choosing our suppliers – it is a ticket to trade”

“Climate change is very important to us as farmers. We don’t know how this will affect us”

“Supply of traditional ingredients will become scarcer, and all food producers will be affected”

“The impact of climate change on raw materials is important. It is already a challenge to secure access to enough ingredients, e.g. due to over-harvesting of marine resources. It is critical to address the raw material issue, and that the feed producers are thinking outside the box and look for alternative resources, like algae, omega 3 and plant-based proteins – the whole industry is hunting for new ideas”

“There is an expectation that the feed BioMar sells will become more sustainable over time, in every dimension, and they can only achieve this through science. BioMar has a role to play in helping to deliver a more efficient and better food system for the world”

“We need to see a sustainability strategy and action plans, not only reporting”

“Corruption is a deal-breaker for us – then we cannot trust any of the information we get from that company”

“There is a lot of “alternative facts” in the news, regarding feed, what it’s composed of etc. There is a need to get real facts into the discussion”

“A corruption scandal among our suppliers will impact us directly and hit us hard”

FOCUS AREAS IN OUR BUSINESS STRATEGY	HIGH IMPACT AREAS ACCORDING TO MATERIALITY ASSESSMENT	UN SDG ADDRESSED
 The quality, performance and integrity of our products and services	 Supply chain: high risk commodities	
 Research, development and innovation	 Working conditions & HSE	
 Talent attraction, development and wellbeing of employees	 R&D & Innovation	
 Reducing energy and carbon emissions per ton of end product, reducing emissions to environment	 Public health	
 Contributing to local communities	 Local pollution	
 Driving sustainability practices into our supply and value chain		
 Responsible sourcing		

Table 8. The left column highlights focus areas in our business strategy, while the middle column shows high impact areas according to the materiality assessment. The right column shows the UN Sustainability Development Goals we believe BioMar can deliver upon.

# SUSTAINABILITY IN BIOMAR

## Sustainability in BioMar

According to the World Council for Economic Development (WCED), sustainable development means development that “meets the needs of the present without compromising the ability of future generations to meet their own needs”.

According to research, firms that are more sustainable have been shown to attract and retain employees more easily, as well as experience less financial and reputational risk. These firms are also more innovative and adaptive to their environments.

Business sustainability is often defined as managing financial, social and environmental risks, as well as obligations and opportunities. A more robust definition is that business sustainability represents resilience over time, creating economic value and contributing to healthy ecosystems and strong communities – in good times and in bad times. Sustainability is an important pillar in the strategy that BioMar is currently rolling out.

Business sustainability requires BioMar to adhere to the principles of sustainable development. For BioMar, this means addressing important issues at the macro level, such as economic efficiency (innovation, prosperity and productivity), social equity (poverty, community, health and wellness, and human rights) and environmental accountability (climate change, land use and biodiversity).

BioMar wants to be an industry leader in business sustainability and best practice. Fostering this development in BioMar includes policies and codes of conduct, materiality assessment and stakeholder engagement, environmental management systems and eco-efficiency analysis, and transparency through reporting and disclosure.

## Sustainability Management

The BioMar Executive Committee defines the overall sustainability focus and strategy. Besides ensuring the sustainability commitment in the BioMar Group, the Executive Committee (EC) also decides on the proper communication channels regarding the company’s sustainability reporting and disclosure.

The Sustainability Operational Committee (SOC) assesses relevance and significance of different standards and analyses, as well as evaluates and approves raw materials of concern for the BioMar Group. The SOC is led and facilitated by the Global Sustainability Director and staffed with key personnel depending on issues that arise. The Global Sustainability Director reports directly to the EC.

The decision-making SOC will take on operational targets regarding sustainability, define indicators and key projects, and select content for sustainability communication and reporting. The SOC will decide on issues and proposals from the sustainability team. Besides preparing for the SOC, the sustainability team will work and coordinate sustainability issues daily, as well as carry out sustainability risk assessments and other types of sustainability reporting.

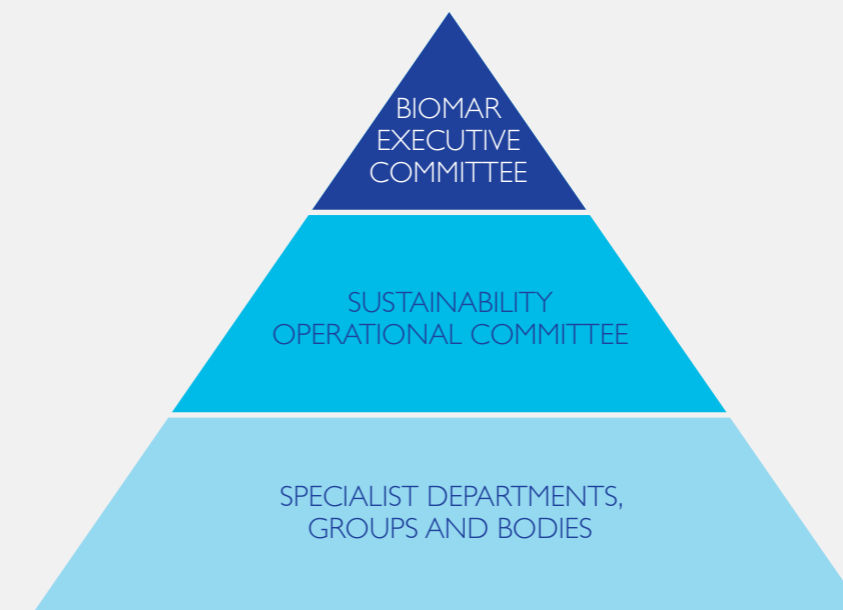


Figure 9. Decision pyramid for sustainability issues indicating strategic, tactical and operational levels of execution regarding our sustainability management and organisation.

# BioMar Sustainability Commitment

We commit to public transparency of our activities through annual disclosures in accordance with the GRI G4 framework. In addition, an essential part of our sustainability programme is to minimize sustainability risks and support value chain sustainability ventures by means of BioSustain™.

BioMar's products and services seek to improve four essential aspects in aquaculture production: fish health, growth performance, production economy, and environmental impact.

We work to optimise and strengthen sustainability in these four areas through our sustainability concept and improvement programme known as BioSustain™ (see p. 58). Our sustainability commitment includes continual improvement in our activities through:



# Corporate Policies

BioMar is committed to ensure high standards of corporate responsibility. Part of our role as a multinational company, which sources raw materials in the global market, is to ensure that we, along with our suppliers, meet the standards detailed in our Code of Conduct (COC) and applicable policies

BioMar acknowledges that a sustainable business must be built upon certain ethics like ensuring the fundamental rights of human beings amongst other. Our COC is essential to the way we drive our business and in which we require employees and business partners to comply with overall standards and provisions.

Failure to comply with the principles set forth in our policies will result in corrective measures and, in worst case, contract cancellation. Fundamental to accepting our policies is the understanding that a business, in all of its activities, must operate in full compliance with the laws, rules and regulations of the countries in which it operates, including, but not restricted to, labour and environmental issues.

The most relevant Corporate Policies may be downloaded from our website [www.biomar.com](http://www.biomar.com)

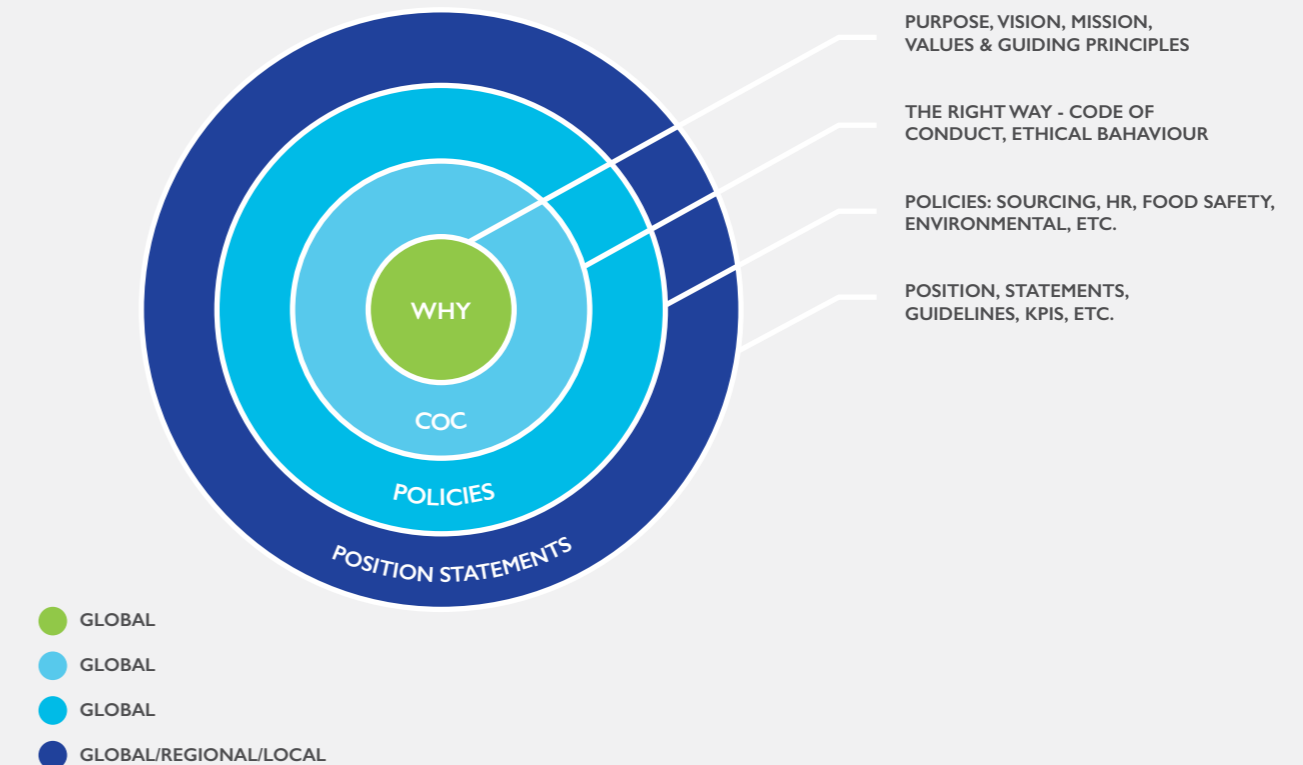


Figure 10. Illustration of corporate policies in BioMar, emanating from global core statutes, code of conducts and high impact policies to more market driven position statements.

