Scenarios for the future: Drivers of change in the Peruvian fisheries sector

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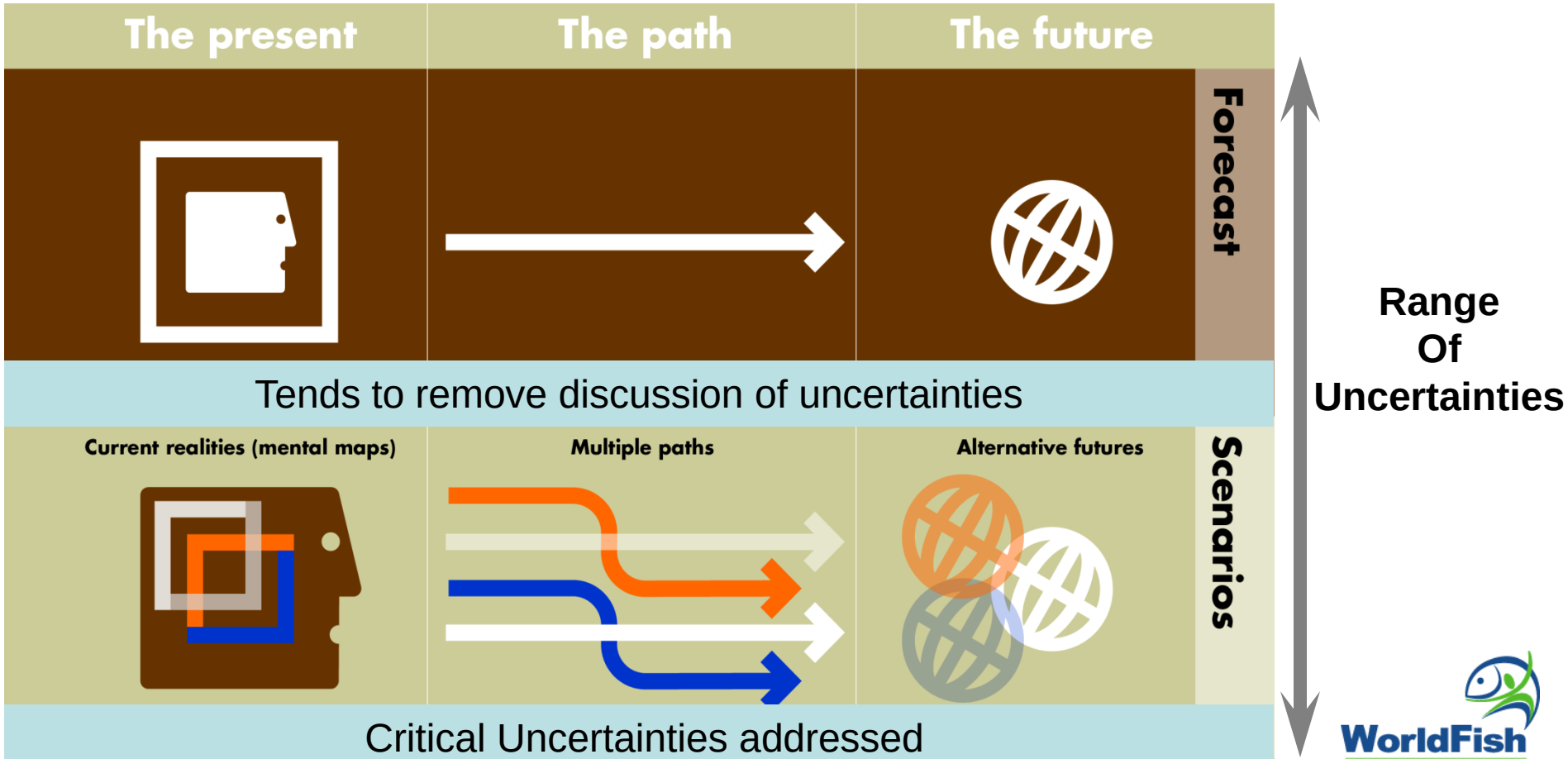
What are scenarios ?

- An internally consistent and plausible view of what the future might be
- Not a forecast nor prediction but range of possible futures



