QUANTIFYING THE NATURAL CAPITAL RISK EXPOSURE OF FINANCIAL INSTITUTIONS IN BRAZIL

PRESENTATION OF THE JOINT STUDY

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DECEMBER 2014

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ABOUT TRUCOST

Trucost helps investors to understand the economic consequences of natural capital dependency in order to identify risk and opportunity from growing natural resource pressures and environmental costs.

IMPORTANCE OF THIS STUDY

Some drivers take a long time to materialize and require government intervention but there are other mechanisms by which **external costs can be rapidly internalised** by economies, companies, investors.

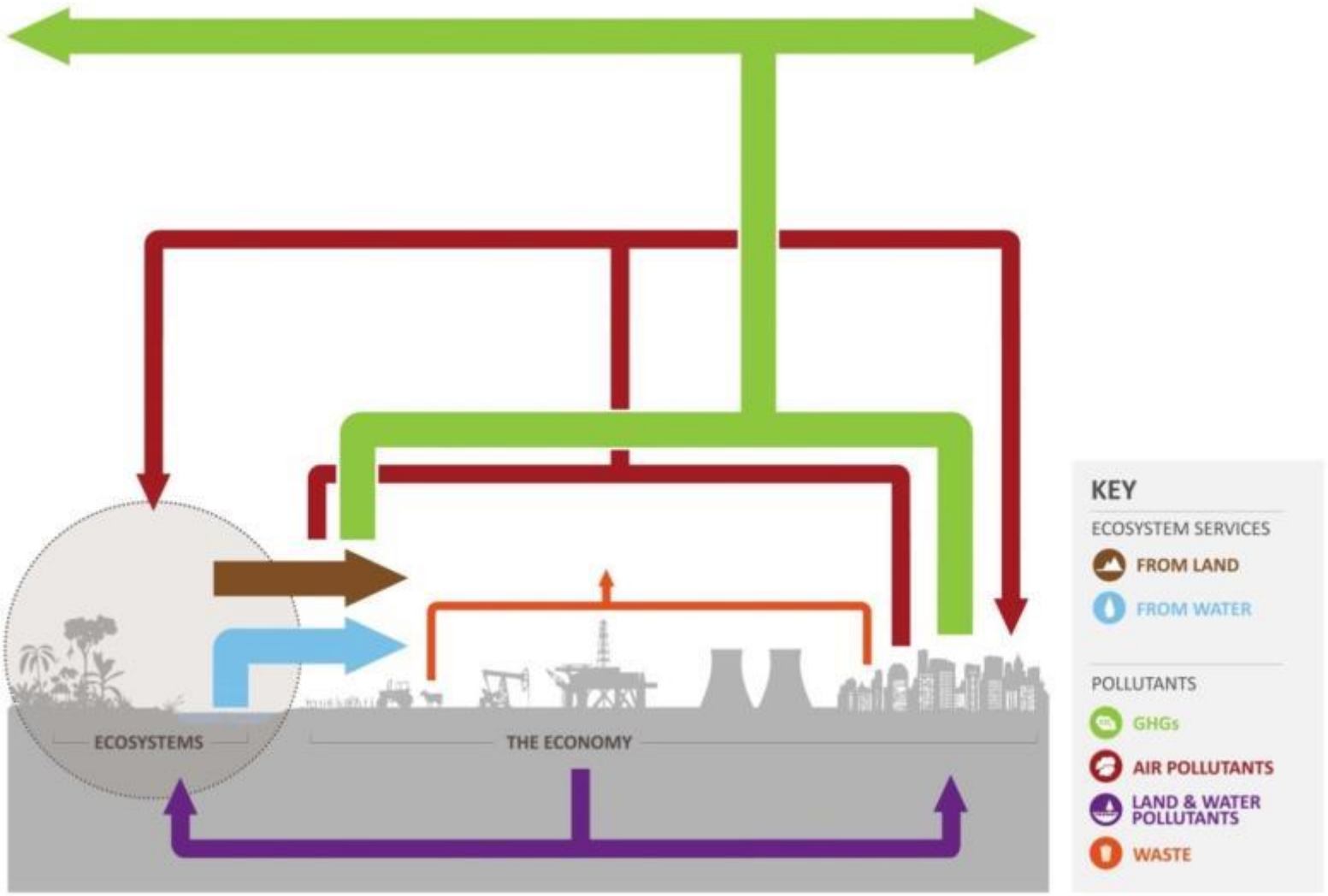
This study is a **first step** to demonstrate how natural capital accounting can be used to analyse companies, portfolios and loans.

Investors and banks will need to **apply the approach** to their own investments in order **to quantify the risks**.

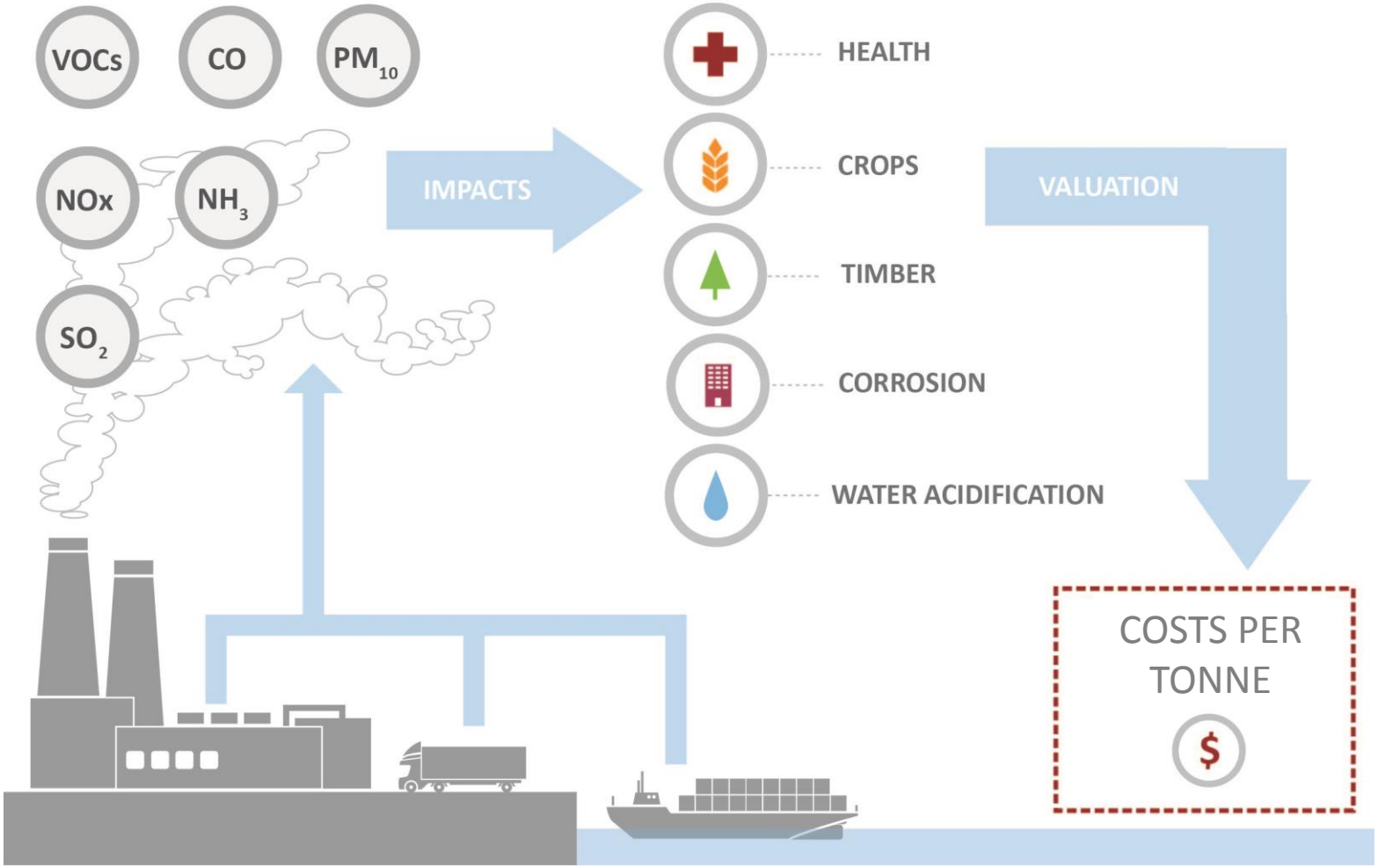
Risk teams need to anticipate these material issues, first quantifying risks to investments and then financing.

