THE CAMBRIDGE NATURAL CAPITAL PROGRAMME

Increasing mainstream investor understanding of natural capital
Part B: evidence

UNIVERSITY OF CAMBRIDGE
PROGRAMME FOR SUSTAINABILITY LEADERSHIP

About the Cambridge Natural Capital Programme

It is increasingly accepted that we need a significant change in the level of practical actions and policy that can deal with long-term risks to business, customers and wider society from the destruction of our natural resource base. This major new business-led programme brings together a cross-sectoral group of leading companies to explore how to bring about such positive changes.

Phase 1 of the programme, between September 2010 and May 2011, explored four areas that programme members identified as critical for delivering progress through collaboration and system-wide actions:

- Developing a narrative specifically for the boardroom
- Examining long-term business risks and opportunities
- Mainstreaming investor understanding of natural capital
- Building resilient value chains

Phase 2 is acting on key recommendations from this first phase. For more details of this second phase of work visit *www.cpsl.cam.ac.uk/Collaboratories/Ecosystems.aspx*

The programme is developed and run by the *University of Cambridge Programme for Sustainability Leadership* – CPSL *(www.cpsl.cam.ac.uk)*.

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Appendix A. Natural capital risk and exposure in the financial sector

The following table indicates the extent of risk exposure for different elements within the finance and insurance community (reproduced from UNEP FI, October 2010).

	Reputational Risk	Credit Risk	Regulatory Risk	Operational Risk	Market Risk	Liquidity Risk	Legal Liability/ Litigation Risk	Systemic Risk
Banking								
Project finance	Material	Starting to become material	Starting to become material	Starting to become material			Starting to become material	
Other structured finance	Starting to become material	Starting to become material	Starting to become material	Starting to become material				
Corporate finance	Starting to become material	Starting to become material	Starting to become material	Starting to become material				
Investment								
Private wealth management								
Pensions funds	Starting to become material		Starting to become material	Starting to become material			Starting to become material	Starting to become material
Insurance funds								
Mutual funds	Starting to become material		Starting to become material				Starting to become material	
Sovereign wealth funds								
Hedge funds								
Private equity	Starting to become material	Starting to become material	Starting to become material	Starting to become material				
Insurance								
Insurance	Starting to become material	Starting to become material	Starting to become material	Starting to become material	Starting to become material	Starting to become material	Starting to become material	Starting to become material
Reinsurance	Starting to become material		Starting to become material				Starting to become material	

Not material (white) **Starting to become material** (yellow) **Material** (red)

Appendix B. Gap / opportunity analysis

The following tables give a synopsis of current gaps and opportunities in relation to incorporation of natural capital in decision-making within the mainstream investment community.

Market Gaps

A review of activities in the current market suggests a number of significant gaps between policy, the investment community, the corporate sector and the public (Table 1).

Table 1. Synopsis of major market gaps in natural capital (from a literature review)

Gap	Explanation
Lack of knowledge / understanding	Understanding of the natural capital concept in the financial world is limited. All actors in the value chain (including asset owners, consultants, asset managers, investment banks and companies) would benefit from basic education on natural capital.[1] In particular, knowledge, understanding and technical expertise is lacking on the impacts of various activities on biodiversity, how they can be minimized, and how natural capital can be improved for the benefit of business operations.[2]
Complexity of issue	The concept of biodiversity is complex. Dividing the concept into sub-themes could increase understanding of risks and opportunities.[1]
Short-termism	There is a focus on short-term profits. A shift towards a mid- or long-term perspective would create a stronger demand for Environmental Social and Governance (ESG) and thus biodiversity-related services.[1]
Business case	A quantified business case for investors is lacking – with limited evidence of 'translation' into investment results.[1]
Legislative deficiencies	Considerable support to strengthen legal and regulatory frameworks of national governments[2] is required. Legislation and regulation, either governmental or private, could catalyze the market to develop.[1]
Need for metrics / tools	Business needs to quantify and value its impacts on natural capital.[3] Metrics are a system of related measures that facilitate quantification of a particular characteristic. Efficient tools are lacking that can evaluate a company's risks and opportunities in relation to loss of natural capital.[1]
Encouraging disclosure	Credible audit and assurance mechanisms are needed to validate business performance and the quality of disclosure.[3]
Valuation	Methods to price the financial value of BES as part of a lost business opportunity or financial impact are in their infancy.[2]
Encouraging investor activity	In 2011, Aviva CEO, Paul Abberley criticised the majority of investment firms for failing to properly investigate sustainability issues because they were not prepared to pay for effective corporate analysis.[4] Additionally, most sustainability rating agencies do not yet receive specific requests for biodiversity information from their clients.[1]
Disjointed / fragmented initiatives	Business-focused tools need to be designed with business in mind. Many tools are built by conservation groups; further involvement of business would maximise utility and uptake by users.[2] Engaging at company/sector level is often less efficient than getting policies changed.[5]
Risk management	Awareness is growing of the impacts/dependencies of business operations on natural capital and the business risks that their poor management can present.[5]
Materiality	Materiality of natural capital issues is increasing for companies and financial institutions providing debt, equity and insurance services. [2]

Market Opportunities

Unprecedented pressures on biodiversity and ecosystem services provide opportunities for action by businesses.[2]

Table 2. Synopsis of major natural capital market opportunities (from a literature review)

Opportunity	Explanation
New investment opportunities	Investment opportunities may emerge in new markets. The European Commission quotes research estimates that US$2-6 trillion in business opportunities could be realised by 2050 if the private sector invests in preserving natural capital.[6]
Natural capital markets	Just as climate change has stimulated carbon markets and new business models, natural capital offers opportunities for investors and entrepreneurs.[3]
Metrics / tools / reporting	Investors can encourage portfolio companies to measure impacts/dependence on natural resources and assess related business risks/opportunities. Investors can encourage portfolio companies to report on emissions and natural resource use connected with business activities and operations.[7]
Collaborations	Cross-sectoral partnerships are key to finding solutions that help businesses manage their impacts on natural capital and capitalize on opportunities since most initiatives are undertaken in collaboration with conservation groups, government groups, and/or academic institutions.[2] Financial institutions should start to cooperate with initiatives to build capacity in-house, hedge risks that are emerging, and engage with clients in relevant sectors on natural capital.[5]
Benchmarks	Benchmarks for institutional investors and listed companies would create demand and competition in the field of biodiversity disclosure.[1]
Valuation	Natural capital is a financially material factor that influences the economics and stock value evaluation of sectors, similar to climate change or carbon footprints today.[5]
In-house capacity	Building capacity inhouse on natural capital can be beneficial for advisory services to corporate clients. Advising clients on how to integrate natural capital in supply chain management can lead to cost reductions for clients.[5] UNEP FI should take the lead in developing a training module on natural capital to build capacity with its members to assess materiality, and integrate evaluation and management of BES into relevant financial products, services and strategies.[5]
Policy influence	Investors could reduce risk and protect future fund returns by encouraging policy makers to implement measures that maintain natural capital and reduce pollution.[5] Governments are essential in providing an efficient enabling regulatory and fiscal environment (including: removal of environmentally-harmful subsidies, offering tax credits/other incentives for conservation investment, establishing stronger environmental liability; developing new ecosystem property rights and trading schemes; encouraging increased public access to information through reporting and disclosure rules; facilitating cross sector collaboration.[3] Investors can engage individually or collaboratively with public policy makers and regulators through platforms such as INCR, IIGCC, IGCC or UNPRI to encourage policies that promote internalisation of costs and establish clear regulatory frameworks.[7]
Vertical & horizontal integration	Engaging at a variety of levels (from individual commodities and products to broader ecosystem services protection) is valuable given the complex nature of ecosystem goods and services.[5]
Value chains	By influencing the largest companies that contribute most to portfolio-wide externalities, and encouraging them to engage with their suppliers, investors can help to raise the bar across a sector and within value chains.[5]
Shareholder engagement	Universal Owners can use shareholder engagement to influence corporate behaviour and address financial risks from externalities.[5] Public awareness of biodiversity loss is increasing, leading to changes in consumer preferences and purchasing decisions[3].
Investment agreements	Investors could strengthen ESG requirements within investment agreements. Stronger mandates for asset managers can provide frameworks for effective consideration of environmental externalities within investment processes.[5]
Risk assessments	Investors can encourage portfolio companies to measure impacts/dependence on natural resources and assess related business risks/opportunities.[7] Managing natural capital protects against risk through: market opportunities; environmental stewardship; new business ideas; new technologies; growth in natural capital-based business.[2]

Appendix C. Interview survey template

The following template formed the basis for semi-structured interviews in the current study (estimated interview duration: 30-45 mins).

Business brief	
Investment overview	Investment activities for the business and general investment time horizons?
Natural capital concept	
Understanding / knowledge	Personal knowledge of natural capital?
	Business association with any groups (e.g. investor network, think-tank, research institution) researching/promoting the natural capital concept?
Perceived importance	Influence of natural capital on (a) general business; (b) your sector; (c) your business?
	Current influence on natural capital of (a) general business; (b) your sector; (c) your business?
Current market conditions	
Valuation in current market	Incorporation of natural capital in investment valuations directly (or indirectly) in (a) general business; (b) your sector; (c) your business?
	Adequacy of the current business case for incorporating natural capital into investment decisions?
	Direction of natural capital by your business into activities with high natural capital impacts?
Major barriers	Major barriers for your business to promoting natural capital thinking into investment decisions?
	Natural capital as a material risk (a) currently, (b) in the short-term,(c) long-term? Is short-termism a major barrier?
Major incentives / initiatives	Reasons for any active investment in natural capital-related activities by your business?
	Value in altering fund management contracts and their evaluation process to help address market inefficiencies and short-termism and promote consideration of broader sustainability issues, including natural capital?
Mainstreaming	Most effective way of mainstreaming natural capital into the investment community, and responsibility for this?
	Role of clear metrics / reporting by companies in moving the natural capital market forward? Type of metrics? Likelihood of creating greater investment confidence?
	Likely responses by your business to a proposal (e.g. 'Equator Principles' in project finance) for natural capital in investment?
Fragmentation	Evidence of clear direction ahead evident in relation to natural capital? Or initiative fatigue?

Future Market Conditions	
Market re-structure	Natural capital likely to be a major part of future markets? If so, over what time horizon?
	Possible incentives to help your business move forward on the natural capital issue? Likelihood of your organisation being a potential first-mover in the emerging natural capital market?
	Most effective type of natural capital incentives: (a) voluntary; (b) legislated/regulated; (c) market-based? Sector-specific or overarching?
	Views on a market (like that proposed for carbon) for natural capital investment consideration?
	Recommendations for action on natural capital by: (a) companies; (b) asset owners (c) fund managers; and (d) investors, to assist your business transition?
Significant change	Adequacy of current / proposed initiatives to promote transformational change? Or other more effective drivers for transformational market change? Role of your organisation in creating significant change?

Appendix D. Synopsis of interviews

The following synopsis of interviews reflects the interview structure shown in Appendix C. It is divided into (1) investment overview, (2) the concept of natural capital, (3) current market conditions, (4) future market conditions.

1. Investment Overview
Recent research suggests that average holding periods in the investment market are decreasing. Investment time horizons tend to vary significantly across asset classes. For example, private equity stakes are shorter-term than real estate, which is shorter term than bonds. Some stated that average holding periods may be around 12 months, which raises serious challenges when considering longer-term imperatives. Conversely, some institutions (such as pension funds and boutique investors) invest over time-frames spanning decades (see also 3.4.3).

2. Natural capital concept
2.1. Understanding
Natural capital is a fairly new concept in the mainstream investment community.