Adapted from Shell 2050 vision

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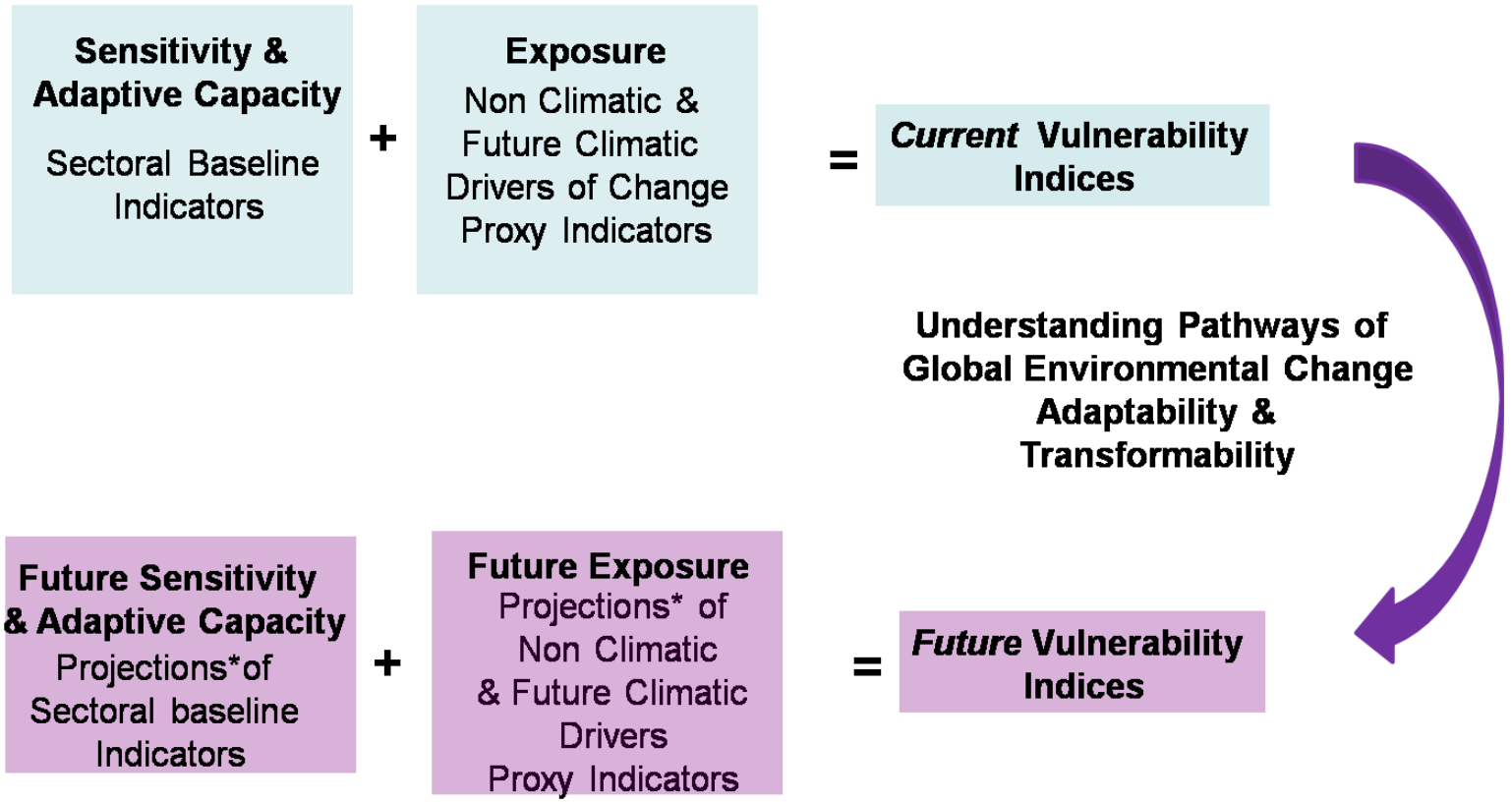
Why use scenarios?

- Static vulnerability assessment => “current vulnerability”
- Dynamic vulnerability and the multiple external drivers a system is/will be exposed to (Belliveau et al., 2006) => “future vulnerability”



Barange et al Forthcoming

Why use scenarios ?

- Useful when addressing the considerable uncertainty about future trajectories in complex systems

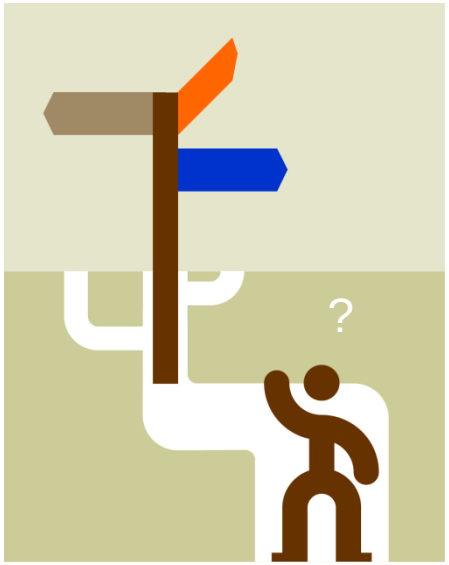
- Instruments of reflexivity and learning: “Thinking outside the box”

=> *“Futures thinking for shifting thinking”* (NZCER)

