THE CAMBRIDGE NATURAL CAPITAL PROGRAMME

Increasing mainstream investor understanding of natural capital

Part A: Main report

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)*.

Acknowledgments

This report was compiled by Richard Burrett, CPSL Senior Associate, Margaret Adey, Director of the Cambridge Natural Capital Programme and Brad Hiller, CPSL Associate Researcher.

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Contents

1. Executive Summary

Global natural capital* is being severely degraded at a rapid rate. In effect, we are now living off the capital rather than the 'interest' of the Earth's natural resources, resulting in increasingly significant economic and social costs.

"Generally, natural capital is not perceived as capital, but as a flow. Most investors do not see natural capital as something that is finite."
Emma Howard Boyd, Jupiter Asset Management

With over US$80 trillion of global assets under management, the institutional investment community has a strong reliance – and impact – on natural capital through their investments. In particular, corporate dependence on diminishing natural capital stocks, such as productive soil and water systems for the forestry, bio-energy, and food and beverage industries, translates into increasing risks for the investment community.

Despite its great influence, the investment community's perspectives on this issue are not well known. The aim of this report is to contribute to mobilising significant change. Through interviews with senior decision-makers from the investment chain, this study gained insights on potential actions to mainstream natural capital in investment decisions. Those interviewed were mainly sustainability specialists within mainstream functions and their insights highlight issues that are going up the agenda.

The report is presented in two sections. Part A summarises insights from the investment community and recommended leverage points for action. Part B gives more detailed evidence from the interviews.

Generally the challenges for the investment community that relate to natural capital fall into two categories: incorporation into investment decision making, and creating new investment opportunities.

Investment Decision-Making
Most investment stakeholders are unfamiliar with the concept of natural capital. It is not currently valued in conventional terms so is largely invisible within financial markets. Indeed, natural capital is largely immaterial if considered from a business perspective.

Major barriers to integrating natural capital into investment decision-making operate at all levels in the economic and social system. Often progress on one issue relies on progress on another and responsibility for action is unclear, leading to considerable market stagnation. Incentives for responsible management are limited. However, perverse incentives are widespread and entrench damaging practices. The current profusion of (chiefly) disclosure-based initiatives tends to be disjointed and ineffective in the mainstreaming of natural capital imperatives.

"Currently, there is too much greenwash and incrementalism. We really need something transformational to take to scale"
Colin le Duc, Generation Investment Management

If considered at all, natural capital is largely seen as a long-term issue within markets that are focused on short-term returns. Longer-term risk assessments are beginning to account (in non-monetary terms) for environmental risks in high-impact sectors. These risks often relate to anticipated resource scarcity and are largely intangible.

* **Natural Capital**: the sum total of nature's resources and services, underpinning human survival and economic activity (e.g. agricultural crops, vegetation, wildlife, fossil fuels, mineral deposits). **Ecosystems:** A dynamic complex of plant, animal, fungal, and micro-organism communities and their associated non-living environment (e.g. water and soils) interacting as a unit. **Ecosystem services:** the benefits that we gain from the many resources and processes supplied by ecosystems (e.g. clean drinking water and processes such as decomposition of waste).

Metrics and measurement systems are needed to translate natural capital into quantitative, material assets. Within the next five to ten years, as natural capital is lost or degraded further, inevitably it will play an increasingly important part in investment decision making.

Investment opportunities
To the challenge of incorporating natural capital into investment decisions is added a distinct lack of investable opportunities, reflecting the market's infancy, lack of structure, and lack of conformity with existing institutional investment criteria. In the absence of policy interventions recognising their underlying worth, most forms of natural capital remain public goods without financial values attributed.

Recent investor experiences with carbon (relating to climate change) highlight the potential inertia and resistance of existing markets to assimilating new considerations. A trading market for natural capital (subdivided into its component parts) may be possible, but many outstanding technical and moral issues surround the conversion of natural assets into tradable commodities.

Main recommendations
An integrated strategy for action must address current market inefficiencies and failures. Given the multitude of participants both inside and outside the investment chain, investor action will need to be complemented, or preceded, by action from policy makers, corporations, non-governmental organisations, and the public.