A common language is needed. A number of respondents thought that the investment community was initially slow in its receptivity to the issue of climate change due to the array of complex scientific terminology used. Many interviewees suggested that the mainstream investment community would be more receptive to the term 'natural capital' rather than 'biological and ecosystem services' (BES) because: (1) finance sector personnel are familiar with the term 'capital', and (2) BES can be seen as scientific jargon. Reports and other outputs from the scientific community were often regarded as reader-unfriendly, bulky and too distant to serve tangible financial implications (considered by many as more important than a detailed understanding of the concept itself). Since BES is a subset of natural capital, a balance may need to be struck between natural capital (being too broad a concept) and BES (too abstract). This synthesis uses the term natural capital.

The issue of how to communicate the meaning and importance of natural capital to mainstream investors was raised as important. Many in the investment community have had no prior exposure to the concept of natural capital (even less so for BES) in their tertiary studies or internal vocational training, so a degree of consensus on terminology is important. Most respondents thought that many mainstream investment actors would not be familiar with either the terms or the concepts. Low levels of knowledge / awareness on an issue such as natural capital may reflect a restricted capacity for investment analysis.

Some described the degree of embeddedness of natural capital considerations as 'not extending beyond the four walls of the in-house ESG / SRI groups', unlike boutique firms that have natural capital issues integrated into investment strategies. Understanding of broad ESG / SRI and natural capital issues is increasing in the main, albeit from a generally low baseline. Perhaps this is a reason why most mainstream investment group do not recognise natural capital as a major material risk (as supported by previous studies such as referenced in Appendix A – see also 3.4.2).

Knowledge among the respective interviewees varied from those active in establishing niche natural-capital markets to those with very limited knowledge and lack of awareness of recent outputs such as the 2010 TEEB report.

"Natural capital is not in the mind of the investor by default. It must be a continual learning exercise to emphasise relevance and integration into investment decisions" **Ivo Mulder, United Nations Environment Program Finance Initiative**

"A whole host of hidden assets and liabilities are just not currently being seen in the market. As those become visible, there will be a whole host of winners and losers" **Ricardo Bayon, EKO Asset Management Partners**

2.2 Initiatives
All the organisations interviewed are associated with groups researching or promoting sustainability / responsible investment, with varying degrees of focus on natural capital. Boutique firms are often involved in specific initiatives related to their investment specialty (e.g. Forest Trends, Aspen Institute). Larger multinationals and pension funds generally tend to be party to major international initiatives (e.g. WRI, UNPRI, UNEP FI, WEF). Some respondents believed that many of the higher-level guiding principles required little change in 'business-as-usual' and that more specific actions could be implemented at a sector-specific level through underlying initiatives.

More than 30 initiatives and associations were identified during the interviews (Table 3). Most originate from multilateral / regional bodies, non-governmental organisations (NGOs), and research institutions.

Table 3. Initiatives / associations Identified by interviewees

Category of initiative	Specific initiative
Multilaterals / regional institutions	• UNPRI • UNEP FI • UN CEO Water Mandate • UN Investors Summit on Climate Risk • UNEP The Economics of Ecosystems and Biodiversity (TEEB) Initiative • UN Global Compact • Reduced Emissions from Deforestation and Degradation (REDD/REDD+) • OECD – Biodiversity Initiative • European Commission – Natural Capital Initiative • International Integrated Reporting Committee
Business associations	• World Business Council for Sustainable Development • World Economic Forum (Biodiversity & Ecosystems Council) • Sustainable Business Australia • Institutional Investors Group on Climate Change (IIGCC)
NGOs	• Carbon Disclosure Project (Carbon & Water) • Natural Value Initiative (Flora & Fauna International; UNEP FI; Nyenrode Business University; Dutch Association of Investors for Sustainable Development (VBDO); Brazilian Business School FGV) • Forest Trends • The Business and Biodiversity Offsets Program (BBOP) • Tomorrow's Company • IUCN, World Wildlife Fund (Sustainable Finance Lab), Greenpeace • Katoomba Group

Category of initiative	Specific initiative
Research institutions	• Pew Centre • Cambridge Programme for Sustainability Leadership (Including P8 Investors Group & Natural Capital Programme) • World Resources Institute (People & Ecosystems) • Natural Capital Project (Stanford University's Woods Institute for the Environment; University of Minnesota's Institute on the Environment; The Nature Conservancy; World Wildlife Fund) • The Aspen Institute • University of Stirling (Environmental Economics)
Government	• Forest Footprint Disclosure (UK-Government supported) • Carbon Trust (UK-Government supported) • UK Sustainable Development Forum
Professional associations / Groups	• International Chamber of Commerce • Sustainable Committee of Surveyors • Extractive Industries Transparency Initiative

Many initiatives focus on awareness raising, engagement and disclosure. A limited number are emerging from national government level. One interviewee commented that natural capital is not a subject that NGO's are coming to them with, so little constructive dialogue exists between them on natural capital. Natural capital has not yet been integrated into the mainstream. Given the scientific, social and financial learning that is still being undertaken, many investors consider it a fringe issue that is some way off being mainstreamed. A perception exists that only marginal amounts of academic and applied research are being conducted on natural capital, particularly relative to climate-change research-based initiatives.

2.3 Perceived importance
2.3.1 Natural Capital Influencing Business

Natural capital is not yet influencing business or the investment community significantly. Some progressive organisations may be taking natural capital seriously, but mainstream investor awareness is generally building from a very low base level – on the cusp of general consideration maybe, but still at a preliminary stage. 'Green' investors may be active within some mainstream investment groups, however such focus will remain marginal until those investment opportunities generate more attractive risk / return profiles.

Financial materiality is only being realised by sectors with high direct impacts / reliance on natural capital (e.g. extractives, food and beverage, pharmaceuticals). This realisation often gets diluted up the investment chain. Large corporations are beginning to consider natural capital, even if it is not directly referred to by that term. Events such as the 2010 BP Deepwater Horizon disaster in the Gulf of Mexico drew attention to the finite nature of resources and to the potential impact of operations on natural capital, which can seriously impact share values. The increasing frequency and magnitude of such types of event has led natural capital to be considered by many as an issue moving from occasional, to operational risk, to supply risk, particularly in the higher impact sectors. Some fund managers suggested that natural capital risks must be integrated into long-term investment decisions for industries (e.g. oil) where they present major risks.

Global surveys (e.g. by PwC and McKinsey) suggest regional variation in the perceived importance of natural capital. Asian, Latin American and African regions are more aware of the importance of natural capital than North America, Europe and the Middle East. Such issues are increasingly influencing customer trust and employee engagement for some organisations.

Some respondents felt that while natural capital value is still largely externalised (see Glossary), the social importance of natural capital has more traction in the investment community than natural capital itself – and may influence business indirectly.

"Natural capital is clearly a reputational issue for quite a few businesses. It is moving beyond occasional concern to both supply risk and operational risk for some high impact / dependency sectors"
Ivo Mulder, United Nations Environment Program Finance Initiative

2.3.2 Business Influencing Natural Capital

Milton Friedman's famous 1970's article in The New York Times Magazine stated that 'the one and only social responsibility of business is to increase profits for shareholders', a view widely challenged in contemporary business. There was consensus among interviewees that corporate ESG performance is increasing, at least in awareness terms. It was also noted that much progressive business strategy focus in the 'green sector' is carbon-focused (clean technologies and climate change), perhaps at the expense of an enhanced focus on natural capital. The current emphasis is on reducing negative impacts – an important first step. The ultimate goal must be to improve and rehabilitate degraded natural systems.

Responsible natural capital management is regarded by some as a potential competitive advantage for selected companies in sectors where relatively few distinguishing opportunities exist. Some organisations (i.e. large extractives) view improved voluntary natural capital standards as a way to set 'the bar' higher and differentiate themselves to clients in competitive international markets, and are allocating resources to develop specialist expertise in-house. Recognition of such initiatives by the investment community could be one avenue for business to better influence natural capital.

Most organisations are limiting their direct operational impacts through building efficiency / waste management measures. These actions may have financial benefits, reputational benefits, and relative ease of implementation for the organisation, and can promote a culture that is more aware of natural capital issues. However, while commendable, the direct 'footprint' of investment stakeholders is usually miniscule compared to their investment decision impacts – which is where the focus must lie.

3 Current Market Conditions
3.1 Valuation

Natural capital is generally not directly incorporated into investment valuations – its costs and benefits remain non-priced. It is generally included, indirectly, in a list of managed risks, dependent on its materiality on an investment decision. Natural capital components may be considered specifically in isolated sectors / cases if they pose significant business risk (e.g. biodiversity prospecting for pharmaceutical companies, pollination and crop yields for agricultural firms, food / beverage company knowledge of supply chain risks). Many interviewees thought that it would be difficult to justify incorporation of natural capital since business only really responds to 'issues on the balance sheet' (where which are currently absent).

Others acknowledged natural capital's lack of incorporation into business decisions, but questioned whether or not it should be. Markets do not place a value on a moral or subjective scale and struggle to know what natural capital is worth. Investors consider short-term impacts on investment decisions and, in the longer-term, may engage companies and policy-makers on issues such as natural capital. However, if the market does not value the issues, they are not considered important.

Attempts to value carbon have set a potential example for natural capital. In carbon finance, the potential for future cap and trade systems has seen some investors starting to incorporate possible future carbon costs. Some investors stated that a system where a continuous variable can be incorporated into future forecasting is essential. However, since binary variables, such as natural capital (at the moment), cannot be incorporated into such systems they are excluded from forecasting models. Their often infrequent but high impacts are difficult to quantify. Activity has been very limited although attempts have been made to create markets for water. While a natural capital valuation system may not yet be in place, evidence in parts of the market indicates that strategic investments are being made by first-movers, who use the capital as learning vehicles in emerging markets and are willing to lose money.

Some fund managers have observed that stock values in parts of the oil industry remain stable despite the price of oil increasing. While difficult to attribute specifically, this may reflect operational risks and increased environmental challenges. This may be an example of high environmental risks (themselves not easily valued) keeping a stock valuation low.

“Until these issues have values assigned by the market (policy makers), it’s not easy for investors to take natural capital into account in their decision-making”
David Russell, Universities Superannuation Scheme

3.2 Business Case

The majority of interviewees did not consider that a sufficient business case has been made for natural capital, which they still regard as a peripheral issue - a refinement rather than a core concern. Those few respondents who thought the business case had been sufficiently made acknowledged that it is not being acted on.

Many other competing and often urgent issues, such as political stability and social issues, are acknowledged as being more imminent than the slow creeping risk of natural capital degradation. Reasons given for the lack of a business case for natural capital included:

- Low levels of awareness
- Lack of measurement methodologies / tools
- Limited evaluation practices
- Lack of realistic pricing
- Still emerging, and hence continued uncertainty
- Competing risks that are more imminent
- General inability to incorporate into investment decisions.

One respondent stated that the business case for natural capital may currently be easier to make for new / growing businesses rather than well-established / mature businesses. New businesses are entering markets where natural capital is becoming an issue and their success depends on this issue continuing to grow. Established businesses may have a less aggressive growth strategy and be less aware of their impact / reliance on natural capital. Legislation was thought to help drive demand for investment and improve business cases (e.g. catalytic converter companies growing rapidly as a result of a legislative directive on exhaust emissions).

Despite the lack of convincing business case, the intrinsic value of ecosystems globally is accepted conceptually. However, it is difficult to integrate at the entity level, without a framework or legislation (and measurement methodologies and tools are still evolving).

Many interviewees praised TEEB study for introducing the issue on a broad scale, however thought the report contained little that could be operationalised by fund managers and others. One year on, investment activities continue impervious to TEEB’s release. TEEB may benefit from a ‘roadshow’ to serve the purpose of confirming awareness, understanding and actioning of recommendations for specific investment actors. Some boutique firms recognised that even their current efforts are not sufficient to maintain and restore natural capital. However iif the profitability of natural capital investments could be sufficiently demonstrated, the business case will emerge more strongly.