- To anticipate change so that plans are in place when they happen

- To design strategies

- The idea is to achieve “better” decision-making



Shell Vision 2050

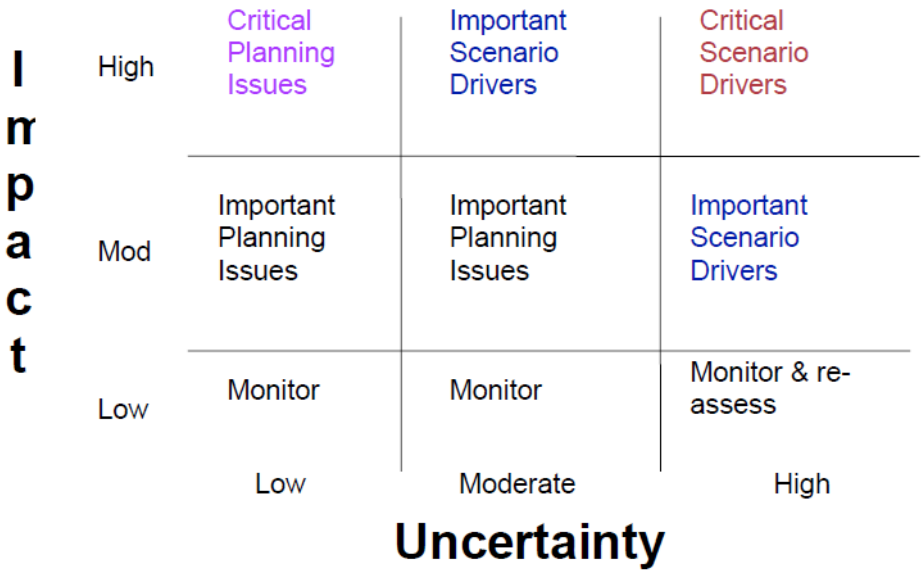
Methods

- Expert elicitation to identify drivers of change in the past and in the next 40 years in the fisheries sector
- 'any natural- or human-induced factor that directly or indirectly brings about change in fisheries and aquaculture production systems' (see Hazell and Wood 2008)
- Stringent expert criteria (EPA), 38 surveys sent => 47% response rate
- Experts from:
  - Research institutions:8
  - NGO's: 3
  - Industry: 2
  - International Organizations: 3
  - Government: 2
- Code book development

Methods

- Uncertainty: “inability to determine the true magnitude or form of variables or characteristics of a system” (Mahmoud et al, 2009)
- How certain are you that a driver will occur (start to have an impact) in 2050