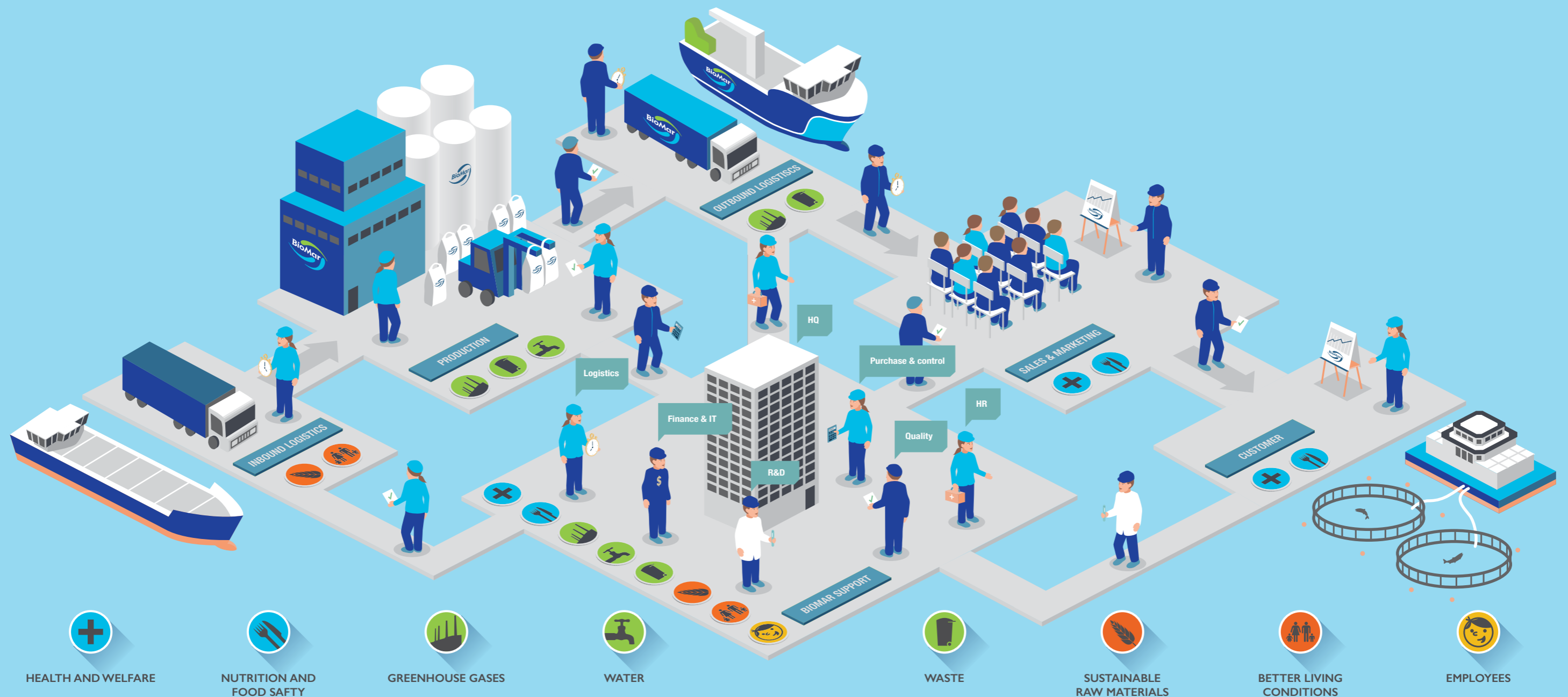
# ‘Putting Our House in Order’

BioMar is environmentally conscious and continuously focuses on reducing the environmental impact in fish feed manufacturing. We have ambitious requirements and improvement targets covering all departments and operations, and all BioMar factories have modern production facilities that meet high standards for environmentally friendly production.

Furthermore, BioMar has developed and improved its product ranges over the years to reduce the environmental impact of fish farming. This happens through focusing on sustainability throughout our internal value chain (Figure 11). It all starts with responsible sourcing. The next step is the development and production of feed, with a focus on developing high quality and

efficient feed types, in which nutrients are utilised for growth, rather than lost to the environment. Reliable packaging and responsible transport to customers reflect our focus on sustainability. In addition, BioMar offers services to improve sustainability throughout the value chain.

Figure 11. The internal value chain of BioMar, according to traditional organisational thinking (care and support processes), showing departmental focus areas indicated by icons related to the company's KPIs, as elaborated on page 64-65.



# BioSustain™

BioMar has developed a concept and framework for adapting and promoting sustainability called BioSustain™. The BioSustain™ concept consists of three controls and optimisation levels, located at the top of the official regulatory requirements, which constitute what is referred to as the BioSustain pyramid. The early development of a tool to measure and evaluate the sustainability of raw materials and processes in our production of fish feed has been further developed to measure and evaluate sustainability throughout the entire value chain. This tool is illustrated at the top level of the BioSustain pyramid.

For a better overview and for communication purposes, we have visualized the concept and framework of BioSustain™ as shown in Figure 13. The levels are described in detail and explain the structure of the pyramid. Framework essentials are seen as

satellites around the pyramid in Figure 14. These are our Corporate Policies, our eco-efficiency analysis tool, our communication platform and the Sustainable Solution Steering, which all add validity to our approach.

Figure 12. Developing history of BioSustain: the pie chart illustrates the average feed recipe and the shift from a high dependency of marine raw materials (blue) to a smarter use of these limited raw materials due to sustainability optimization

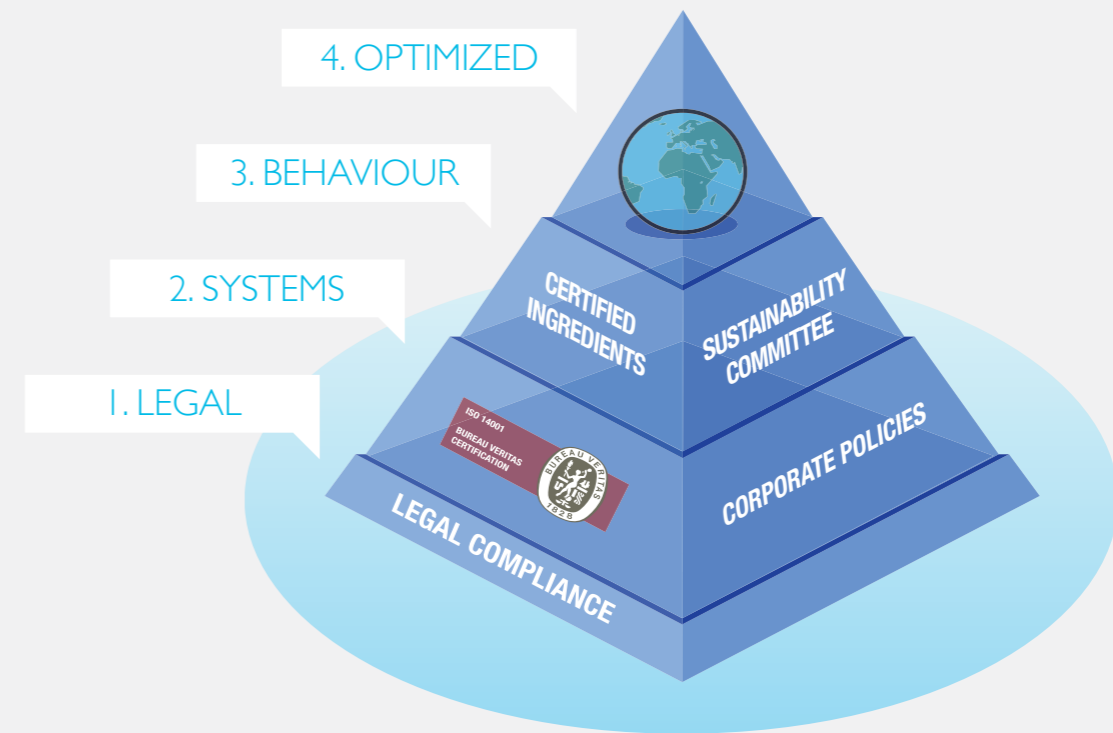
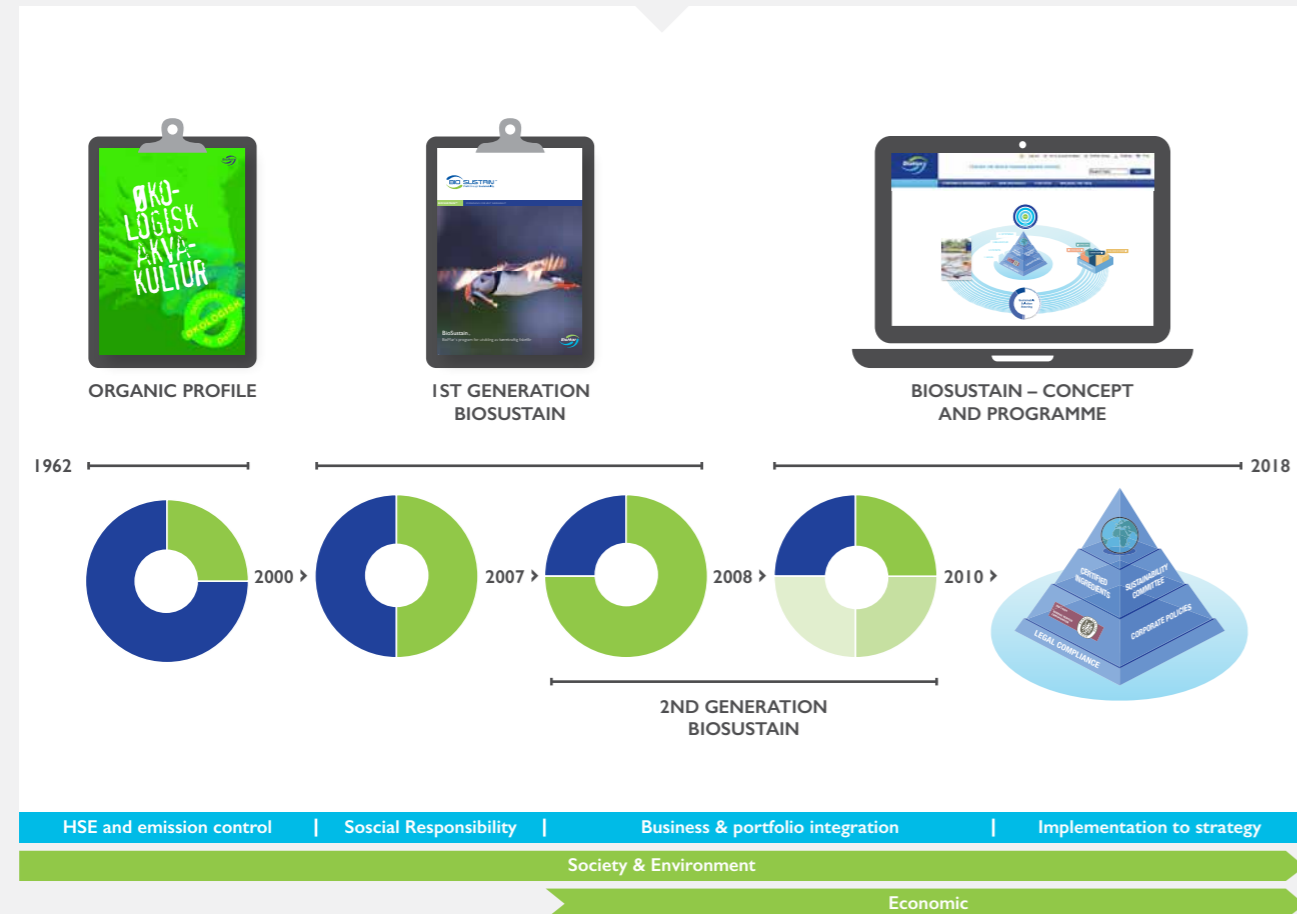


Figure 13. The structure of the BioSustain pyramid and explanatory text to each level. The BioSustain concept comprises three control and optimization levels on top of the official regulatory requirements, making up the BioSustain pyramid.

