

Climate change adaptation decisions in the private sector

Dr Richenda Connell, CTO & co-founder Acclimatise

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Two questions

1. How useful is ESIA / EIA as a tool for integrating adaptation into project-level decision-making?
2. How can resilient project-level decisions be made in the face of climate change uncertainties?



Relationships: Public, private, funders

- **Government SEA:**
 - Sets strategic framework for regulator when considering project-specific EIAs
- **Private sector project funders:**
 - Country and sector strategies – set out overall investment strategies
 - Review of feasibility studies
 - Environmental and social policies and procedures
- **Both can (and should) provide important drivers for project-level adaptation**



Phases in the asset lifecycle

IDENTIFY

EVALUATE

DEFINE

EXECUTE

OPERATE

DECOMMISSION

Select concept

Sanction

Start up

GOALS

Establish preliminary scope & business strategy

Establish development options & execution strategy

Finalize scope & execution plan

Detail & construct asset

Operate, maintain & improve asset

Decommission asset & manage ongoing liabilities

PROCESSES / ANALYSES

- Pre-feasibility studies
- Business model development

- Feasibility studies
- Conceptual design
- ESIA scoping & baseline
- Cost estimating
- Contract planning

- Preliminary engineering (FEED)
- Full ESIA & ESAP
- Cost estimating
- Final investment decision
- Execution planning

- Detailed engineering
- Engineering, Procurement & Construction Management (EPCM)