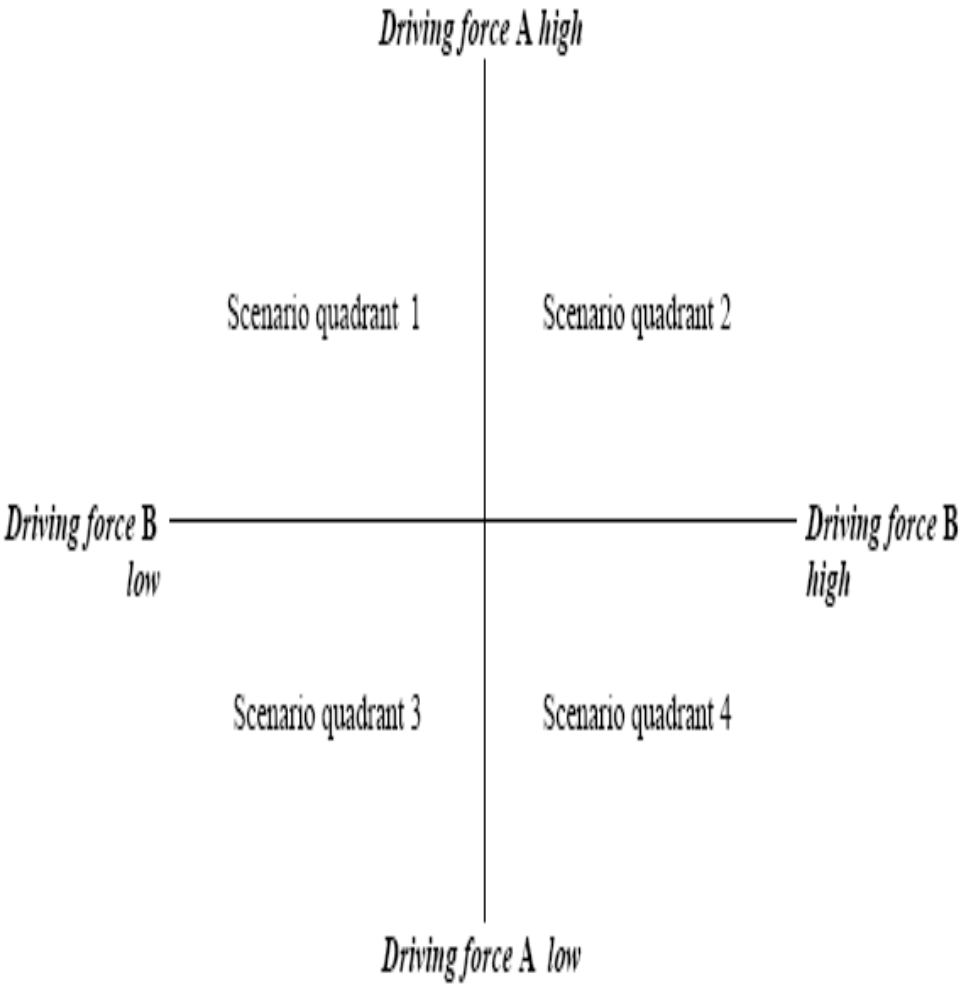
Impact-Uncertainty Classification



Matrix from SAMI consulting

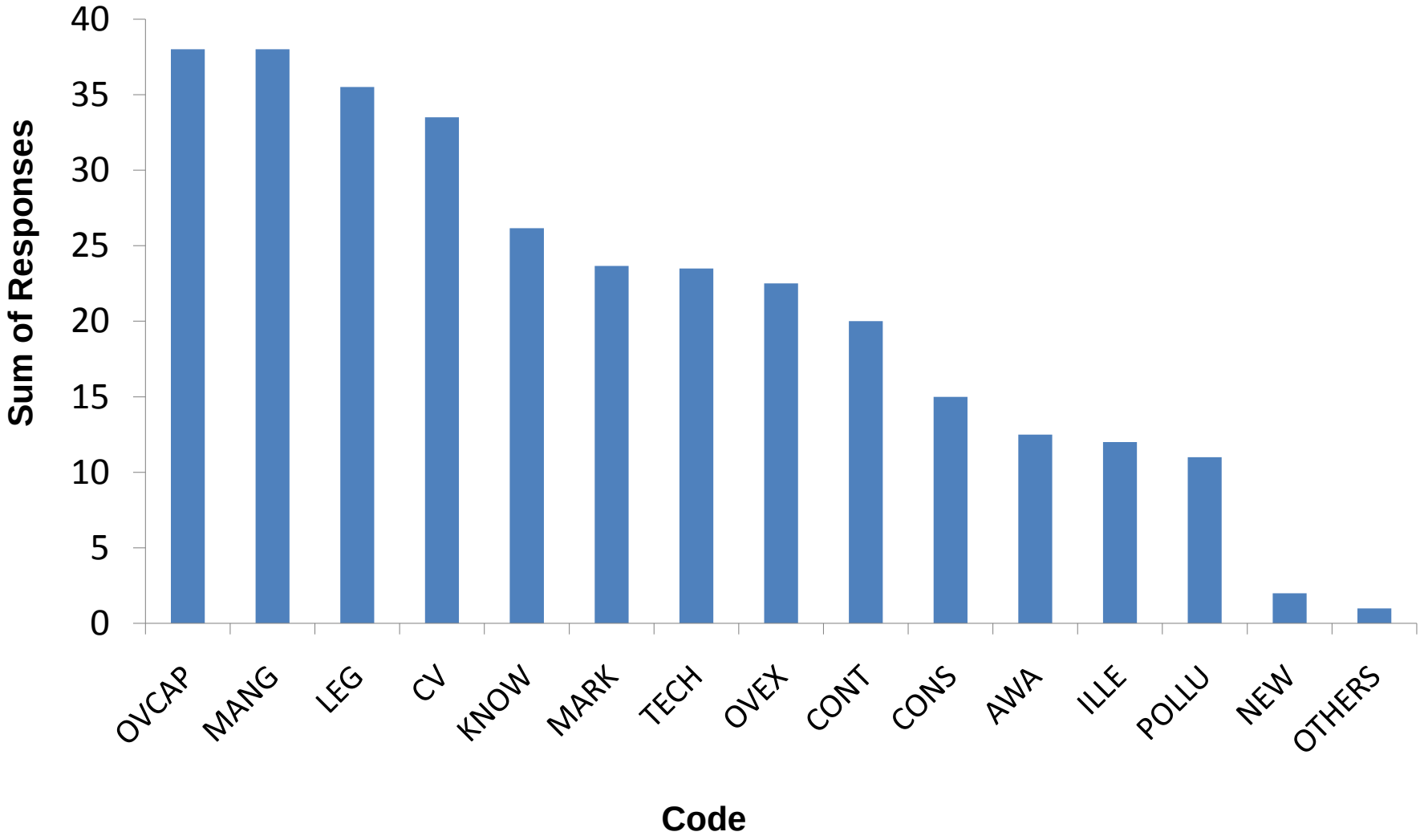
Methods

- *Modified* Delphi approach => consensus on drivers importance and level of uncertainty
- Workshop in Lima March 2010
- 2 critical drivers identified (high uncertainty and importance) to form the scenario cross
- How drivers identified behave in each scenario, narrative and trajectory for each driver => the storyline for 2050