"The major barriers for promotion of natural capital come down to: lack of incentives; lack of information; lack of competence; and lack of ambition. If the business case can be made, those current barriers would be addressed and we can move forward"
Colin le Duc, Generation Investment Management LLP

"Based on the low levels of awareness and the continuation of traditional investment evaluation practices that largely exclude natural capital considerations, it seems that the business case has not yet been effectively made"
Climate Change and Environment Group, European Investment Bank

“At the global level, the investment community understands the value of ecosystems. But at the entity level the business case hasn’t been made in the absence of an appropriate framework or legislation”
Nick Main, Deloitte Touche Tomatsu

3.3 Natural Capital Impacts

The majority of the investment community continue to direct capital into investments with potentially high natural capital impacts. However, many groups stated that they were engaging with high impact sectors and are currently transitioning away from a strong focus on high carbon intensity to emerging lower carbon intensity investment markets. Natural capital may benefit indirectly from this transition: a greater focus on natural capital investments could evolve from such progressive investment practices.

A recent study by a large diversified fund showed that approximately a third of their carbon intensity stems from fewer than a dozen companies. Given the size and diversity of their portfolio, this is a significant contribution from a small number of investments. At present the profitability of such investments in current markets (i.e. not costing all externalities) justifies rational investment. A similar study on natural capital could reveal trends and help focus efficient investor action.

Universal investors are legally required to maintain highly diversified investment portfolios in the interests of providing sustainable returns to stakeholders. Legal advice sought by one pension fund confirmed that they are unable to discriminate on ethical grounds, which probably extends to natural capital impacts.

3.4 Barriers & Risk

3.4.1 Major Barriers

Major barriers were identified across all levels of activity. One interviewee identified major barriers at two levels:

1. Micro-business level including: lack of awareness and understanding, inadequate metrics (for comparability and consistency), and a subsequent lack of valuation

2. Macro-policy level: a market-wide failure where actors act rationally but natural capital is still not being taken into consideration.

In addition to those barriers, others felt that links within and between levels have not been demonstrated yet. Another interviewee defined four market forces where major barriers can be evident:

- Incentives – lack of pricing and investment consultants not being paid on an integrated performance basis;
- Information – very little data and / or research being undertaken on natural capital;
- Competence – the majority of analysts are unaware of the natural capital concept; and
- Ambition – major step changes are required beyond typical incrementalism.

Specific barriers for first-mover (boutique) firms include:

- Mainstream investors not perceiving the 'true value' of natural capital so it is difficult to raise funds
- Lack of market response to responsible investment ethics (i.e. 'it doesn't pay to do the right thing')
- Policy lagging behind innovators and hence difficult to generate scale in investment.

First-movers perceive that markets are developing far more slowly than they had anticipated, particularly aligned with the slow progress on policy related to carbon and forests.

Major barriers identified for the mainstream investor community are outlined in Table 4.

Table 4. Major barriers for mainstream investors to incorporate natural capital thinking into investment decisions

Barrier	Explanation
Terminology	No common language. Need to break down into single issues (such as water) rather than natural capital.
Awareness	Failure to fully understand consequences of insufficiently valuing natural capital. Very few businesses understand it. No-one has the responsibility for addressing this. Generally unaware of impacts and dependencies.
Metrics & measurement tools	Measuring, reporting and verification all still in infancy. Investors like to make quantitative comparisons. Difficult to convince investors with only qualitative data. No widely accepted measurement tools: 'If you can measure then you can price'.
Mindset	Outside traditional investment concerns. Behavioural change is a human challenge.
Valuation	Difficult to value and 'valuations aren't real' – no framework, no legislation. The finance industry is set up to deal with known outcomes not potential outcomes so it can't assign value to natural capital.
Stock vs flow	Natural capital is not reflected as a capital stock, rather only as a flow of resources as an input for production.
Cash-flow implications	Lack of evidence as to how it impacts cash flows.
Timing / short-termism	Current market incentives favour short-term rewards. 'If it's forecast to be a problem in 2050, we'll deal with it in 2045'. There is a trade-off between shorter-term cyclical issues and longer-term strategic risks and opportunities.
Reporting	Trustees /asset owners require visibility i.e. quarterly reporting. Difficult to justify deviating from benchmark / standard.
Policy	Policymakers not putting value on ecosystem at the moment. Longer term game.
Low impacts for diversified global firms	In globally diversified companies, natural capital risks are small relative to overall business activities. Such businesses can play commodity markets and avoid natural capital costs.
Performance criteria	Repercussions for fund managers may be a (small) fine. Still not performance related.
Corporate strategy	Needs to be linked to corporate strategy. Supply chain may be best starting point. At the moment, natural capital impacts may be felt in one part of the business but difficult to see how that impacts overall business and growth drivers.
Perceived costs	Prejudices around sustainable development in business (cultural). Widespread perception that sustainability activities cost money and are less profitable.
Diversified portfolio requirements	Pension funds may try to integrate natural capital into all their investment processes – however, because of the nature of pension funds, they have to take all attractive investment opportunities (good, bad and ugly).

** A situation where resources cannot be efficiently allocated due to breakdown of price mechanisms*

Lack of supply of opportunities (credible investment targets) could be more of a barrier than lack of demand for capital in the current market, and a major challenge is that the (limited) available opportunities do not often meet conventional investment criteria. This is seen as a self-reinforcing cycle (e.g. technical issues such as property rights, transferability, and liquidity remain outstanding in many cases, coupled with reluctance to pay for risk and non-monetised revenue prospects). These uncertainties deter investors. But there appears to be 'no barrier about people not thinking it is the right thing to do', which suggests that if barriers are removed and incentives are provided, investors will value natural capital.

"Those trying to do good are currently scouts against the system" **David Brand, New Forests**

"Erosion of natural capital will not cease until there is a more profitable model – i.e. when it pays to do the right thing" **David Brand, New Forests**

"Some market players are ready, but the politics is not quite there yet" **Ricardo Bayon, EKO Asset Management Partners**

"To create a market requires both a demand for use and a restriction on that use. At the moment, there is a high demand for natural capital use but no restriction on that use, hence natural capital is not valued and a market doesn't exist" **Nick Main, Deloitte Touche Tomatsu**

"The inability to incorporate natural capital is a classic market failure"
James Gifford, United Nations Principles for Responsible Investment

"A natural capital theme such as water stress may affect certain local business operations for a company, but it is often difficult to translate this into implications for the company's overall strategy and the investment case"
Sagarika Chatterjee, F& C Investments

"Investors are increasingly interested in natural capital themes such as forest protection, but there is currently a shortage of suitable investment opportunities for most fund managers, who must follow client mandates on investment criteria"
Sagarika Chatterjee, F& C Investments

"The major barriers are low levels of awareness and accessible information, which has led to a failure to fully understand the consequences of insufficiently valuing natural capital"
Climate Change & Environment group, European Investment Bank

"National account systems / indicators (such as GDP, FTSE, inflation) don't reflect natural capital at all, and most investors base their decisions on those indicators"
Nick Robins, HSBC

"Most current indicators focus on flows, not stocks. In the case of natural capital, stocks are highly important"
Nick Robins, HSBC

"The legal advice we have received is that pension funds cannot screen investments because they think they're 'bad' – they represent many thousands of members who have a range of views, from those that believe that these issues are important to those that don't. Decisions are made primarily on the basis of potential returns to those members"
David Russell, Universities Superannuation Scheme

"The major barrier is the absence of natural capital being priced in the economic system. It has no value in decision-making processes. Because it is not within the system, it is generally not considered"
James Stacey, Earth Capital Partners

3.4.2 Material Risk

Natural capital is not considered a general material risk, mainly due to an absence of awareness and regulation (hence valuation). However, risk is generally increasing, albeit from a low baseline, and is highly sector-specific.

Natural capital is not currently in the mind of investors. It is only likely to come to the fore across the financial sector if there are sufficient negative shocks to the system, or through regulation. The challenge of accurately valuing factors that affect supply chains (e.g. scarcity, climate change, ecological disruptions) still remains. Gaps in knowledge, tools and evidence need bridging before materiality will be accepted.

Many considered that, while materiality is generally negligible at the moment, initiatives such as TEEB will confirm natural capital's materiality in the longer-term. Some stated that companies often get away generally unscathed without addressing materiality. However, the frequency and magnitude of impact are seen as increasing, along with materiality. Natural capital may become more scarce (and / or degraded) but respondents did not think it would ever run out. However, the costs of its use will increase significantly and the likelihood of a whole suite of risks (Figure 1) also increases. At the moment, many in the investment community do not see these increasingly material risks.

Figure 1. Forecast business sector risk

		Sectors most likely to be affected							
Category	Risk	Primary Industries	Utilities	Consumer Goods	Consumer Services	Healthcare	Industrials	Financials	Technology & Business Services
Physical Risk	Reduced productivity	X	X	X					
	Scarcity and increased cost of resources	X	X	X	X	X	X		
	Distruption of operations	X	X	X	X	X	X	X	X
Regulatory & Legal Risk	Restricted access to land & resources	X	X						
	Litigation	X				X			
	Reduced quotas	X							
	Pricing and compensation regimes	X	X				X		
Market Risk	Changing consumer preferences	X		X	X				
	Purchaser requirements	X		X					
Other Risks	Reputational risk	X	X	X	X	X	X	X	X
	Financing risk	X	X					X	
	Supply chain risk			X	X	X			
	Risks to stability								

Affected (X) — not Affected (blank)

Natural capital currently may be considered a low material risk, but the perception of risk will change according to regulatory conditions. One respondent felt that progress on natural capital is considered secondary in the absence of climate change legislation. If climate change legislation proceeds, investors will take that into account and related natural capital issues. Policy is seen as the key driver for risk materiality.

For large globally diversified companies (such as the mining or energy sectors) a particular element of natural capital may be an issue at one site but may not be considered significant for the entire company's investment prospect. The scattered nature of natural capital risk, coupled with its invisibility in reporting and valuation, means that it is rarely material for investors.

Some respondents felt that material risk is more evident and pressing for the broader economic system and that the burden for response lies with the public sector. The private sector will then respond by navigating the risks.

"Currently, natural capital is not generally perceived as a material risk, but studies such as TEEB make it clear that it certainly will be in the longer term"
Steve Waygood, Aviva Investors

"Natural capital is not generally manifesting as a material risk at the company level, but it is for the broader economic system. Hence, the burden falls onto the public sector to address the market failure, while in the interim the private sector will navigate through the changing risks"
James Stacey, Earth Capital Partners

3.4.3 Short Termism

Due to the current low level of strategic guidance from policymakers (including in developing / emerging economies where much natural capital resides), many investors see natural capital as a longer-term issue and find it difficult to justify short-term costs. Pension regulations create a set of perverse incentives for short-termism at the expense of the longer-term interests of the funds, beneficiaries and society at large. Investment time horizons need to be lengthened through long-term incentives.

The current market structure limits the necessity to think longer-term. Short-term thinking has been compounded in recent years partly due to the global financial downturn. A wider perception exists that actors in the market can still abuse natural capital in the short-term with little consequence (e.g. in the fishing industry where by-catch undermines many species but still continues largely unabated as fish stocks themselves also begin to collapse).

Reputational risk was seen as a short-term material risk by some. However most believed that reputational risk often does not translate into share price influence, so is of marginal concern. Short-termism was seen by some interviewees as being oversimplified and overstated as a barrier and they recommended increased focus on other barriers.

"Short-term thinking is human nature and not limited to the investment sector"
David Russell, Universities Superannuation Scheme

"We should do everything possible to 'de-politicise' the debate from a short-term election issue to a long-term strategic priority. It's about the future of capitalism. Capitalism needs to redefine itself. If we are only driven by the short-term consideration of the markets, then we will have failed to meet the considerations of our beneficiaries"
Donald McDonald, BT Pension Scheme

3.5 Incentives and Initiatives

3.5.1 Incentives

Compared to the numerous current barriers identified, few incentives seem to have driven investment to date - and the resulting investment has been negligible globally. Some interviewees saw incentives as being the main challenge and believed that if incentives are correct, then sustainability (and issues such as natural capital) becomes material – a requirement regarded as key by many.