- Asset management
- Operations & maintenance

- Decommissioning plan



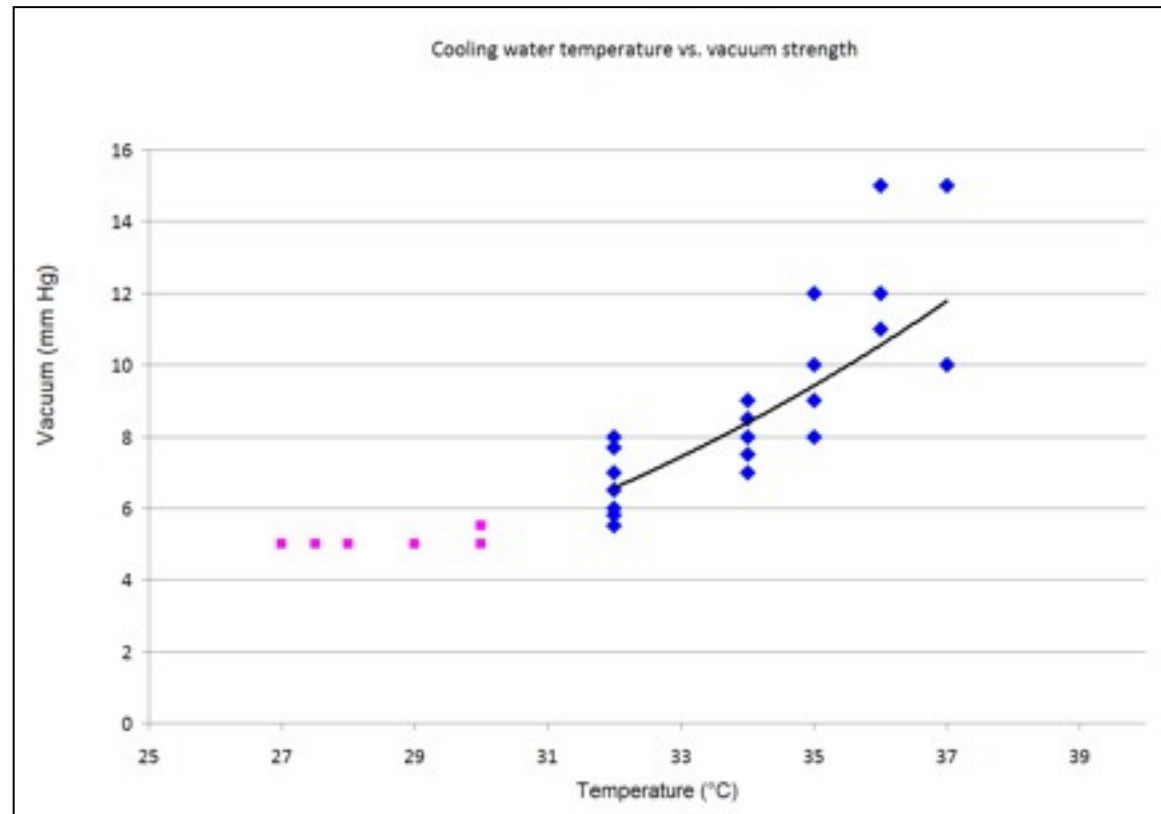
Brewery, Caucasus

- Availability and price of barley, hops
- Efficiency of production machinery
- Energy security
- Disruption of transport networks
- Market demand
 - more beer sold in European summer 2003 heatwave



Revenue losses, palm oil refinery, Ghana

- Refinery needs high vacuum to remove free fatty acids from crude oil
- Designed for max cooling water temperature of 32°C
 - Exceeded 2% of time based on (historic) design conditions
 - Exceeded 22% of time by 2020s



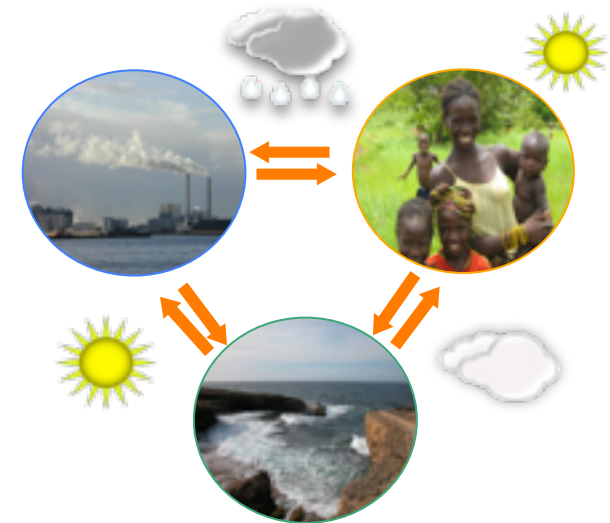
(Stenek & Connell, forthcoming)