Results

Survey: Importance of Drivers in the last 30 years



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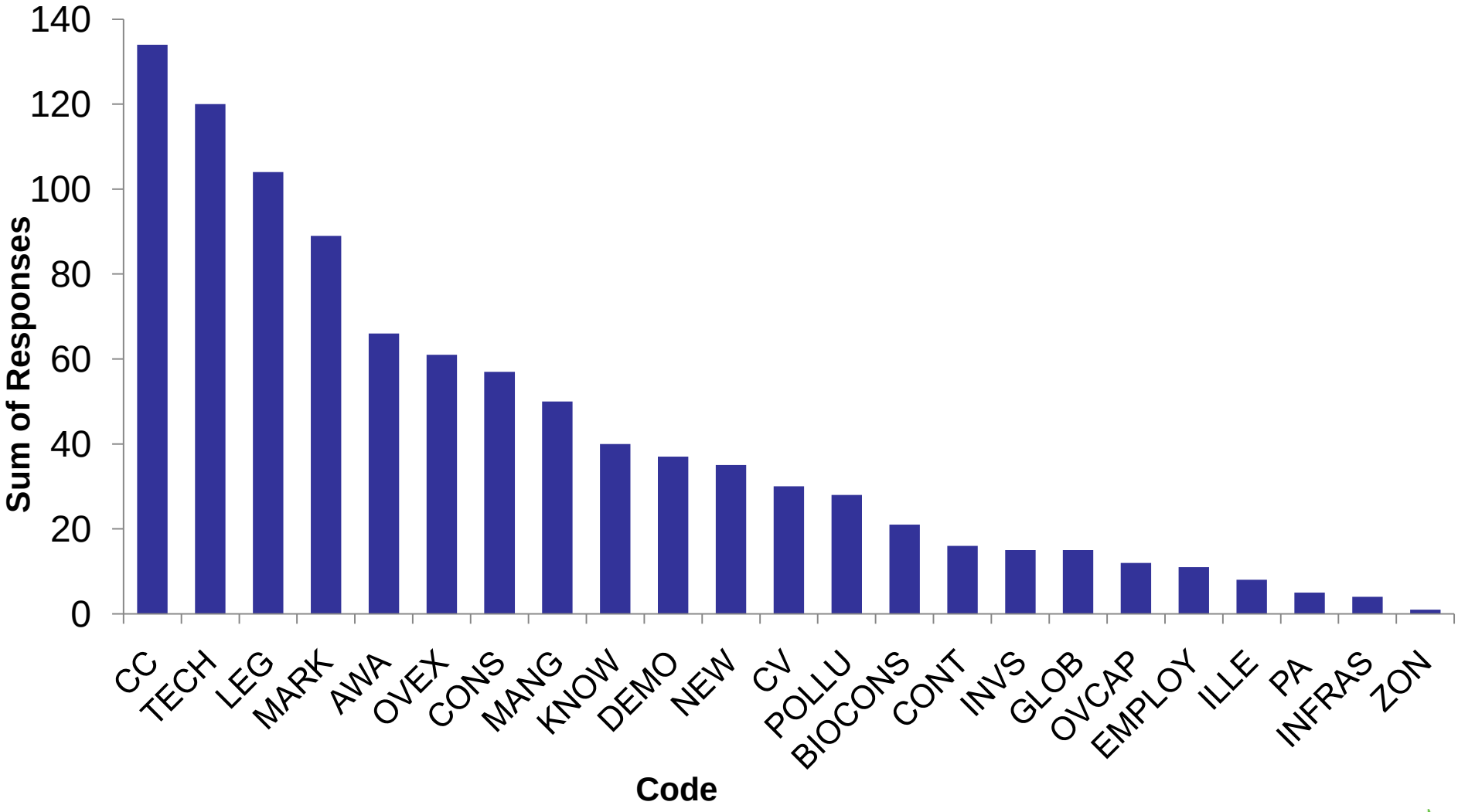
Survey: Importance of drivers 2050



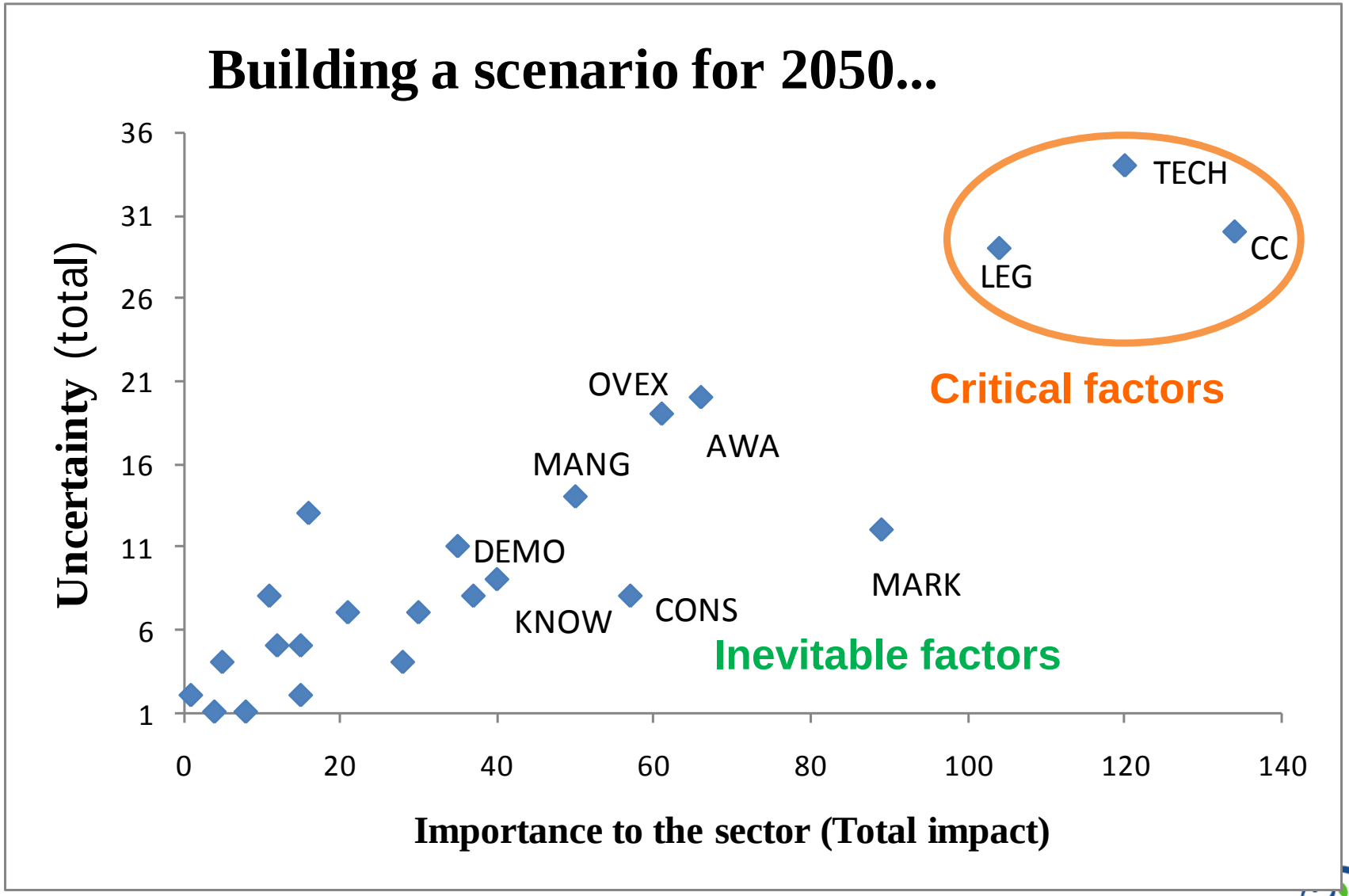
Drivers of Change in the past and the future