The current market structure produces perverse incentives at odds with responsible natural capital management (i.e. derivation of benefits for maximising use / consumption, no incentivises to preserve, minimal to no penalties for degrading activities). Such actions make economic sense in the current system and actors are responding rationally since they have a responsibility to generate financial return for their clients. Only when the issues of natural capital bear on investment returns (either through reducing costs / liabilities or generating revenue / income) will they be adequately considered.

Boutique investors and progressive arms of mainstream groups have been incentivised by the business opportunity associated with the anticipation of eventual market transition. This transition is yet to be seen for natural capital, but some low carbon investment groups have benefited even in the absence of clear policy direction. For instance, tariffs incentivised by governments can encourage some progressive investors, but other investment prospects still usually give better risk-adjusted return. Hence, more needs to be done to align incentives.

Reputational risk (which, as described previously, can be a short-term material risk) in misjudging the market has incentivised some groups to move forward. One interviewee referred to fair trade coffee, saying that 'it's difficult to buy anything else now because of reputational issues'. NGOs, which now often work collaboratively with the corporate sector, are perceived to hold corporations to account and have the capacity to drive agendas forward.

Further challenges relate to incentives such as REDD+, CDM, emissions credits, water rights, which may only ever be a marginal representation of the total value of natural capital. They highlight one potential danger of applying values to certain components of natural capital without valuing the entire system (e.g. social capital linked to natural capital is also important, and broader social responsibility has incentivised some investment in natural capital).

Most initiatives have focused on disclosure, which has incentivised some. The drive for a diversified portfolio also provides some incentive for institutional investors.

"In the financial sector, what gets incentivised gets done"
Nick Robins, HSBC

3.5.2 Fund Management Contracts

The majority believed that altering fund management contracts and their evaluation process could help address some market inefficiencies and short-termism challenges.

The average period for investment holding is generally reducing and fund managers are being required to report performance at increasingly frequent intervals. Many fund managers do not focus on natural capital because they are not required to, but if it were included in their investment mandate, such capacity could be quickly developed. Since a very large proportion of asset management firms have no dedicated natural capital capability in-house, fund managers who view natural capital in terms of liability and material risk may be impeded by lack of opportunities and gain no benefit by avoiding deleterious impacts on natural capital.

Reform could happen if clients asked investment consultants and external fund managers to incorporate and report on ESG – a highly unlikely action in the current mainstream market. A dichotomy exists between institutional investors / asset owners (with typically long-term investment horizons) and fund managers (who have short-term performance criteria). Some also believed that even if the period of assessment of fund managers was lengthened, fund managers might continue to micro-manage over multiple consecutive short periods rather than more holistically over a longer period.

Innovation in fund management contracts is already seen in green investment funds. Some innovations shown by boutique firms include: absolute return funds, multiple year performance fee in equity markets (as opposed to 1, 3 or 6 months), concentrated investing as opposed to indexing (limiting stocks individual analysts cover to enable comprehensive research of risks / opportunities). These innovations have generated sound returns in current market conditions and may demonstrate examples for the wider market to consider. To trigger alterations in mainstream fund management contracts may require:

- Regulation
- Exercising fiduciary duty, and / or
- Asset owners believing it will generate better capital uplift or reduced risk.

While potentially helpful, some respondents felt that restructuring of fund management contracts is not the 'holy grail' of responsible investment. More important issues (e.g. the industry equating quarterly performance with that quarter) are more widespread and problematic.

"The fund management industry essentially acts only in terms of financial incentives. Hence, to incorporate natural capital consideration will require management actions to be mandated or it will need to be given a value so that it can be integrated into investment decision-making processes"
James Stacey, Earth Capital Partners

3.6 Mainstreaming
3.6.1 Potential routes

Mainstreaming involves taking an issue from the fringes and having it become embedded within a community. Table 5 outlines respondents' strongest ideas for mainstreaming natural capital in the investment community.

Table 5. Respondents' ideas for mainstreaming natural capital in the investment community

Mainstreaming Initiative	Description
Regulation	Considered by many to be the key component of a workable solution at scale. While some businesses may regulate themselves, many will not and will require regulation to incentivise change. It will help promote consistency with financial statements and enable eventual valuation of natural capital, seen by some as ultimately important.
Certification	The Forest Stewardship Council has brought sourcing and responsible management practices to the fore. Certification schemes can be voluntary before regulation kicks in.
Standardisation	Creates a level playing field and helps define risks.
First-movers	Some investment will be ahead of the curve. Enlightened companies (even in 'dirty' sectors) will help drive the market forward.
Fiduciary duty	Pension funds have a fundamental fiduciary duty (i.e. for the benefit of beneficiaries). Natural capital issues (e.g. water, energy, food) could be security issues so should be mainstreamed through fiduciary duty.
Carbon market	Increased regulation on adaptation / mitigation will likely benefit natural capital.
Disclosure	Disclosure of material risks to investors. Companies have a greater knowledge of natural capital issues and need to communicate their understanding to the investment community.
Measurement	Challenges remain about how to look at discrete events that impact on value of company but do not move in continuous times – it doesn't fit with how companies are usually valued.

Breaking down the initiatives from Table 5, some respondents classified two levels where action is required concurrently:

1. Market & social level. This level incorporates broader economic issues both internal and external to the market, and is also where overriding societal values may intervene to correct market failures or inefficiencies.

2. Business & individual level. Top-down action must be complemented by action from the bottom-up. This is particularly important in a case where high-level policy consensus is not forthcoming. In such cases, business and individuals have critical roles to play.

Many interviewees felt that the reason carbon is beginning to be considered within the investment community is that it can (or has) been given a value, which is starting to spawn new markets. Conversely, natural capital has not yet been assigned a value, and hence is currently excluded from mainstream investment considerations. If costs are imposed that impact companies, then natural capital will be mainstreamed.

Initiatives (e.g. the UN Global Compact, UNPRI) are viewed with varying levels of support, some regarded them as exemplars for mainstreaming ideas. In particular, the Global Compact was seen as representing a larger part of commerce and recognises interdependencies. Mainstreaming may require collaboration with industry opinion-makers (e.g. the Financial Times, the Economist). Some mainstream investors still regard sustainability as a philanthropic issue, and such opinions will need to be challenged to promote genuine mainstreaming.

"Certification schemes could have value. Initiatives such as the Forest Stewardship Council have really brought issues such as sourcing and management practices in that sector to the fore. There may be mileage for certification schemes in other areas of natural capital"
Climate Change & Environment group, European Investment Bank

"Natural capital is a public good, and hence is the primary responsibility of governments, at both the international and national level, to manage. They must set the boundaries within which the private sector functions"
James Stacey, Earth Capital Partners

"Whatever the mechanisms for change (policy, regulation, market incentives), the key is to create a level playing field which recognises natural capital"
James Stacey, Earth Capital Partners

3.6.2 Onus on responsibility
Responsibility to address such a systemic failure is seen as lying with all stakeholders. A strategy may be needed for each level in the investment chain. However, one interviewee referred to Hermes Principle 10 (a predecessor of the UNPRI principles), which states that investors have a responsibility to engage across sectors and regulators to help address market failures. Some of those stakeholders and their potential roles are identified in Table 6.

Table 6. Stakeholders roles and responsibilities

Stakeholder	Potential roles and responsibilities
Government	Develop and implement relevant policies to facilitate market direction changes. Government regulation is anticipated to play a significant role. Promote disclosure.
Investment consultants	Occupy powerful position advising institutional investors on investment priorities. Incorporating natural capital consideration into investment consultant considerations could be a powerful trigger.
Asset owners	Originate initiatives that cascade down through the investment chain.
Investment banks	Sales-side research. Respond to demands.
Companies	Promote responsible supply chain actions. Communicate issues to investment community.
Institutional investors	Make specific statements to incentivise other investment actors. Request fund managers to incorporate concepts such as natural capital. Cascade down the line. Apply pressure through shareholder engagement and voting.
Brokers	Play a critical role.
Multilateral / regional agencies	Provide strategic guidance. Have convening power. Introduce natural capital / BES as a concept for signatories to consider.
Consumers	Apply pressure on companies through bottom-up purchasing power and through shareholder engagement and voting.

Policymakers need to request disclosure on natural capital from companies and the investment community. Companies have a greater knowledge of natural capital issues than the investment community and need to communicate their understandings up the investment chain. Investors need to value and understand such information, with the potential to alter investment criteria and encourage companies to disclose and act on their natural capital management strategies.

"Changing behaviour takes time and is difficult"
David Russell, Universities Superannuation Scheme

"We invest in all types of asset and company - we're a very large pension fund - we don't screen or exclude investments on the basis of ethical or moral issues"
David Russell, Universities Superannuation Scheme

"Some senior economists, particularly in the US, still see sustainability as a philanthropic issue. We need to have that accepted opinion challenged. Perhaps we need to work with opinion makers, such as the Financial Times and the Economist publications, to mainstream the issue further"
Donald McDonald, BT Pension Scheme

3.6.3 Metrics/ Reporting
The majority of respondents agreed that clear metrics and reporting by companies are essential in moving the natural capital market forward. However, development of metrics for natural capital is a complex and challenging task and metrics 'will only be useful if they report useful data'. Since natural capital continues to be reported only qualitatively (if at all), it receives very little attention in corporate profit and loss accounts – where it is considered a non-core issue.

Table 7 summarises characteristics considered by respondents as being essential for metric development.

Table 7. Possible characteristics of natural capital metrics

Characteristic	Description
Level of influence	Micro-business level. Disclosure at this level could promote engagement between parties and ultimately be a basis for macro policy making.
Core features	Credible, consistent, comparable.
Range	Sector-specific and company-relevant.
Integration	Any meaningful metrics must ultimately be integrated into company accounts, not just sustainability reports. A disconnect exists currently between mainstream company financial reporting and separate sustainability reporting by the same company. Combined reporting should be encouraged. They need to be linked back to investment cases and company strategies.
Application	Seemingly easier to measure ecosystem services than concepts such as biodiversity.
Facilitation	Metrics can be helpful in more accurately gauging risks and engaging between parties.
Development	Businesses need to be closely involved in metrics development, as they know their business resources the best. Also requires input from the accounting profession.
Monetisation	To monetise metrics meaningfully needs regulation and/or ownership and restriction on use.

Initiatives such as the Carbon Disclosure Project (and the more recent Water Disclosure Project) were praised for promoting greater disclosure and reporting from companies. However, agreement on better metrics for natural capital would improve this process further. A lack of metrics was thought to have led to a gap between current policy and the levels of company disclosure.

Consensus on the need for metrics was clear. Respondents were divided on whether additional delay is warranted to develop a 'perfect' set of metrics versus the danger of moving forward prematurely without sufficiently comprehensive metrics. It was believed strongly that metrics should not be focused on to the exclusion of higher level dialogues. Metrics need to be integrated, but reporting is only part of the solution – they will not produce change on their own and must sit within a broader context. In addition to quantitative metrics, some respondents believed that increased qualitative disclosure on human, social and natural capital is required at a strategic level. Integrated reporting would definitely encourage this.

"The accounting / auditing profession needs to play a key role - we will require their significant input to help take this issue forward"
Climate Change & Environment group, European Investment Bank

"The investment community must demand more from the corporate community through accounting and disclosure methods. This could then be reinforced by a regulatory framework and the corporate community themselves"
Climate Change & Environment group, European Investment Bank

"Only a business knows its own natural capital dependencies and impacts, hence metrics need to originate from business. Corporate disclosure is essential"
Daniel Ingram, Hermes Fund Managers

"Whilst metrics are potentially important, they key is producing metrics that are useful and which can be effectively used within a broader public regulatory framework. Presently, we have neither."
James Stacey, Earth Capital Partners

3.6.4 Integrated Reporting
Some respondents regarded integrated reporting as an important and potentially powerful process if it gains wide acceptance and adoption. Integrated reporting provides a more holistic view on social and environmental issues over the short- and long-term. Integrated reporting could be considered a by-product of the development of appropriate metrics, contributing to risk analysis and including financial and non-financial data. Integrated reporting could link metrics and shareholder value through a degree of standardisation, and may help to recognise materiality and to promote government action through its holistic business approach.