"I believe that a range of public policy measures will be required to help mainstream businesses seriously move forward on natural capital. By this I mean market mechanisms, fiscal intervention and – in particular – regulation."
Steve Waygood, Aviva Investors

Clear policy and mandatory regulation is required to create scalable and widespread change in natural capital management. Policy measures must redirect the market (short-term investors) towards a more positive and sustainable direction whilst continuing to encourage financial prosperity. Such initiatives would provide clarity and stability, and assist the creation of new markets and the integration of natural capital into investment decision-making. It should be accompanied by development of metrics and integrated reporting tools.

In the absence of mandatory regulation, a business case exists for action by asset owners, since exposure to increasing natural capital risks provides strong self-interest for investors to resolve their impacts – both through their role as universal owners and their ownership rights in investment chains. Additionally, an investors' stewardship code could support the integration of natural capital into investment decisions. Such an approach could effectively unify currently disjointed initiatives. Driven from within the business sector, a stewardship code could encourage genuine internal integration of natural capital. Coupled with increased fiduciary duty, this could promote the development of new natural capital markets.

"We are at the beginning of a long journey, but at present we are crawling complacently."
Donald McDonald, BT Pension Scheme

2. Acknowledgements

CPSL would like to thank the following individuals and institutions for taking part in the study:

- **APG Asset Management** Claudia Kruse, Head of Corporate Governance, ESG
- **Aviva Investors** Steve Waygood, Head of Sustainability Research & Engagement
- **BT Pension Scheme** Donald McDonald, Trustee Director
- **Deloitte Touche Tomatsu** Nick Main, Global Managing Director, Sustainability & Climate Change Services
- **Earth Capital Partners LLP** James Stacey, Partner
- **EKO Asset Management Partners** Ricardo Bayern, Partner
- **European Investment Bank** Peter Carter, Chief Environmentalist, Head of Environment, Climate & Social Office, Projects Directorate; Christopher Knowles, Head of Climate Change & Environment
- **F&C Investments** Sagarika Chatterjee, Associate Director, Governance & Sustainability Investment; Marina Iodice, Analyst, Governance & Sustainability Investment
- **Generation Investment Management LLP** Colin le Duc, Partner
- **Goldman Sachs** Andrew Howard, Executive Director, Global Investment Research
- **HSBC Bank PLC UK** Nick Robins, Head of Climate Change Centre
- **Hermes Fund Managers** Daniel Ingram, Responsible Investment Manager
- **Jupiter Asset Management** Emma Howard Boyd, Head of Sustainable Investment & Governance; Ian McVeigh, Director
- **New Forests Asset Management Pty Ltd** David Brand, Managing Director
- **PwC** Jon Williams, Partner Sustainability & Climate Change
- **RPMI RAILPEN Investments** Frank Curtiss, Head of Corporate Governance
- **Standard Life Investments** Julie McDowell, Head of SRI
- **United Nations Environment Programme Finance Initiative** Ivo Mulder, Programme Officer, Biodiversity & Water
- **United Nations Principles for Responsible Investment** James Gifford, Executive Director; Olivia Watson, Manager, Environmental Engagements
- **Universities Superannuation Scheme** David Russell, Co-Head of Responsible Investment