What is natural capital and how do we account for it?

NATURAL CAPITAL



NATURAL CAPITAL ACCOUNTING



WHAT IS THE SCALE?

$2.2tn

Environmental damage caused by world's largest 3,000 companies

>50%

Proportion of company earnings that could be at risk from environmental costs

VALUING NATURAL CAPITAL HELPS US TO:

- DETERMINE IMPACT MATERIALITY
- ASSESS ENVIRONMENTAL TRADE-OFFS
- UNDERSTAND REGIONAL RISK DIFFERENCES
- INTEGRATE THE RESULTS WITH BUSINESS METRICS
- COMMUNICATE THE RESULTS TO A GENERAL AUDIENCE

TRENDS IN NATURAL CAPITAL ACCOUNTING

LEADERSHIP INITIATIVES

TRUCOST

UNEP Finance Initiative
Innovative financing for sustainability

PRI Principles for Responsible Investment

Natural Capital Declaration

GCP

INVESTORS

SOVEREIGN

WAVES

CONSERVATION INTERNATIONAL

NGOs

The Nature Conservancy
Protecting nature. Preserving life.

Coca-Cola

CORPORATIONS

FEMSA

novo nordisk

Weyerhaeuser

DOW

natura
bem estar bem

MONSANTO

MULTI-STAKEHOLDER GROUPS

NATURAL CAPITAL COALITION

wbcsd

THE B TEAM

Yarra Valley Water

VEOLIA WATER

GENERAL MILLS

BECKER UNDERWOOD

Why is this relevant for Brazilian financial institutions in particular?

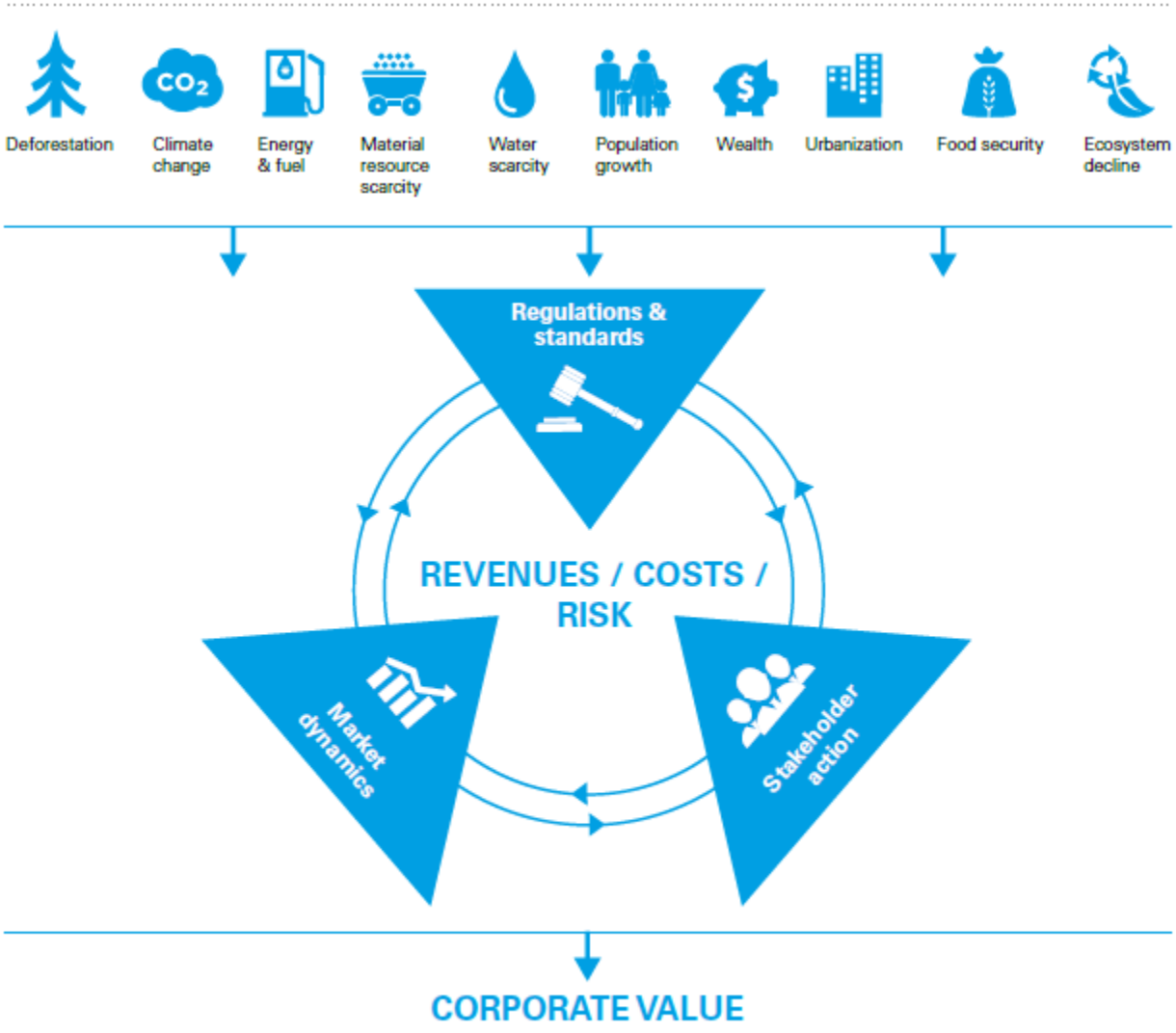
RELEVANCE FOR BRAZILIAN FINANCIAL INSTITUTIONS

Economic reliance on natural capital	Agriculture accounted for 22% of Brazil's GDP in 2012
Demand and supply side pressures	Rapidly growing population
Strengthening legislation	Potential compliance or litigation costs
Equity investments	28% of PF assets invested in equities - high exposure to companies facing natural capital costs
Corporate bonds	Internalising costs could lead companies to default
Corporate lending	Food and bev = largest sector for lending and highly dependent on natural capital

LACK OF A FRAMEWORK FOR TAKING ACCOUNT OF NATURAL CAPITAL RISK

What are the drivers for internalising environmental costs and why is it a risk now?

FACTORS THAT INTERNALISE AN EXTERNALITY



Source: KPMG (2014). *A New Vision of Value: Connecting corporate and societal value creation.*

WHY IS INTERNALISATION A RISK NOW?

