



FEED-X

Briefing notes
September 2018

The is a summary of key facts from the stage 1. They are all based on publically available data, and aim to support the shift of the 10% of industry

PROJECT 





» THE VISION

Removing the barriers to sustainably fed, affordable food by 2030.

- All the while ensuring alignment with the Vision to sustainably feed the future.

» WHY DO WE NEED FEED-X

The next 12 years leading up to 2030 is the most critical time window humanity has ever faced. Radical change is needed in the way humans interact with the planet if we want to avoid lasting harm.

Adaptation is essential and innovation is central to the solution. Future innovations must not only halt further emission increases, but help absorb carbon, help ecosystems and humans to adapt with minimum loss and damage whilst showing resilience to anticipated climate change.

Recent research by WWF and SARF has shown clearly that our present food production system is so reliant on terrestrial crops for livestock and fish feed that there are not enough resources in terms of land and freshwater for it to provide sufficient food for 9.5 billion people in 2050. The increase in GHG emissions will also increase drastically. Business as usual is simply not possible.

The good news is that the potential novel feed ingredients that could step change the feed industry over-night, already exist today. In fact, in many cases they have already been tested in the labs and with feed producers already. The problem is that they are not reaching commercial volumes and viable price points fast enough to prevent widespread environmental damage.

» FOCUS

The focus of FEED-X is to source, test, finance and scale alternative feed ingredients into the global feed industry. The programme will hone down on salmon and shrimp as two aquaculture species with wholly different feed requirements and industry structures to cater to.

» TARGET

10% of the global feed industry to adopt alternative feed ingredients into value chains.

Skretting will be the lead partner in achieving this goal for aquaculture.

» EXPECTED IMPACTS

To significantly reduce feed ingredient production related environmental impacts. Specifically, those ingredients:

- Contributing to land deforestation
- Exhausting global carbon emissions budget
- From non-responsible fishing practices

» WE DO THIS BY

Accelerating access to finance, markets and innovation at a systems level:

- Access to finance: mobilising \$10b of additional investment into the adoption of sustainable innovations globally.
- Access to markets: Securing market commitment from top leaders in their industry to procure at scale.
- Access to innovation: transitioning 10% of the global production in the top 10 industries most damaging biodiversity and climate, to sustainability.
- Sustain our planet: significantly reduce the demand drivers for unsustainable produce from the aquaculture industry, to help preserve and conserve the worlds resources.

» LEAD PARTNER

Nutreco / Skretting – A global leader in animal nutrition and aquafeed. Their advanced nutritional solutions are at the origin of food for millions of consumers worldwide. It has about 100 production plants in more than 30 countries, and 8 research centres.

Skretting provides innovative and sustainable nutritional solutions for the aquaculture industry. We deliver outstanding fish and shrimp feeds and services worldwide for the sustainable production of healthy and delicious fish and shrimp.

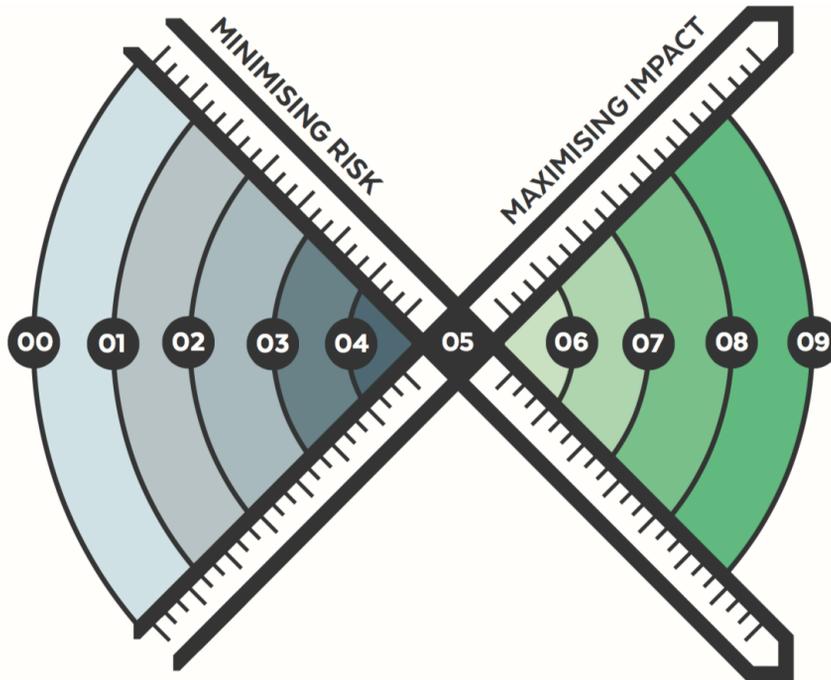
Purchasing Power:
£4.5bn

» FUNDAMENTAL PRINCIPLES

Three principles underpin how the Project X programme works:

1. We secure **advanced market commitment** to procure at scale
2. We focus on the companies to help them **derisk the adoption**
3. We operate and communicate a fully **transparent, sequence based approach**

» FEED X: NINE STAGES OF DELIVERY



00 Selected Industry

01 Market Readiness (Market opportunity assessment)

02 Problem Definition

03 Category De-risking Report

04 Search and Select

05 Test

06 Verification

07 Validation test & Verification

08 Company Roll Out

09 Industry Roll Out

» TRIED AND TESTED



The core methodology has been proven in two large multinationals and subsequently reviewed by over 65 academics, industrialists and financiers as being suitable for Project X's planned activities.

