5 OCTOBER 2017

The finance sector as a driving force

SESSION B

Activities in the Finance Sector

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Finance sector leadership on natural capital

Secretariat:
UNEP FINANCE INITIATIVE
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Kicking-off Natural Capital in an Insurance Company

Christopher Bonnet
Risk Consultant
Allianz Global Corporate & Specialty

Allianz

Natural Capital Finance Alliance

Danielle Carreira
Frankfurt - October 2017

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What is Natural Capital?

Stock of natural resources + flow environmental services they provide

As stocks decrease => is service provision diminished?

Natural Capital – The Challenge

- The environmental change sweeping the world is occurring at a faster pace than previously thought[1]

- During the last century, the planet has lost 50% of its wetlands, 40% of its forests and 35% of its mangroves. Around 60% of the Earth's ecosystem services have been degraded in just 50 years

- In almost every region, population growth, rapid urbanization, rising levels of consumption, desertification, land degradation and climate change have combined to leave countries suffering from severe water scarcity[1]

- By 2050, global water demand is projected to increase by 55%, mainly due to growing demands from manufacturing, thermal electricity generation and domestic use[2]

1) UNEP (2016): *Global Environmental Outlook (GEO-6): Regional Assessments*
2) WWAP (2015): *The United Nations World Water Development Report*
3) Financial Times (2014): *A world without water*

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Droughts

Drought, California, USA
July 2011 – Jan. 2014

Image source:
California Department of Water Resources

Deforestation

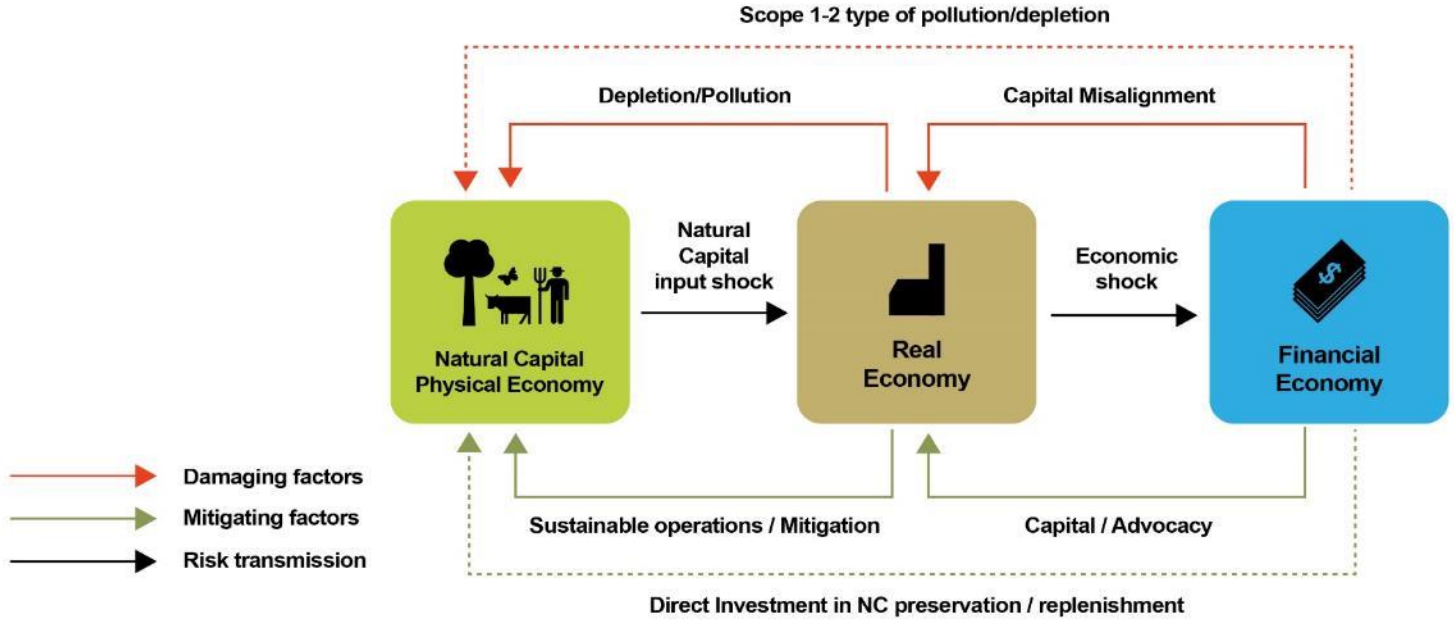
Deforestation, Rondonia, Brazil
June 1975 – Sept. 2001

Image source:
Google https://googleblog.blogspot.com/2009/12/seeing-forest-through-cloud.html

Who depends on Natural Capital?