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- **Flora & Fauna International** Annelisa Grigg
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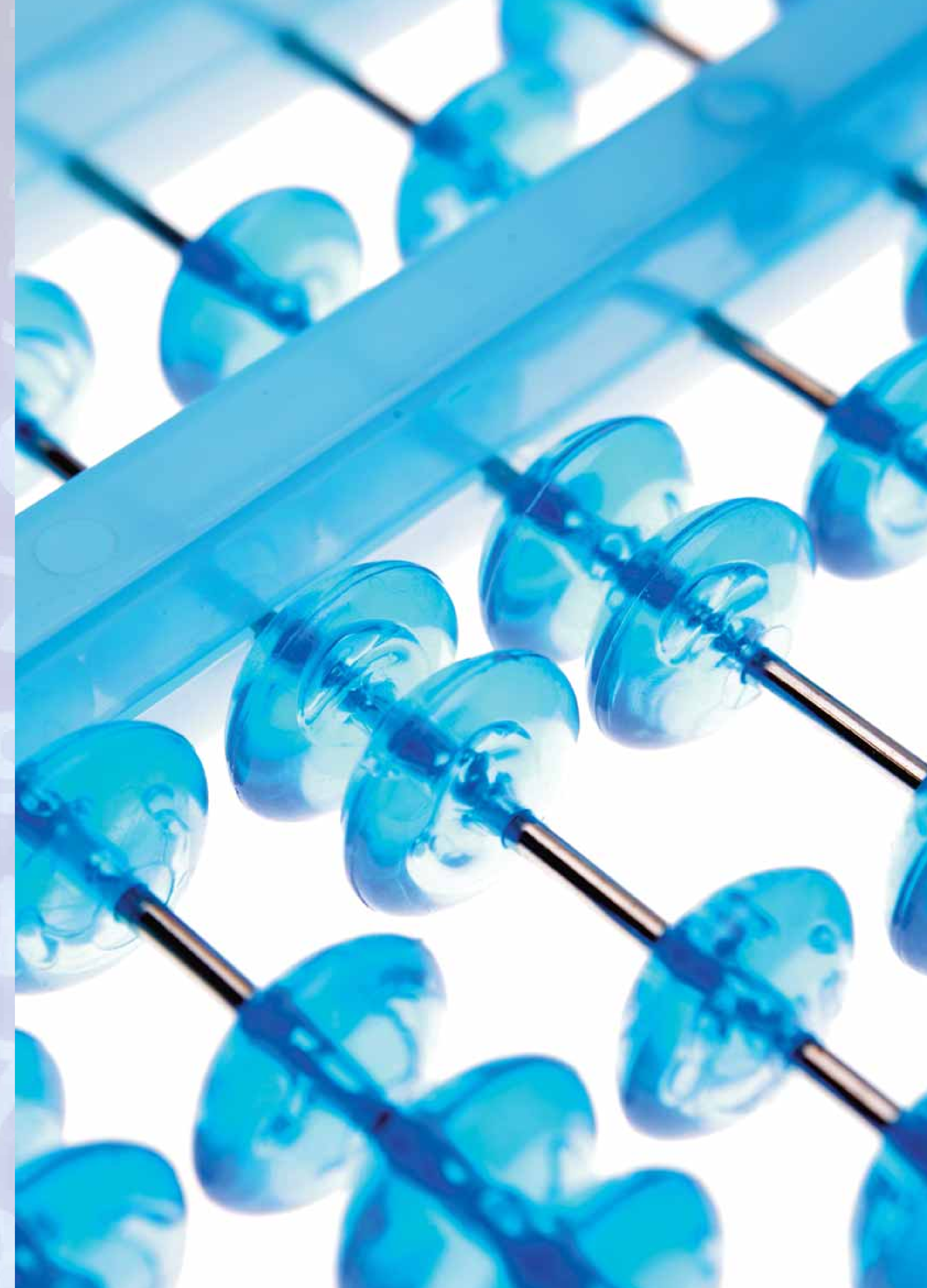
- **United Nations Environment Programme – World Conservation Monitoring Centre** Monica Barcellos Harris

The quotes given in this report represent the personal views of the interviewees in their role and do not necessarily reflect the views of the whole organisation.



3. Background

Scale of the challenge
Natural capital is increasingly seen as the limiting factor for the global economy.[1,2] Most ecosystem services are considered a 'public good' so few economic signals flag up losses.[3] Inevitably this means that many natural assets are being over-exploited,[4] which has a negative impact on all other forms of capital.[5]

Global decline in biodiversity (see Glossary) is indisputable.[6] Sixty per cent of global ecosystem services are being degraded or used unsustainably.[7] This situation is likely to worsen given human-induced climate change, population growth, economic expansion[8] and increasing expectations of higher living standards.

The economic cost of biodiversity loss and ecosystem degradation was estimated in 2008 at US$2-4.5 trillion (3.3-7.5 per cent of global GDP).[8] Assuming 'business as usual', global environmental costs are projected to reach US$28.6 trillion by 2050, equivalent to 18 per cent of GDP.[9] In contrast, if the private sector invests in protecting natural capital, US$2-6 trillion in business opportunities could be realised by 2050.[10]

Purpose of the study
The investment community is increasingly aware of general sustainability issues. One of the only studies to seek their perspectives on natural capital focused on sustainability rating agencies and found that none of their interviewees considered natural capital in their general investment decision making.[11] This study has sought the wider investment community's insights on how to mainstream natural capital in investment decisions.