The methodology developers and practitioners are part of Project X's core team.



	Output	Contractor	Completion date
BACKGROUND RESEARCH Animal Feed Sector		RICHARD SHEANE 3Keel	May 2018

Purpose To understand the aquafeed sector in the context of the broader animal feed market and identify key environmental issues.

Key Facts

- The aquaculture sector was chosen as it has a stronger track record of innovation, it is under high levels of NGO and policy scrutiny, is rapidly growing and is increasingly competing with terrestrial livestock for feed e.g. soy meals, etc.
- 14.5% of all human-induced greenhouse gas emissions are from livestock supply chains and livestock industries consume 8% of global water supply.
- Globally, pigs and poultry are the main users of concentrate feed – accounting for more than 60% of consumption.
- An analysis of global salmon aquaculture¹¹ calculated that feed accounts for: 93% of energy use; 100% of biotic resource use; and 94% of global warming impact.
- Global production of Compound feeds is 1,070 million tonnes in 2017 according to industry data – 10% is 107 million tonnes.
- EU-28 production of Compound feeds is 157 million tonnes in 2016, which is 15% of the Global production – 10% is 15.7 million tonnes
- Aquaculture production of compound feeds is 40 million tonnes in 2016 which is 4% of the global production – 10% is 4 million tonnes.
- Salmon production of compound feeds is 4 million tonnes in 2016, which is 0.04% of the global production – 10% is 0.4 million tonnes
- Nutreco-Skretting is the 10th largest feed company by global production and has 5% of the total production of the top 10 feed producing companies that produce feed across the four sectors (Beef, pig, poultry and aquaculture) and have a total production of 98,959,000 tonnes
- Five broad types of action for FEEDX are possible that improves sustainability of the core value chain for compound feed production:
 - Use of wastes/by-products
 - Use of 'sustainably produced' crops
 - Use of alternative feed raw materials to substitute scarce raw materials
 - Use of novel feed raw materials
 - Use of technologies and processes that increase feed conversion ratios

Gerber, P.J., Steinfeld, H., Henderson, B., Mottet, A., Opio, C., Dijkman, J., Faluccci, A. & Tempio, G. 2013. Tackling climate change through livestock – A global assessment of emissions and mitigation opportunities. Food and Agriculture Organization of the United Nations (FAO), Rome.

Schlink, A.C., Nguyen, M.L. & Viljoen, G.J., 2010. Water requirements for livestock production: a global perspective. *Revue scientifique et technique (International Office of Epizootics)*, 29(3), pp.603–19.

Pelletier, N. et al., (2009) Not All Salmon Are Created Equal: Life Cycle Assessment of Global Salmon Farming



MARKET OPPORTUNITIES REPORT	Output PWC Bergen NORWAY	Contractor	Completion date Sept 18
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Purpose To understand in more detail the structure of the salmon and shrimp feed markets and identify areas of nutrition sustainability innovations

Key Facts

- Farmed salmon has a much lower carbon footprint (2.9 kg CO₂ eq than pork and cattle production). It has also the lowest feed conversion ratio at 1:1 - it is the most productive animal to farm.
- In 2016, 39.9 million tonnes of aqua feed was produced globally, and salmon feed represented ~4.4 million tonnes, and shrimp feed ~5.2 million tonnes.
- Norway is the top producer of salmonids; production in tonnes Whole Fish Equivalent (WFE): 1255.7k. Species: Atlantic salmon, Large trout. The Top companies in that market are: Marine Harvest, Lerøy, Salmar, Cermaq, Grieg. Then Chile (698.7 k), Canada & USA (212.5k), Scotland & Ireland (188.9 k), Faroe Isles (77.3 k) and Australia (57 k).
- Of the 5.3 million tonnes of aqua-feed produced produced in 2016 by the big four companies, 65% of that is for salmonids. Of the 4 top aqua feed producers; Skretting represents 37.7% of production, Cargill Aqua nutrition is 32% and Biomar (18%) and Marine Harvest (11%).
- On average in 2016, agricultural ingredients (vegetable meal and oil) made up 59%, marine ingredients (fish meal and oil) were 25% and other ingredients made up the remaining 16%.
- In 2016, the big four feed companies used 60% of global available fish oil, equalling 82% of total global fish oil used in the aquaculture industry.

All data is publically available and sourced from the sustainability reports of the big four companies

Team (inter alia)

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