- Changing demographic
- Public awareness
- Increasing regulation/voluntary commitments
- Market dynamics
- Stakeholder action
- Climate risks
- Resource depletion

Key findings from the report

KEY FINDINGS FROM THE REPORT

- Unpriced natural capital costs of companies could be as much as R$1,646bn
- Banks are most exposed through financing of cattle ranching, fishing, food and beverages and agriculture
- Pension funds are most exposed through investments in food and beverage companies
- The natural capital risk exposure of financial institutions can vary significantly

KEY FINDINGS FROM THE REPORT

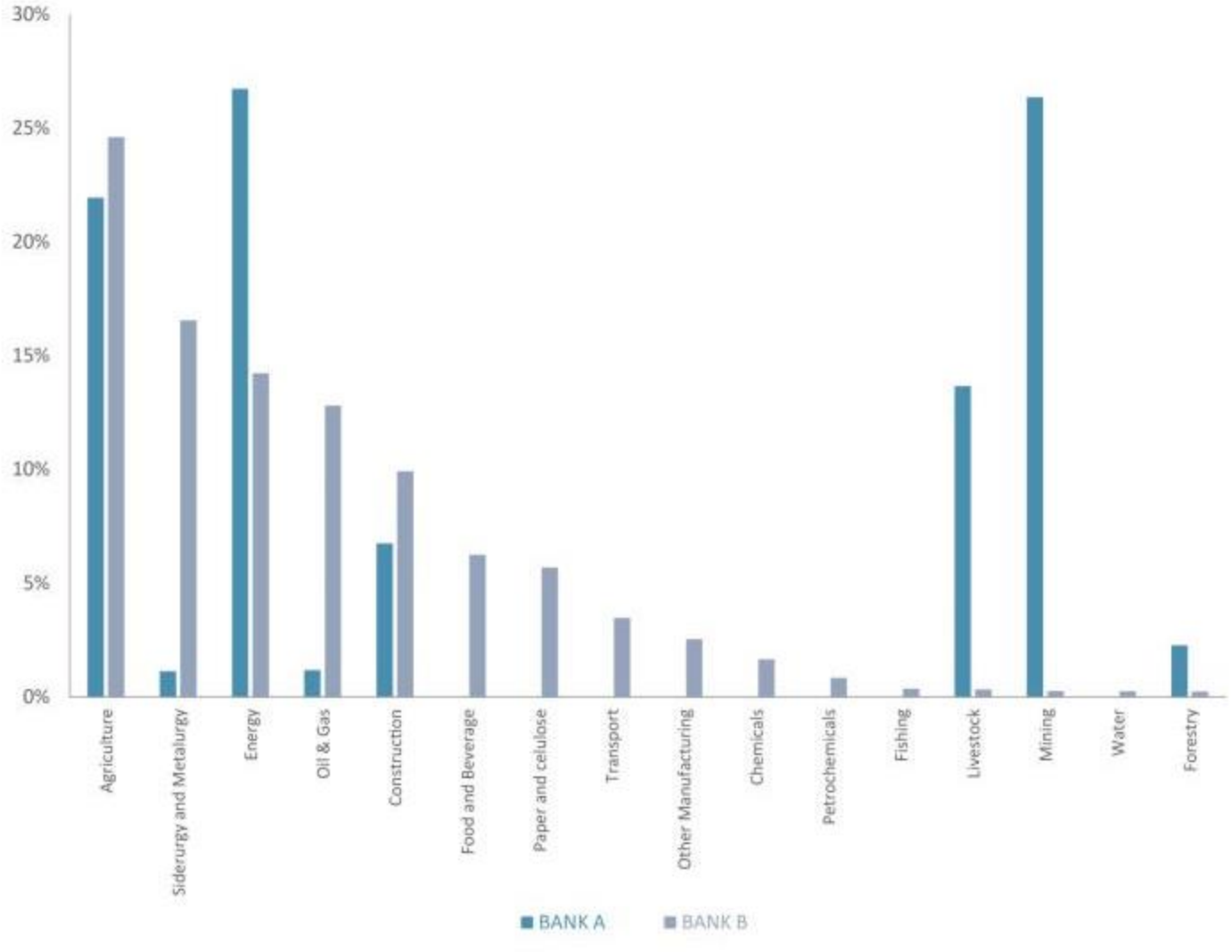
- The sectors cattle ranching, soya bean farming, crude petroleum and natural gas extraction have the highest natural capital costs

- The highest natural capital intensity sectors (unpriced natural capital costs per R$m of production) include cattle ranching, fats & oil refining, aquaculture, cotton farming, sugarcane farming and cement manufacturing

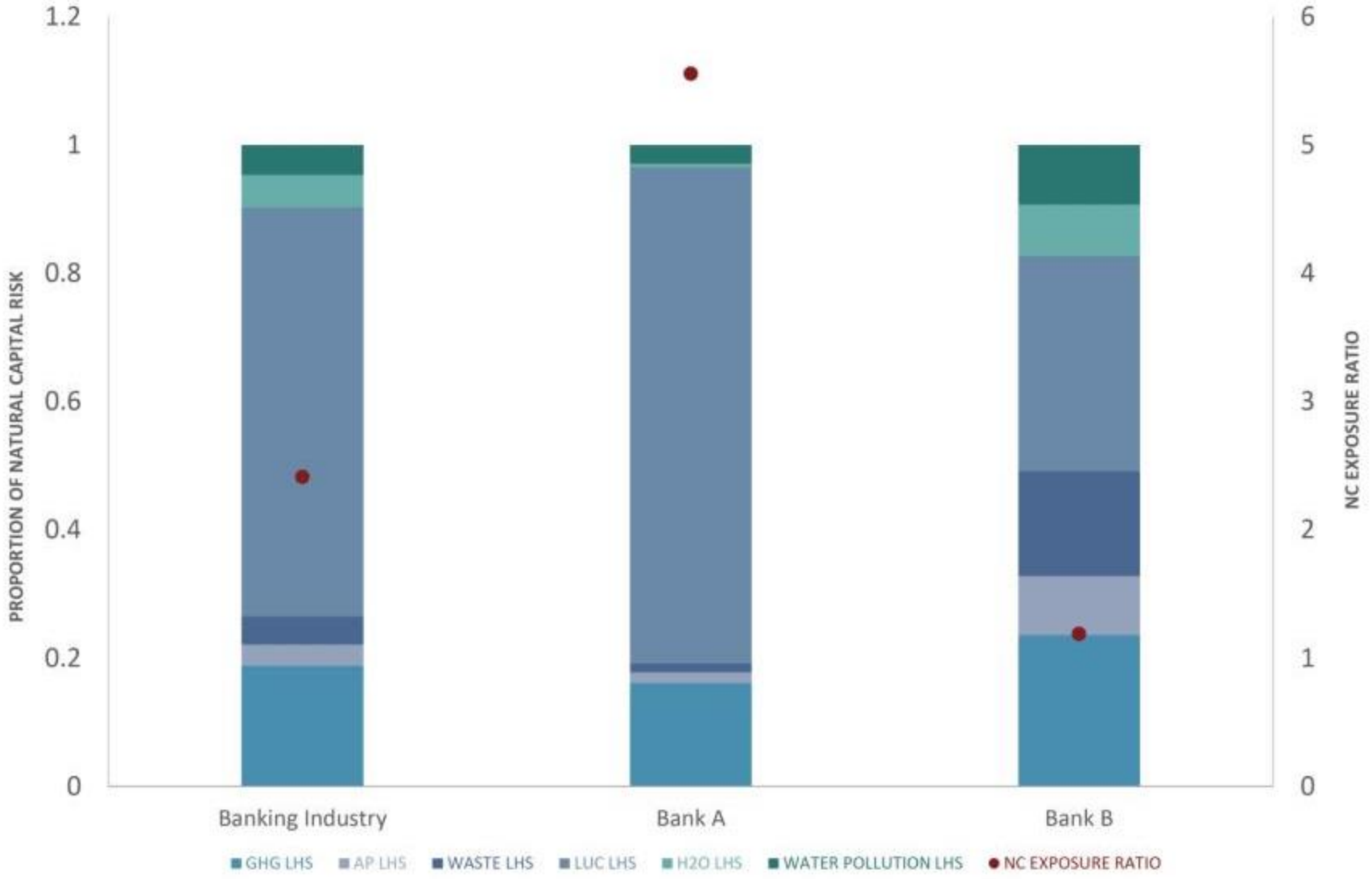
- The North of the country has the highest land use conversion cost because it is principally made up of Amazon rainforest