- **Food and Beverage**: Unilever purchases nearly 3% of the world palm oil production – largest single purchaser.
- **Forests:** an estimated 1.6 billion people in the world rely heavily on forests resources for their livelihoods
- **Construction and Real Estate**: requires significant amounts of timber, stone, iron, minerals and land
- **Utilities sector**: depends heavily on water. EDF withdrew 49.8 billion m3 of water for cooling purposes
- In 2011-14 companies spent more than $84bn worldwide to improve the way they conserve, manage or obtain water[3]

Linking finance to natural capital



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An overview

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NCFA: A powerful finance-led initiative

The Natural Capital Finance Alliance

- 45 Signatories
- Even split between Southern and Northern Hemispheres
- Half are banks
- The other half includes asset managers, development finance institutions, asset owners and insurance companies

- Steering Group chair: Yes Bank
- Steering Group members: UniCredit, CDC Biodiversite, Banorte, Citi, National Australia Bank, IFC, VicSuper, WWF, IUCN

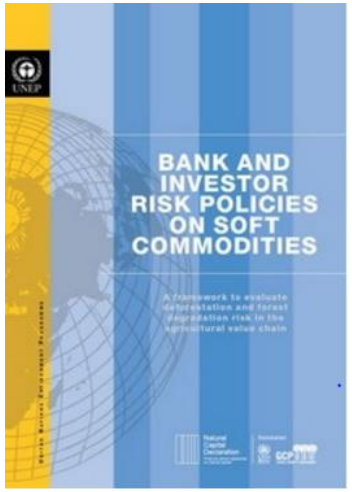
- Secretariat shared between UNEP Finance Initiative and Global Canopy Programme

Signatories

Supporters

NCFA - Tools and methodologies

Soft Commodity Forest Risk Tool



Self-assessment tool that enables banks, investors and other financial institutions to take action by using the tool to inform, develop or update their soft commodity risk policies

Water Risk Corporate Bonds Tool

Self-assessment tool for financial institutions to incorporate water risk in corporate bond credit risk analysis and integrate water stress into company credit analysis

Water Risk Equities Tool

Tool that enables analysts to incorporate water risks into company valuations across copper and gold mining companies

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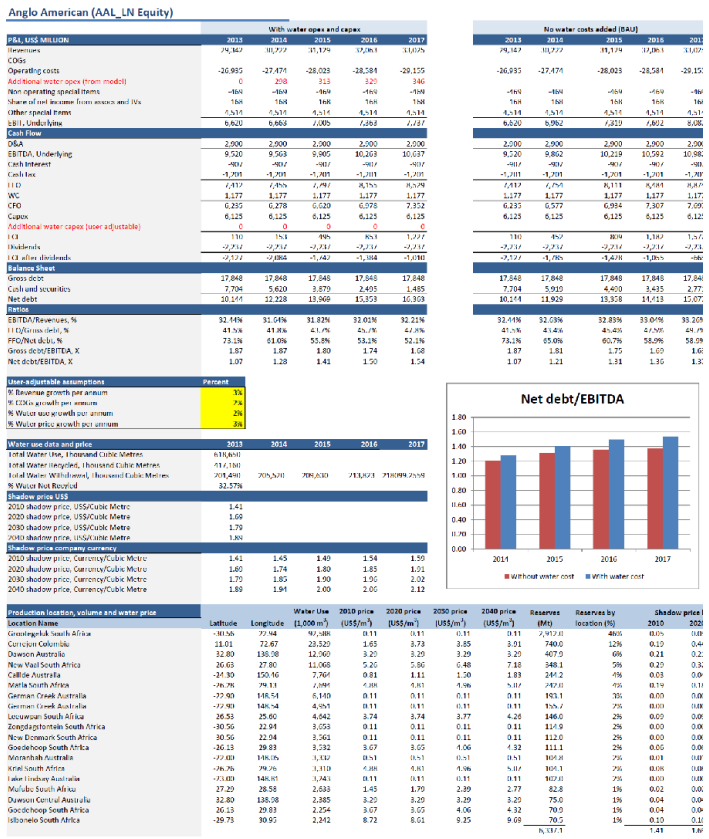
Water Stress and Corporate Bonds

