UNCHAIN
UNPACKING CLIMATE IMPACT CHAINS

Case 7 Northern Norway: Securing sustainable food prodution under the auspices of climate change

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The project UNCHAIN is part of AXIS, an ERA-NET initiated by JPI Climate, and funded by FORMAS (SE), DLR/BMBF (D), AEI (ES) and ANR (FR) with co-funding by the European Union (Grant No. 776608).

JPI Climate

Horizon 2020
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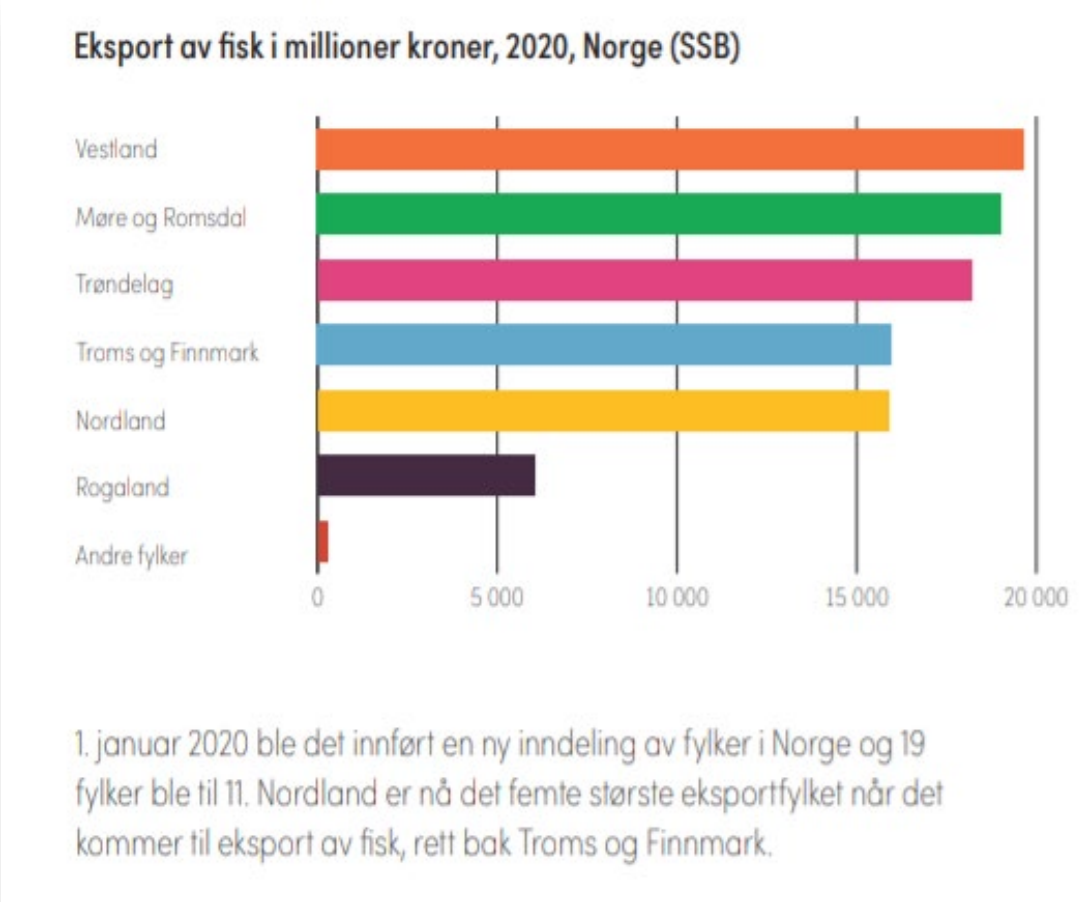
AXIS

Aquaculture in Nordland County

- Norway is the world's leading producer of farmed salmon. In 2020, exports of Norwegian seafood reached NOK 105.7 billion, of which farmed salmon = 75%
- Nordland: approx 16 bill NOK, provides vital economic and Social significance for settlement, employment and value creation in Nordland
- Coastal activity = an heritage from traditional fisheries



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Aquaculture Policy framework

Relevant government strategies:

- Blue Opportunities (sustainable growth in all ocean industries)
- Coastal strategy (Ministry of Local Government and Modernisation): business development, green jobs & climate target focus)
- New aquaculture Strategy (Ministry of Fisheries and the Sea): Sustainable growth in aquaculture.

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A curious fact

- In the traffic light system – only ONE sustainability indicator for (sustainable) growth in the aquaculture industry: The number of (female)lice present on salmon.