## 1. LEGAL PREREQUISITES

All our activities build on regional, national and international provisions, legislation and regulations. We ensure high standards for social responsibility. As part of our Corporate Policies, both BioMar and our suppliers must comply with laws, rules and legislation in the countries in which we and they operate.

## 2. SYSTEMS

To ensure that our guidelines and intentions are planned, complied with and verifiable, we have implemented a number of standards and certified management systems with improvement programmes. These include ISO standards, as well as a focus on quality management, environmental management and food product safety.

## 3. BEHAVIOUR

Since we primarily deal with raw materials, we carefully follow conditions and topics associated with the use and purchase of raw materials. Conditions that may have consequences for our business demand that we have a good overview and a swift response time. Knowing and participating in a number of certification arrangements and control bodies support us in the monitoring and quality assurance of suppliers and raw materials. The BioMar Sustainability Operational Committee carries out final approvals of ingredients of concern.

## 4. OPTIMIZED SUSTAINABILITY

BioSustain contains tools for measuring sustainability along the value chain, making it possible to improve sustainability by optimizing the feed, aquaculture, processing and transport to market. The tool is based on an eco-efficiency methodology and compares process lifecycles from “the cradle to the grave”.

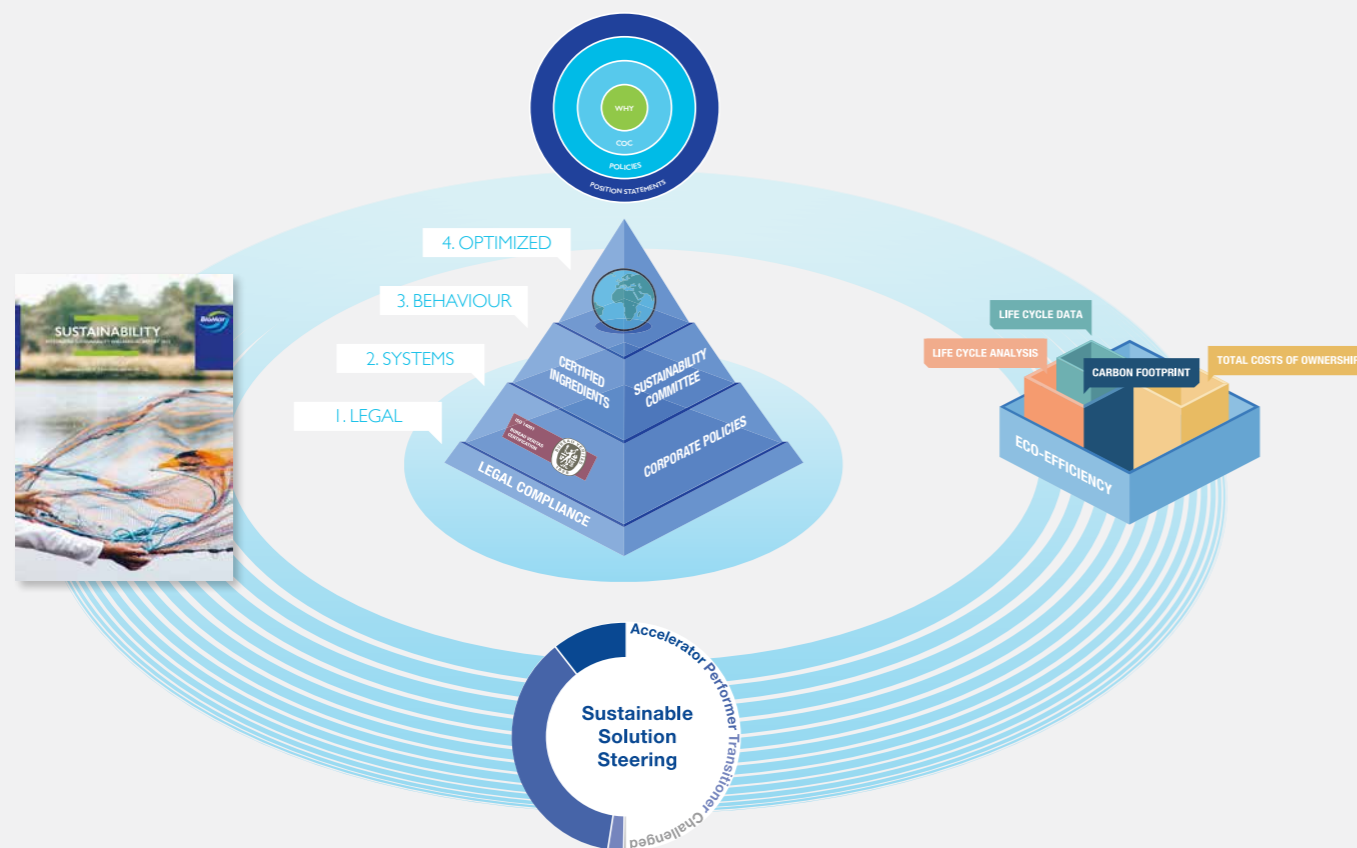
# Global Sustainability Portal

To best communicate with stakeholders, we have created a global sustainability portal, in which we present our sustainability concept and sustainability practices in a more systematic manner. The portal provides the latest insights, as well as global and local enterprises, while adding transparency to our activities.

The portal which is now merged into our new and updated web solution is intended to communicate both general and specific information related to our sustainability commitment. Our core policies, main challenges, stakeholder engagement and KPIs are among the topics that are presented via the portal.

Raw material provisions and feed-related tools and concepts are also described, as well as several examples of “walking the talk” in terms of business cases and initiatives.

For more information, please visit our global sustainability portal [www.biosustain.world](http://www.biosustain.world).



## CORPORATE RESPONSIBILITY

Specific guidelines to ensure that our suppliers working partners and we ourselves fulfil ethical requirements and preconditions for a sustainable future.

## COMMUNICATIONS

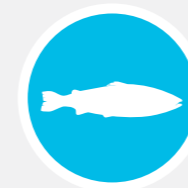
Our Global Sustainability Portal and Group Sustainability Report are our platforms in communicating on sustainability issues.

## TOOLS

We use reliable and verifiable criteria to assess the environmental impact and consequences of the choices we make.

# Areas of Emphasis

Fish feed consists of many complex recipes addressing various tasks and challenges throughout the lifetime of fish. Strengthening the immune system, rehabilitation from illness, optimizing fish health, promoting appetite, and promoting growth are some of the desired effects of different feeding strategies. Fish feed also traditionally counts for about 80% of the material and energy inputs required for raising fish. Feed is therefore the main determining factor for the sustainability of the whole process, from raw materials to fish health/welfare, and further downstream to food safety and quality at the dinner table.



## HEALTH AND QUALITY

Increased consumption of fish is an important contribution to improving public health worldwide. Our feed recipes play a crucial role in the nutritional content of fish, along with health and quality.



## ENVIRONMENT

We seek to increase our own sustainability through responsible sourcing and by minimising emissions while still increasing production at the same time. We aim to promote increased use of bio-functional feed, such as our SMARTfeed, which increases feed uptake and thereby reduces emissions from aquaculture systems.



## SOCIETY

BioMar is strongly involved in the local communities in which we are present, with the aim to improve living conditions through cultural, social and educational activities. Through judicious selection, purchasing and auditing of suppliers, we also ensure that our suppliers act responsibly towards local communities in the countries where we source raw materials.

Figure 14. The BioSustain™ concept and framework, illustrated by the concept pyramid with essential elements highlighted as surrounding satellites.

# DELIVERING ON AMBITIONS





# Our Sustainability KPIs

As a responsible global player, BioMar has identified several global KPIs in accordance with our materiality assessment. With these challenging metrics and goals, we seek to strengthen the sustainable development of our activities and improve the sustainability of the aquaculture value chain.

	HEALTH AND QUALITY		ENVIRONMENT	
	<b>HEALTH AND WELFARE</b>	<b>NUTRITION AND FOOD SAFETY</b>	<b>GREENHOUSE GASSES</b>	<b>WATER</b>
<b>OVERALL KPI</b>	Our health and functional feeds, SMARTfeed™, to be the global brand for functional feeds by 2020	All our products shall be risk assessed, comply with governmental regulations and traceable back to source of origin	We aim to reduce emissions of greenhouse gasses*	We aim to reduce the consumption of drinking quality fresh water in production*
<b>SPECIFIC KPI</b>	Above 80 % recognition of SmartFeed among fish farmers in target markets by 2020		20% reduction per kg feed by 2020**	10% reduction by 2020*
<b>2017</b>	RESTRUCTURE	100%	54 KG/TONNE 89%	USE: 0.55 M <sup>3</sup> /TONNE -8%
<b>2016</b>	WILL BE REVISED	100%	61 KG/TONNE 100%	USE: 0.55 M <sup>3</sup> /TONNE -8%
<b>2015</b>	N/A	100%	57 KG/TONNE 93%	USE: 0.6 M <sup>3</sup> /TONNE
<b>2014</b>	N/A	100%	58 KG/TONNE 95%	N/A

	ENVIRONMENT					SOCIETY		
	<b>WASTE</b>	<b>SUSTAINABLE RAW MATERIALS</b>	<b>BETTER LIVING CONDITIONS</b>	<b>EMPLOYEES</b>				
<b>OVERALL KPI</b>	We intend to assess waste generated from our worldwide manufacturing, both from primary waste from production and secondary waste from packaging and maintenance, and create a program for reduction, and ultimately reuse, recycle and recover (3R)	We will use sustainable raw materials and continuously increase certification level of key raw materials	We aim to aid community and development projects in our geographic area of sourcing	We aim to ensure that all employees get regular feedback on their performance and have a plan to develop essential capabilities.				
<b>SPECIFIC KPI</b>	100% 3R by 2020	FISH MEAL: 70% certified by 2020 FISH OIL: 70% certified by 2020 KRILL: 100% MSC certified by 2015 SOY PROTEIN: 100% certified by 2020 PALM OIL: 100% certified by 2020	Framework ready by 2017	90% of all positions are described by responsibilities and competence requirements, by 2017 <sup>1</sup> 90% of all employees have taken part in a Performance and Development Dialogue within last 12 months, by 2017 <sup>1</sup>				
<b>2017</b>	>99%	89% 81% 100% 82% 100%	IN PROGRESS	77% 76%				
<b>2016</b>	99.6%	81% 70% 100% 78% 63%	WILL BE REVISED	69% 59%				
<b>2015</b>	99.6%	92% 86% 100% 80% 84%	ONGOING	21% 31%				
<b>2014</b>	N/A	93% 76% 100% 71% 90%	ONGOING	N/A 14%				

BENCHMARK/BASELINE: 2014\* | 2016\*\* (RESET DUE TO COMPANY EXPANSION)

1) China excluded | 2) Certification schemes: IFFO RS, MSC or equivalent | 3) Certification scheme: ProTerra, RTRS or equivalent |

4) Certification schemes: RSPO, GreenPalm or equivalent | 5) KPIs not set to 100% as new employees are continuously employed by the company.