One interviewee described a recent introduction of integrated reporting requirements for companies in South Africa. International integrated reporting could provide an even broader framework for use. Some members of the investment community are involved with the International Integrated Reporting Committee (IIRC) in their role as owners.

3.6.5 Equator Principles for Investment
The relatively widespread success of the equator principles in project finance is regarded by some as a potential guiding model for the investment community. The Principles encouraged lending agencies to adhere to a benchmark (relating chiefly to social and environmental values) and are regarded as a defacto standard by many lending agencies. They have raised the bar in much of the investment community on issues (like natural capital currently), which are difficult to value in a traditional sense.

Tentative support was given by respondents for such an initiative for natural capital as an interim first-step and a potential driver of change. It would serve as a standardisation template for an accepted starting point and it would create a minimum benchmark for guidance. Reservations were expressed about promoting reporting on natural capital if organisations are not currently managing such capital. A benchmark level is critical to the success of such an initiative – too low discourages innovation, too high may disengage others, particularly laggards. UNPRI could serve such a purpose, but some felt that clear guidance on natural capital was not emerging from that organisation at this stage.

Respondents expressed differing views on whether an initiative solely for natural capital is necessary or whether natural capital can be incorporated into existing initiatives. Given some initiative fatigue (see 3.6.6), any initiative must be inclusive and would be better received if consistent with existing initiatives (e.g. UNPRI, UNEP FI or OECD guidelines on multinational companies). A clear definition of asset classes and sectors would be needed, but an initiative that could provide clear guidelines could be useful. An initiative that could convene other sector-specific initiatives was lauded.

As with the Equator Principles, regulation at an interim stage may not be necessary - peer pressure and third party validation may be sufficient to help drive corporate endorsement. If successful, regulation could be introduced after a pilot period.

"The Equator Principles proved effective in helping the corporate sector to respect social principles more. A similarly principled initiative for natural capital could set the bar for large companies who could then promote adherence along their supply chain"
Climate Change & Environment group, European Investment Bank

3.6.6 Fragmentation
Almost all interviewees identified a lack of clear direction at present in relation to natural capital both in the policy and business realms. The field is in its infancy, and the profusion of different initiatives makes this almost inevitable. Some thought that the different schools of thought that are emerging should be trialled until more formal systems are proposed. Such a process may lead to the most efficient and effective direction in the long-run but gives little coherence in the short-term.

Some thought that initiatives are disjointed, not synergistic and are not being built into existing initiatives - streamlining into an overarching guideline with sub-sector themes would be most effective. Initiatives brought together would be easier for the investment community to understand and act upon.

'Free-riding' (a concept where some parties hold off from committing while the market develops and then jump on the most successful initiative at a later time) can discourage first movers and mainstream groups alike. Few benefits come from expending time and resources in predicting / shaping market movements when others cannot be excluded and can join when there is more clarity.

Most identified initiative fatigue. The 20 organisations interviewed were party to more than 30 related initiatives. Table 8 identifies more than 120 (partially related) initiatives, and many more are likely to exist. It is not surprising corporates and investors can not see clear direction in the natural capital market. The view was strongly held that new initiatives are not needed. Instead existing initiatives should be brought together, or at the very least, show how they link. Many respondents are now very wary of any new initiatives entering the market.

Table 8. A selection of initiatives / tools related to natural capital (and its components)

General initiative / tool type	Specific initiative / tool	Total
Private sector guidelines	Equator Principles; Global Compact; OECD; ISO	4
Network organisations	The Natural Capital Project; NVI; Water Disclosure Project; Forest Footprint Disclosure; BankTrack; Eerlijke Bankwijzer; WAVES; CDP Water Disclosure Project; Nyenrode CfS, IUCN-NL, FFI; Green Investment Mechanism; EU Business & Biodiversity Platform; EU Business & Biodiversity Campaign; UNEP WCMC; IUCN Business & Biodiversity Programme; Volans; WRI, UN Global Compact, WBCSD; GRI; VBDO; UNEP FI; EUOSIF, UNPRI.	23
Sector initiatives	Energy and Biodiversity Initiative; International Council on Mining and Metals; Forest Stewardship Council; Marine Stewardship Council	4
	Extractives: World Gold Council; International Platinum Group Metals Association (IPA); International Lead Association (ILA); International Aluminum Institute (IAI); The Mining Association of Canada; WBCSD Cement Sustainability Initiative (CSI); Alliance for Responsible Mining (ARM); Responsible Jewellery Council (RJC); International Cyanide Management Code (ICMI)	9
	Agrifood: International Treaty on Plant Genetic Resources for Food and Agriculture; Global Plan of Action for the Conservation and Sustainable Utilization of Plant Genetic Resources for Food and Agriculture; Biodiversity and wine initiative; Biodiversity Guidelines within the Integrated Production of Wine (IPW) and self assessment forms; Better Sugarcane Initiative; Common Code for the Coffee Community (4C Association); Conservation Grade; Conservation Principles for Coffee Production; Ethical Tea Partnership; The Fairtrade Foundation; International Federation of Organic Agriculture Movements (IFOAM); Linking environment and farming (LEAF); Rainforest Alliance; Sustainable Agriculture Standards; Roundtable on Sustainable Palm Oil; Roundtable on Responsible Soy Association; Soil association; World Cocoa Foundation; Farming and Wildlife Advisory Group; GRI Food processing sector supplement; Landscape Measures Resource Center; Platform for Agrobiodiversity Research (Biodiversity International); State of Sustainability Initiatives (IISD); High Conservation Value Forest Toolkits; Response Inducing Sustainability Evaluation; CropLife International; Ecoagricultural partners; European Initiative for Sustainable Development in Agriculture; Field to Market, The Keystone Alliance for Sustainable Agriculture; Finance Alliance for Sustainable Trade (FAST); Fish Friendly Farming; High Conservation Value Resource Network; IFC Biodiversity & Agricultural commodities programme; Roots of Change; The Sustainable Agriculture Network (SAN); Sustainable commodity initiative (United Nations Conference on Trade and Development and International Institute for Sustainable Development); Sustainable Food Laboratory; UNCTAD BioTrade Initiative.	37
Key resources on business & biodiversity	ARIES (Assessment and Research Infrastructure for Ecosystem Services); The 2010 Biodiversity Indicators Partnership; Business & Biodiversity Resource Centre; Business & Biodiversity Offset Programme (BBOP); Biodiversity Technical Assistance Units; Catalogue of Life (CoL); CITES Trade Database; Conservation Commons; Convention on Biological Diversity – Business & Biodiversity Initiative; Corporate biodiversity action plans; Corporate Ecosystem Services Review Tool; Corporate Wildlife Habitat Certification / International Accreditation Program (Wildlife Habitat Council); Darwin Toolkit for SMEs and Business; Global Biodiversity Information Facility (GBIF); Life Cycle Initiative; Multi-scale Integrated Models of Ecosystem Services (MIMES); Global Water Tool; Integrated Biodiversity Assessment Tool (IBAT); Integrated Valuation of Ecosystem Services and Tradeoffs (InVEST); ISEAL; The IUCN Red List of Threatened Species; Wildlife Trust Biodiversity Benchmark; The World Database on Protected Areas (WDPA); Regional: EcoAim; EcoMetrix; Measures; Servir; Wildlife Habitat Benefits Estimation Toolkit; Habitat Priority Planner; Marine Spatial Planning tool; Integrated Land-Sea Planning Toolkit.	31 (including 8 regional)
Initiatives to facilitate private sector engagement on biodiversity	The Biodiversity and Ecosystem Workstream (UNEP FI); The Biomimicry Institute; The Business & Biodiversity Initiative; Business & Social Responsibility Ecosystems Market Initiative; Canadian Business & Biodiversity Secretariat (Wildlife Habitats Council); The Economics of Ecosystems & Biodiversity (TEEB); Ecosystems Valuation Initiative; EU Business & Biodiversity Initiative; The Green Economy Initiative; IUCN Business & Biodiversity Programme; Japanese Business Initiative for Conservation & Sustainable Use of Biodiversity; The Katoomba Group; Leadership for Conservation; Pro Biodiversity Business; Proteus; Wildlife Habitat Council.	16
Total		124

** Information sourced from desk research by CPSL, Oct 2010; Nyenrode et al, 2010; UNEP, Oct 2010; WEF, Jan 2010. This is by no means a comprehensive list of initiatives.*

Initiatives are emerging from a range of sources. Some are more receptive to the investment community than others. Many interviewees saw the most effective initiatives as being those that come from within the business community since they represent a genuine internal change of approach, rather than an externally imposed idea.

Particular fatigue is evident around questionnaires and reporting initiatives, and general initiatives that do not appear to have any impacts. Are most initiatives promoting change or just becoming 'tick-box' exercises? Resourcing to respond to increased reporting requirements has not been easy given recent global financial downturns. Some saw a lack of impetus to drive the agenda forward, with perhaps excessive focus on reporting.

"There is currently no clear direction on natural capital - one is needed. This could be resolved by a few leading groups, including UNEP FI, coming together to work towards a commonly agreed goal, with each focusing on a niche sub-area"
Ivo Mulder, United Nations Environment Program Finance Initiative

"There is fatigue with general initiatives on issues that don't have much impact on companies. Unless it will impact companies, the value of a detailed examination of a particular issue is limited, as would be our support"
Julie McDowell, Standard Life Investments

4 Future Market Conditions

4.1 Market Restructure

Restructuring of the markets is considered almost inevitable by most interviewees. Most indicators for natural capital are showing that degradation is occurring, and this is seen as an issue that society will continue to grapple with. The question is how, and over what time scale?

Climate change is viewed by many as the closest gauge for how the natural capital concept will be incorporated in the future. Given that investments have been found for carbon, some thought that the same is likely to happen for natural capital, probably in water and forestry first.

Opinions on timeframes vary and are subjective estimates. Most agreed that fairly significant changes will take place in the next 5-10 years, triggered by resource utilisation limitations. Many interviewees stated that the timeframe could be fast-tracked if major environmental shocks happen, or if we witness a step-change from governments / regulators. Natural disasters, such as the recent tragedy on the north-eastern Japanese coastline, will emphasise increased global connectedness and prompt greater action in natural resource management. One interviewee mentioned that the Convention on Biological Diversity conference in Nagoya in 2010 had few business leaders present, despite the potentially important consequences of that meeting for the incorporation of natural capital ideas within the next two years, with possible regulation following.

The market could develop quickly if 'regulation drives materiality'. Materiality is likely to sporadically affect different sectors at different times, but each sector will have to respond if pre-emptive action is not taken. Stern (2006) recognised that, in regard to the economics of climate change, pre-emptive actions in the present and near future are likely to be far less costly (in economic, social and environmental terms) than responses to predicted changes. Some believed that natural capital shortages at the country level (particularly in some emerging economies) could drive the natural capital agenda more quickly than at company level.

One interviewee stated that sustainability (regarded by some mainstream investors as a vague term) needs to associate itself with tangible business issues to gain traction in the investment community. For example, the clean technology movement has associated itself quite successfully with the impending energy imperative. Natural capital initiatives launched parallel to, instead of onto, existing imperatives could struggle for mainstream acceptance, and may be linked to consumer attitudes, which are also likely to continue evolving over the coming decade.

