



Bridging the gap between climate change research and business

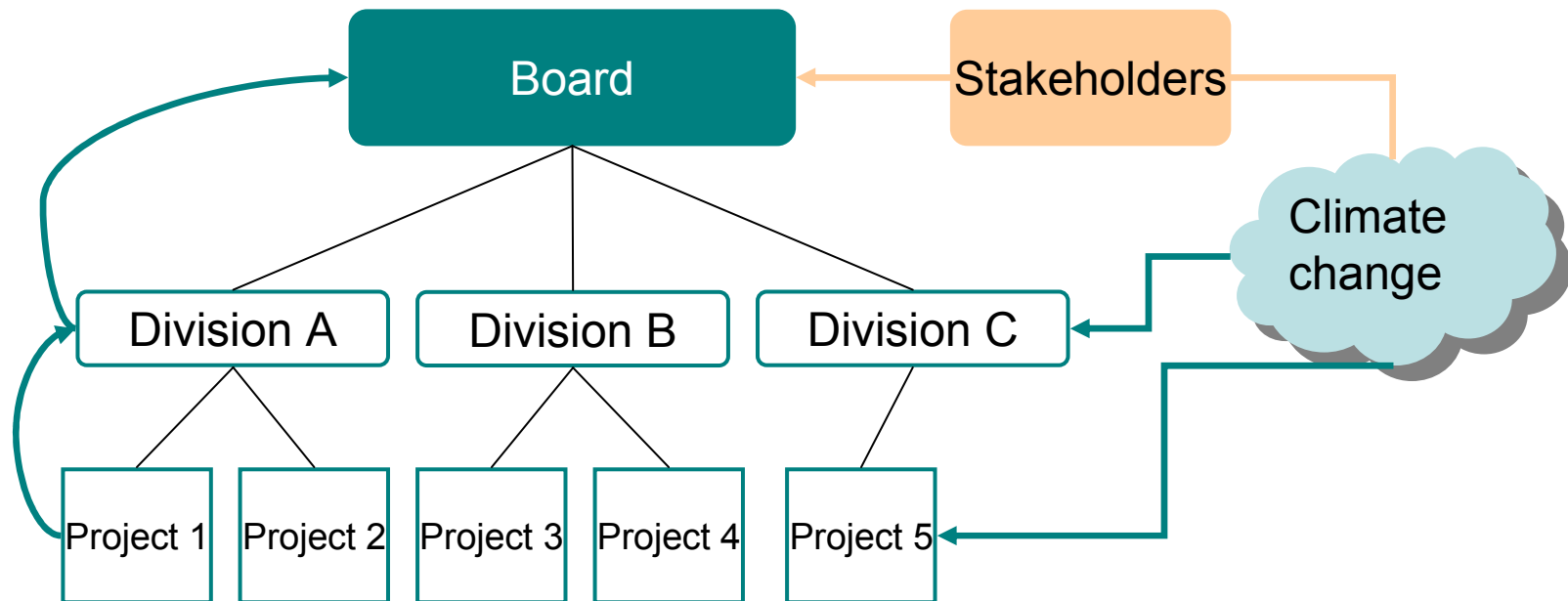
Fourth CLIFFS workshop

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Overview

- What questions are businesses asking us about climate change?
- How well does the available research match their information needs?
- How are they making decisions in the face of 'imperfect' information?
- Two main groups:
 - Large, fixed asset companies
 - Financial services sector
- Both groups are inter-related, but have different drivers and decision-making criteria

Climate change affects organisations at various levels



What do businesses want to know about the impacts of climate change?