# Health and Quality

By 2020, through our feed, we want to contribute more than seven billion meals (as a 200-gram serving) to the world on an annual basis. Meanwhile, we contributed to about 4.5 billion healthy meals in 2017.

### Health and Welfare

Feed can be fortified with specific ingredients which not only aid with the health and welfare of farmed fish and crustaceans but can increase the nutrient value of the end-product.

BioMar created SMARTfeed with the primary focus on health-related issues in aquaculture. These functional feeds use natural ingredients rather than medicine and vaccinations to prevent health issues from occurring.

We believe these feeds play an important role in reducing the use of antibiotics and medication so we are currently redesigning our portfolio for relaunch in 2018.

### Nutrition and Food Safety

Feed selection and feed regime have the highest significance in relation to the feed conversion ratio (FCR). Choice and allocation of feed, with respect to the potential yields for the fish throughout the year, and with respect to local conditions, are active steps that need to be taken to increase fish production. FCR is of crucial significance to the feed cost (FCR x feed price) for fish farming. FCR is an indicator of feed utilisation and will therefore have a strong influence on emissions from fish farming. Higher feed quality provides better feed efficiency.

High nutritional value, a balanced composition and healthy ingredients are the most important factors in feeding fish. The dynamic nature of aquaculture necessitates a focus on continual improvement. The BioMar R&D program is constantly generating new knowledge

and developing new raw materials for feed. The R&D program is buoyed by our quality assurance system that ensures that feed is safe and reliable and can be reliably traced back to the source of origin of its nutrients.

We consider food safety to be one of our most important tasks and strive to reach the highest possible security with regards to food safety. As such, we impose strict internal procedures for all processes at every one of our facilities and apply a level of control that often exceeds official requirements. We fully assess our product portfolio on a global level. In 2017, we found no major health and safety impacts, nor identified any non-compliance with regulations and voluntary codes.

Please find our Food Safety Policy at [www.biosustain.world](http://www.biosustain.world).

MANUFACTURING UNIT	ISO 9001	ISO 14001	ISO 22000	GLOBAL G.A.P.	OTHER	PRODUCTION VOLUME (TONNES)	APPROVED SUPPLIERS
MYRE (NO)	✓	✓	✓	✓		296 593	23%
KARMØY (NO)	✓	✓	✓	✓		202 087	16%
GRANGEMOUTH (UK)	✓	✓	✓	✓	ISO 50001	116 068	9%
BRANDE (DK)	✓		✓	✓		123 265	9%
NERSAC (FR)			✓	✓		45 526	4%
DUENAS (ES)	✓	✓	✓	✓		46 354	4%
VOLOS (GR)	✓	✓	✓	✓		48 074	4%
COSTA RICA - JV	✓			✓		35 238	3%
CASTRO (CH)	✓	✓	✓	✓		57 996	4%
PARGUA (CH)	✓	✓	✓	✓	BAP, OHSAS 18001	122 514	9%
PARGUA - JV (CH)	✓	✓	✓	✓		99 000	8%
SOKÉ - JV (TU)				✓		25 558	2%
ALIMENTSA - JV (EC)*	✓			✓	BAP	80 609	6%
BIOMAR GROUP FACTORY CERTIFICATION SHARE	92%	67%	83%	100%		1 298 882 (incl. complimentary reporting)	100%

Table 9. The table reveals certification schemes in BioMar manufacturing in 2017, along with unit production volume and the number of approved suppliers to manufacturing units. The number do not reflect sold volume. \*Complimentary reporting - no ownership majority through year.



# Supplier Approval, Audit and Traceability

The Supplier Approval, Audit and Traceability (SAAT) team is responsible for overall approval and auditing, as well as to ensure traceability of common raw materials and suppliers to BioMar divisions. This is done in close cooperation with the local purchasing departments. All suppliers are approved before raw materials are contracted and purchased in the BioMar Group for commercial use. Approval status may vary among BioMar companies. The SAAT is responsible for setting the minimum standard for raw material suppliers to BioMar, based on the BioMar COC and resolutions made by the Sustainability Operational Committee, in agreement with the BioMar Sourcing Policy. Audits are an important control mechanism for this group. The Global Sourcing Director and SAAT team leader reports directly to the Executive Committee, which decides upon minimum standard approvals. Raw material transportation is part of the SAAT supplier approval system.

Raw material suppliers in the SAAT mandate includes producers and traders within the following categories:



Questionnaires and audit forms are the main tools for getting information from the raw material suppliers. SAAT is responsible for continuous updating of the supplier database and the SAAT members, in regular meetings, handle implementation.



Figure 15. The figure discloses approved suppliers according to the country of raw material origin (shaded areas) and on-site audits (pins) by our global SAAT team from 2014-2017 (both first time approvals/audits and reapprovals/reaudits).

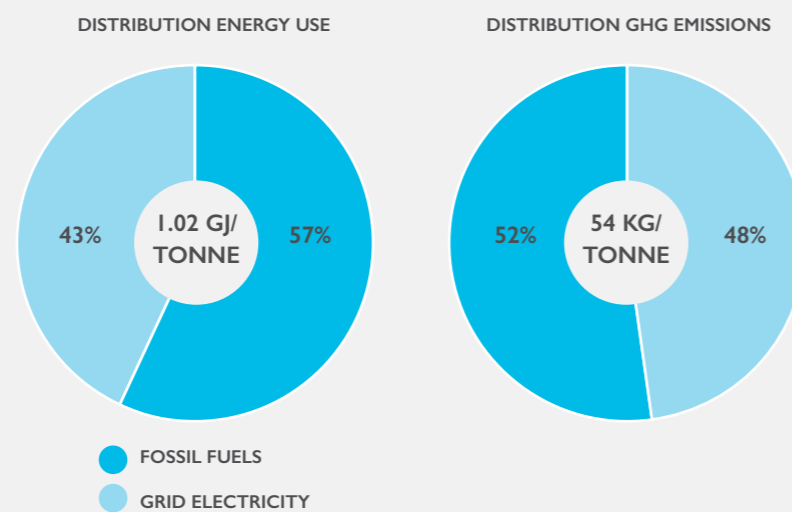


# Environment

## ENERGY MANAGEMENT AND GREENHOUSE GASES

The average temperature of the Earth's atmosphere and oceans indicates global warming. Eleven out of the past 12 years are among the warmest since 1850. During the past 50 years, the warming has taken place twice as fast as during the preceding 50. The average global temperature increased by 0.74 °C during the course of the 20th century. This, in and of itself, does not seem spectacular, but the effects are significant both on land and in the oceans.

The carbon footprint (CF) represents the direct environmental impact of our actions in the form of carbon dioxide emissions. We all have a moral and social responsibility to reduce our own emissions of carbon. A reduction of carbon emissions is one of the most important concepts involved in mitigating global warming and climate changes.



THROUGH AMBITIOUS TARGETS,  
WE AIM TO MINIMISE OUR  
ENVIRONMENTAL FOOTPRINT.

ENERGY & GHG EMISSIONS	BIOMAR GROUP	SALMON DIVISION	EMEA DIVISION	EMERGING MARKETS
Total energy use (GJ)	1,212,145	808,527	357,611	46,007
Fossil fuels (GJ)	696,029	474,577	196,811	24,641
Electricity (GJ)	516,117	333,950	160,800	21,366
<b>TOTAL ENERGY PER TONNE OF FEED (GJ)</b>	<b>1.02</b>	<b>0.91</b>	<b>1.25</b>	<b>1.30</b>
Total GHG emissions (kg CO <sub>2</sub> )	65,390,653	44,387,369	18,931,409	2,071,874
<b>TOTAL GHG EMISSIONS PER TONNE OF FEED (KG CO<sub>2</sub>)</b>	<b>54</b>	<b>50</b>	<b>66</b>	<b>59</b>

Table 10. The table discloses direct energy use in gigajoule (GJ) and direct greenhouse gas (GHG) emissions in kg CO<sub>2</sub> equivalents from fossil fuels and grid electricity by BioMar manufacturing in 2017.



# Water

Globally, drinking water is a very scarce but vital resource. Even though this is not a problem in most areas where BioMar operates, we do affect the consumption of this scarce resource by purchasing raw materials that are responsible for considerable water consumption in the countries of origin. These countries are often in areas where water shortage is critical. We address this by sourcing raw materials with respect to international guidelines and certification schemes, in which responsible use of water has a high priority.

Water is used in almost all food manufacturing processes. The "water footprint" of a product is the quantity of water used in their production. A water footprint is made up of three types of water consumption known as blue, green and grey water footprints. The green water footprint is the volume of rainwater stored in soil that evaporates through crop growth. The blue water footprint is the volume of freshwater taken from surface layers (lakes, rivers, reservoirs), while groundwater (aquifers) is used and not returned to the system it was withdrawn from. The largest share of global blue water footprint occurs in crop fields as a result of evaporation of irrigation water. The grey-water footprint is the volume of water polluted as a result of production processes (industrial and agricultural) and wastewater from household water use. It is the volume of water required to dilute pollutants to such an extent that the water quality reaches acceptable levels.

([http://www.panda.org/about\\_our\\_earth/all\\_publications/living\\_planet\\_report/](http://www.panda.org/about_our_earth/all_publications/living_planet_report/)).



WATER USE PER  
TONNE FEED:  
**0.55 M3**

# Waste Management

As the world hurtles toward its urban future, the amount of municipal solid waste (MSW), one of the most important by-products of an urban lifestyle, is growing even faster than the rate of urbanization. In 2002, there were 2.9 billion urban residents who generated about 0.64 kg of MSW per person per day (0.68 billion tonnes per year). A decade later, these amounts increased to about three billion residents generating 1.2 kg per person per day (1.3 billion tonnes per year). By 2025, this will likely increase to 4.3 billion urban residents generating about 1.42 kg per person per day of MSW aggregating to 2.2 billion tonnes per year (World Bank, 2012).