- Differences:
  - Past: overcapacity, control and enforcement
  - Future: *climate change, population growth*

- Consumption, environmental awareness (behavioral change), climate variability => changed ranking

- Why?
  - Progress in anchovy stock management (quotas, satellite surveillance)
  - Greater understanding of ENSO and regime shifts
  - Role of demand and behaviors are considered important => shift from production/supply focused management
  - Climate Change gaining momentum in public/policy & scientific arena

Survey: Scenarios 2050



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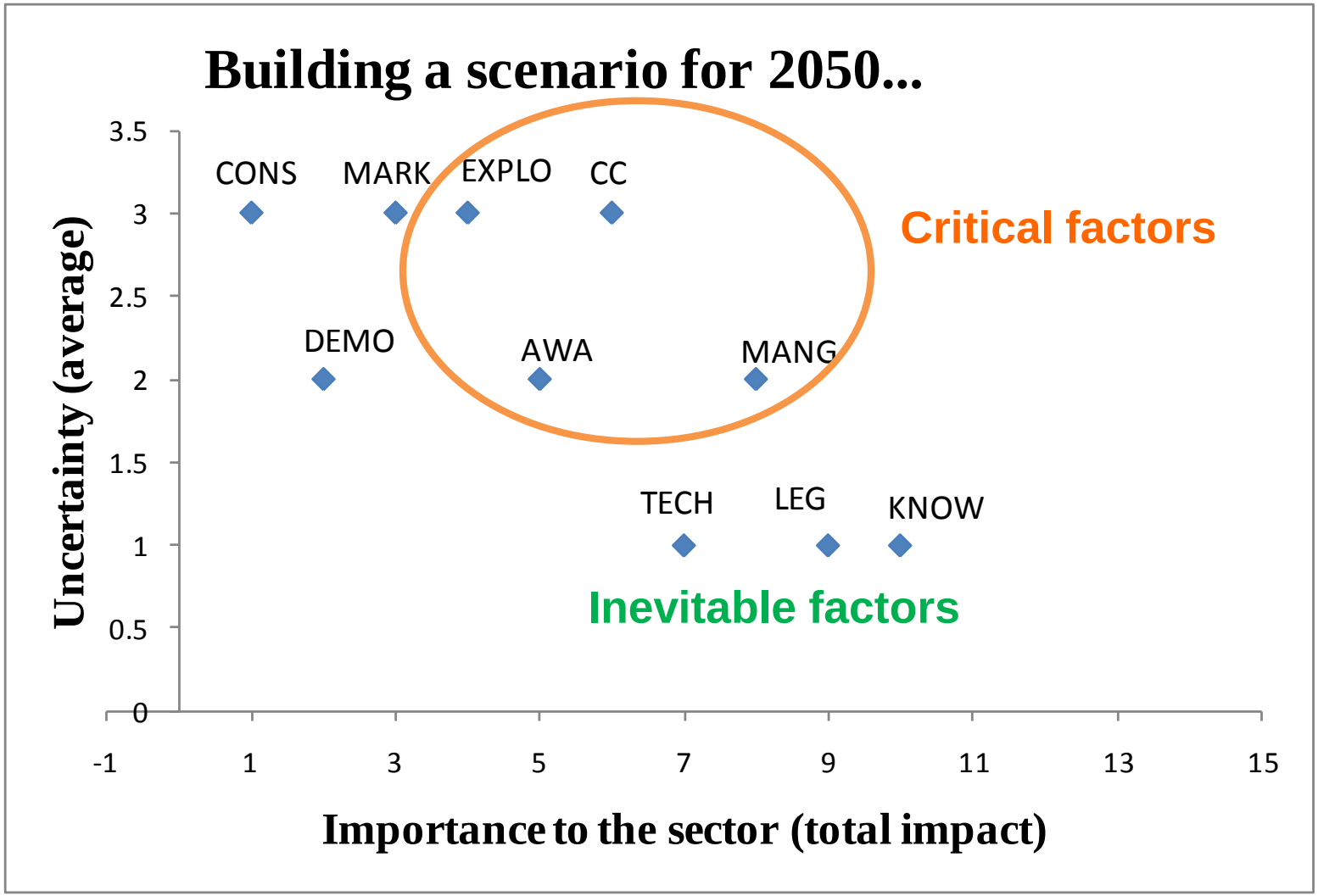
Workshop: Scenarios 2050