Twenty organisations took part. They covered banking, mainstream investment/asset management and 'boutiques' (with a specific mandate to consider natural capital in investment decisions), consulting and auditing, regional and multilateral organisations and pension funds.

Interviewees were senior decision makers with responsibility for Environmental, Social and Governance (ESG); Sustainability and Responsible Investment (SRI); Corporate Responsibility (CR); Sustainability and Climate Change. Part A of this report summarises their insights. More detailed information on the interviews is given in Part B, 'Evidence'.

Policy and business environment
Broad changes in policy and practice are likely to shape future investment decisions, as outlined below:

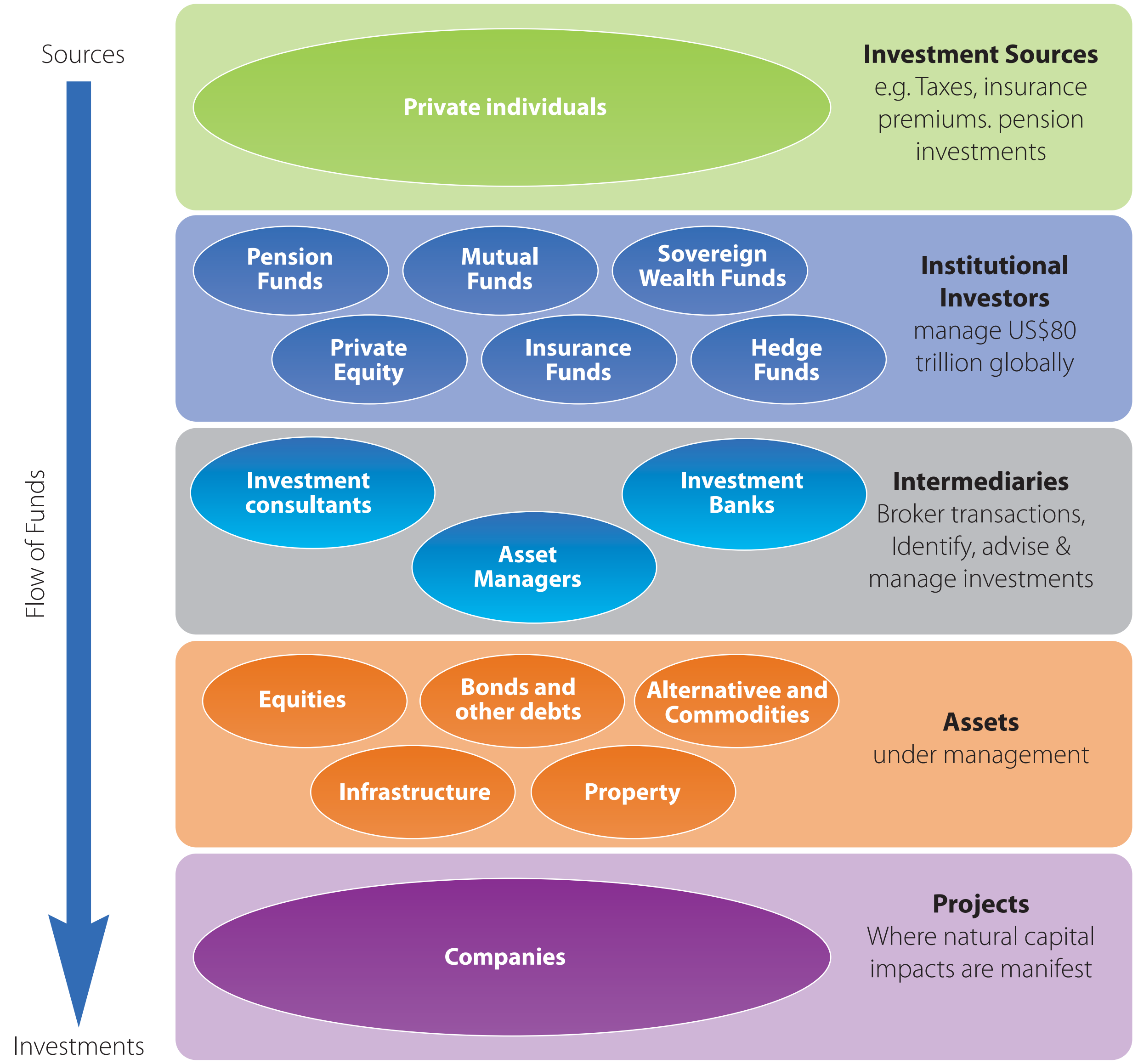
Current Policy & Business Environment Around Natural Capital