As a part of life cycle thinking, BioMar supports the waste hierarchy view. The five stages of the hierarchy, ranking from the most favoured prevention via the three Rs (reuse, recycle and recover) to the disposal of waste, are implemented as part of the quality management system at all BioMar manufacturing plants, as well as covered in the ISO 14001 standard.



REUSED OR  
RECYCLED  
PACKAGING  
WASTE:  
**>99%**



# Sustainable Raw Materials



BioMar are using responsibly sourced raw materials that can be traced back to their source of origin.

BioMar makes ongoing assessments of precisely which purchasing criteria are necessary to ensure and document that raw materials associated with special sustainability issues are responsibly sourced. Purchases of marine raw materials, soybean and palm products are subject to specific requirements. BioMar keeps track of the percentage of marine raw material deliveries originating from FAO COC approved fisheries, for example, IFFO RS, MSC or equivalent. BioMar keeps track of the percentage of marine raw material deliveries originating from FAO COC approved fisheries, for example, IFFO RS, MSC or equivalent.

BioMar buys exclusively deforestation-free soybean and palm products. We also endeavour, as far as possible, to utilize by-product raw materials in our feed production

### Compliance with Sourcing Policy

BioMar Group Sourcing is a centralised organization for the sourcing and purchasing of raw materials for BioMar. Although additional requirements may apply for some markets, BioMar Group Sourcing operates according to the following minimum standards:

CRITERIA	GOAL	COMPLIANCE	NOTES
LEGAL	100%	100%	National and international regulations
TRACEABLE	100%	100%	Full traceability through supply chain
CREDIBILITY: IFFO RS Zero deforestation RTRS RSPO	KPI	On track (Soy) (Palm oil)	Board member Related to soya and palm Supporting member Supporting member
SAAT APPROVAL	100%	100%	Details on page 64
RM SPECIFICATION	100%	100%	SAAT
R&D TESTED	100%	100%	Nutritional and technical
COMPLIANCE TO POLICY	100%	100%	

Table 11. BioMar sourcing policy's minimum criteria to which suppliers and raw materials must comply and perform.

RAW MATERIALS (RMs)	SHARE OF CERTIFIED MATERIALS	CERTIFICATION SCHEMES
FISH MEAL	89%	IFFO RS or equivalent
FISH OIL	81%	IFFO RS or equivalent
KRILL MEAL	100%	MSC
SOY	82%	RTRS, ProTerra or equivalent
PALM OIL	100%	RSPO, Green Palm or equivalent

Table 12. The table discloses certification in percentage terms of key raw materials used in BioMar fish feed in 2017.

## FISHMEAL

SPECIES	VOLUME (MT)	SHARE
Blue whiting	65 204	30,8 %
Sardine	34 742	16,4 %
Trimmings	32 471	15,3 %
Anchoveta	20 482	9,7 %
Lesser sand-eel	19 493	9,2 %
Krill	19 408	9,2 %
Sprat	6 434	3,0 %
Capelin	6 219	2,9 %
Menhaden	4 237	2,0 %
Norway pout	1 866	0,9 %
Other	1 197	0,6 %
TOTAL	211 752	100,0 %
IFFO RS	180 402	85,2 %
ASC compliant	171 771	81,1 %

## FISH OIL

SPECIES	VOLUME (MT)	SHARE
Trimmings	35 314	33,8 %
Anchoveta	18 437	17,7 %
Sardine	13 384	12,8 %
Lesser sand-eel	7 258	7,0 %
Sprat	6 714	6,4 %
Pollock	5 849	5,6 %
Anchovy	5 791	5,5 %
Blue whiting	5 509	5,3 %
Capelin	1 821	1,7 %
Hake	1 253	1,2 %
Norway pout	1 132	1,1 %
Herring	977	0,9 %
Other	960	0,9 %
TOTAL	104 400	100,0 %
IFFO RS	78 582	75,3 %
ASC compliant	84 217	80,7 %

Table 13. Fish species in fishmeal and fish oil used by BioMar in 2017 are disclosed in the below tables in descending order, according to volume (metric tonnes). Share of IFFO RS- and ASC-compliant material is also shown.

### DISTRIBUTION OF RAW MATERIAL CONSUMPTION

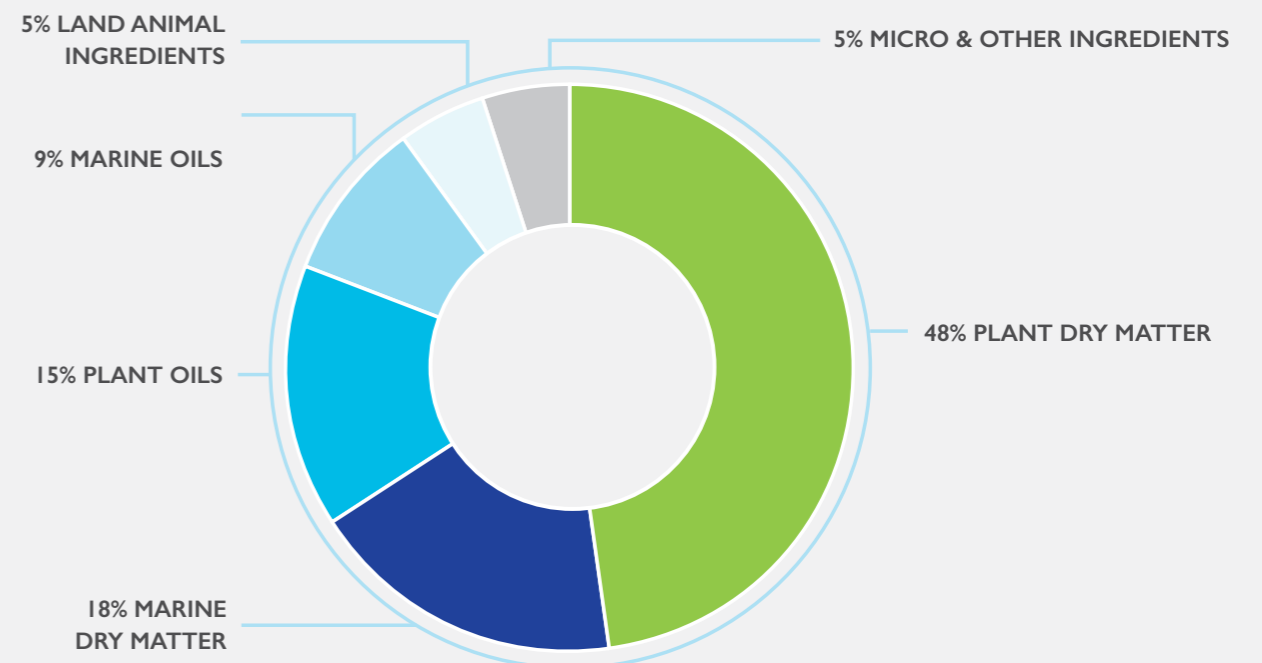


Figure 16. Distribution of the major nutritional contributors making up the BioMar Group's total feed recipe of 2017.



# Portfolio Steering and Impact Assessment



For almost a decade BioMar has had a strategic partnership with BASF on corporate sustainability and in creating and driving more sustainable solutions. Sustainability is an integral part of BioMar's corporate strategy and a tangible example of how BioMar carries out our company purpose are the Sustainable Solution Steering® method and the environmental impact assessment tool Eco-Efficiency Manager. Both these methodologies have been developed by BASF to analyse, assess and steer product portfolios based on defined sustainability criteria.

## BioMar applies Sustainable Solution Steering to its business

BioMar applies BASF's Sustainable Solution Steering methodology to its raw material and ingredient supply side. BioMar strives to be the sustainability leader in the industry and this method supports us with a comprehensive and systematic tool that grants transparency and documentation from raw material to end-product application. Sustainability in the aquaculture industry really starts with the feed and its raw materials and Sustainable Solution Steering helps to foster the use of more sustainable raw materials in feed recipes, thereby promoting more sustainably produced aquaculture and seafood.

It considers the entire value chain and markets including industry- and region-specific views. The approach reflects economic, ecological and social aspects of the products and solutions in their respective application. The methodology was adapted for the aquaculture feed industry by thinkstep, a consulting company. Thinkstep has been supporting companies in all industries to customize and implement this approach – using a combination of consultancy, sustainability data and software tools.

Sustainable Solution Steering method systematically reveals risks and opportunities along the entire value chain and enables the strategic steering of a product portfolio towards greater sustainability and revenue growth.

## Environmental Impact Assessment

An environmental impact assessment (EIA) is a systematic process of identifying consequences of a current or proposed action. It shows transparency, practicability, flexibility, cost-effectiveness, credibility and accountability. Based on life cycle analysis and eco-efficiency methodology, BioMar has jointly developed with BASF a dynamic tool for the aquaculture value chain to measure, optimise and document environmental impacts. We use this tool (Eco-Efficiency Manager), both strategically and in terms of accountability, to document impacts to improve our business, as well as provide a service to our customers to help them improve their business. The Eco-Efficiency system has become a sought-after support tool for customers seeking EIA documentation for certification purposes.

## Global warming potential

The global warming potential caused by climate gases, commonly referred to as the Carbon Footprint (CF), is expressed as CO<sub>2</sub> equivalents per tonne of produced feed. The CF of the average BioMar Group feed, based on the overall raw material and energy use, was 1,619 tonnes of CO<sub>2</sub> per tonne of feed produced (Fig. 17).

## Fish in: fish out

The fish in: fish out (FIFO) ratio indicates the overall quantity of wild caught fish used per quantity of cultured fish produced. According to the ASC standards, this measure is referred to as the forage fish dependency ratio (FFDR) and should be calculated for both FM and FO, using the inclusion levels of marine meals and marine oils in the feed recipe, multiplied by the feed conversion ratio and divided by their corresponding contribution factors.