"I'm hopeful natural capital will be a major part of future markets, otherwise we will lose major global ecosystems and their services"
Ricardo Bayon, EKO Asset Management Partners

"I expect the societal debate relating to natural capital over the coming five to ten years to be similar in scale and importance as the debate over climate change we have experienced over the same period previously"
James Gifford, United Nations Principles for Responsible Investment

"A combination of predicted climatic changes and fairly major ecological problems must trigger major system restructures, otherwise we'll all be in big trouble"
James Gifford, United Nations Principles for Responsible Investment

"Natural capital will become a major part of future markets, otherwise there will come a point within our life-time when ecosystems will stop functioning to provide adequate services"
Ivo Mulder, United Nations Environment Program Finance Initiative

"Despite many years of efforts, there still isn't a global cost of carbon. Natural capital poses a far more difficult challenge"
David Russell, Universities Superannuation Scheme

4.2 Moving Forward

Members of the investment community have a range of suggestions for how to move forward on natural capital. Initiatives thought to help individual groups move forward can be divided into macro-policy level and micro-business level initiatives. The macro-policy level initiatives described below may help resolve perceived market failure and help groups to move forward:

- Government actions to help create markets. These are likely to be sector-specific and include mandatory public regulation that requires new benchmark behaviour and encourages companies to innovate.
- Typically, environmental regulation regulates on adverse impacts. Some respondents want to see regulation that incentivises corporations across their whole business.
- Biodiversity policy objectives for 2020 are anticipated to have an impact internationally, with possibilities for subsidy and market schemes. The Rio+20 conference is important. Delays to substantial changes will only increase the magnitude of the threat to the world economy and sustainability.
- A single, clear market standard was also required by some, perhaps providing a standardisation of approach and measurement.
- The concept of stewardship, first introduced by economist and philosopher Adam Smith in relation to agricultural society, could be reintroduced. Andrew Carnegie, steel tycoon in late 1800's/early 1900's believed two principles were necessary for capitalism: the charity principle and the stewardship principle. His stewardship principle stated that wealthy individuals and businesses should regard themselves as caretakers of their considerable resources. A similar ethic needs to be reintroduced today in a stewardship code.
- Act strongly on universal ownership, fiduciary duty and due diligence.

At the micro-business level, initiatives may help companies operate effectively in an improved market created by the initiatives above:

- Knowledge improvement through education and increased awareness.
- Improved metrics to increase evidence-base and lead to greater understanding and consensus. Companies could bring forward metrics themselves. Accounting / auditing could be important role.
- Integrated reporting originating from a corporate perspective, introduced concurrently with strategic actions at macro-policy level. Integrated reporting could help firms identify risks and opportunities.
- Clear identification of risks/return and opportunities. Reputational risks need to be managed.
- Communication at board level of the importance of natural capital as it underpins economic and commercial futures.

Importantly, linkages between the macro-policy and the micro-business levels need to be strengthened. Too much focus is given to micro-business level materiality issues, and more strategic focus is needed.

Boutique firms incorporate natural capital mandates in their investments for ethical and/or first-mover reasons. The majority of mainstream investors are not likely to lead activities in new markets, but there is strong recognition of organisational positioning within the investment community (e.g. some pension funds recognise themselves or others as more progressive on sustainability issues).

Some respondents called for immediate action on forestry and clean technology, while simultaneously continuing to plan future actions on more complex themes such as water and biodiversity.

Strong support was voiced for 'de-politicising' the debate from a short-term election issue to a long-term strategic priority. Barton[14], and respondents, see this ultimately coming down to a redefinition of capitalism. If short-term market considerations are the sole driver, then the considerations of broader society may not be met.

"Natural capital management is going to be a really huge global debate. Are the serious consequences of mismanagement something the world really wants to live with?"
James Gifford, United Nations Principles for Responsible Investment

"For groups like pension funds which tend to be risk-averse, investment decisions depend chiefly on risk / return profiles as well as sustainability issues" **Daniel Ingram, Hermes Fund Managers**

"To move forward, we need greater interest from governments (internationally and nationally) and some indication that this will become a priority for future policy development"
James Stacey, Earth Capital Partners

4.3 Directives

The market itself is unlikely to resolve a market failure. If left to its own devices, the feeling was that the situation will worsen to a point that no-one would desire. Many believed that a combination of actions is needed. Most also believed that regulation will ultimately be required to trigger the necessary scale of investment. Respondents' perspectives on voluntary, regulation and market incentives are summarised below.

4.3.1 Voluntary

Voluntary initiatives are seen generally as an experimental space to test new concepts and systems. They are particularly good for promoting innovative approaches chiefly by first-movers, that then evolve / are refined. An initiative often starts off, or even remains, at small to medium scale. However, some voluntary initiatives (e.g. the Equator Principles), can become an informal industry benchmark without regulation. If good practice can be designed and demonstrated, subsequent opportunities exist to universalise the concept through regulation.

Current low levels of understanding and lack of methodology and metrics relating to natural capital suggest that voluntary guidelines may be most appropriate while knowledge is still evolving. Progress needs to be made on some of the previously described outstanding issues (e.g. barriers, incentives, materiality, business case) before moving forward too quickly and / or formalising directives.

Some respondents likened a potential natural capital directive to the carbon market: a voluntary carbon market (a very useful experimental ground for a new concept) has not achieved sufficient scale of change sufficiently quickly. Policy direction and regulation (see 4.3.2) may be required to provide clear market direction.

4.3.2 Regulation

Given the market challenges outlined, and the continued degradation of natural capital globally, most interviewees believed that a strong policy driver would be a unifying force that would promote universal change. Regulation will be required to promote broad-scale considerations of natural capital and market re-valuation. Mainstreaming is unlikely without regulation. An overall framework would send important signals to the market and regulation is critical in facilitating such transition.

While overarching guidance may be required on natural capital / biodiversity at the international level, sector-specific regulations that incorporate those broader directives could make natural capital more material for companies and the investment community. Some respondents referred to recent / current examples (e.g. mitigation banking in the USA and reforestation in China) where regulation has been highly effective in creating significant market shifts. Sectors may require different metrics, and materiality will vary across scales and timeframes. Without sector-specific guidance, the standard may be set too high for some and too low for others, thereby disincentivising many. Some specific regulatory actions were proposed: for integrated reporting to become a legal requirement; and for specific attention on SME's, which are regarded to be lagging behind better resourced businesses in relation to responsible practices. Incorporation of natural capital into national economic management, including national statistics and management, was seen by some as mandatory and would promote regulation, which could then be supplemented by market incentives.

Some thought that, given the investment community's desire for accurate valuations and reliable returns, they should encourage regulators to promote a transparent market – one that reconciles input valuations and provides greater predictability for business risk-return profiles.

Some caution was expressed about the potentially unforeseen implications of poorly-placed regulation. Also, regulators may seek 'prudence on top or prudence', which can create a 'herd mentality' in some markets. Such stifling of innovation and forward-thinking must be avoided.

"A framework is critical in providing the required market signalling for natural capital. However, currently no framework exists in Europe or abroad"
Climate Change & Environment group, European Investment Bank

"Both overarching and sector-specific directives will be required, and they will need to be a combination of mandated regulations and market incentives"
James Stacey, Earth Capital Partners

4.3.3 Market incentives

Many interviewees believed that market incentives related to natural capital are likely to emerge from well-defined policy and regulation. Market incentives, often regarded as an efficient economic instrument, require policy that sends a price signal to promote market change.

4.4 Trading market

Little consensus existed on whether a formal trading market, like that proposed for carbon, would help natural capital investment consideration.

Views ranged from a market being 'positively harmful' through to more tempered support. Given the degree of uncertainty regarding metrics and reporting, coupled with the complexity of natural systems, these varied views are to be expected. Some believed that natural capital could be integrated better into the investment process rather than a market. Others thought that market benefits could provide structure, visibility and clearly defined standards, particularly if supported by mandatory regulation and other mechanisms such as taxes. Hence, any trading market would need to form part of a larger solution.

A regulated market mechanism was thought by some to be inevitable, but it is unlikely to be imminent and the structure of such a market was open to discussion. Most do not foresee a 'natural capital' or 'biological and ecosystem services' market as such, but perhaps more piecemeal markets comprising components of those systems (e.g. carbon, water, biodiversity) In the interim, biodiversity trading systems are emerging (e.g. Payment for Ecosystem Services - PES, an Australian biodiversity credits system, and wetland trading in the USA). Such schemes are small-scale and patchy and statutory initiatives are required for for real scale and momentum. Broader initiatives such as REDD+, in which significant investment has been earmarked from the private sector, could also drive more formalised market structures.

Significant fundamental differences exist between potential carbon markets and natural capital (or biodiversity and ecosystem services) markets, as outlined in Table 9.

Table 9. Characteristics of potential carbon and natural capital markets

Characteristic	Carbon	Natural capital (BES) and its component parts
Measurable	Yes	Not occurring yet. Natural capital is made up of many components. Any measurement may be value-laden and subjective.
Tradable commodity	Yes	Not occurring yet.
Global market potential	Yes	Unlikely. Significant variation from local to regional to global scales. Regional markets may be viable.
Global impact	Yes	Potentially. May be limited to local or regional.
Generalisable	Yes	Context-dependent
Physical properties	Consistent	Dynamic and variable
Other	Potentially complicated by localised cultural, social and traditional values.	Potentially complicated by localised cultural, social and traditional values – more so than carbon.

The relative simplicity of a carbon market (Table 9) compared to natural capital, and the current status of carbon markets do not augur well for a natural capital market. Interviewees noted that a limited number of credits for emission could be traded in a carbon market. For water, rights could be granted to trade finite quantities. However, for less tangible features such as biodiversity, what would be traded? Significant uncertainty exists around this idea. Strong public policy and regulation is seen as a necessity whatever happens. The structure of a trading market would need to be devised carefully since it determines the market function, incentives and commodities traded.

The experiences of some stakeholders in observing the development of the carbon market have led to reservations about a similar system for natural capital. Issues such as lobbying and fraud have created scepticism. However, one benefit of a potential natural capital market following a carbon market is the learning that can ensue.

"Any market is secondary to a political will to put in place a framework structure in the first place" **James Gifford, United Nations Principles for Responsible Investment**

"Any externality, such as natural capital degradation, needs to be priced before it will be adequately addressed. Change can be driven through market pricing and risk management"
Ivo Mulder, United Nations Environment Program Finance Initiative

"Natural capital covers so many different things – if a global carbon emissions trading market can't be agreed, creating a market around natural capital will be very difficult"
David Russell, Universities Superannuation Scheme

"The dynamics of any natural capital trading market are yet to be determined. A carbon market could involve credits being traded for the right to emit carbon; a water market could involve water rights being traded locally or regionally; but for a natural capital market, what would it look like? How would components be valued? How could risk be transferred? There are many questions to be answered"
Daniel Ingram, Hermes Fund Managers

4.5 Connectivity and Leverage Points

Many potential leverage points for change can be identified given the multitude of actors (see Table 11) and the connectivity in the investment community.

Some respondents who liaise with both investors and companies suggested that the majority of activity on natural capital currently comes from the companies (dealing with emerging issues and awareness of risks) rather than the investment end. Some companies looking beyond a 5-year time horizon are ignoring the lack of investment engagement and forging ahead.

4.5.1 Leverage Points

Potential leverage points for market change are shown in Table 10.

Table 10. Potential leverage points for market change

Leverage point	Description
Investment contracts	Asset owners are not generally incentivising investments beyond 3-5 years. Evaluation criteria are very short-term and fail to reward responsible management. Alteration of investment contract criteria could have a trickle-down effect to asset managers and companies. Many suggested that leading companies are more aware of the importance of natural capital than those further up the investment chain, so altering investment contracts to reflect those improved practices could potentially see others improve quickly too.
Universal ownership	Realisation that for diversified portfolios any externalities may jeopardise future returns.
Appropriate incentives	Mainstream investors are barely incorporating carbon (which is far better understood and more progressed in terms of valuation than natural capital) so significant incentives are required for natural capital to be seriously incorporated.
Information disclosure	Need for consistent metrics in different sectors. Disclosure and more useful data will provide greater clarity, then market can measure.
Loan conditions	Lending agencies maintain strong ESG requirements and can incorporate natural capital into those requirements.
Due diligence	Greater due diligence required throughout the entire investment chain (e.g. companies raising capital need to disclose material risks and need to manage supply chain risks responsibly). Investors' lack of understanding of natural capital is a market inefficiency, although in due course they will understand and catch-up - then it becomes a risk management issue.
Fiduciary responsibility	Fiduciary responsibility is a core requirement of all pension funds.
Attractive investment opportunities	A number of investors would be interested in investing in natural capital, but opportunities must meet certain return characteristics and investment criteria (e.g. be professional, well structured, have a governance structure). If attractive for large investors, this could catalyse change.
Strengthened principles for Investment	The drive for a diversified portfolio is emphasised by one pension fund stating that they invest in every listed company on the London Stock exchange (2,500 companies) to spread investment risk. With this number of investments, the fund cannot approach each of its investments on an individual/piecemeal basis, so the Hermes Principles (pre-cursor of UNPRI) set out the rationale for investment. The principles address social and community issues but may be regarded as chiefly economic with ESG thrown in. The principles do not exclude any company on the stock exchange and demonstrate the strong driver for diversification over almost anything else.
Diversified portfolio	Pension funds are unable to discriminate against investments on ethical or moral bases alone. Benchmark investment standards could be proposed for investment funds by regulators.