2010
- United Nations International Year of Biodiversity
- Publication of The Economics of Ecosystems & Biodiversity (TEEB)
- 10th Conference of the Parties to the Convention (CoP10) on Biological Diversity in Nagoya, Japan
- World Economic Forum, McKinsey, PwC and others release surveys and reports related to natural capital

2011
- United Nations International Year of Forests
- UNEP's Governing Council / Global Ministerial Environmental Forum recommends sub-sector investments in natural capital to kick-start a green economy
- European Unions's biodiversity strategy presented in May 2011 by European Commission.

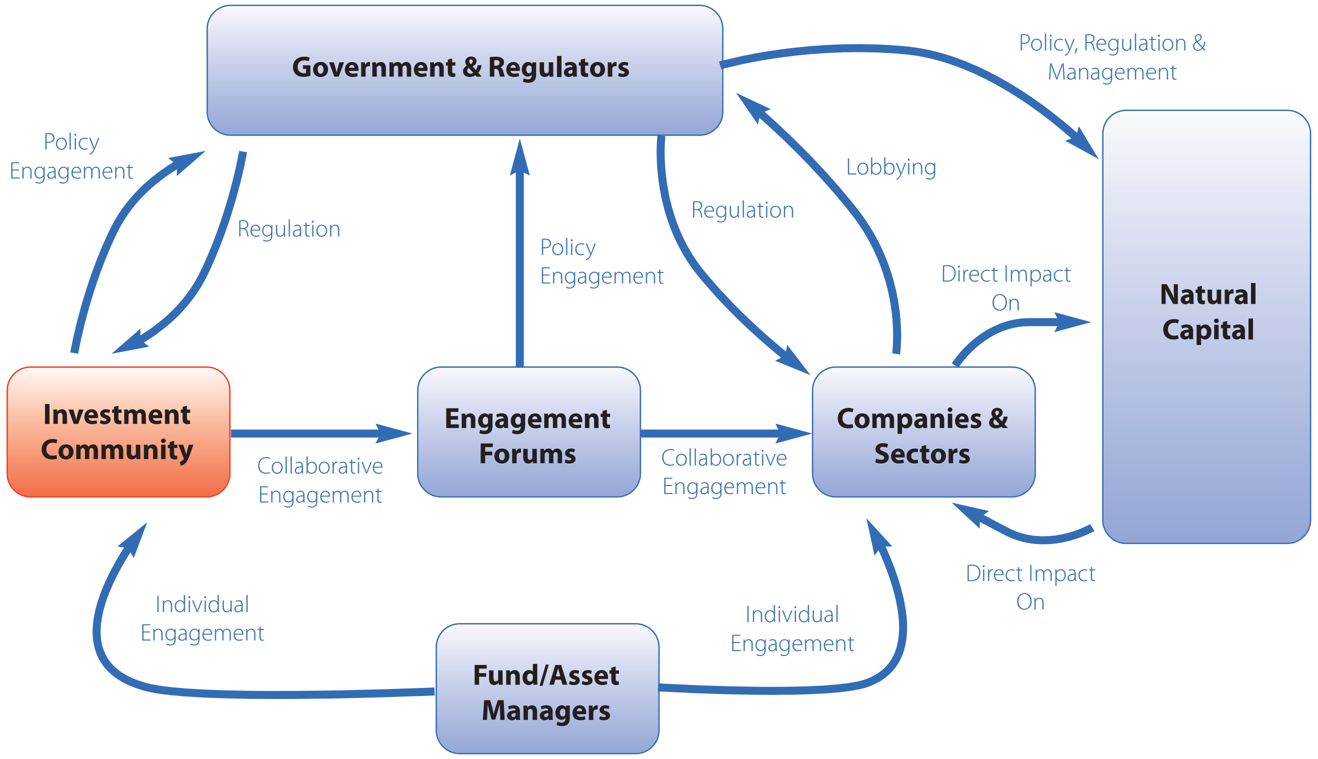
2012
- Earth Summit (Rio +20) United Nations Conference on Sustainable Development, Rio de Janeiro, Brazil
- Overarching international framework agreed at CoP10 to be translated into national biodiversity strategies and action plans