Source formula can be found here: [http://www.asc-aqua.org/lupload/ASC%20Salmon%20Standard\\_v1.0.pdf](http://www.asc-aqua.org/lupload/ASC%20Salmon%20Standard_v1.0.pdf)

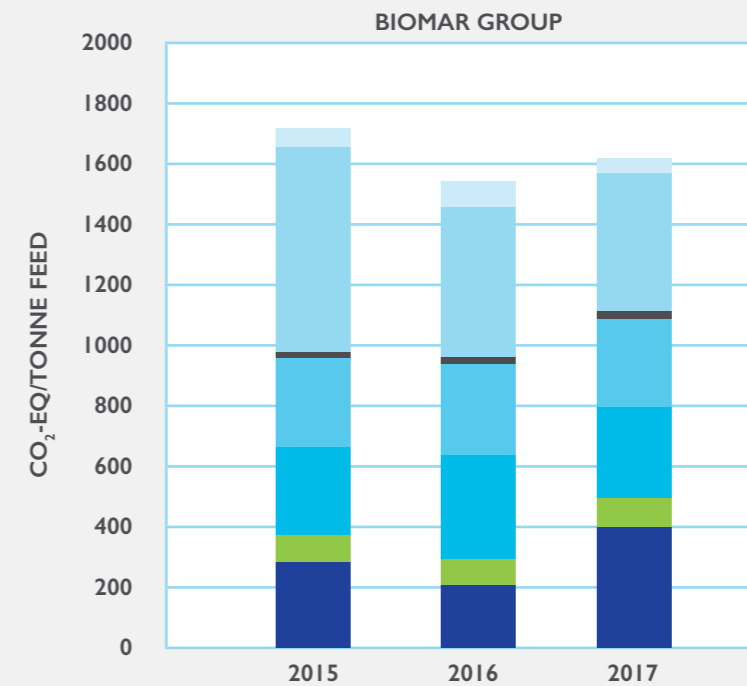


Figure 17. The overall annual Carbon Footprint per tonne of feed produced in BioMar Group from 2015 to 2017.

- INGREDIENT TRANSPORT & FEED PRODUCTION
- MICRO INGREDIENTS
- LAND ANIMAL INGREDIENTS
- PLANT OILS
- PLANT DRY MATTER
- MARINE OILS
- MARINE DRY MATTER

BIOMAR GROUP	2015	2016	2017
FFDR (fishmeal)	0.68	0.58	0.85
FFDR (fish oil)	1.05	0.93	1.05
FIFO	1.05	0.93	1.05

Table 14. FFDR for fishmeal and fish oil based on the overall raw material use in the BioMar Group in 2015, 2016 and 2017. FCR set to 1.0. The highest value indicates the overall FIFO.

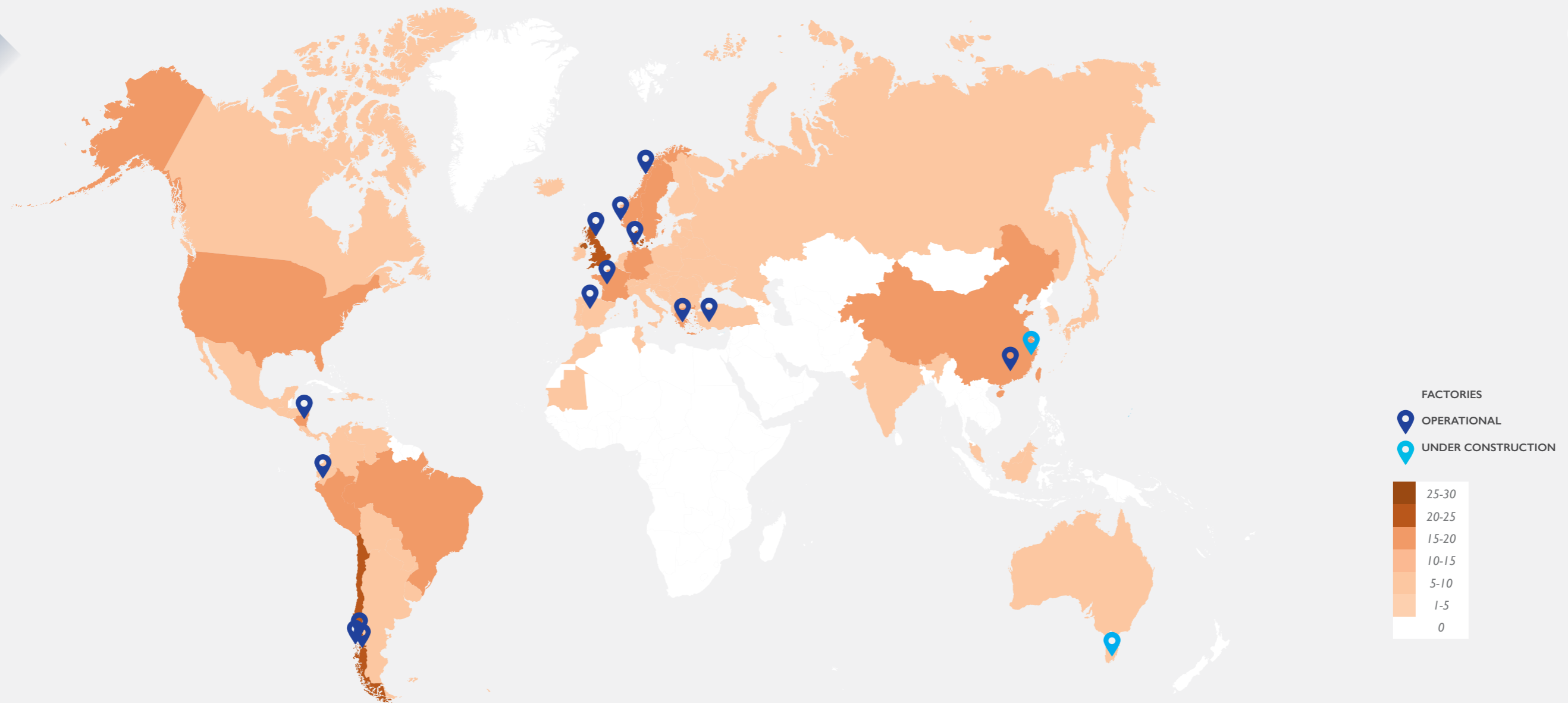


Figure 18. Countries and regions where BioMar operates, both directly in terms of manufacturing (pins) and indirectly in terms of procurement (coloured areas).

## Society

Through active participation in projects, we try to make the greatest possible contribution to improving educational, work and social rights opportunities for local populations in the areas where we operate.

In addition to our responsible sourcing efforts, and commitment to reducing emissions and waste; we also intend to join specific projects targeted at preserving biodiversity and alleviating the impact of climatic changes.

*Read about our efforts and stories in the chapter entitled "Walking the Talk".*

We wish to improve living conditions for many people through the growth of our business and aid community and development projects in our geographic areas of sourcing.



# Employees

In BioMar we live by the philosophy of our owners, that results are created by people. That is why we strive to empower our employees and drive the company by clear objectives. We believe that a strong purpose and employees mastering not only their profession but also innovation, cooperation, sustainability and performance, creates our competitive advantage.

We have during 2017 experienced BioMar growing into being an even more global supplier of feed to the aquaculture industry. While our business unit in Turkey in a short time has gained a solid foothold in one of the most important aquaculture markets in Europe, we have started up the integration of Alimentsa, one of the leading shrimp feed producers in Ecuador; and we are continuing the development of our two JV factories in China. At the same time, we have been consolidating our core markets adding capacity in Norway and strengthening the organization in several other business units. During 2017, our number of staff increased by 27% mainly due to these strategic growth initiatives.

While growing, we strive to bring in new capabilities and develop our existing staff to meet the challenges of tomorrow. We have during the year experienced an impressive employee engagement and dedication, supporting that BioMar continues to be a great place to work and a preferred, innovative cooperation partner within the aquaculture industry.

## The Employee Experience

We are proud to see that our experienced and professional staff stays with us for many years. We acknowledge that employee engagement is an essential business driver and we strive to live our purpose in every aspect of how we are doing business.

In the first months of 2018 we asked all employees how they experience working in BioMar. We measured both general employee engagement as well as the employee experience of our ability to live our purpose. Compared to the results from 2016 we did take a leap jump on employee engagement bringing us in the top category of international companies measuring employee engagement, beating

by far the local benchmarks across our geographies.

The high level of employee engagement is consistent across divisions and we are happy to see that the employees in our recent established and acquired companies are experiencing BioMar Group as a place of work fulfilling their expectations to a good working life as well as the aspirations build into our purpose statement and our desired contribution to the industry.

We did as in previous engagement surveys evaluate general themes such as leadership, remuneration, cooperation and loyalty with a comparison to an external benchmark for employee engagement in the markets where we are operating (GELx). The results in all categories support that we are driving solid practices and that our employees appreciate the way we are running the company.

Furthermore, we did for the second-time measure in our own index, how the employee experiences our ability to live our desired contribution to global aquaculture: Innovation, cooperation, performance and sustainability. The results from this index reflect the same trend as the overall engagement survey.

In general, we experience a very high level of satisfaction and motivation even though we naturally in some areas can track the consequences of organizational changes and the adaption time to new ways of working. We are using a traffic light system to guide our managers and employees in where to focus safeguarding the very high employee engagement that is a prerequisite for our business model. In all areas where we do not experience the desired level of engagement, the manager and the employees are

obliged to define and execute ambitious action plans. In areas where we are doing good or even excellent, manager and employees will be in dialogue on how to can maintain the high employee engagement and make the right incremental changes.

## Diversity

We live by the fact that human diversity contributes to our purpose. Diversity enables us to make better decisions, find solutions to complex problems and exploit new opportunities. Therefore, we are very aware that no glass ceiling should prevent any groups of employees from contributing with their full potential. Furthermore, we keep focus on not discriminating, when remunerating our employees.

When looking at gender diversity in management, we are continuing the positive trend from 2016, where we improved our rate of female employees as well as our rate of female leaders.

This year the number of female leaders at all levels increased from 14% to 19% with the most significant change happening at the middle management level where we have reached a level of 30% female leaders. The number of female leaders at management team level however decreased from 19% to 16%.

Looking at ethnical diversity, we have currently a representation of managers from all main regions represented in our top management. In our local management team, we employ local managing directors and in our global teams we are striving for a high ethnical diversity. Our Executive Committee consists currently of members from Denmark, Norway and Chile. No cases of discrimination have been reported in 2017.

EMPLOYEES	TOTAL	CHANGE FROM 2016	LTI RATE*	ABSENCE (%)*
Salmon Division	705	+62	5.8	2.7
EMEA Division	323	+76	12.8	2.0
Emerging Market Division*	376	+246	0	1.1
Holding & Corporate	26	+5	0	1.3
BioMar Group	1430	+ 389	6.4	2.3

Table 15. BioMar Group employee overview by gender and staff development, as well as LTI and absence, split by regions. \*Non-consolidated companies not included

	2013			2014			2015			2016			2017		
	T	M	W	T	M	W	T	M	W	T	M	W	T	M	W
Production	664	609	55	635	592	61	642	580	62	638	585	53	920	826	94
Administration	302	182	120	340	222	118	335	215	120	345	210	135	510	321	189
Total	966	791	175	993	814	179	977	795	182	983	795	188	1430	1147	283

Table 16. Groups of employees within BioMar: in total (T), men (M) and women (W).