BG Group: Mainstreaming adaptation



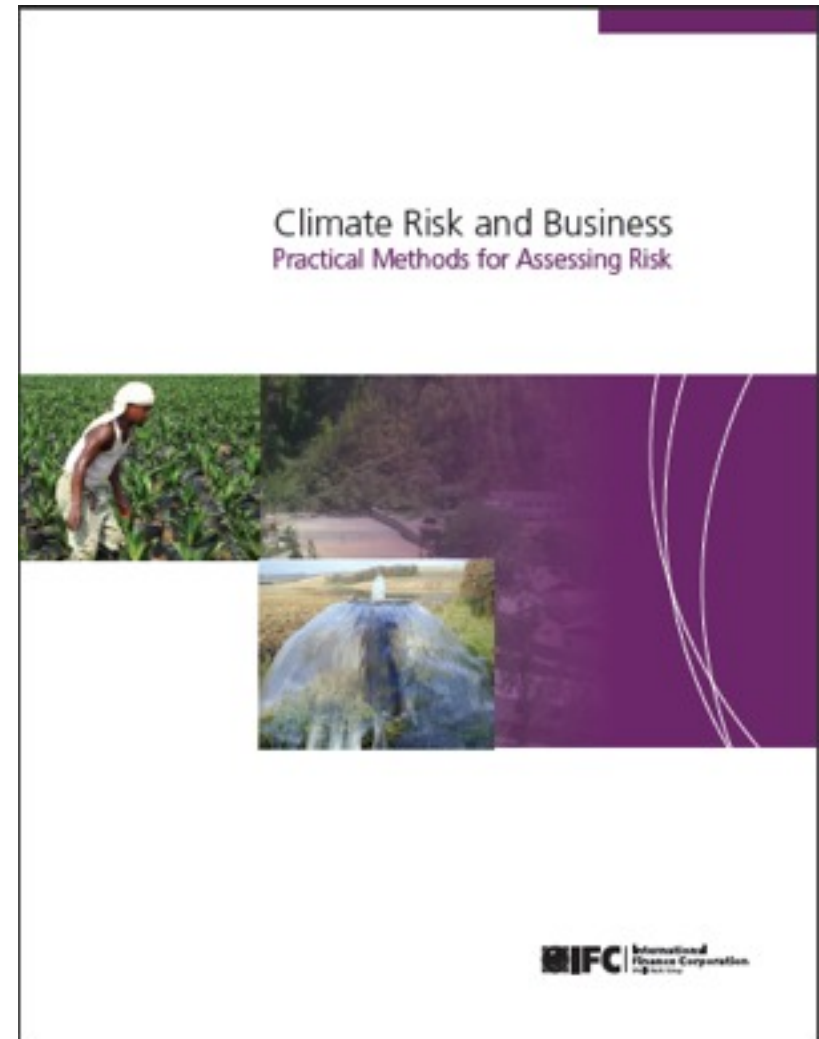
- **Mandatory** climate change adaptation requirements
- **Climate Change Risk Management Framework (CCRM)** for new projects and existing assets:
 - **Step-by-step** process, based on BG Group Business Risk Management Process
 - **Database** of observed and projected climatic conditions
 - **New projects** – issues are incorporated in project **engineering design** and **ESIAs**
 - **“Climate change may directly affect the communities and ecology close to our operations. We will work with stakeholders to identify adaptation strategies and goals which provide mutual benefits.”**



