How Cermaq is impacted by climate change

-and what the company does to meet these challenges

Jon Hindar
CEO Cermaq Group

Klimamarin,
Trondheim 17 Nov 2015



Agenda

- Cermaq in brief
- How weather an climate impacts Cermaq operations
- What Cermaq does to reduce its impact on climate change

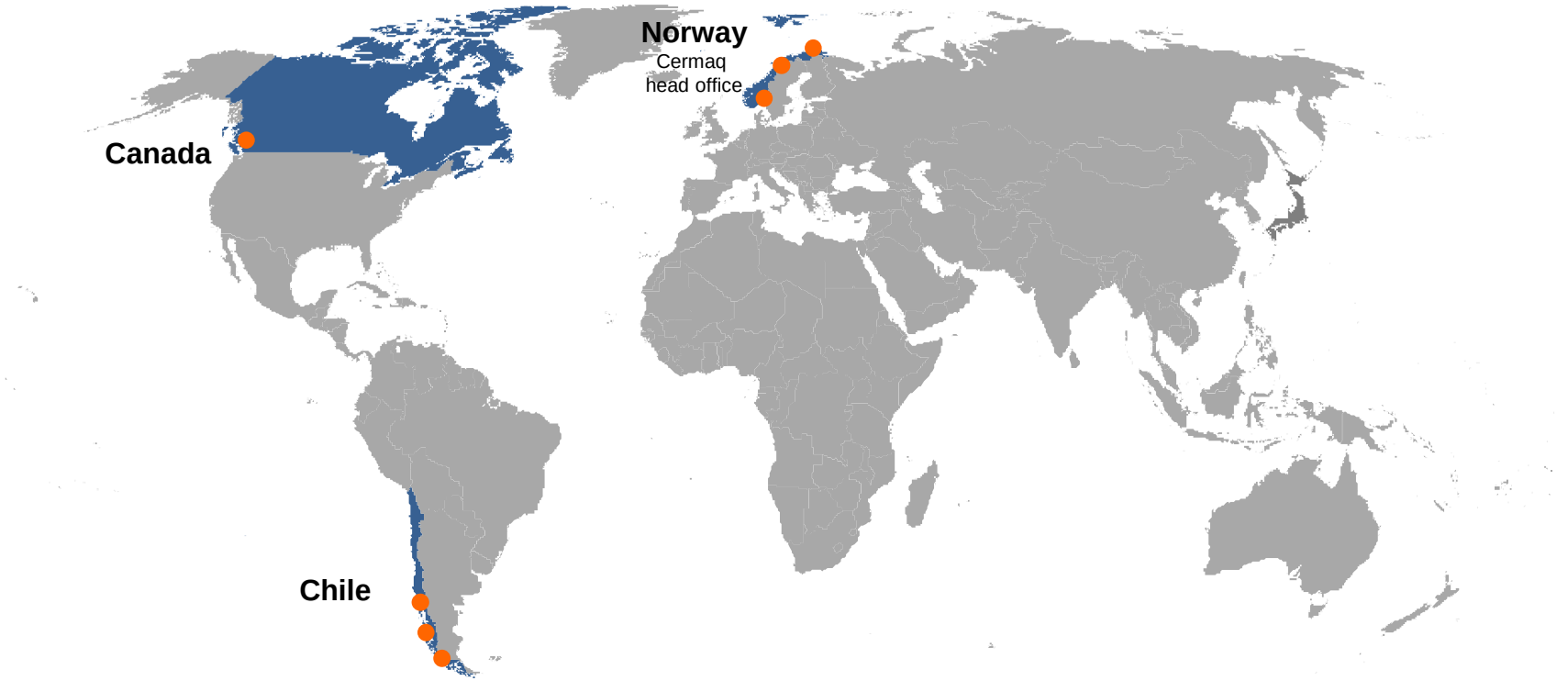


cermaq

Snapshot of Cermaq

137 thousand tons gwe sold in 2014

Revenue (2014) NOK 5.6bn
EBIT (2014) NOK 428m



Employees: 4 100

100% owned by
Mitsubishi Corporation

Cermaq
+ Mitsubishi Corporation
= #2 global salmon farmer

cermaq

Weather conditions have an impact on daily operations

- Harsh weather impacts production
  - Location of sites and choice of technical equipment
  - Exposure affects fish and operations
  - Occupational Health and Safety challenges