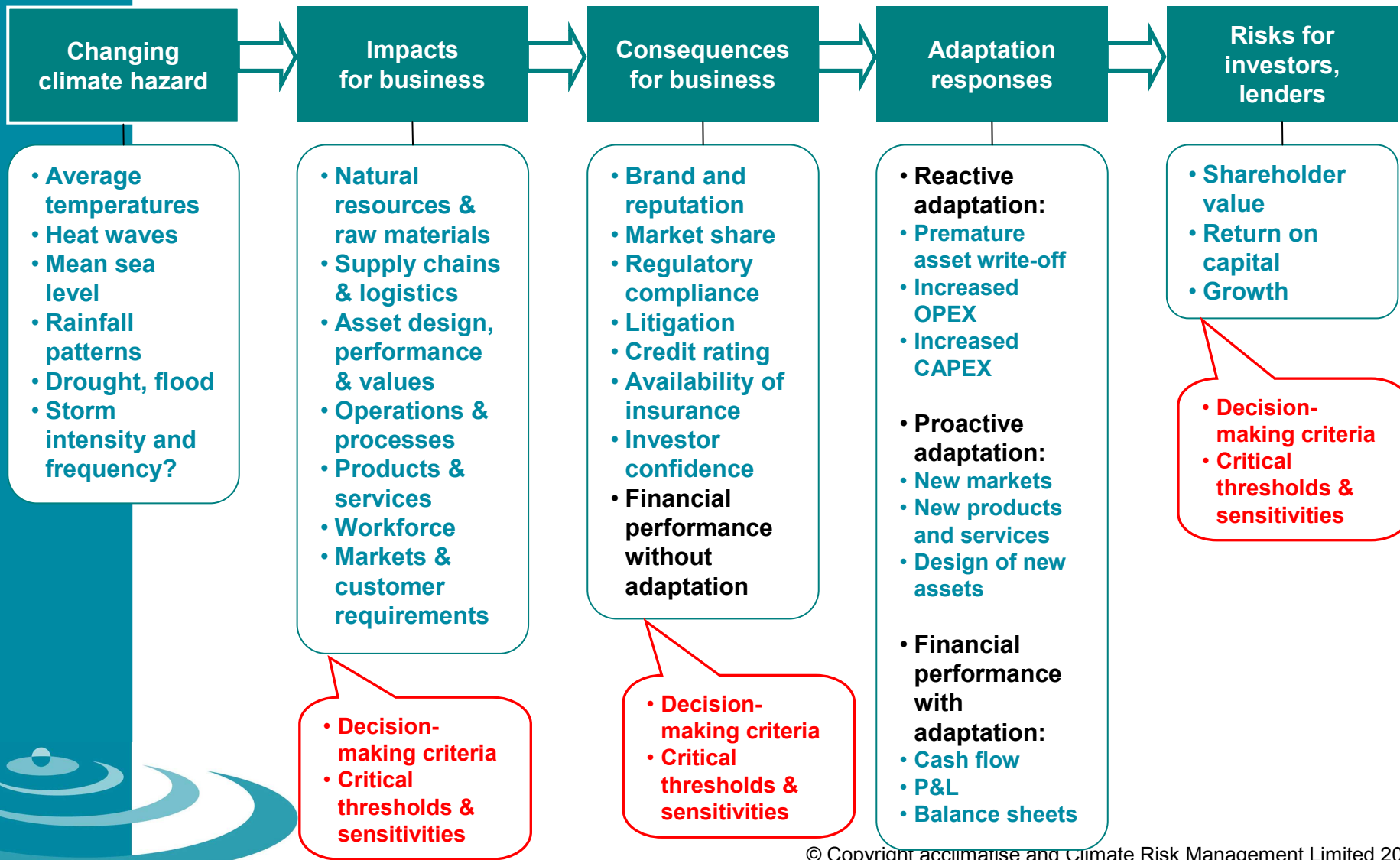
Typical questions that we are asked:

- How will climate change affect my business in the next 5, 10, 20, 40 years?
- How will it affect my particular assets around the world?
- Isn't it too far in the future to be relevant to my decisions today?
- What evidence is there that climate change is already affecting my kind of business?
- I've never had to worry about it before; why now?
- How much will it cost me if I do/don't adapt?
- How much adaptation should I do?
- Which adaptation measures should I choose?
- When should I adapt?