(BG Group Sustainability Reports, 2008 & 2009)

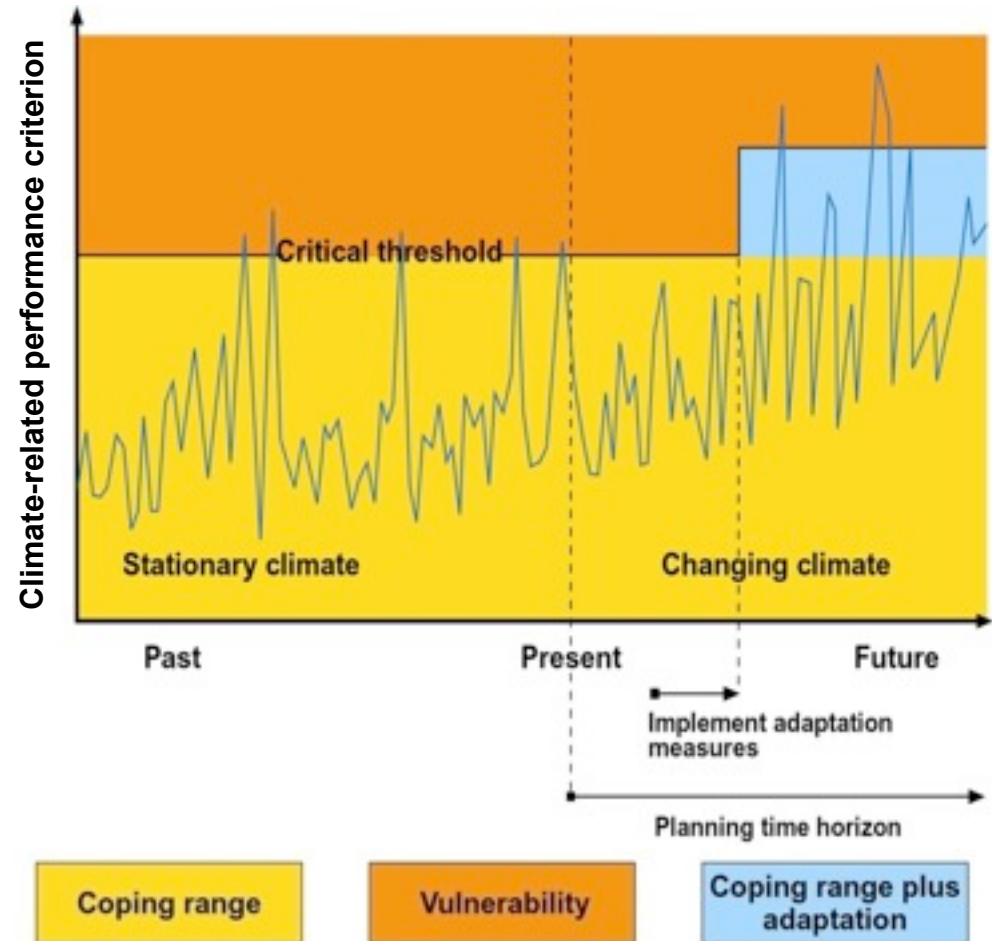


Decision-making on climate change in the face of uncertainties



Identify climatic sensitivities and critical climatic thresholds

- Equipment efficiencies sensitive to temperature changes
- Flood risk standards
- Opening / closing dates for crossing Arctic tundra
- Cooling water requirements
- Discharge consents
- Tensions & conflicts with communities over water resources

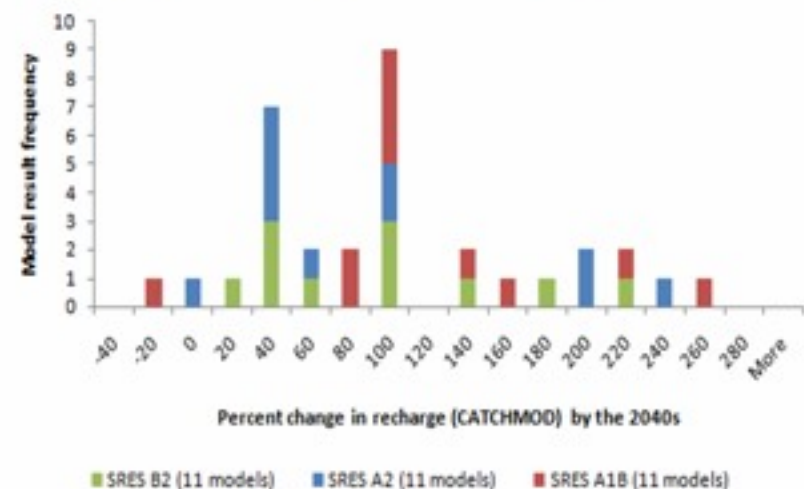
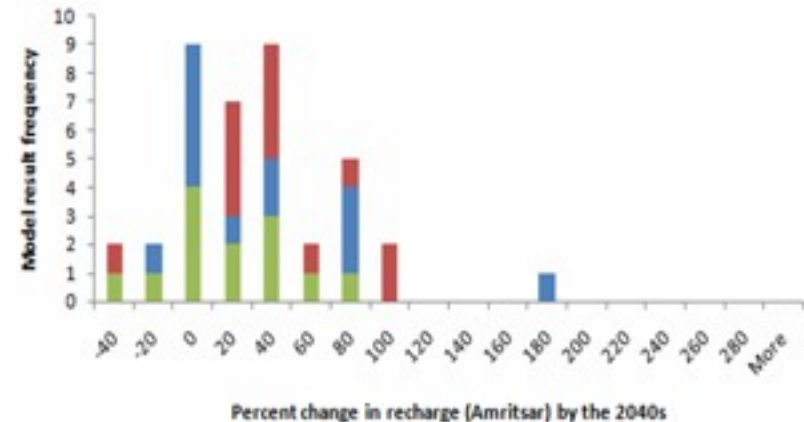


(Willows and Connell, 2003)