- The top half of each Excel sheet is a standard credit analyst company model generating five credit ratios

- The lower part of each sheet contains data on water consumption and locational shadow water prices. It uses location-specific information about firms' operations and water use to calculate the company-specific water costs to link water use and water stress data

- The credit ratios are adjusted for the water cost



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Water Stress and Equities

Bloomberg

Water Risk Valuation Tool

Select a company:

Argonaut Gold Inc

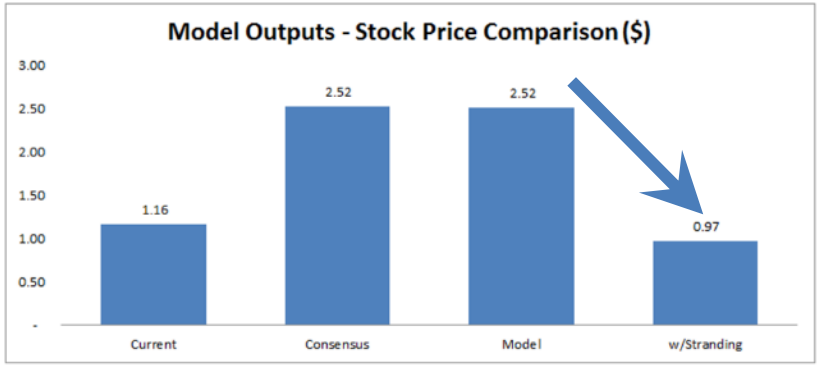
Set a scenario to test potential water stranding:

1. Impact of water supply gap on production
Moderate
2. Company reaction to water scarcity*
Reduce Production
3. Regulatory action: all water diverted for domestic use at this supply-demand gap %

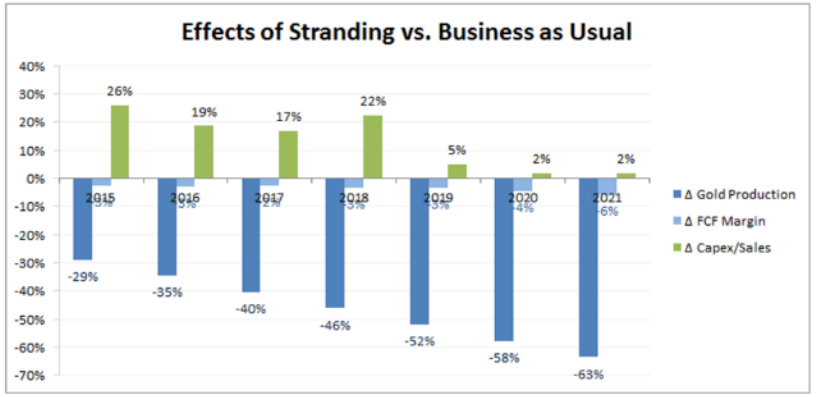
* a combination fo both "Reduce Production" and "Invest in CAPEX" can be achieved by setting "2. Company reaction to water scarcity" to "Invest in CAPEX" and reducing production on "Production & Water Demand" tab

Additional Water Procurement Related Costs -USD/short ton throughput	Gold	Copper
Desalination - operating cost	0.5	3
Recycling - operating cost	0.2	0.2
Other operating cost		
Capex Spend (USD/m3)	3	5
Capex - Year Incurred	2015	

Currency	USD	
WACC	4.71%	
Growth Rate	2.09%	
Water intensity (m3/oz) Au	16.00	
Water intensity (m3/short ton) Cu	120.45	
Valuation Model:	EV/EBITDA	
Include TEV Data?	N	



*Prices in USD



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Drought Stress Test for Banks Portfolios

Develop and test an analytical framework and model that allows banks to assess the potential impact of environmental shocks on the performance of their corporate loan portfolio in Brazil, China, Mexico and USA.