Barriers to business taking adaptation seriously today

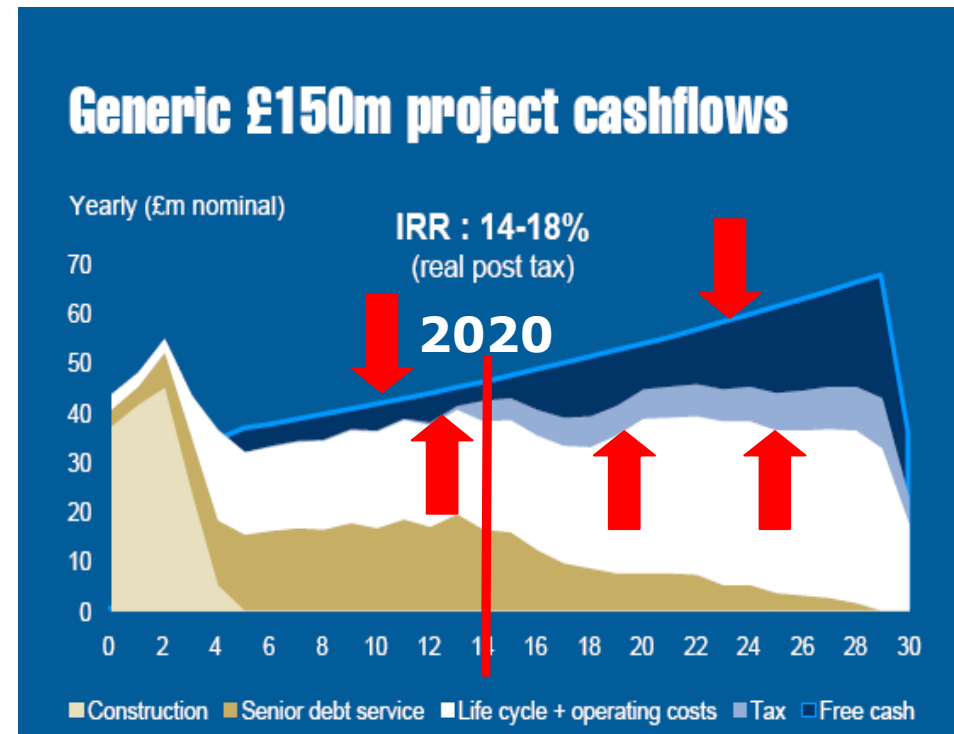
- Perception that climate change is ‘too far in future’ to be relevant to today’s decisions
 - Depends on who bears the costs of adaptation and when
- Perception that information on climate change is ‘too uncertain’ to be included in today’s decisions
- Understanding of how climate change will affect most business sectors is poor
 - Most research effort has focused on impacts on natural systems
 - Information does not demonstrate ‘business case’ for adaptation
 - Use of climate data by the private sector is seriously restricted by licensing issues
- Public sector regulations, guidelines etc don’t require it
- Some put climate adaptation into the ‘CSR/environment box’ and do not consider it a mainstream business risk issue

Understanding what climate risks and opportunities mean for business



Businesses want to incorporate climate risks into financial models for major projects

- Importance of cash flow forecasting
- Impact on profit of small % increase in operating costs
- Impact on profit of decrease in income



↑ ↓ Cost/income pressures on free cash
due to unmanaged climate risks

Large, fixed asset companies



Emerging good practice: Key issues companies are beginning to address in climate risk assessments

- Understanding current vulnerabilities and exposures
- Identifying decision-making criteria, critical thresholds and sensitivities
- Using latest climate change information
 - Where available!
- Evaluating how climate risks will change:
 - Over time
 - Geographically
 - Frequency and intensity
 - New risks?
- Identifying opportunities
- Designing in 'adaptability'
- Costs – determine economic case



Strategies being adopted for decision-making in the face of uncertainties in climate change

- **Climate variables with higher confidence:** Make an **allowance** for long term trends – e.g. for mean sea level rise (mm/year) over the lifetimes of coastal facilities.
- **Variables with lower confidence:** Undertake **sensitivity tests** for design options, to establish their sensitivities to more uncertain changes, such as changes in storminess or wave height.