Assess uncertainties in climate change impacts

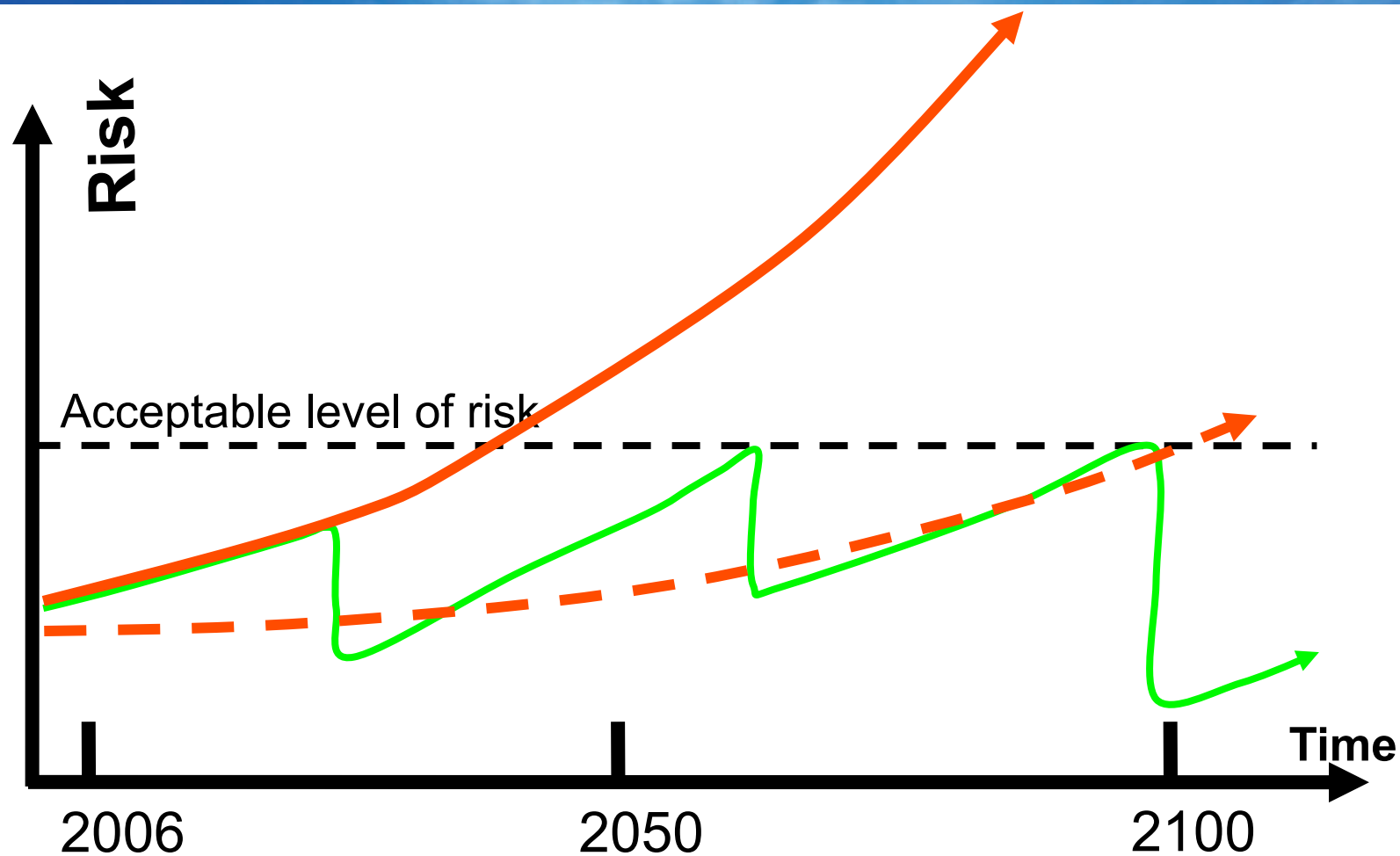
- Histograms – frequency of projected changes in groundwater recharge in Punjab, Pakistan for 2040s
- 2 groundwater assessment methods, 13 climate models, 3 greenhouse gas emission scenarios



(Stenek et al, 2010)



Thames Estuary 2100: An adaptive approach to managing climate risks through the 21st century



(UK Environment Agency)



Participatory approaches

- Decision-makers know their own systems
- Work through climate change problems closely with them – meetings & workshops
- More effective than handing over a weighty technical report



Two answers

1. ESIA / EIA is a useful tool for integrated thinking on adaptation, but it's not enough on its own.
2. Uncertainty about the future need not lead to paralysis. Various techniques can help in resilient decision-making on adaptation.



Thank you