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Signals from Government (Directorate-National Institute (Havforsk)

- Instrumental understanding of consequences of CC on salmon growth
  - Lack of demand for assessment of CC risks to the industry writ large
  - Focus: Salmon grows faster in warmer waters (but lice might increase) – and the salmon eats more. Thus a tipping point for CC being a potential threat.
- Unrecognized need for knowledge about cross-border ('wicked problems') CC impact chains in government
  - Interconnections CC – global trade and industry politics – preconditions for aquaculture growth in Norway

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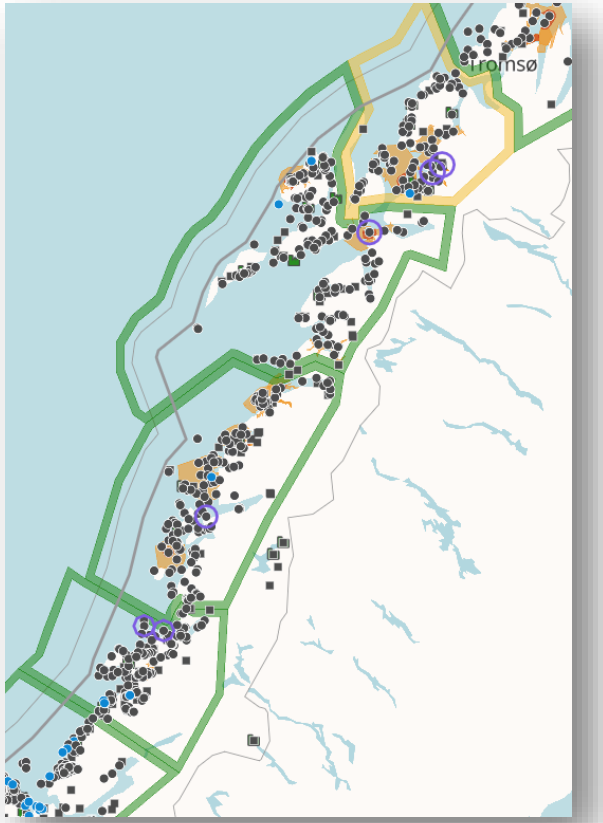
13 Production Areas (7, 8, 9 = NFK)



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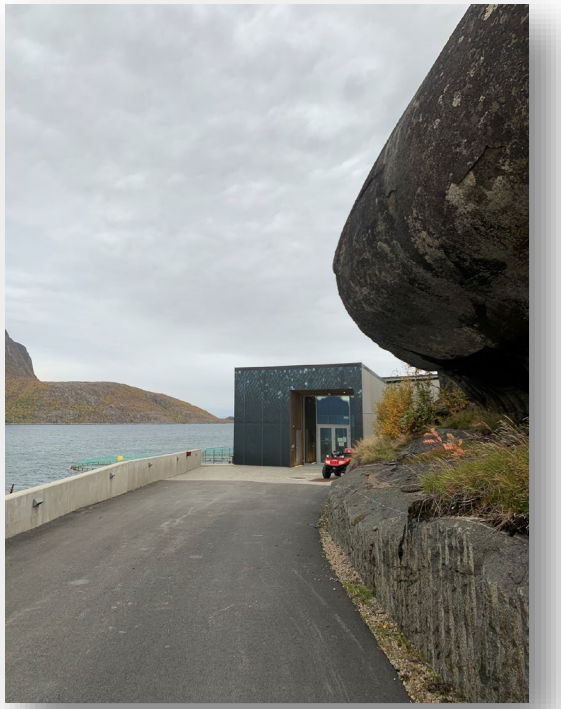
Unchain Workshop