4.6 Key Players

Potential key players for market change, both within and outside the investment community, are outlined in Table 11.

Table 11. Potential Key Players for Market Change

Key Players	Description of Roles
Investment Community	
Investment overview	Investment consultants play a key role in promoting natural capital as they occupy powerful and critically important positions, acting on behalf of large institutional investors and allocating significant amounts of capital.
Fund / asset Managers	Fund managers and asset managers are concerned about being fired if they do not perform in the short-term. Some even suggested that asset managers (and even owners) should contact investment houses to ask how they are (or plan to) incorporating natural capital into investment.'
Asset owners	Many respondents felt that the link between asset owners and asset managers could be an important lever for change. If asset owners ask questions, then asset managers would address them. Asset owners need to take a longer term view and hand out mandates to investment consultants and asset managers. Asset owners could get together to develop model mandates via the international corporate governance network. They could actively manage risks in natural capital and engage with laggards. Such conditions should be built into contracts.
Trustees	Some respondents regarded trustees' knowledge of the investment market as minimal. Education on an emerging concept such as natural capital could be warranted.
Investment banks	Some respondents felt that establishing new markets would be challenging and envisioned investment banks playing a role in that establishment process.
External to investment community	
Policy makers	Governments assist in driving voluntary or markets from top-down. They have a responsibility to address major market failures through regulation. Regulation is important in creating conditions to promote scale of investment (i.e. banking regulators redirecting economic capital, rating agencies)., 'No net loss' regulation could be introduced.
Corporates	CEOs need to understand these issues and drive change top-down within their organisations and across sectors with other CEOs. They can also influence their supply chains. Nothing will happen in this space unless it is driven from the top (CEO, Chair and Board) – leadership has to understand the issues, and what they are currently doing, and be committed to change.
NGOs	NGOs are perceived to play a role, both in collaboration with business partners and also through influencing societal and business values.

"If fund managers recognise that they are part of both the global ecosystem and the global economic system then priorities will change"
James Gifford, United Nations Principles for Responsible Investment

"One of the greatest levers for change in the investment community would come if asset owners made natural capital requests to asset managers who would then respond to those requests. This could change the incentive structure for asset managers and others further along the investment chain"
Ivo Mulder, United Nations Environment Program Finance Initiative

"Governments need to help drive voluntary initiatives and market incentives from the top-down"
Daniel Ingram, Hermes Fund Managers

"Nothing will happen in this space unless it is driven from the top (CEO, Chair and Board) – leadership has to understand the issues, and what they are currently doing, and be committed to change"
Donald McDonald, BT Pension Scheme

4.7 Transformational Change

4.7.1 Actions

Current or proposed initiatives may be sufficient to promote some change, they are probably insufficient to promote transformational change over a viable timeframe. Some felt that current initiatives are necessary but insufficient to generate anything other than incremental change, at best.

Inertia and entrenched practices are significant forces in the current market. Few actions may be able to create the necessary step change. Some interviewees described their expectations of market evolution (or transformation) following release of the seminal 2006 Stern Review on the Economics of Climate Change. Some expected its recommendations to be fully incorporated into valuations by analysts. However, uncertainty resulting from failed international policy negotiations did not support market change.

Significant transformational change is seen to be triggered by one of two major events:

1. Strong market incentive originating from clear and bold policy initiative / regulation. Suggestions for such clear and simple policy included 'no net harm' and incentives to actively encourage restoration of natural capital assets. International forums such as Nagoya and Rio+20 have the potential to serve as platforms to focus attention on natural capital and highlight to business emerging materialities and risks. The key is to highlight the self-interest that investors and other stakeholders have in such a proposal, and their combined responsibility.

2. Major resource shortages and / or imminent environmental disaster / ecosystem collapse. Recent disasters (e.g. BP Deepwater Horizon, Japanese tsunami and flooding in Australia) highlight emerging risks related to natural capital. However, it is hoped that we can be forward-thinking enough to avoid waiting for even more frequent and greater magnitude disasters before taking serious action.

Activities of potential importance that should accompany policy change include:

- Supply chain pressure applied either by companies or changing consumer demands. Large companies set standards and smaller/medium come along (supply chain).
- Investment community demanding more from the corporate community through accounting and disclosure mechanisms (some progressive asset management firms are already starting to enforce strict ESG conditionality on capital when it comes to themes such as natural capital / BES). Potentially, a similar proposal to the World Bank / IFC, which do not provide funding if conditions are not met.
- Stewardship Code to help guide organisations and engrain renewed attitudes and practices. This would require organisations to state their actions related to natural capital and could be motivated by peer pressure, reputational risk and corporate social responsibility - or be mandatory.
- Longer-term research has been emerging from investment banking groups, such as HSBC 2050 report, and scenario planning from energy companies (e.g. BP and Shell) and multilateral groups. Little, if any, scenario planning for natural capital is evident that is related to the investment community. An indication of this lack of forward planning is that investors still feel that they must request companies to communicate natural capital issues - they are not automatically producing this information. A scenario planning report on natural capital catering to the investment community could be a valuable initiative.

4.7.2 Organisations

Table 12 shows organisations thought to have potential to help facilitate transformational change. These organisations operate at different levels and so collaboration between them could promote a synergised framework addressing both macro-policy and micro-business level issues.

An innovative initiative would be best received if it were introduced through a trusted, established group, particularly one that comes from within the business sector. Too many initiatives are being introduced from the 'sustainability' sector and, if mainstream integration is the purpose, then initiatives external to the business sector are not likely to promote mainstream uptake. There is a danger of initiatives remaining in the 'ghetto of sustainability' if business doesn't take ownership of them. There seemed little support for building external resources when the key struggles facing fund managers are integrating natural capital imperatives within their organisations. Many supported communication at CEO / Chairman level to create buy-in. Corporate leaders groups could also be effective.

In terms of the roles of investment stakeholders, most interviewees saw their organisation's role as raising awareness of natural capital and participating in forums to help move the issue forward. As individuals, they are also trying to integrate more natural capital thinking within their organisation. However, the core business objective of most is to achieve investment returns for clients, and apart from some boutiques, most do not see their role as helping to create new markets. Many see their role as observing change, rather than creating it.

4.7.3 International/ Regional Policy

The UN Convention on Biological Diversity 2011-2020 Strategic Plan includes the Aichi Biodiversity targets. It was agreed in Nagoya, Japan in 2010 to translate this overarching international framework into national biodiversity strategies and action plans within two years. The Aichi Biodiversity targets include 5 strategic goals, the first of which is to 'Address the underlying causes of biodiversity loss by mainstreaming biodiversity across government and society'. These targets will be further discussed in Delhi, India in October 2011.
The EU's 2020 biodiversity strategy, presented in May 2011, will pave the way for the value of nature to be taken into account across all policies, including factoring the environment and ecosystems into national economic plans.

One interviewee noted that 'we are at the beginning of a long journey, but at present we are crawling complacently' – if we are to address this complex issue we will need to define a common direction, outline an agreed plan, and apply ourselves to increasing both the pace and scale of transformative change.

"For climate change, government policies are important to stimulating clean tech and energy efficiency solutions. The same is true for natural capital, where government policies could help spur companies to innovate and attract greater investment"
Sagarika Chatterjee, F&C Investments

"Given that policy and vision will be the key drivers for change, initiatives should make the business case to government to promote their intervention in the system"
James Stacey, Earth Capital Partners

Table 12. Existing organisations that could help promote transformational change

Organisation	Organisation Description	Interviewee Perspectives
Cambridge Programme for Sustainability Leadership (CPSL)	The University of Cambridge Programme for Sustainability Leadership (CPSL) works with leaders from business, government and civil society to address the critical global challenges that affect the success of their organisations. CPSL aims to promote transformational change CPSL has established a business-led Natural Capital Leaders Platform to address the impacts of ecosystems and natural capital loss and degradation on business, their customers and wider society. This present report on 'Increasing mainstream investor understanding of natural capital' and the interviews that underpin it, were undertaken as part of the work of the Platform.	CPSL has considerable convening influence. Notably CPSL has convened a corporate leaders group on Climate Change, the P8 Pensions Group, ClimateWise (Insurance sector) and the Banking Environment Initiative. Some respondents thought that the Natural Capital Leaders Platform offers opportunities to convene initiatives already underway in the investment community and thereby create progress on issues highlighted by this current report. Others thought that the Platform would be well-placed to influence national and global policy making processes in this arena supported by the evidence and action built up through collaborative work among the Platform members.
International Integrated Reporting Committee (IIRC)	To create a globally accepted integrated reporting framework that brings together financial, environmental, social and governance information in a clear, concise, consistent and comparable format. The aim is to help with the development of more comprehensive and comprehensible information about organisations, prospective as well as retrospective, to meet the needs of a more sustainable, global economy.	Integrated reporting was regarded by many respondents as a promising way to integrate environmental imperatives, including natural capital. However, there was recognition that it will require clear and simple metrics to be effective. Metrics have proven difficult to incorporate to date and hence this is a limitation on this approach currently.
Financial Reporting Council (FRC)	The Financial Reporting Council is the UK's independent regulator responsible for promoting high quality corporate governance and reporting to foster investment. It promotes high standards of corporate governance through the UK Corporate Governance Code. It sets standards for corporate reporting and actuarial practice and monitor and enforce accounting and auditing standards, and oversees the regulatory activities of the professional accountancy bodies. (Financial Reporting Council website).	The FRC was regarded by some as being highly regarded in the financial community and a potentially effective avenue for integrating natural capital through business. As a financial regulatory institution, some felt any initiative emerging from it would be more likely accepted by CEO's and the mainstream business community. Some felt that a UK stewardship code (related to natural capital) could be initiated through this group. Such an initiative could be CEO-driven and was considered potentially more effective than those driven by external parties outside the business sector. The alternative is that organisational personnel try to push external initiatives up to their CEO's, which may be less likely to succeed across organisations.
United Nations Principles for Responsible Investment (UNPRI)	The United Nations-backed Principles for Responsible Investment Initiative (PRI) is a network of international investors working together to put the six Principles for Responsible Investment into practice. The Principles were devised by the investment community. They reflect the view that environmental, social and corporate governance (ESG) issues can affect the performance of investment portfolios and therefore must be given appropriate consideration by investors if they are to fulfil their fiduciary (or equivalent) duty. The Principles provide a voluntary framework by which all investors can incorporate ESG issues into their decision-making and ownership practices and so better align their objectives with those of society at large.	UNPRI has a multitude of signatories and a degree of acceptance in the investment community; some criticism of only a low level of action is required to be endorsed by UNPRI. The goal is to bring formerly immobilised stakeholders to engage on new issues. Some regarded UNPRI to be encouraging change and progressing implementation through disclosure to the public and clients required by its annual survey. The UN is an effective convening body and could be used for ecosystem services - but, more is required from UNPRI. If natural capital could be more explicitly incorporated into the principles then it may serve as an effective mechanism. Some respondents were not highly supportive of UNPRI and felt that business-led initiatives were more effective in garnering support and enacting operational actions.
United Nations Environment Programme (UNEP FI)	The Financial Reporting Council is the UK's independent regulator responsible for promoting high quality corporate governance and reporting to foster investment. It promotes high standards of corporate governance through the UK Corporate Governance Code. It sets standards for corporate reporting and actuarial practice and monitor and enforce accounting and auditing standards, and oversees the regulatory activities of the professional accountancy bodies. (Financial Reporting Council website).	UNEP FI could perhaps collaborate with groups like the IIRC and FRC in promoting integration of natural capital considerations into mainstream financial activities.