The investment community
The figure below shows the range of stakeholders that ultimately depend, and impact, on natural capital. These include institutional investors managing an estimated US$80 trillion of global assets (2009 figures)[12].



Despite its huge ownership of assets, the investment community is always one or more steps removed from dealing with natural capital (see figure overleaf). This may be why natural capital is not recognised as a significant issue.

The Investment Chain and Natural Capital



Adapted and expanded from UNEP-FI & PRI, 2010

Investors are increasingly being exposed to natural capital related risks through:

- Environmental costs externalised by one company (e.g. a factory discharging pollutants into a river) being incurred by other companies (e.g. a water treatment plant drawing from the river downstream) that are held in a diversified investment portfolio, leading to reduced future cash flows and dividends for that investor
- Rising externalities causing volatility in capital markets, which are increasingly becoming more vulnerable to sudden low-probability, high-impact environmental changes
- Inefficiencies in the medium- to long-term from the allocation of capital to environmentally-damaging activities, which lead to decline in the asset base
- Pollution damage costs often being higher than abatement costs.[13]

Investors are directly impacted by such risks. Hence, they have a growing self-interest in resolving natural capital challenges. In particular, institutional investors (as 'universal owners') are in a strong position to create change since they have highly diversified and long-term portfolios across global capital markets[13] and can exercise ownership rights through the investment chain.

4. Key insights

Perspectives of the investment community gained from the study are outlined below (Part B of the report gives more detail). All those interviewed were involved in broad initiatives relating to responsible investment, while some firms were also involved in more specialised natural capital initiatives.

Awareness of natural capital

Understanding of natural capital is low and growing slowly, but with little core change taking place. The current focus of broader Environmental, Social and Governance (ESG) performance is mostly on carbon, possibly at the expense of natural capital.

"Most personnel in the investment sector have not been exposed to natural capital thinking in either their tertiary studies or vocational training. A major challenge is helping investors to start managing issues that up until now they've been unaware of"
Climate Change & Environment Group, European Investment Bank

"There is a greater degree of awareness, monitoring and understanding of natural capital now than previously, but still little real action or change"
Nick Main, Deloitte Touche Tomatsu

The business case

Natural capital currently fails to influence business or the investment community significantly. Financial materiality is only recognised in sectors (such as extractives and food & beverages) with high direct impacts and/or reliance on natural capital (and, even then, not all natural capital components are reflected). To be successful, natural capital initiatives must align with core business imperatives such as resource security (e.g. water, food, energy) and climate adaptation.

"Natural capital influences all activities in the economy – it's just that most don't recognise it in current markets - it's an invisible asset. To most, natural capital seems endless at the moment"
Nick Robins, HSBC

A strong business case has not been made for incorporating natural capital into investment decisions. The Economics of Ecosystems & Biodiversity (TEEB) study is praised for highlighting the overall importance of natural capital, but criticised for not providing operational guidance for investors (this is planned as part of its regional initiatives).

Some major corporations are beginning to voluntarily impose natural capital standards in their operations, in part to make them more attractive to investors.

Current market conditions

Natural capital is not usually incorporated directly into investment valuations since it is not priced and is difficult to integrate into financial models. It tends to be included indirectly among managed risks, depending on its materiality. Stock prices in high impact sectors are thought by some fund managers to be influenced by increasing perceptions of environmental risks related to natural capital.

"Growth has long been predicated on exploitation of natural capital and not paying for it – that still continues today"
James Gifford, United Nations Principles for Responsible Investment

Most investors continue to make investments that have potentially high negative natural capital impacts. Some are now engaging with high-impact sectors to minimise these negative impacts while others are gradually moving away from some high-impact sectors altogether. One example is the transition from high carbon intensity investments to those that have lower carbon intensity.