MANAGEMENT LEVEL	FEMALE	MALE
Executive Committee	0%	100%
Head of global functions	14%	86%
MD	0%	100%
Mgt. Team	16%	84%
Middle Management	30%	70%
Team Leaders	6%	94%
Total managers	19%	81%
Total employees	20%	80%

Table 17. Management levels in BioMar and representation by gender.

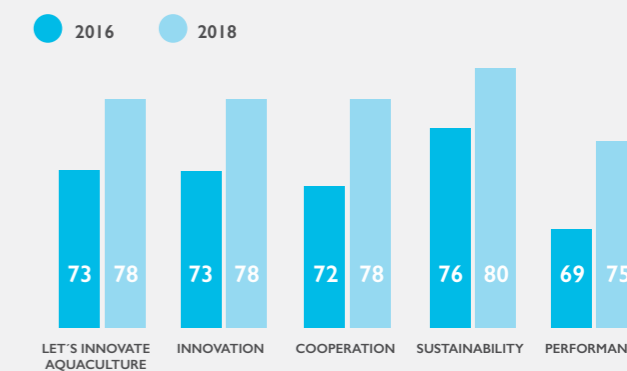


Figure 19. Employee score (0 - 100) of our ability to live the purpose of BioMar.

● BIOMAR GROUP  
● EXTERNAL BENCHMARK (GELx)

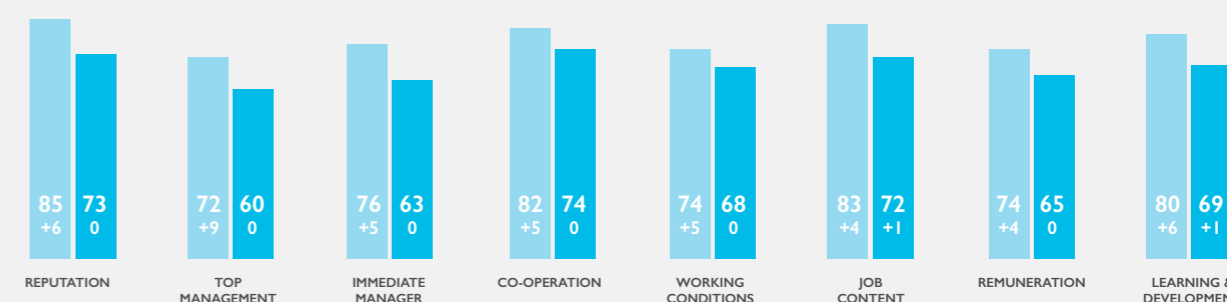


Figure 20. BioMar Engagement Survey. Results from each area is compared to external benchmark (GELx) from countries where we operate.



### Health and Safety First

In BioMar health and safety always comes first. We have during some years experienced a too high accident rate and we have enhanced executive focus supporting manager and employees in creating a cultural change. We could lower our LTI rate from 9.1 in 2016 to 6.4 in 2017. At the same time, we reduced the severity rate from 0.10 to 0.09 in 2017: A rate that has been declining for the last two years

During the year we have worked with management and employees locally to strengthen awareness around health and safety and we have trained employees in supporting the health and safety of themselves and their colleagues. During 2016 we received several prizes for our current work within health and safety and we employed expertise within the field. Now we start seeing the tangible results.

We are following up on all incidents at management level and cross-utilizing our experience of units with zero or very few accidents to support other units. At the same time, we are continuing to implement local initiatives to reinforce safe employee behaviour and evaluate near-miss events to ensure learning and action. In 2018 behavioural initiatives will be initiated to further strengthen management and employee focus.

In general, our employees were in good health during 2017. Our reported absence rate was at 2.3%, which included long-term absence. This is in line with previous years.

### Employee Development

At BioMar, employee development starts the day a new hire enters the company. In 2017 we implemented new guidelines for onboarding reinforcing that every employee takes part in a thorough onboarding process during the first 3-6 month of employment. After the onboarding period the employee will enter our continuous cycle of employee development.

It is our aim that all employees can fulfil the future requirements of their positions and support a high organizational performance. Furthermore, we strive to ensure our employees get the possibility to take part in company endeavors that fit their ambitions, aspiration and abilities.

In BioMar, we are very determined to ensure that we always have adequate human capabilities in place to meet the challenges of tomorrow. Each year, we are evaluating the future need for human capabilities by aligning business objectives with HR objectives through a BioMar methodology called HR Review. After this evaluation each employee is invited to a personal dialogue (PDD) with immediate manager to discuss performance and development.

In 2017, 3 out of 4 employees participated in a formalized dialogue with immediate manager regarding performance and development resulting in a documented personal development plan. This is a significant increase from 2016.

Employees in new country units will be on-boarded in the PDD process as they are integrated into our business processes and we do not distinguish between factory employees and administrative staff. We believe all employees have a need for focus on own development and performance, both because we continuously develop as a company and because each employee will have own aspirations, strengths and challenges that we need to consider throughout the employees working life. In 2018 employees from Turkey will start participating in the HR Review and PDD process.

Our HR processes aim to ensure that the performance and development of our employees always support our customer value proposition and our strategic priorities. At the same time, the processes support the general development and employability of our employees. All employee groups are embraced by our HR processes because we consider

innovation, cooperation, sustainability and performance to be of equal importance in all functional areas of the BioMar Group.

In BioMar we continually strive to make sure our employees experience us as a place where you can unfold your full potential as employee. In the engagement survey our employees confirmed that we are at a very high level when it comes to focus on and opportunities for personal and professional development.

### Global Training

Based upon our business strategy and the HR Reviews, we are initiating training activities at local and global level. At a global level we have during 2017 dedicated attention to focus on business ethics and leadership.

We have in 2017 continued to pay special attention towards developing our leaders to be able to lead with point of departure in our purpose and with an in-depth focus on the continuous employee development and performance management. We have designed our own internal program and will continue to train new leaders during 2018 based on the framework.

Furthermore, we have trained employees and managers in how to transform our ethical principles to daily actions during the launch of our new Code of Conduct and during virtual manager training by external legal advisors. The new Code of Conduct underlines the importance of high ethical behaviour in BioMar and helps employees transform the overall principles to daily work.

In 2018 we will continue our focus on driving a company with high ethical standards through the continuous deployment of our new Code of Conduct as well as through the execution of a global e-learning program in corporate ethics, developed during 2017.

### Responsibility Is in Our DNA

In 2017, we emphasized that Corporate Responsibility is a part of our DNA in BioMar Group. It is one of our commitments to the industry, our environment and the employees.

When taking care of our human footprint, however, we are also looking at the work undertaken by contractors, subcontractors and suppliers. Furthermore, we are engaged in the local communities surrounding our plants to ensure that we can contribute positively to their development.

During 2017 we engaged in developing a new Code of Conduct, targeting employees at all levels and creating the foundations for our external work with suppliers and other stakeholders. In the Code of Conduct we concretize, how employees and managers should integrate the Code of Conduct into their daily life to ensure it is easy to work with at all levels. The Code of Conduct treats upon themes such as human rights, health & safety, environmental care, corruption, fair competition, conflicts of interest, data security, personal data protection, confidentiality etc.

Looking at human rights we have initiated actions internally as well as externally. Internally we are continuing our effort promoting equal pay and equal opportunities. We have also created enhance awareness around unconscious biases during recruitments and other selection processes.

Externally we have as a part of our global sourcing strategy, been emphasizing towards our suppliers around the world that living up to the human rights as described by UN and in our Code of Conduct is a prerequisite to working with BioMar. During 2017 we made a thorough assessment of the risk of violation of human rights in our entire value chain and we have used the assessment to strengthen and focus our awareness when auditing suppliers.



	2013	2014	2015	2016	2017
LTI rate	5.0	7.9	8.5	9.1	6.3
Days lost/employee	0.09	0.13	0.15	0.10	0.09
Absence (%)	2.3	2.6	2.6	2.5	2.3
Fatalities	0	0	0	0	0

Table 18. Lost time injury (LTI) and absence (%) rates in the BioMar Group.

	2013	2014	2015	2016	2017
% of employees with a Job Profile			21%	69%	77%
% of employees with a PDD*	0%	14%	31%	59%	76%
% Employees with a development plan approved this year	Not disclosed	Not disclosed	21%	69%	65%

\*Employees from China, Ecuador and Turkey were not yet included in the process in 2017. Turkey will be included in 2018.

Table 19. In 2017, employees participated in a performance and development dialogue (PDD).