Bundesministerium für wirtschaftliche Zusammenarbeit und Entwicklung

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EMERGING MARKETS DIALOGUE ON FINANCE

Drought Stress Test for Banks Portfolios

Implementation Partners	RMS, University of Cambridge, University of Oxford
Expert Council	MERCER, MSCI, Standard & Poor's Ratings Services (McGraw Hill Financial), 中央财经大学图书馆 Central University of Finance and Economics Library, UCL, Inquiry: Design of a Sustainable Financial System, Bloomberg, Resources for the Future
Partner Banks	Santander, Banamex, citi, UBS, Itaú, CAIXA Caixa Econômica Federal, ICBC, FIRA Fideicomisos Instituidos en Relacion con la Agricultura, Banorte

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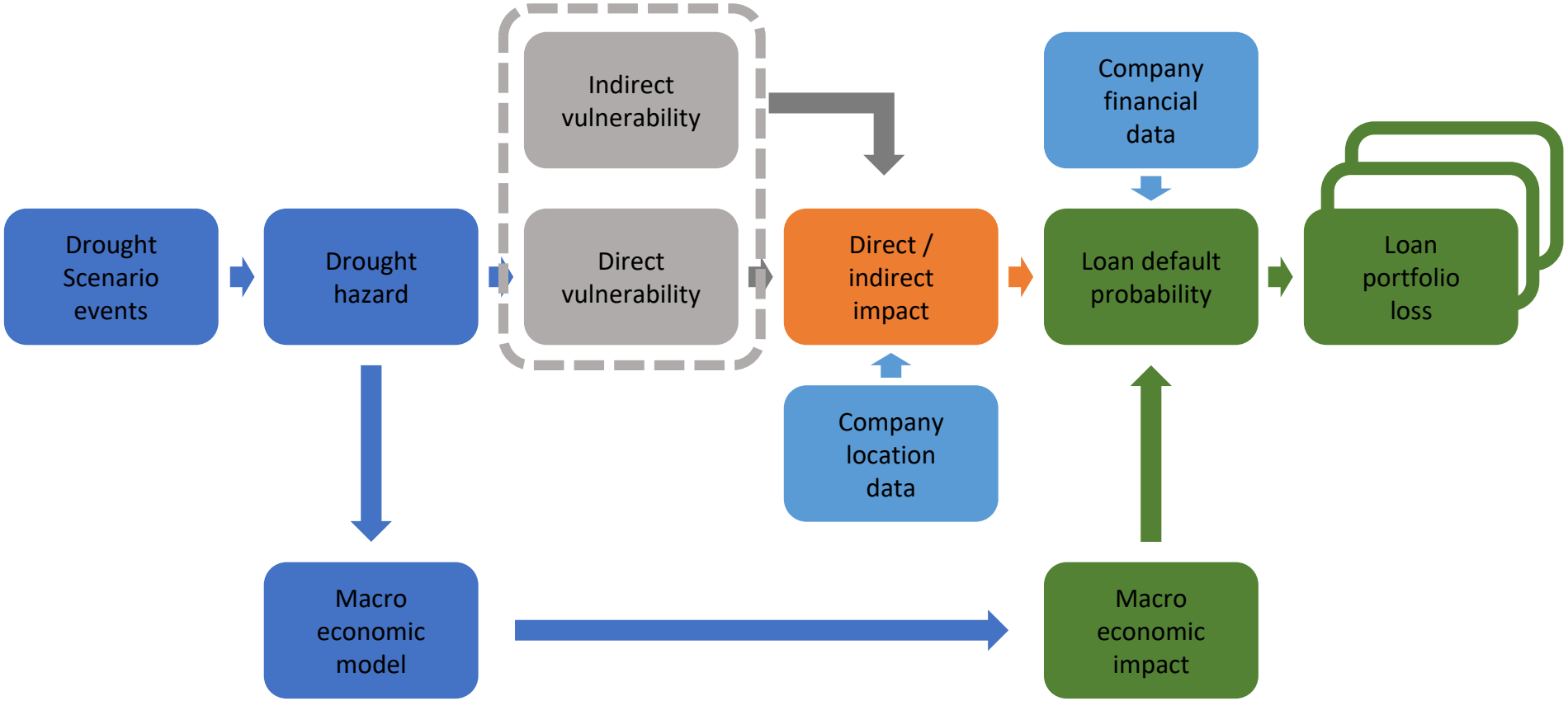
Emerging Markets Dialogue on Finance