- There is a marked difference in the natural capital impacts of soy production in the two principal production zones

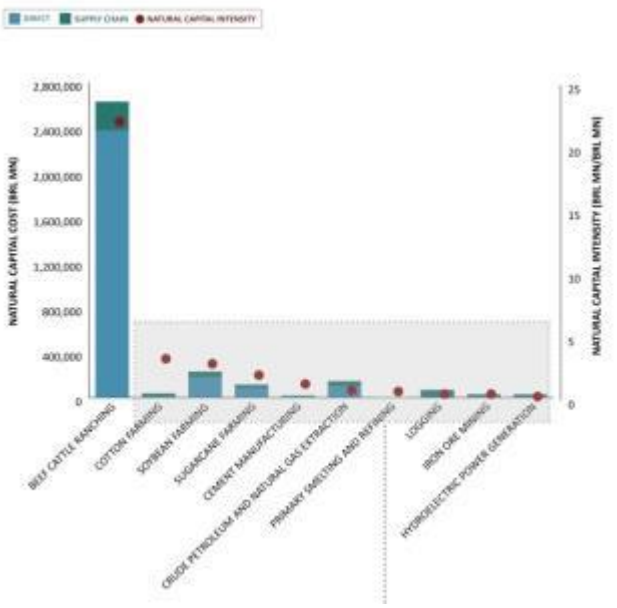
CREDIT EXPOSURE OF TWO BANKS

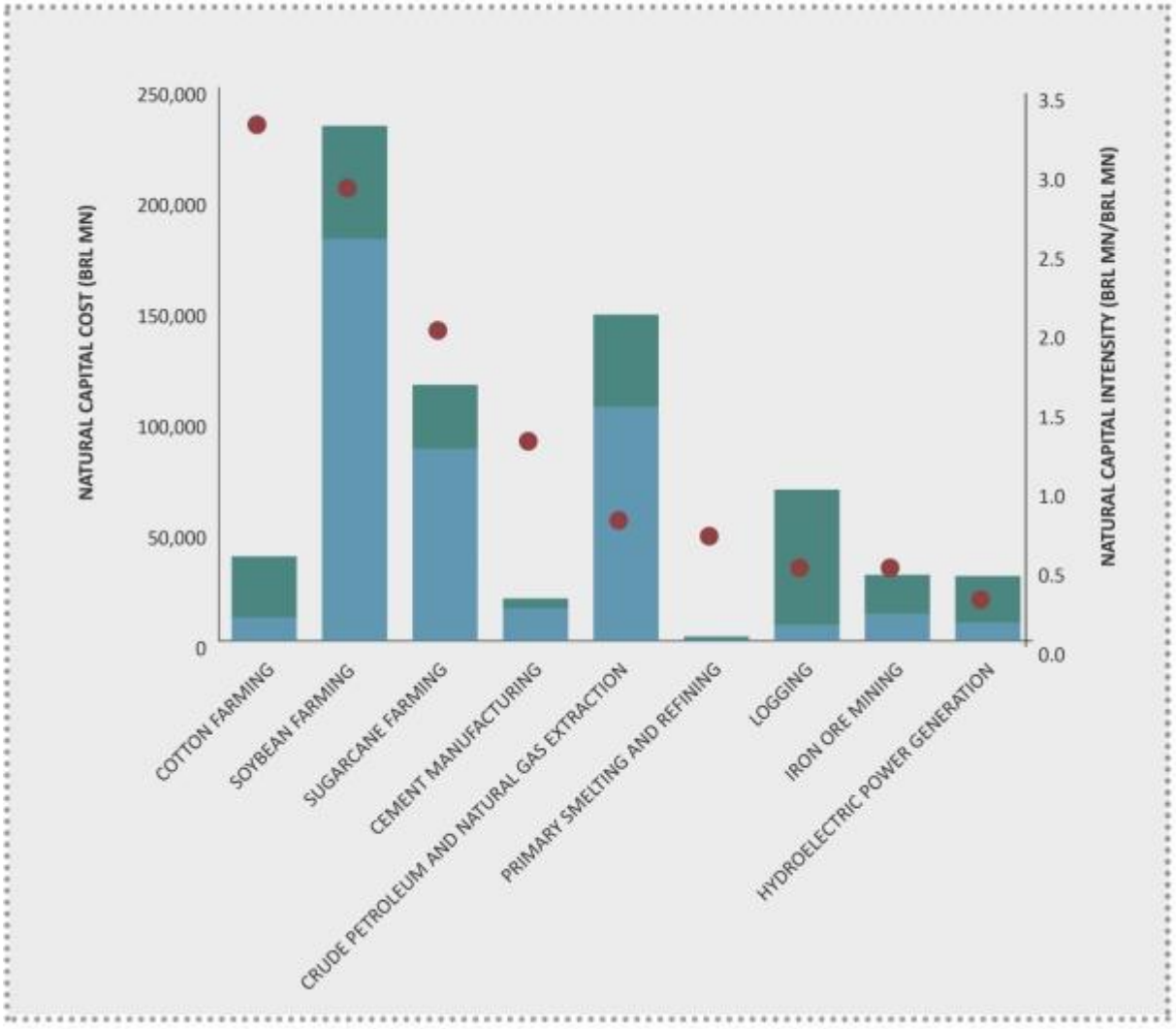


NATURAL CAPITAL RISK BY INDICATOR AND NCEX RATIO

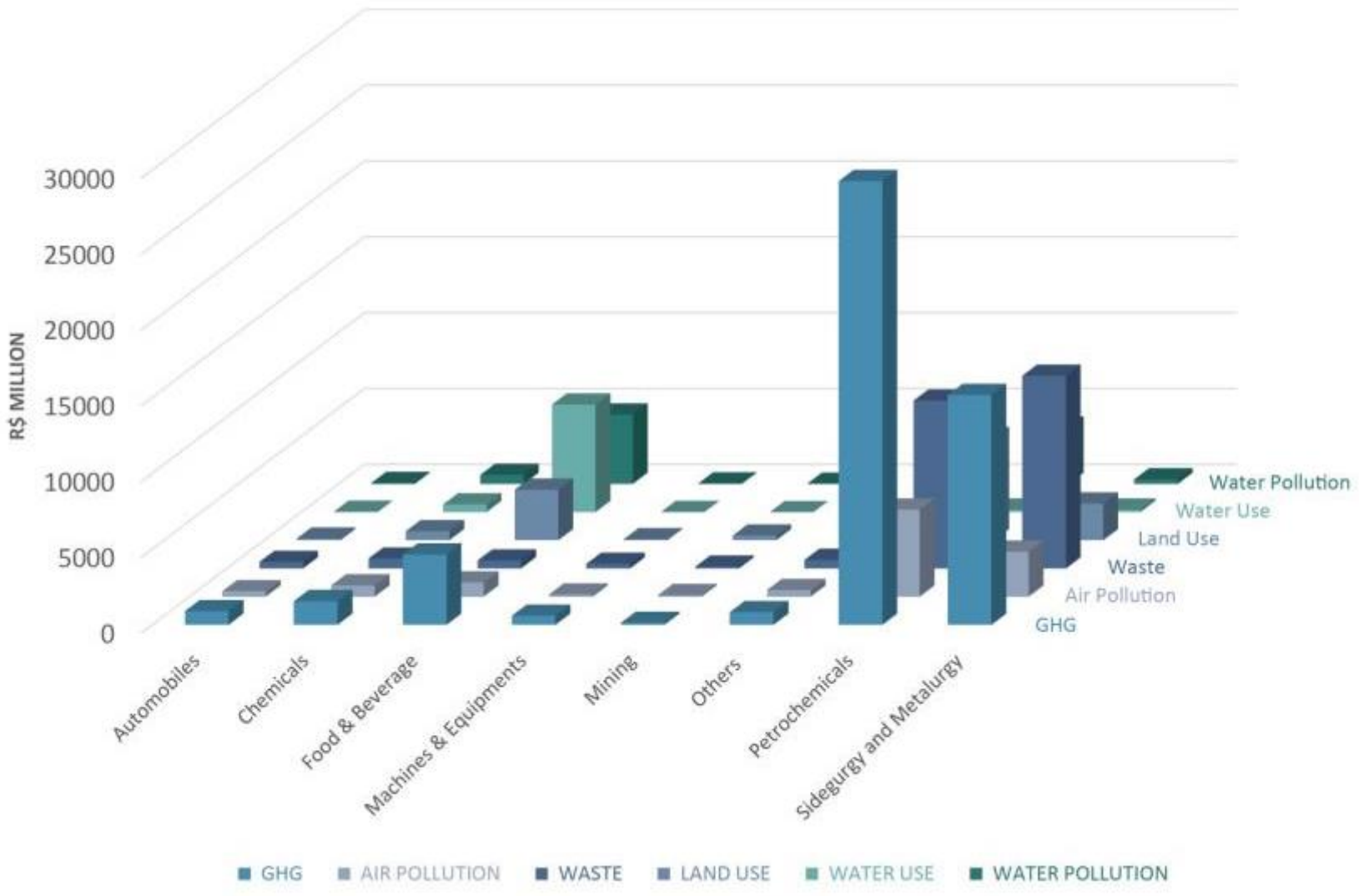


NATURAL CAPITAL COST - DIRECT AND SUPPLY CHAIN - AND NATURAL CAPITAL INTENSITY PER SECTOR (WITH AND WITHOUT CATTLE RANCHING)