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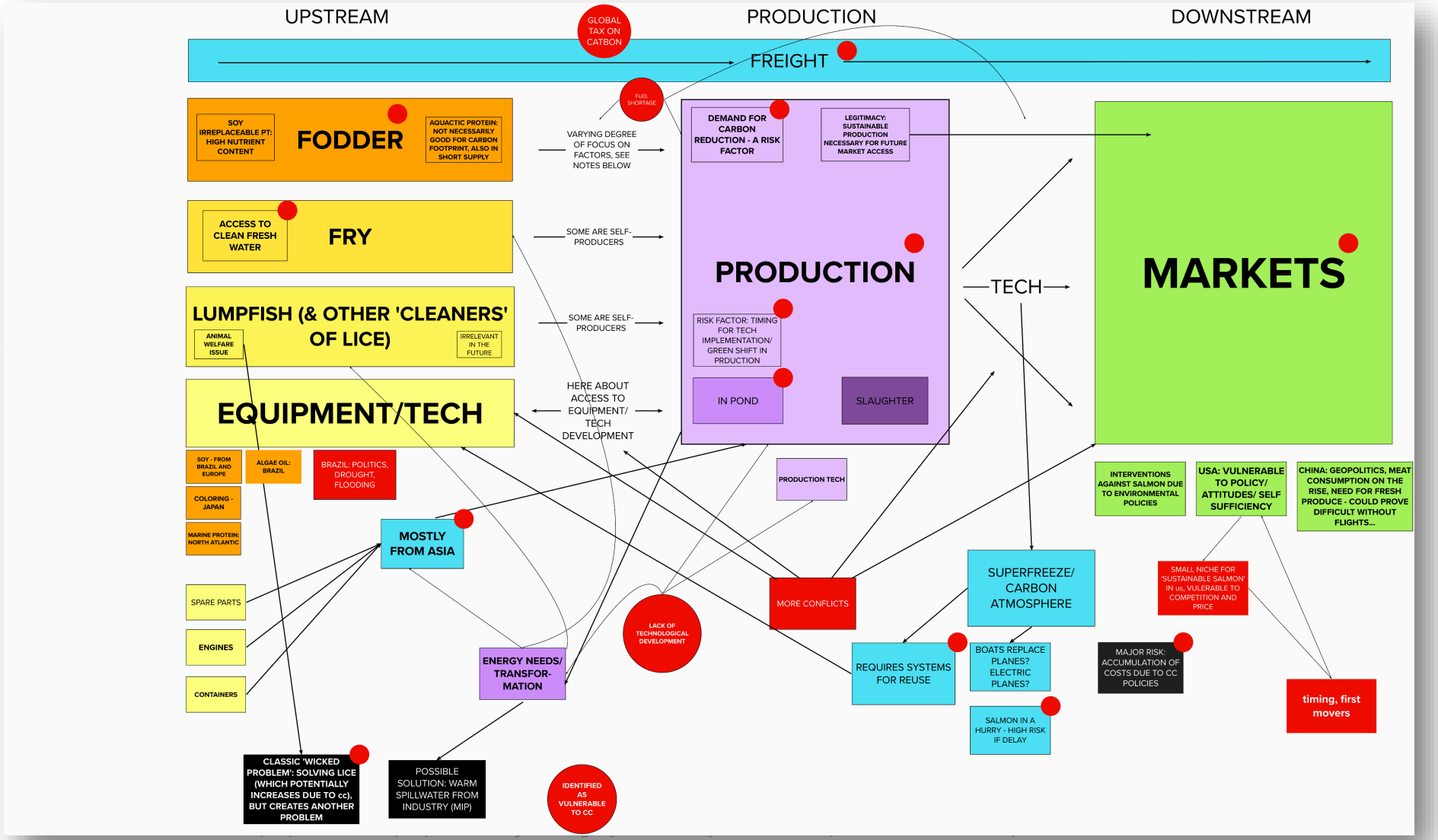
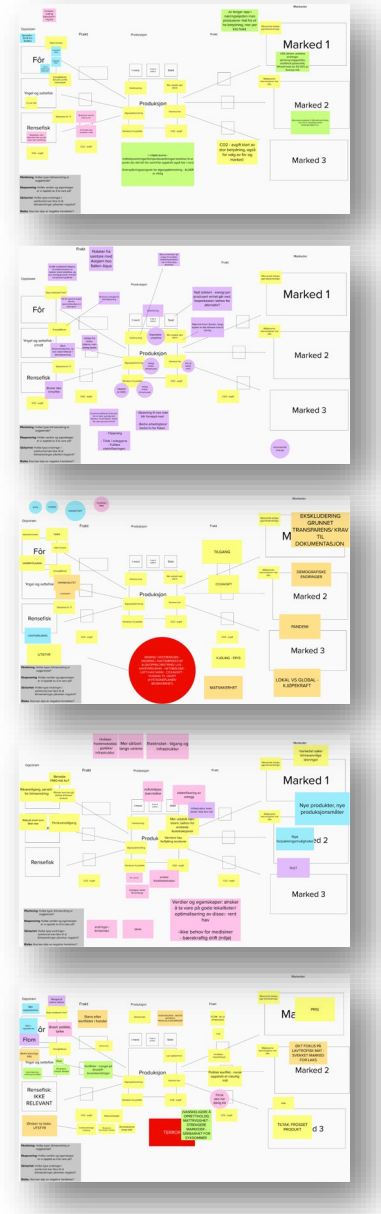
Impact chain – so far …





Simplified

Production line

- Fodder
- Production
- Market

Identified transborder risks

- SOY
- FREIGHT
- Market preferences
- Technology (not yet invented)
- Equipment/ spare parts
- 'The first movers problem'

Sustainability indicators beyond the industry

- Social
  - Fisheries: A specific social responsibillity
  - Aquaculture: Anyone can do it, now detatched from social responsibillity – mainly for the stock owners
- Economic
  - Market oriented, now though also a fund based on sustainable growth
- Environmental
  - Only one indicator
  - Here's CC, and transborder CC risks

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Some take-home messages (so far)

- Actors know a lot about what production factors and markets matter, more speculative about possible futures
- Environment and climate: main focus on production site ('what we can do something about')
  - Climate spesifically: Mostly about carbon footprint, less about (future) vulnerability to CC
  - Due to policy demands and insecurities about consequences of CC (to a certain point a positive for salmon growth)
- Incentives for change: MARKET and TECH oriented ('if soy is outcompeted by something as good, we'll take it')
- Disclaiming responsibillity for fodder alternatives (and vice versa - fodder industry: 'the producers have all power, we have to give them what they want')

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Two policy advice (so far…)

- Add adaptive measures to mitigate transborder climate risks to the indicators for sustainable developent in the aquaculture industry.
- Initiate scenoario production/ assessment of future trajectories to include in risk portfolio future transborder climate (and other!, re: post-corona crisis unfolding) risks

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