Workshop: Scenarios 2050 ï Group 1



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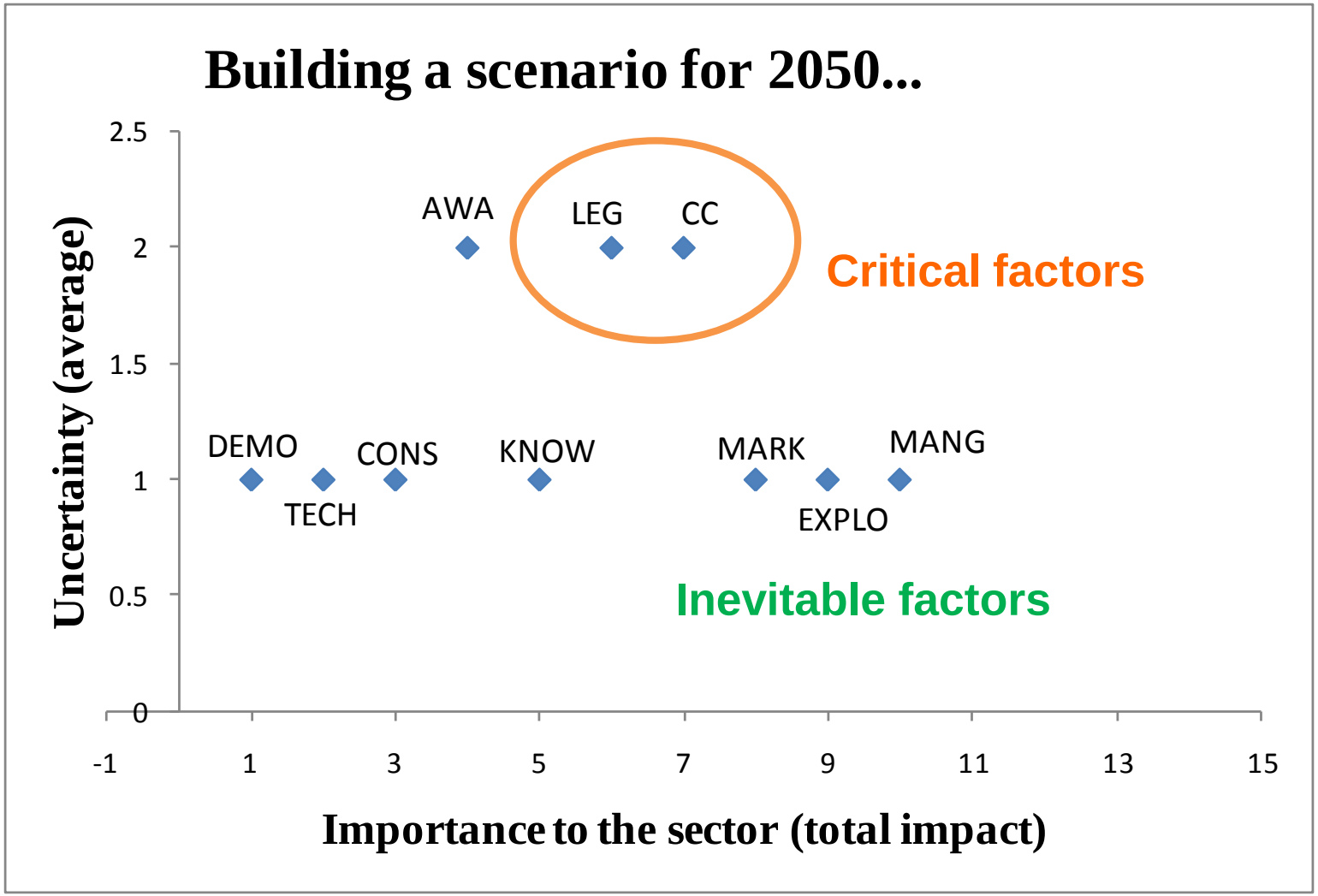
Workshop: Scenarios 2050 ï Group 2