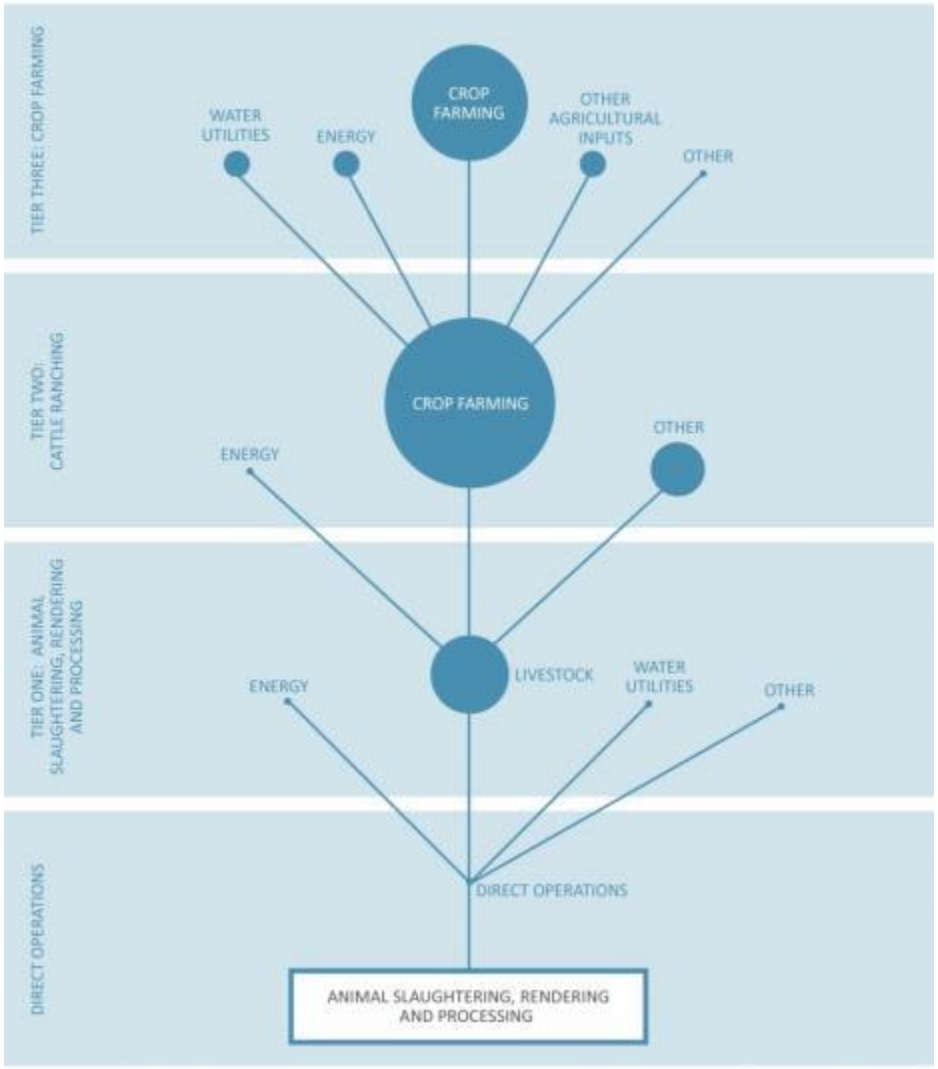


ENVIRONMENTAL IMPACT ANALYSIS BY SECTOR

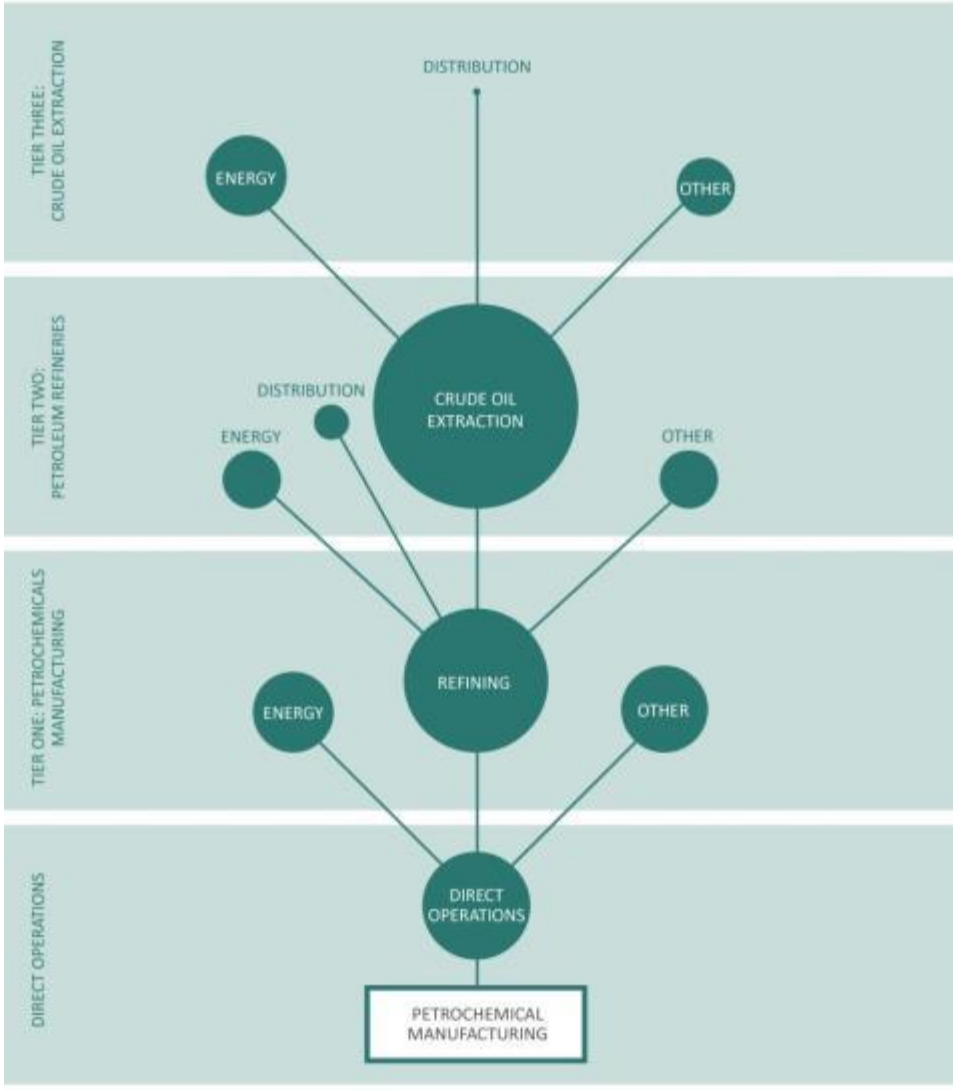


GHG AND WATER IMPACTS THROUGH THE SUPPLY CHAIN

ANIMAL SLAUGHTERING, RENDERING AND PROCESSING: WATER MAP



PETROCHEMICAL MANUFACTURING: GHG MAP

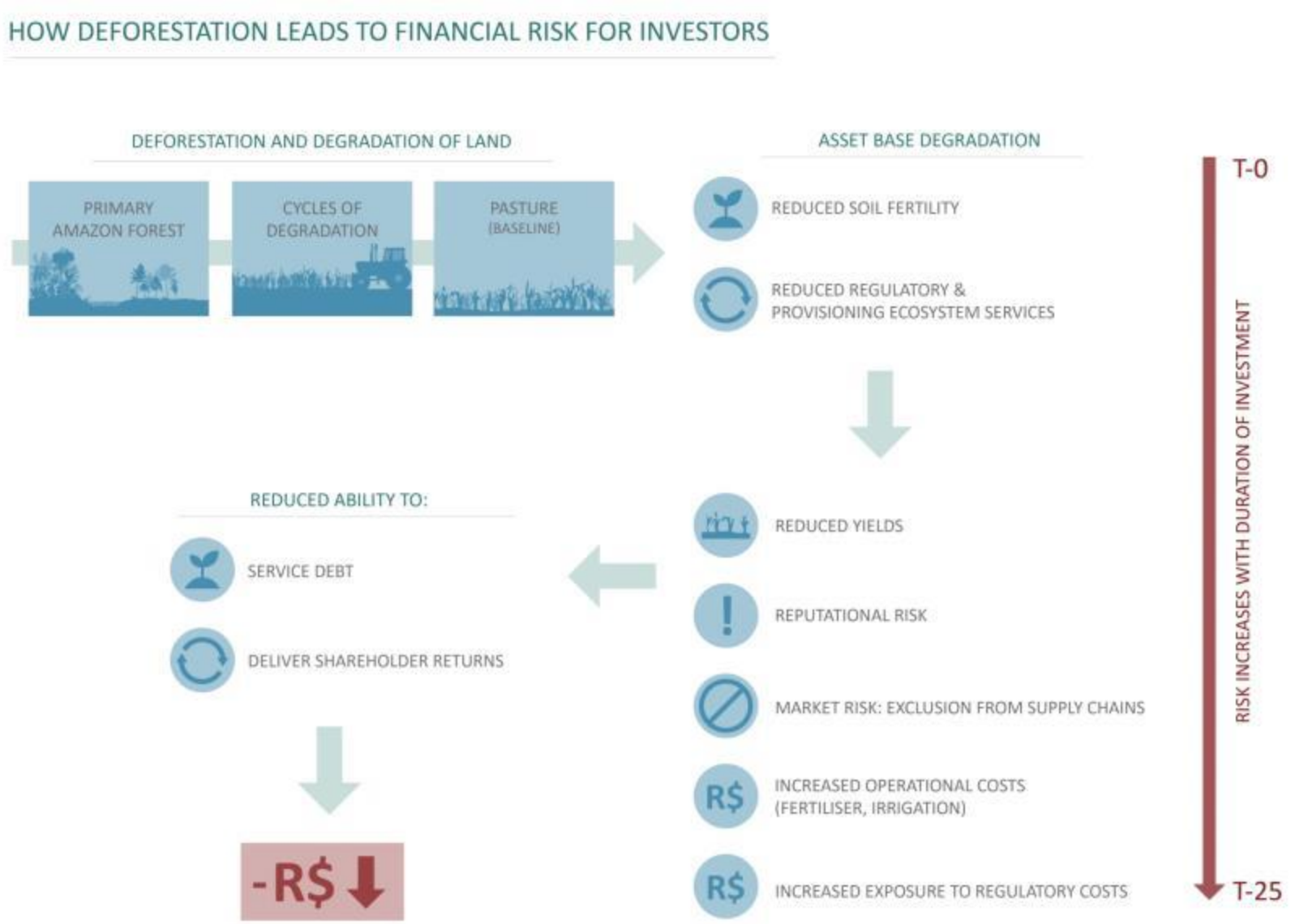


REGIONAL COMPARISON

SECTOR NAME	BRAZIL				
	Northern	Northeastern	Southeastern	South	Central Western
Soybean Farming	3%	6%	6%	37%	47%
Cotton farming	0%	31%	3%	0%	66%
Sugarcane Farming	0%	9%	66%	7%	18%
Cattle Ranching and farming	19%	10%	21%	11%	39%
Logging	10%	18%	28%	38%	8%
Crude Petroleum and Natural Gas Extraction	6%	18%	76%	0%	0%
Iron ore mining	29%	1%	67%	1%	1%
Hydroelectric Power Generation	17%	13%	6%	62%	1%
Cement manufacturing	3%	33%	53%	7%	4%
Primary smelting and refining of nonferrous metal (except copper and aluminum)	2%	7%	84%	2%	5%