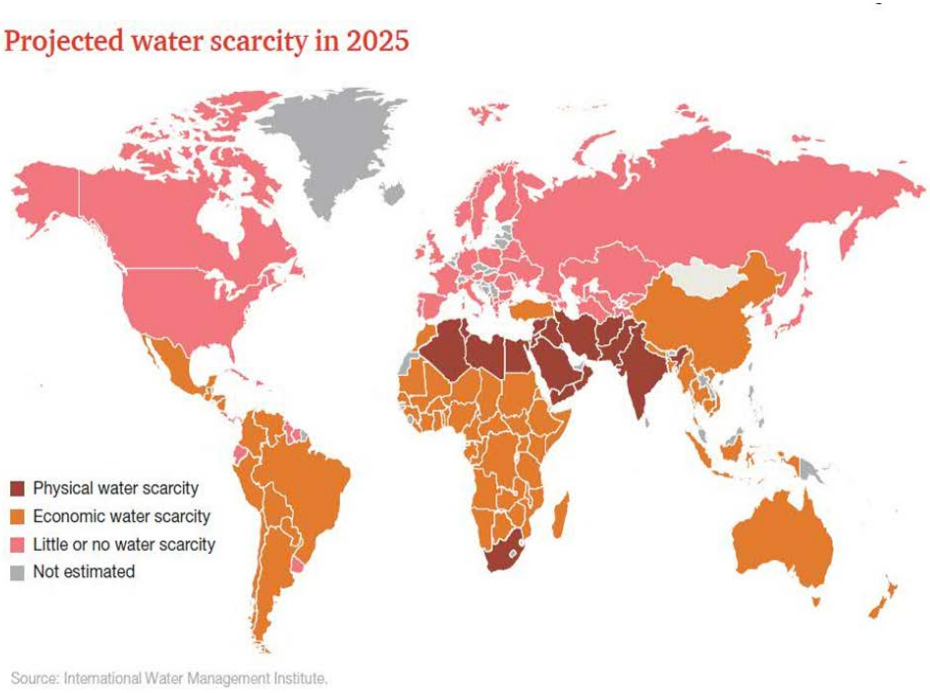
- Global warming affects production
  - Arctic areas becoming more suitable for farming
  - Higher risk of disease
  - Increased algae blooms
  - Lower dissolved oxygen in the sea



cermaq

Weather and climate have an impact on the supply of feed ingredients

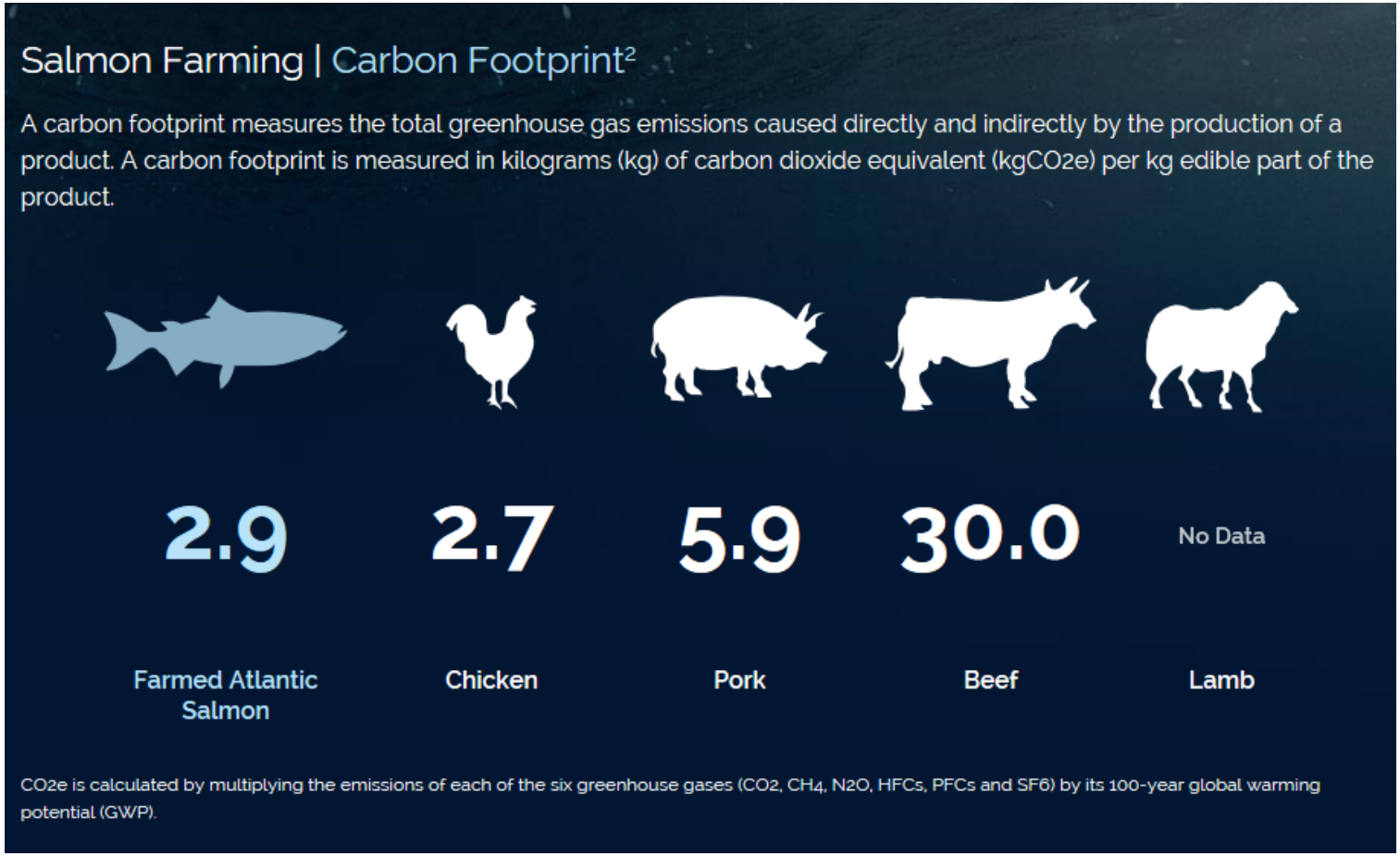
- Agriculture is negatively impacted
  - Droughts
  - Increased saltiness in the soil
  - Freshwater becomes more limited
- Marine ingredients are impacted by global warming
  - Acidification and increased temperature impact size and localisation of pelagic stocks for forage fisheries