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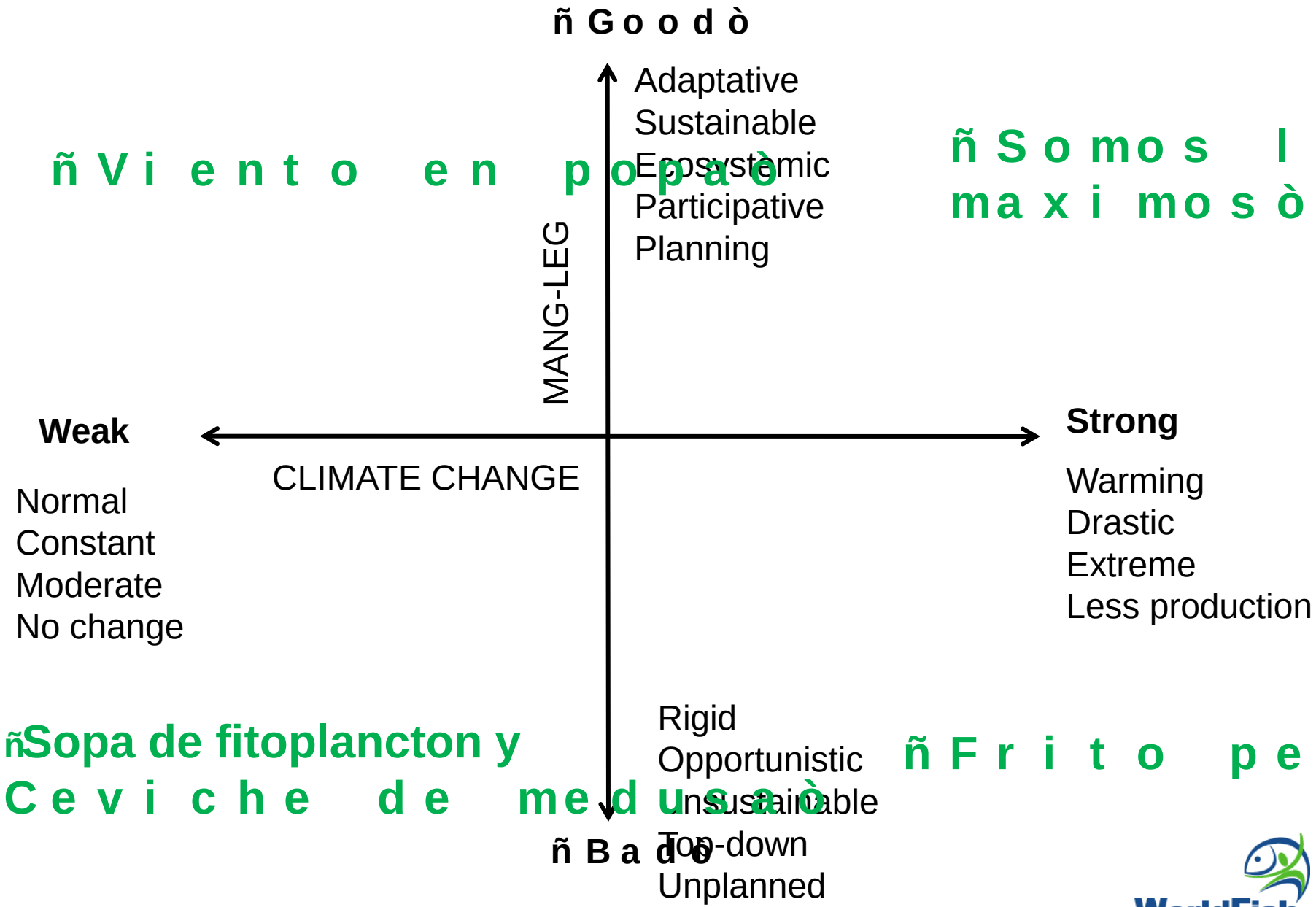
Workshop: Scenarios 2050 ï Group Consensus



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Scenario ñFrito Pescadito

- No investment in research, slow technological development and innovation that does not allow design and implementation of adaptation options
- Extreme events and floods => no aquaculture development
- Climate Change and extreme events impacting agriculture combined with population growth
  - Ý migration to coastal zones
  - Ý Malthusian overfishing
- Loss of competitiveness. Free Trade Agreements with main markets “do not save our exports, prices and production cannot be maintained”
- Local market underdeveloped
- “Winners”: actors with short-term behaviour

Preliminary messages

- Education:
  - Fisherfolk , industry and youth
  - Public sector => capacity building in conflict management

- Climate change effects could be important but management and legislation are the most important drivers

- Take into account population changes and migration

- "Change/Shift Visions": from fisheries resources to marine ecosystem and ecosystem services

- Market and certification according to clean/sustainable technologies

- Importance of scientific research

Process or results?

- Strength:
  - methods for ***strategic planning***
  - ***uncertainty should not be a reason for inaction***
  - ***space for creative discussion***
  - => positive feedback from participants
- Weakness: expert bias, coding, short time (1 day), improved in West Africa case study
- Contrasting 'process' and 'output' approaches of 'science' and 'management' (Allison 2002)
- Way forward:
  - ➢ "conversation" with a wider audience
  - ➢ Link with vulnerability assessment

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Acknowledgment

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