'Universal' investors maintain highly diversified investment portfolios so they can deliver more sustainable returns to their stakeholders. Legal advice to one pension fund confirmed that they must not discriminate against investments on ethical grounds alone, including (it is assumed) natural capital impacts.

"We are trying to integrate natural capital into all our investment processes – however, because of the nature of pension funds; we have to take a wide spread of good investment opportunities, which, in the case of index-tracked investments, will include the good, the bad and the ugly"
Donald McDonald, BT Pension Scheme

Barriers and risks

Natural capital market barriers exist for mainstream and boutique investors alike. Major barriers, at all levels from micro-business level through to macro-policy level, are summarised in the box overleaf. (For more detail see Part B, Table 4).

"There is a lack of natural capital investment targets - the underlying assets are not there at the moment. It is currently a supply problem more than a demand problem"
Colin le Duc, Generation Investment Management LLP

Within an economic system that rewards short-term returns, natural capital is generally considered a longer-term risk. Although investment time horizons vary considerably across asset classes, average holding periods for investments are becoming shorter across the market. This makes it difficult to consider longer-term natural capital issues in investments. Perverse incentives encourage short-termism even for long-term pension funds. However, some believe that short-termism is overstated as a barrier.

Major barriers

- *Terminology:* no common language, though 'natural capital' is generally a preferred term.
- *Lack of awareness:* failure to fully understand the consequences of insufficiently valuing natural capital.
- *Measurement tools and metrics:* investors prefer to see quantitative data for decision-making.
- *Mindset:* natural capital lies outside traditional investment concerns and is seen as complex.
- *Valuation:* no framework and no legislation exist, and quantification of tangible value is difficult.
- *Stock vs flow:* natural capital is not reflected as a capital stock, but rather as a flow of resources.
- *Cash-flow implications:* evidence is lacking on how natural capital impacts on cash flows.
- *Timing/short-termism:* a trade-off takes place between short-term cyclical issues and long-term strategic risks and opportunities.
- *Reporting:* trustees and asset owners require visibility and frequency in reporting, so deviation from existing benchmarks is difficult.
- *Policy:* policy makers are not currently designating value for natural capital.
- *Diversified global firms:* natural capital risks are small relative to overall business activities.
- *Performance criteria:* natural capital is not performance-related. The consequences for mismanaging natural capital are sufficiently minor not to be a disincentive.
- *Corporate strategy:* to be mainstreamed by business, natural capital must be linked to corporate strategy and include supply chains.
- *Perceived costs:* a (prejudiced) perception exists that sustainability activities cost money and are not very profitable.
- *Diversified portfolio requirements:* institutional investors, such as pension funds, are obliged to take all attractive investment opportunities despite their impact on natural capital.
- *Lack of opportunities:* the challenge is a lack of credible investment targets in the current market rather than a lack of demand for capital.

"Investment decisions necessitate a trade-off between short-term cyclical risks and opportunities with those forecast in the longer-term. In a market that generally values short-term returns most favourably such risks and opportunities usually take precedence."
Ian McVeigh, Jupiter Asset Management

"Markets don't move quickly unless there are major signals to do so. Those signals are generally absent for natural capital."
David Russell, Universities Superannuation Scheme

The frequency and magnitude of risk is increasing. At present, natural capital is generally not regarded as a material risk, except in high-risk sectors. Lack of awareness and lack of regulation are seen as major reasons for low materiality, and investors can often avoid the issue of addressing natural capital.

"Major barriers for natural capital are a combination of market inefficiencies and market failures"
Steve Waygood, Aviva Investors

"A lack of certainty on climate-change legislation is slowing progress on natural capital. If climate change actions are more certain and therefore predictable then investors can take climate change, and associated natural capital issues, better into account."
Claudia Kruse, APG Asset Management

Initiatives and incentives
Most initiatives focus on disclosure and incremental improvements, though some aim to minimise impacts. The market is not giving a clear direction on natural capital and the profusion of disjointed initiatives is creating some apathy. Few initiatives positively improve natural capital.