Drought Stress Test for Banks Portfolios



High level example

Company data (sector / location / financial)	Drought Scenario hazard	Sectoral impact (direct / indirect)	Change in revenue and COGS	Loan default probability and $ loss
Food and beverage manufacturing	Severe five-year drought in West and Central United States	Reduced water supply in Chicago restricts bottling plant operations	Revenue decreases by 40% to $60MM due to decreases in productivity	Reduced revenue and greater costs increase probability of default
Production facilities in: • Chicago • Indianapolis • San Francisco	Reduced rainfall in certain regions by 90%	Power supply from hydro electric supply reduced by 80%, forcing other sources to be used	Water costs increase by 60%	In 3rd year of drought, company becomes insolvent
• $75MM loan • $100MM rev. • $30MM costs		Reduced availability of raw food products from California	Power costs increase by 40% Costs increase by 30% to 40MM	Loan default, and loss to FI of $75MM

Advancing Environmental Risk Management – AERM

How does natural capital risk affect businesses?

- What are the dependencies?
- Do dependencies mean risk?
- Evidence base for assessments

How can FIs integrate natural capital risk in their assessments?

- Risk exposure and mitigation assessment
- Pilot selection
- Quantification
- Integration

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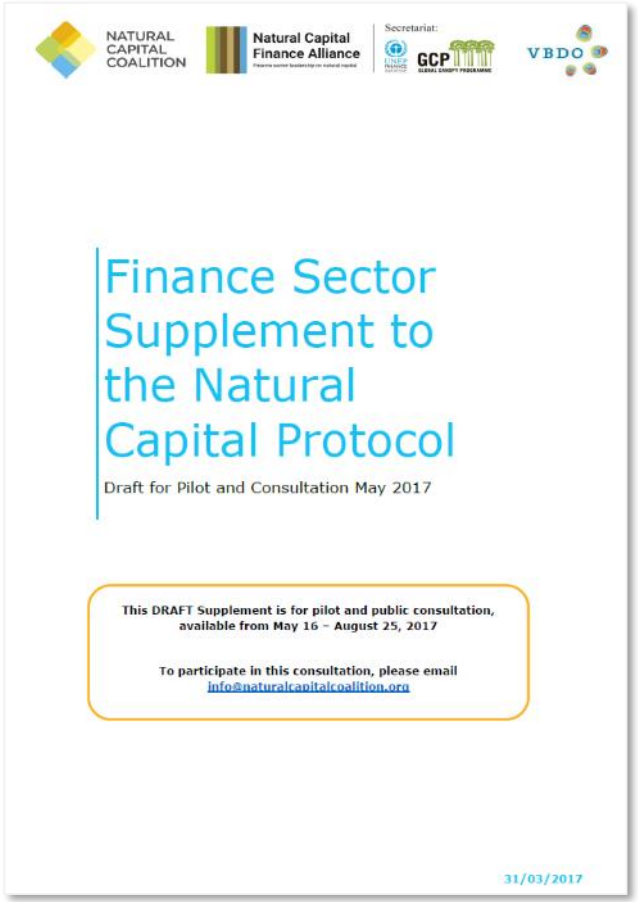
Confederazione Svizzera
Confederaziun svizra
Swiss Confederation
Federal Department of Economic Affairs, Education and Research EAER
State Secretariat for Economic Affairs SECO

Financial Sector Supplement to the Natural Capital Protocol



The Finance Sector Supplement will help financial institutions incorporate consideration of natural capital **impacts and dependencies,** and to better **assess risks and opportunities,** into their **lending, investment and insurance** practices and processes.

- Project launched in October 2016
- Public consultation launch in May 2016: engagement process reached 581 individuals in total
- Public launch of the Supplement planned for the first quarter of 2018.

VBDO
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NATURAL CAPITAL: AN INDUSTRIAL INSURER'S PERSPECTIVE

It can improve the view on potential risks at industry operations and supply chains (and therefore our portfolio):

1. Increased awareness for more transparency
2. Moving from qualitative to quantitative information
3. Monetization based on assumptions
4. Understanding frequency and likelihood
5. Understanding triggers
6. Understanding impact

„If you can‘t measure it, you can‘t manage it“

It can improve the approach on Natural Capital related risk management measures:

1. Management of Natural Capital demands new risk management solutions
2. We clearly see the potential for proactive and innovative risk management reducing the risk at our (prospective) clients (and therefore our portfolio)

Allianz Global Corporate & Specialty plans to publish a report on Natural Capital from an industrial insurer‘s perspective the coming months.