Higher confidence

- Temperature
- Sea level
- Precipitation
- Sea water pH
- Storm intensities - storm surge, wave heights?



Lower confidence

Use of climate change Information

- Busy decision-makers address climate as one of a large number of risks – want central ‘best guess’ and ‘high’/ ‘low’ bounds
- More sophisticated users (e.g. water companies, geotechnical engineers) calling for probabilistic climate information, e.g:
 - single climate forecast to about 2030, incorporating natural climate variability, emissions & model uncertainties in one PDF for each climate variable
 - PDFs contingent on emissions scenarios for forecasts beyond 2030

Engineers' information requirements often do not match with information available from climate change models



- Threshold: Design criteria for offshore installations - 1 in 10,000 year wave height information is required
- Information on changes in **average** wave heights due to climate change is already difficult/highly uncertain
- And **1 in 10,000 year** information is nowhere to be found!
- (Of course, we could challenge the engineers' analyses of present-day 1 in 10,000 year event probability too – but these have already 'gained acceptance').

For many parts of the world, only global climate model data are available, for 'end of century' time periods

- Global climate models are at coarse spatial resolution – typically 2.5°x2.5° (approx 200-300km grid)
 - They do not adequately capture local detail, e.g. topography and its impacts on precipitation
- For the most part, regional climate models have been run only over developed countries (Europe, N America)
 - But many large fixed assets are in developing countries, remote offshore locations
 - Businesses want climate change data that are specific to their locations, at a suitable spatial scale
- Often, model output is for 2080s, but businesses want information for next 10, 20, 40 years

Financial services sector

- Starting point – a low base
- At present, few financial services companies are seriously addressing the risks and opportunities from climate change
- Most investors, fund managers, banks lack capacity to assess climate risks to their portfolios
- But they are beginning to ask the right questions!
- They are most concerned about their investments/loans to large, fixed asset sectors, whom they consider are at greatest risk



Investors are asking difficult questions of the companies in which they invest

- Global Framework for Climate Risk Disclosure: Published by a group of leading global institutional investors (Oct 2006):
 - *“Climate change is beginning to cause an array of physical effects, many of which can have significant implications for companies and their investors.”*
 - *“To help investors analyze these risks, investors encourage companies to analyze and disclose material, physical effects that climate change may have on the company’s business and its operations, including their supply chain.”*
- Carbon Disclosure Project: Annual questionnaire from institutional investors (\$20trillion assets) to FT500 companies:
 - *“The mainstream investment community has woken up to the financial implications of climate change*
 - *Companies are likely to face increased pressure from financial market authorities, fiduciaries, company officers and accounting bodies to deal with climate risk factors*
 - *Climate change and shareholder value are becoming more closely intertwined.”*

Climate risks and the banking sector

- Banks need to understand climate change risks and opportunities for core lending books:
 - Climate risks could impair cash-generating ability of bank loans and investments
 - Climate risks need to be considered in credit assessment and lending portfolio planning
- Banks have opportunity to influence covenants and warranties to minimise credit risk, operational risk and regulatory risk
- *“To protect future profits, the companies to which they are lending could be encouraged to plan for climate change.”*

Source: Climate change: Business as usual?
London Climate Change Partnership Finance
Group, 2006

Our discussions with private sector banks and institutional investors

- We are currently working with a number of major banks and institutional investors:
 - Developing their fundamental understanding through case studies in sectors where they have greatest exposures
 - Incorporating climate risk screening into credit risk assessments
 - Incorporating climate risk screening into due diligence processes
 - Comparing climate vulnerabilities/exposures of companies in the same sector, to identify ‘winners and losers’
 - Defining questions for investors to ask of companies, about how climate risks have been managed
 - and providing guidance on how to identify a good answer!
 - Analyses are ‘high-level’, mostly qualitative at present



Thank you

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