cermaq

Fish farming has a low carbon footprint

A reflection of efficient **feed conversion**, and also
Efficient **protein** retention - Efficient **energy** retention - High **edible** yield



cermaq

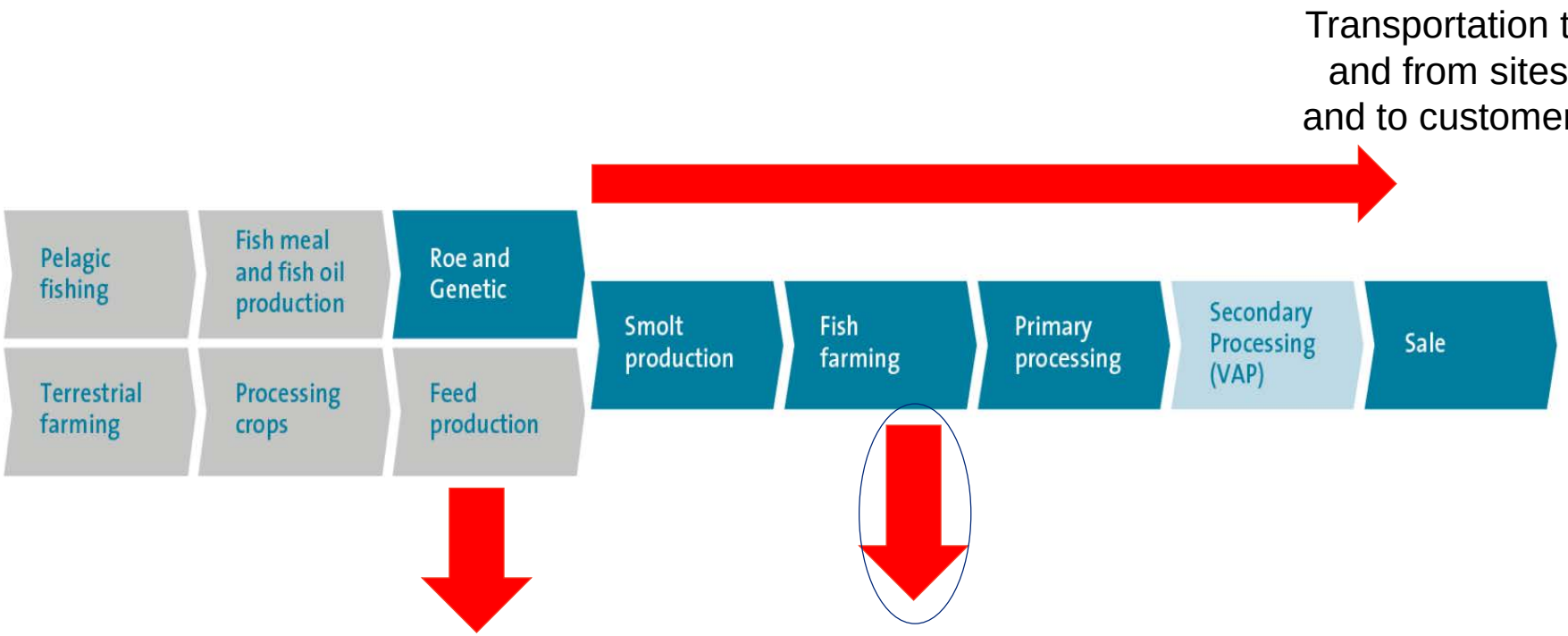
Fish farming has a limited impact on our climate