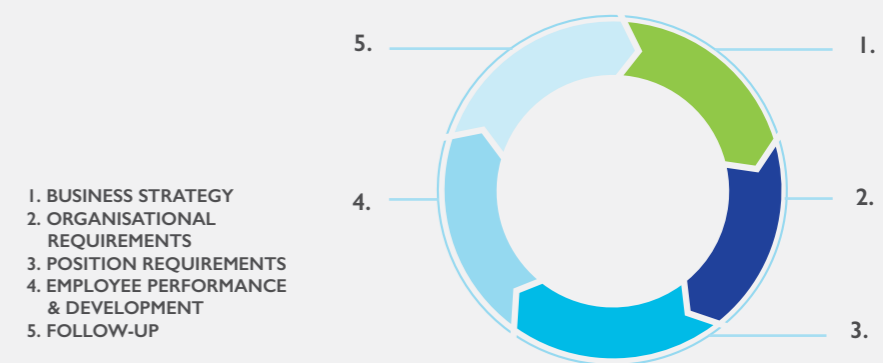


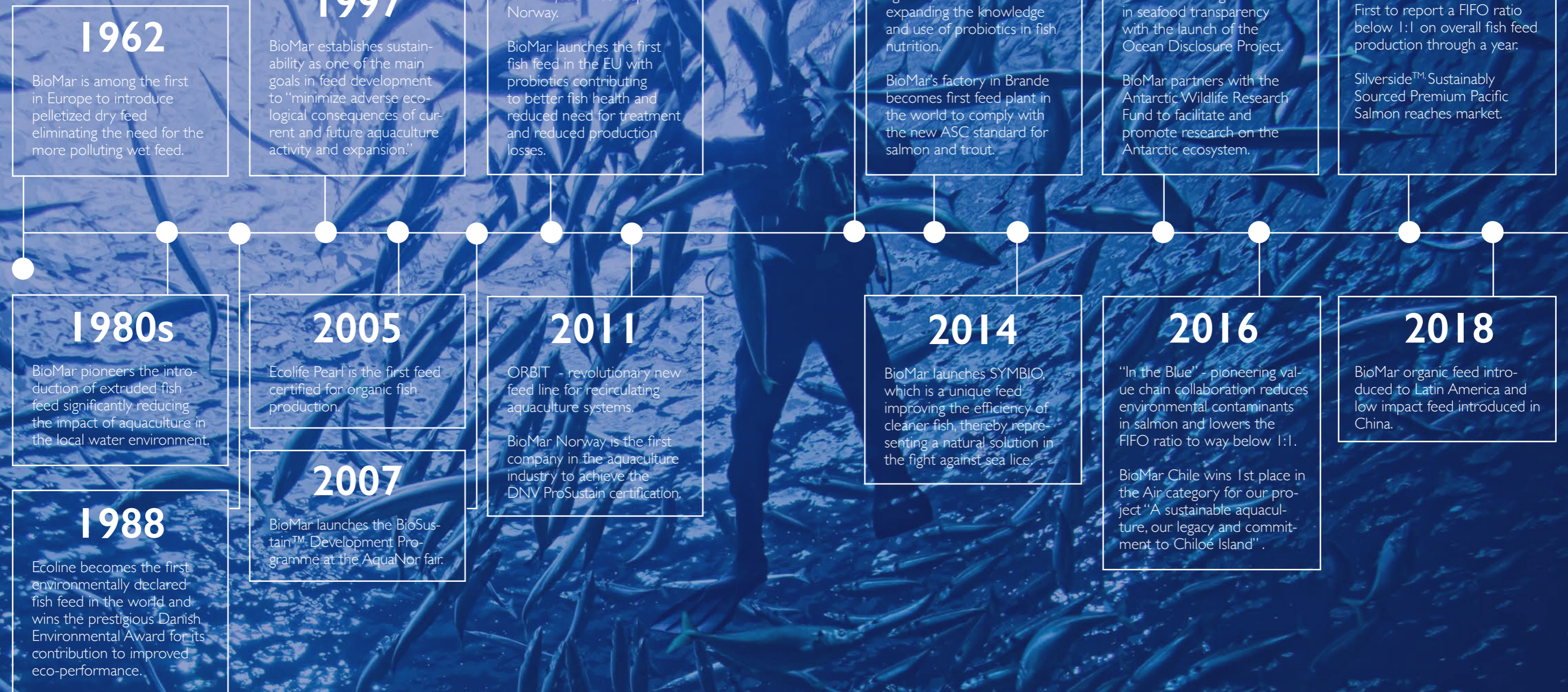
Figure 21. Diagram showing the alignment process of employee performance and development with business strategy.

VIOLATION OF COC	2013	2014	2015	2016	2017
Child labour	0	0	0	0	0
Forced labour	0	0	0	0	0

Table 20. Number of registered violations to our COC, monitored by our SAAT team.



# WALKING THE TALK



## Stories of 2017



We have many examples of good practice related to our sustainability focus and work. Below, we present some case studies and initiatives from around the world.



### GLOBAL

## 10 Years of BioSustain

This year BioMar commemorated 10 years of strategic sustainability with our BioSustain™ concept with celebrations at the Aqua Nor conference in Norway and the Aquaculture Europe conference in Croatia. Sustainability has long been in the DNA of BioMar however the development of BioSustain firmly established us as the forerunner in driving sustainable innovation through collaborative partnerships in the aquaculture industry.

We here in BioMar pioneered the introduction of extruded fish feed in the 1960's, which enabled a significant reduction on the negative impact to the local water environment. We created ECOLINE which was the first declared environmentally friendly fish feed in the world, winning the Danish Environmental Award in 1988. In 1997 sustainability became a core strategic pillar and by the launch of the BioSustain concept in 2007, at the Aqua Nor exhibition, we had already established ourselves as innovators in the fish feed industry.

The BioSustain concept is the foundation for BioMar's extensive work and covers sustainability across all three dimensions; economy, environment and society. BioSustain is a dynamic platform that continues to adapt to the fluid environment of stakeholder demands in the aquaculture industry.

The project was born out of the need to reduce the dependence on marine based fishmeal and fish oil and the original concept focused on fish feed solutions for salmon. It has long since been possible to replace fishmeal with other protein sources, but we continue to push the sustainability agenda and the innovation frontier. Today we can produce fish feeds with zero inclusion of marine ingredients where the fish oil is replaced with microalgae and other novel ingredients.

We are proud of our long history in global aquaculture sustainability. We look forward to the next evolution in the BioSustain program in 2018 with the creation of a fully integrated tool for tracking and measuring sustainability through the value chain, from sourcing to application region. The future for sustainable aquaculture continues to be bright.

## Sustainability Queen Crowned

This year we toured Africa delivering our story of aquaculture sustainability by showcasing our BioSustain concept focusing on sustainable development. Our own Vanessa Paillet presented to over 500 aquaculture people the need and advantages of sustainable aquaculture. Her words were so compelling that she was crowned Queen of Sustainable Development by tribes in Cameroon

In the Cameroonian region of Africa many farmers produce tilapia and catfish and although being sustainable is a challenge due to the economic and social constraints, but the desire for sustainability is strong. We held four sustainability seminars around Cameroon and farmers, scientists and aquaculture students travelled up to 8 hours to attend.

Our BioSustain concept was presented and highlighted that being sustainable can come with an economic benefit. Using BioMar's preventative health feeds that contain active ingredients like Bactocell® and B-Wyze is a proactive way to prevent disease and the need for medication. Such strategy will help reduce the need and reliance on antibiotics.

In a show of respect and gratitude for the knowledge that Vanessa delivered, she was crowned Queen of Sustainability Development by his majesty Tchouaïnkam Dada Théodore, King of the Chieftainship Batié and Treasurer General of Western Kings of Cameroon (tribe Bamileke).

There is a need for education in the region to modernize their aquaculture breeding technics. BioMar has a strong technical team who will visit the region and continuing our collaboration to help make sustainable aquaculture a reality in Africa.

### AFRICA



## EUROPE

## Repurposing Feed Bags

BioMar answers the global call for more sustainable policies in plastic recycling with a repurposing program in the United Kingdom for our BioMar feed bags. This year the European Commission released their Circular Economy Package plan designed to 'closing the loop' of product lifecycles for greater recycling and re-use that is designed to be beneficial for both the environment and the economy

Our BioMar feed bags have been specially designed for not only the safe protection of the fish feed but also with recycling in mind. The skin of the bag has two layers, an outer strong layer for rough handling and an inner layer for protection. The two layers can be easily separated from each other allowing for great recyclability.

When BioMar fish feed is delivered to aquaculture farms in the northern Highlands of Scotland the used bags are collected and delivered directly to the recycling centre. The waste bags are dropped off directly to Highland Waste in Invergorden where they have an intergraded recycling system able to produce finished recyclable pellets ready for reuse at the one location.

When arriving to Highlands Waste the old BioMar feed bags have their packaging skins separated before being cleaned and shredded into pallets. The recycled plastic pallets are then sent to Manchester where they are repurposed into an array of hard plastic products. It is possible that you can find a BioMar feed bag turned into a fishing bucket or even sit on it as you enjoy a beer at a local British pub where it has been turned into garden furniture.



## CENTRAL AMERICA

## Strong Together

At BioMar we believe that if we work together a global sustainable aquaculture is achievable. In Central America we are running the most complete technical training program for shrimp farming in the industry. The program was developed by Alimentosa, which BioMar acquired this year, with the aim of offering comprehensive and specialised academic training on shrimp farming and technology to the local farmers

The Aquaculture Production Program (PPA) designed in 2015 is not just a social program to ensure sustainable farming practices. It was formed together with Alimentosa technical specialist and the professors from the Polytechnic School of the Littoral (ESPOL) to enable academic accreditation. With the arrival of BioMar into the mix the program is being strengthened with more aquaculture technical specialists.

Today the PPA program is run by Stanislaus Sonnenholzner PhD, director of the Aquaculture and Marine Investigation National Centre Polytechnic School of the Littoral (CENAIM). There are four main topics areas of Nutrition and Feeding, Lab Analysis, Technical Field Management and Cost Management.

It is an intensive course of over 100 hours. The academic classes are complemented with laboratory practices and visits to several production centres. Participants interact with the academic body to review real case scenarios. The objective is to provide tools for participants to improve the technical management of farms and become leaders in the sustainable growth of the shrimp industry.

# BIOMAR GROUP GRI-TABLE 2017

This is the BioMar Group's third report in accordance with its GRI. It covers group activities in the calendar year of 2017.

The BioMar Group publish in June every year a sustainability report using the GRI G4 guidelines and the "in accordance" core as reference. As this report is not externally assured, its compliance with the GRI G4 is therefore unconfirmed. Any questions regarding the report or its contents should be directed to the Global Sustainability Director at BioMar Group A/S

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STRATEGY AND ANALYSIS			
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ORGANISATIONAL PROFILE			
G4-3-9	BioMar Group: size, markets, business, ownership	●	18-21
G4-9-10	Employees	☺	77
G4-12-13	Value chain	☺	16, 67
G4-14-16	External initiatives, partnerships and memberships	●	32-33, 45
MATERIAL ASPECTS AND BOUNDARIES			
G4-17-19	Financial statements, process, aspect	●	26-29, 44-49
G4-20-23	Materiality assessment, aspect boundaries	☺	42-49
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G4-45	Risk management	☺	40, 44, 53
G4-48	Sustainability reporting	☺	52-53
G4-49	Sustainability performance evaluation	☺	52-53

## SPECIFIC STANDARD DISCLOSURES

		DISCLOSURE DMA	METRIC	PAGE
ECONOMIC RESPONSIBILITY				
EC1	Direct economic value generated and distributed	☺	☺	26-29
EC2	Financial implications due to climate change	☺	☺	8-9, 24-27
EC9	Procurement/sourcing practices	☺	☺	64-65, 67, 70-75
ENVIRONMENTAL RESPONSIBILITY				
EN1	Materials used by weight or volume*	☺	☺	70-71
EN3	Direct energy consumption by primary energy source	☺	●	68
EN5	Energy intensity	☺	●	68
EN8	Water use	☺	☺	69
EN15	Direct greenhouse gas emissions	☺	☺	68
EN23	Total weight of waste by type and disposal method	☺	☺	69
LABOUR PRACTICES AND DECENT WORK				
LA1	Total workforce by type, region and gender	☺	☺	76-79
LA6	Rates of injury	●	☺	76-79
LA10	Skills management and training	●	●	76-79
HUMAN RIGHTS				
HR5	Risks of incidents involving child labour	●	●	45, 55
SOCIETY				
SO1	Local community engagement	☺	☺	82-85
PRODUCT RESPONSIBILITY				
PR1	Assessment of product health and safety	☺	☺	66-67
PR2	Product HS compliance with regulations	☺	●	66-67
SECTOR SPECIFIC DISCLOSURES*				
SOURCING PRACTICES				
FP1	Supplier purchases compliant with sourcing policy	●	●	66-67
PRODUCT RESPONSIBILITY				
FP5	Production volume by certified sites according to food safety management systems	●	☺	67

\* Sector additions to disclosures



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