Appendix E. Supplementary information on recommended actions

1. Beyond the Market
This level incorporates broader economic issues both internal and external to the market, and is also where overriding societal values may intervene to correct market failures or inefficiencies (see Table 13).

Table 13. Market & Social Level Actions for Change

Possible Action	Purpose	Possible Implementation
International / Regional Policy Environment	The Convention on Biological Diversity proposes national actions for a period within two-years of 2010. European Union policy additions on biodiversity are announced in May 2011.	There is a high degree of action in the biodiversity policy arena forecast over the next two years. This could have implications for investors and companies alike if translated into national policies. Governments need to enact policy and investors should be aware of potential policy implications.
Mandatory Regulation	An initiative to help operationalise new policies could assist the investment community. Voluntary initiatives are helping to better understand natural capital by promoting disclosure; mandatory regulation creating standardisation are deemed to be required. Likely to be overarching with sector-specific sub-directives.	Government needs to play an active role in international negotiations and enact national policy. It is in investors' long-term interests to engage with policymakers to understand likely future policy developments and their implications for investments. Translation of policy into useful regulation will require input from many stakeholders.
Operationalisation of Concept.	Fund managers etc currently unable to incorporate concepts introduced by TEEB at operational level.	Need to have a TEEB roadshow and / or follow-up report on concept operationalisation.
Stewardship Code	A stewardship principle states that businesses (Investors) should regard themselves as stewards, or caretakers, of their considerable resources for the benefit of all. A voluntary benchmark, similar to the Equator Principles could be useful, but given impending global and regional (European Union) policy drivers, they may serve a more important purpose. Perhaps an initiative to help operationalise new policies would assist the investment community.	A stewardship code, incorporating natural capital, and coordinated by a group such as the FRC could integrate change throughout the finance industry. The code could build on, or be incorporated into existing wider codes.
Unification of Initiatives	Currently unclear direction and initiative fatigue. A unified initiative needs to be clear, simple and able to promote real change rather than an administrative tick-box exercise.	A UN initiative or an overarching industry body could bring multiple initiatives together and partially standardise them for increased palatability for the investment community.

Possible Action	Purpose	Possible Implementation
Fiduciary Duty / Due Diligence Vs Legal Obligation for Diversification	Pension funds have a fundamental fiduciary duty (i.e. for the benefit of beneficiaries). However, as a competing imperative, legal advice sought by one pension fund confirmed that they are unable to discriminate on ethical grounds, which may likely extend to natural capital impacts.	These are competing interests for institutional investors. The requirement for portfolio diversification could be advantageous if sufficient marketable investment opportunities can be created, then funds may likely invest in natural capital to maintain diversity. Ultimately, fiduciary duty may become overriding as traditionally damaging investments jeopardise economic and social wellbeing.
Research	Scenario planning reports for natural capital have helped to focus the energy industry on increasing resource scarcity and seeking alternatives.	An industry / research collaborative could undertake a scenario plan for natural capital in relation to investments.
Integrated Actions	Current conservatism of the mainstream investment community necessitates action internally and externally to the community to promote change.	Actors within the investment community should work together to agree on a pathway forward including interaction with policy makers. A convening body may be required for this.

2. Within the Market
Top-down action needs to be complemented by action from the bottom-up, particularly when high-level policy consensus is not forthcoming. In such cases, business and individuals have critical roles to play as outlined in Table 14.

Table 14. Business & Individual Level Actions for Change

Possible Action	Purpose	Possible Implementation
Measurement & Reporting (I) - Metrics Development	Clear metrics regarded as an essential step to move forward on natural capital.	Likely to be sector- and company-specific. Need to be developed by business community in conjunction with NGOs, academic institutions, etc.
Measurement & Reporting (II) – Integrated Reporting	Can help translate metrics into useful information outputs within a more holistic approach.	IIRC promoting integrated reporting. Integrated reporting emerging in South Africa and Denmark, which could serve as examples elsewhere.
Measurement & Reporting (III) – Risks / Return & Opportunities	There is a strong need to manage reputational risk and increasingly operational risks, particularly in high impact sectors.	Risks will become material if metrics can assign quantitative / qualitative values to natural capital. Integrated reporting will help to integrated into business and risks will become material.

Possible Action	Purpose	Possible Implementation
Enable Valuation (I) – Internalise Externalities	Valuation will help account for externalities.	Quantitative (and qualitative) metrics (see micro-business level actions) will help make natural capital visible and apply valuations for consideration.
Enable Valuation (II) – Trading Markets	Trading markets may help in assigning a value to natural capital.	Progress on carbon market could help focus attention on natural capital. Can learn from carbon market experiences.
Investment Contract Revisions	Actors are incentivised by performance criteria and contracts. Hence, alteration of contracts to include natural capital criteria could cascade action along the investment chain (through supply chain imperatives as well).	This would require engagement between institutional investment trustees, investment consultants and asset owners / managers. This process would need to be facilitated by an industry group, perhaps FRC or UNPRI.
Core Business Alignment	Initiatives need to align with core business interests to achieve mainstream consideration. Piggy-backing on business issues is required for integration.	Core business issues need to be identified for natural capital to be piggy-backed on to.
Target Communications to CEO / Chairman Level	These are key decision-makers and can integrate natural capital if they believe it underpins economic and commercial future.	Via a business-based organisation, such as FRC or a corporate leaders group.
Marketable Investment Opportunities	Given that a supply-side problem was identified as a limiting factor, there is a need to work with emerging businesses to help their investment opportunities conform to investment criteria.	There needs to be greater communication between investors and emerging businesses. An intermediary could be established to serve to inform emerging businesses of specific criteria sought by investors.

Abbreviations

BES	Biodiversity and Ecosystem Services
CDM	Clean Development Mechanism
CEO	Chief Executive Officer
CSR	Corporate Social Responsibility
ESG	Environmental Social and Governance
FRC	Financial Reporting Council
GDP	Gross Domestic Product
IFC	International Finance Corporation
IIGCC	International Investors Group on Climate Change
IGCC	Investor Group on Climate Change
IIRC	International Integrated Reporting Committee
INCR	Investor Network on Climate Risk
IUCN	International Union for Conservation of Nature
NGO	Non-Governmental Organisation
OECD	Organisation for Economic Cooperation & Development
REDD(+)	Reducing Emissions from Deforestation and Forest Degradation
SRI	Sustainable and Responsible Investment
TEEB	The Economics of Ecosystems and Biodiversity
UN	United Nations
UNEP	United Nations Environmental Programme
UNEP FI	United Nations Environmental Programme Finance Initiative
UNPRI	United Nations Principles for Responsible Investment
WBCSD	World Business Council for Sustainable Development
WEF	World Economic Forum
WRI	World Resources Institute
WWF	World Wildlife Fund

Glossary

Biodiversity: The variability among living organisms from all sources, including terrestrial, marine, and other aquatic eco¬systems and the ecological complexes of which they are part; this includes diversity within species, between species, and of ecosystems.

Biodiversity & Ecosystem Services (BES): Biodiversity represents the foundation of ecosystems that, through the services they provide, affect human well-being.

Capital: Forms of capital include human, financial, natural, manufactured and social.

Ecosystem: An ecological community together with its environment, functioning as a unit.

Ecosystem services: The direct and indirect contributions of ecosystems to human well-being. The concept 'ecosystem goods and services' is synonymous with ecosystem services. These include provisioning services such as food, water, timber, and fibre; regulating services that affect climate, disease, wastes, and water quality; cultural services that provide recreational, aesthetic, and spiritual benefits; and supporting services such as soil formation, photosynthesis, and nutrient cycling.

Externalities: Benefits or costs generated as an unintended by-product of an economic activity that do not accrue to the parties involved in the activity and where no financial compensation takes place.

Incentives (disincentives), economic: A material reward (or punishment) in return for acting in a particular way which is beneficial (or harmful) to a set goal.

Metric: A system of related measures that facilitates the quantification of some particular characteristic.

Natural capital: One of five forms of interlinked capital: financial, manufactured, human, social, and natural capital. Natural capital is an economic metaphor representing the stock of natural resources from which goods and services upon which human societies depend are derived. It includes:

- renewable (e.g. living species, ecosystems)
- non-renewable (e.g. petroleum, coal)
- replenishable (e.g. the atmosphere, drinking water, fertile soils)
- cultivated (e.g. crops, forest plantations)

For the purposes of this study, natural capital refers to renewable, replenishable and cultivated natural capital only. Natural capital supplies ecosystem services, including provisioning, regulating, cultural and supporting services.

Public goods: Good or Services in which the benefit received by any one party does not diminish the availability of the benefits to others, and where access to the goods cannot be restricted.

References

[1] Aronson J., Blignaut, J.N., Milton, S.J. & Clewell, A.F., 2006, Natural capital: The limiting factor, Ecological Engineering, 28:1-5.

[2] Costanza, R., & Daly, H.E., 1992, Natural capital and sustainable development, Conservation Biology 6: 37 16.

[3] Farley, J. & Daly, H.E., 2006, Natural capital: The limiting factor: A reply to Aronson, Blignaut, Milton and Clewell, Ecological Engineering, 28:6-10.

[4] HSBC, January 2011, The world in 2050 – Quantifying the shift in the global economy, Global Economic, HSBC Global Research, Written by Ward, K.

[5] Aronson, J., Blignaut, J. & Milton, S., 2007, Restoring natural capital: Definitions and rationale. In: J. Aronson, S. Milton & J. Blignaut (Eds.), Restoring natural capital. Science, business and practice. Island Press. Washington, D.C. p. 3-8.

[6] The Economics of Ecosystems & Biodiversity (TEEB), 2010, The Economics of Ecosystems and Biodiversity Report for Business - Executive Summary 2010, United Nations Environment Programme.

[7] Millennium Ecosystem Assessment (MEA), 2005, Ecosystems and Human Well-being: Synthesis, Island Press, Washington, DC.

[8] United Nations Environment Programme Finance Initiative (UNEP FI), October 2010, Are you a green leader? Business and biodiversity: making the case for a lasting solution, United Nations Environment Programme.

[9] United Nations Environment Programme Finance Initiative (UNEP FI), October 2010, Demystifying Materiality – Hardwiring biodiversity and ecosystem services into finance, CEO Briefing, United Nations Environment Programme Finance Initiative Biodiversity and Ecosystem Service Work Stream (BESWS).

[10] Guardian Newspaper, 3rd May 2011, Halting species loss has economic benefits, says EU, http://www.guardian.co.uk/environment/2011/may/03/species-loss-biodiversity-europe, The Guardian Newspaper, Accessed on 5th May 2011.

[11] Nyenrode CfS, IUCN-NL, FFI, February 2010, Identification and development of opportunities for biodiversity information services by sustainability rating agencies, Commissioned and financed by Ministry of Spatial Planning, Housing and the Environment, Netherlands.

[12] International Financial Services London (IFSL), 2009, Global Assets Under Management 2009.

[13] United Nations Environment Programme Finance Initiative (UNEP FI) & United Nations Principles for Responsible Investment (UNPRI), October 2010, Universal Ownership – Why environmental externalities matter to institutional investors, Principles for Responsible Investment Association & UNEP FI.

[14] Barton, D., March 2011, Capitalism for the Long Term, Harvard Business Review, Global Managing Director of McKinsey & Company.

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