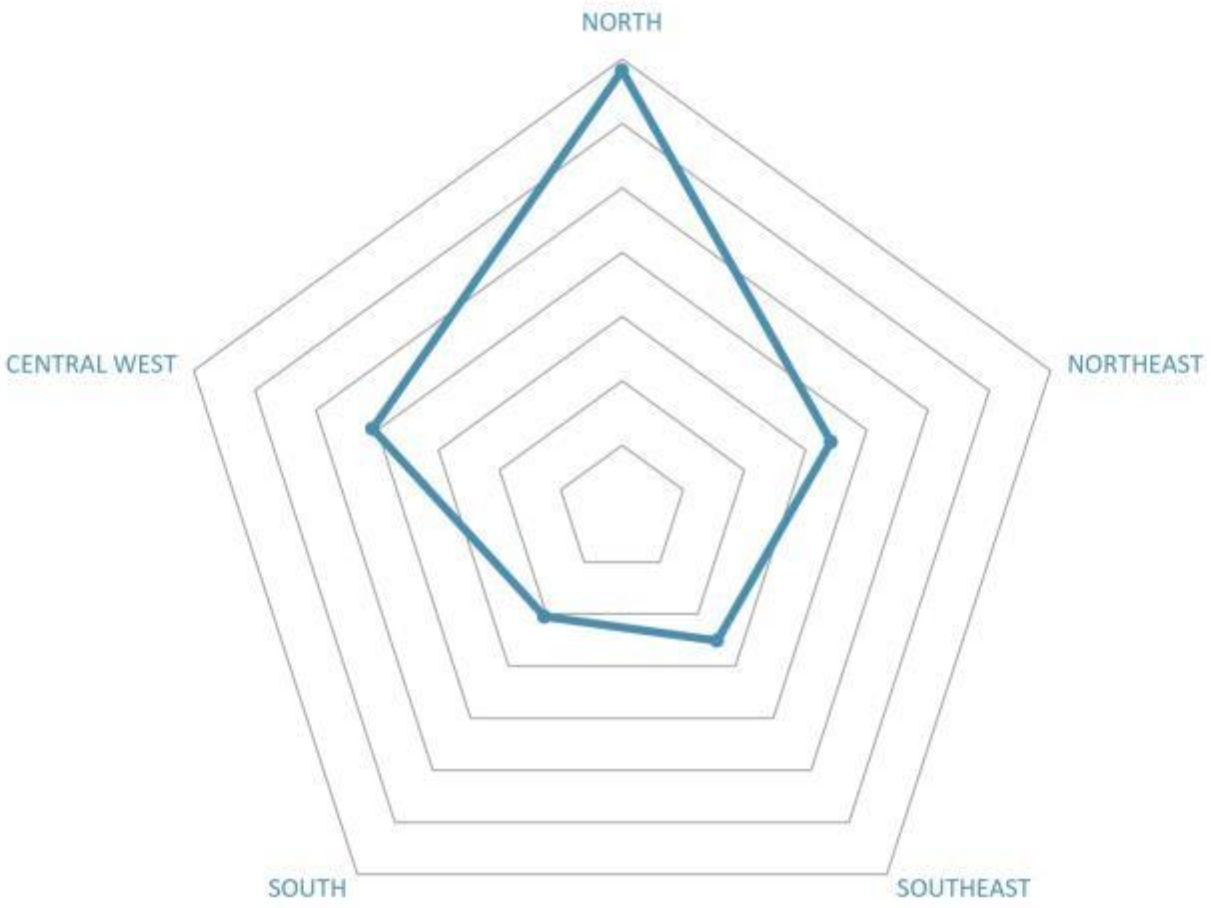
Case Study

BEEF CATTLE RANCHING IN BRAZIL



REGIONAL DIFFERENCES

FIGURE: LAND USE CHANGE INTENSITY PER REGION (R$M REVENUE)

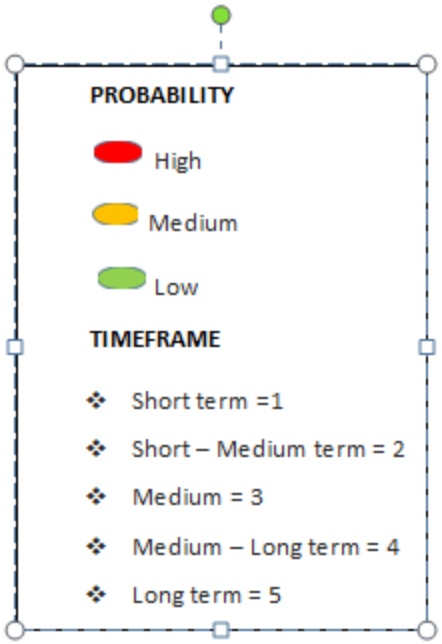


RISK MATRIX

RISK MATRIX

LEGEND

RISKS	PROBABILITY ****	TIMEFRAME
Operational		2
Policy/Regulatory*		4
Reputational		1
Climate **		2
Market Risks***		2
Resource Depletion		5
Subsidy Risks		5



* Policy risks due to changes in legislation and/or voluntary commitments.

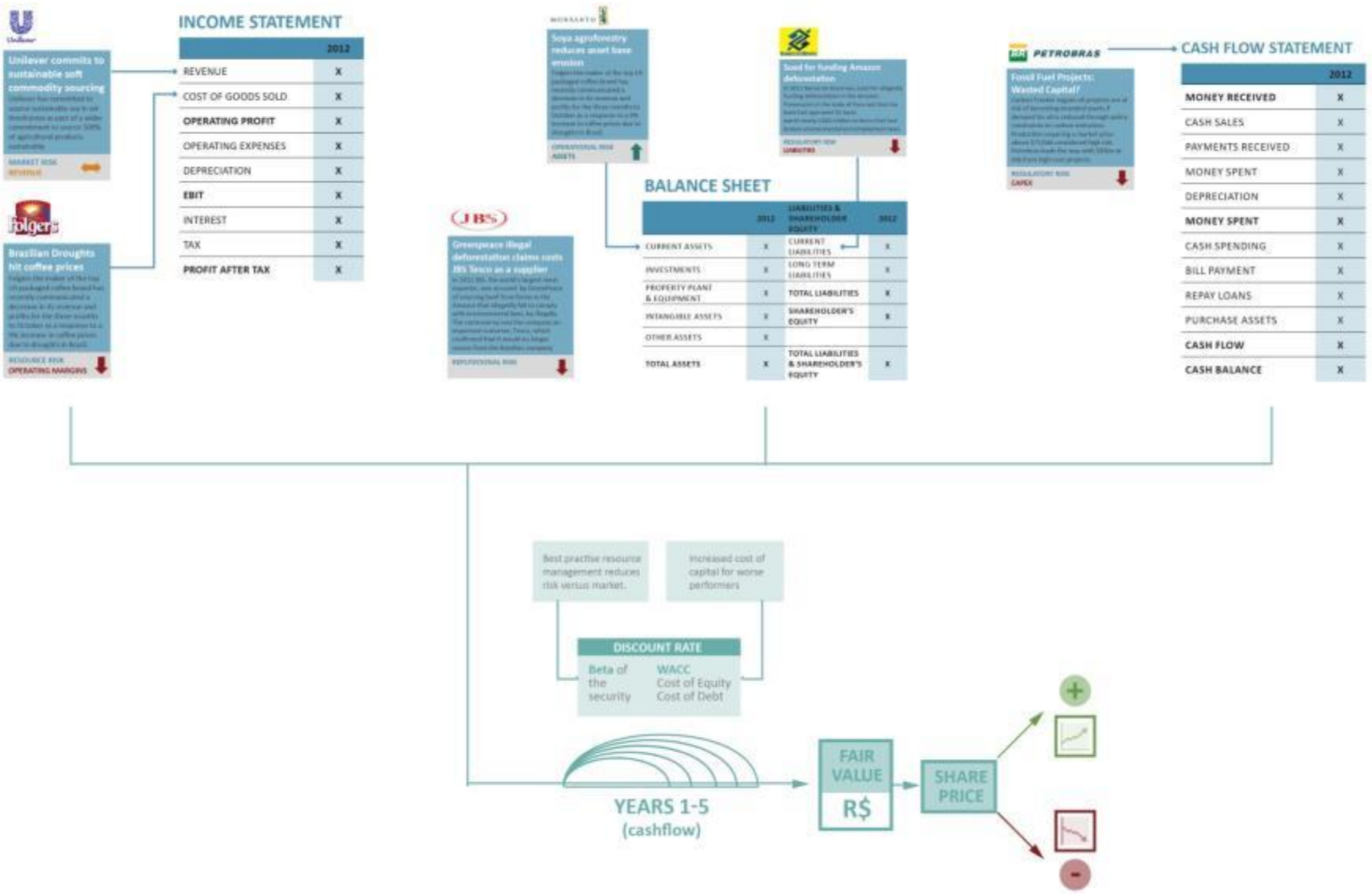
** Climate risks includes adaptation and mitigations risks