Cermaq's energy use is 3.6 GJ per ton produced (Live Weight) (2014)

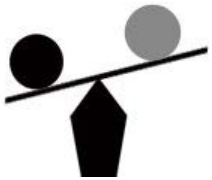


cermaq

Still - a potential to improve in several areas



Energy reduction per tonne of production



Marine independence

cermaq

Cermaq approach: actions and transparency

- Transparency and climate accounting
- Carbon and energy saving programs within Cermaq
- Industry initiatives



cermaq

Cermaq practices transparency also in climate accounting

- Industry transparency to communicate energy use and emissions made by worldwide industry
- Yearly reporting GRI indicators related to energy and CO_2 emissions
- Climate accounting at farm level
- Public yearly reporting of targets, risks, opportunities, initiatives made and emission data

cermaq

Local initiatives on what is most important

- Replacing diesel generators with land based hydro electricity saves CO_2 emissions and cost
- Ongoing project includes analysis of other possible renewable energy sources

Site A: Converted to electricity

Monthly energy consumption	22 122.43
Price /KWH (NOK)	0.69
Monthly energy costs (NOK)	16 581.33

Site B: Diesel generator as main source

Monthly diesel consumption (Litres)	7 463
Price per litre ex. VAT (NOK)	7.73
Monthly energy costs (NOK)	65 123.34

- Changing traditional lighting tubes to energy saving LED lighting



cermaq

Reducing the climate impact from feed

- Economising in the feed with limited marine recourses, but
  - replacing marine ingredients with crops requires more energy in the feed processing
  - Marine ingredients like anchoveta has very low carbon footprint

- To accelerates commercial development of Omega 3 the Global Salmon Initiative (GSI), representing more than 50 % of global salmon production, has launched a tender for large quantities of oils rich in marine omega 3 from novel sources

"By working together to resolve industry-wide issues, the GSI is demonstrating how collaboration can lead to innovative solutions. We are pleased to see the GSI members working proactively in the search for resources needed to ensure a sustainable future for the industry and to provide sustainable sources of protein."



Doris Soto,
Senior Aquaculture Officer
FAO

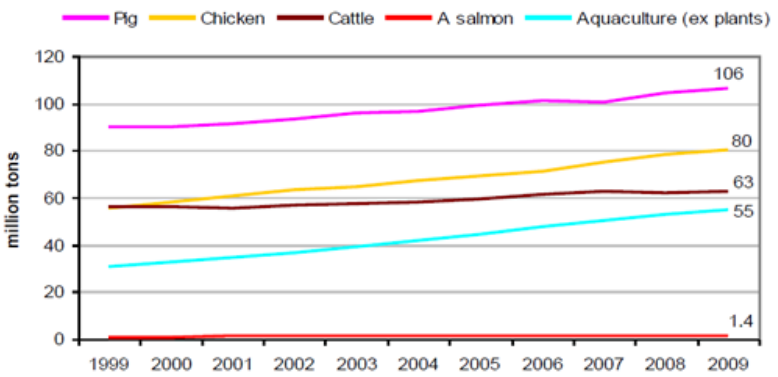
cermaq

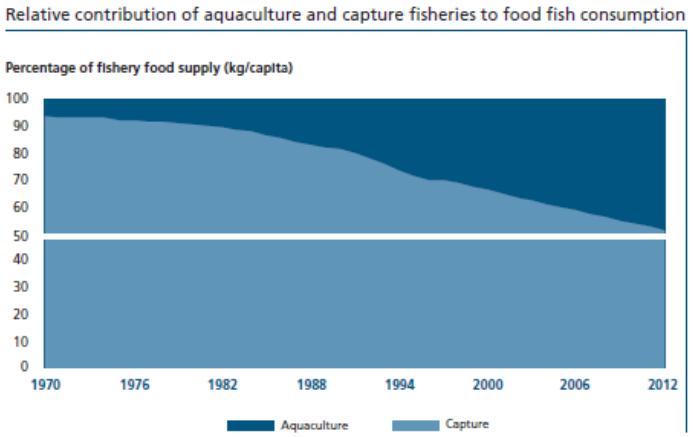
The farming industry needs research and market access

To feed the population and respect climate, aquaculture must increase its share of total protein production

Framework conditions for more climate friendly aquaculture include:

- Transport of processed products is more efficient that transporting gutted fish.
- R&D for improved feed ingredients, based on new sources and less transportation.





"The bulk of the future increase in supply has to come from aquaculture"

Arní Mathiesen, FAO 2015

cermaq

A climate friendly industry with potential to improve

While the industry has biological challenges it needs to address efficiently; aquaculture is a climate friendly production of food - with the potential to improve further



cermaq