*** Market risks due to changing consumer preferences

**** Probability of risks materializing

Integrating natural capital analysis in equity analysis

INTEGRATING NATURAL CAPITAL IN FUNDAMENTAL EQUITY VALUATION

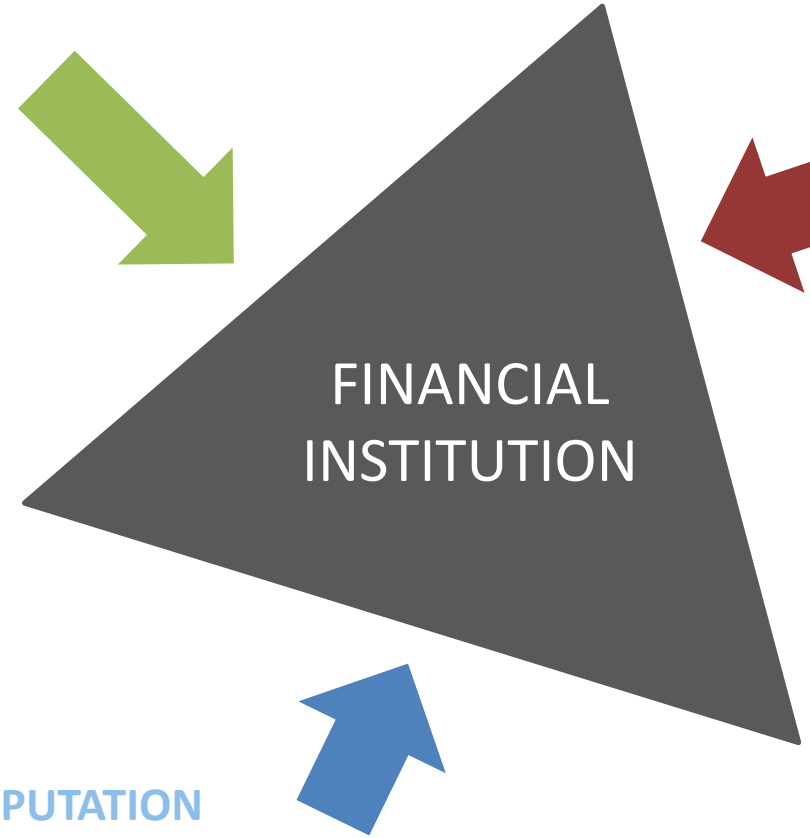


Recommendations

OPPORTUNITIES

REVENUE GROWTH

- ✓ New client services
- ✓ Low carbon business opportunities
- ✓ Environmental trading
- ✓ Low carbon client solutions
- ✓ ESG asset management
- ✓ Green retail banking products
- ✓ Resource efficiency
- ✓ Partnership opportunities



RISK REDUCTION

- ✓ Natural capital exposure
- ✓ Climate volatility
- ✓ Policy risks
- ✓ Insurance costs
- ✓ Resource cost volatility
- ✓ Client resilience
- ✓ Mega trends

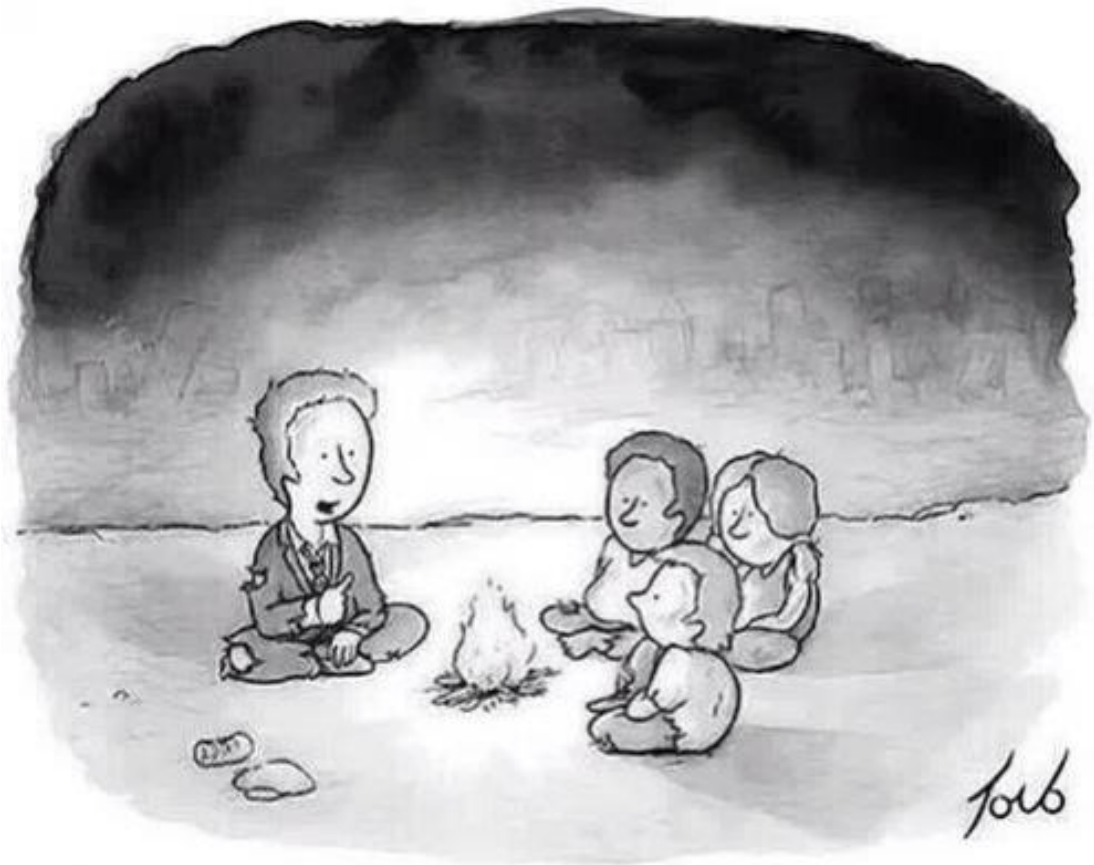
REPUTATION

- ✓ Stakeholder pressure
- ✓ Peer ranking
- ✓ Talent retention
- ✓ Branding and image

RECOMMENDATIONS

1. **Quantify** portfolio-level natural capital exposure
2. **Identify drivers** for cost internalization
3. **Demand better data** from companies
4. Consider the **potential future natural capital risk** that a company may face
5. **Capitalise on changing market** demand for more sustainable goods and services
6. **Help customers transition** to a more resource efficient and sustainable business model

QUESTIONS



"Yes, the planet got destroyed. But for a beautiful moment in time we created a lot of value for shareholders."