"There is currently no clear direction in the market on natural capital. There are quite a few initiatives out there but they would be much more effective if they were integrated or there was better coordination across them."
James Stacey, Earth Capital Partners

Initiatives emerging from within the business sector that are business-driven are generally better regarded and are perceived to get better 'buy-in'.

Far more barriers than incentives exist in the market, reflecting general inertia and inactivity. No initiatives have had widespread mainstream uptake. Boutique firms are incentivised by potential business opportunities from the anticipation of a market transition. The incentive for mainstream investors may come from a desire to maintain a highly diversified portfolio.

"There are not currently any incentives to take any actions – it is a case of a tragedy of the commons."
Nick Main, Deloitte Touche Tomatsu

"As a market first-mover, we have tried to exploit the emerging profitability opportunity but pricing signals have been unrealistic"
David Brand, New Forests

Altering fund management contracts and their evaluation process could help address some market inefficiencies and challenges around short-termism. Fund managers and investment consultants currently have no incentive to manage natural capital responsibly and are generally not asked to report on it. Innovative fund management contracts established by some (boutique) firms that incorporate longer-term sustainability investment performance criteria may provide guidance for the wider market.

"Fund managers take financial performance seriously and likewise would take natural capital seriously if it was included in their performance criteria" **Nick Robins, HSBC**

Mainstreaming
Mainstreaming will require integrated action by all stakeholders. Actions at market and social levels provide a vision and strategy for markets since they incorporate broader economic issues – both internal and external – to the market. It is also where societal values may intervene to correct market failures or inefficiencies.

"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

At business and individual level, top-down action needs to be matched by action from the bottom up, particularly if high-level policy consensus is not forthcoming.

Clear metrics are essential to ensure that natural capital issues are incorporated into investment decisions. Metrics must be fit-for-purpose and produce useful information for decision making. However metrics are only a tool – they do not promote change in themselves. They need to be part of a unified approach, and integrated into the reporting process.

An Equator Principle-styled initiative that creates a voluntary industry benchmark could be a first step in mainstreaming, if run in conjunction with other initiatives. A specific natural capital initiative may or may not be needed.

Market restructure
Market restructure is almost inevitable. Considerable changes are anticipated within the next five to ten years, mainly due to increasing resource scarcity. Pre-emptive action on natural capital is likely to be less costly now than later.

"Financial markets are a key part of the solution to natural capital challenges. Fund managers have found new investment opportunities in clean tech and energy efficiency – in time the same could be true for natural capital themes."
Sagarika Chatterjee, F&C Investments

Regulation

The market itself is unlikely to resolve a market failure. Most interviewees thought that regulation will ultimately be required to embed natural capital criteria in investment decision making and trigger the necessary scale of investment. Most also believed that a combination of actions is needed.

"Voluntary initiatives are important, but tend to be patchy and limited in scale. Statutory requirements are generally needed to create real scale and momentum" **Climate Change & Environment group, European Investment**

The international and regional policy environment for natural capital is growing. Markets are likely to evolve to better incorporate natural capital in coming years. While voluntary directives are useful in providing experimental ground, regulatory directives are essential to promote recognition of natural capital and a market re-valuation. Market incentives are favoured as an economically efficient mechanism, most likely following regulation.

Trading Market

Little agreement was evident about the need for a natural capital trading market. Some thought a market would give value to a (currently) financially invisible asset. Others believed that turning natural capital into a commodity would be 'positively harmful'.

"Carbon emissions can be measured, whereas natural capital has many moving parts, which makes it far more challenging" **David Russell, Universities Superannuation Scheme**

A natural capital market is not envisaged for the immediate future. It would be more complex to devise than a carbon market, and that has proved problematic to establish.

Leverage points

Leverage points shown in the box below were identified as offering the best opportunities for creating change in the system (see Part B, Table 10 for more detail).

- *Altering investment contracts* to recognise sustainability performance
- *Accounting for externalities,* and the impact of these on universal owners
- *Identifying and developing appropriate incentives* related to natural capital investment
- *Disclosing information* particularly through improved metrics and measurement tools
- *Incorporating ESG performance criteria* in loan conditions
- *Greater due diligence* through the whole investment chain
- *Linking fiduciary responsibility to natural capital* a as a core requirement of pension funds
- *Developing attractive investment opportunities* to address supply-side limitations
- *Strengthening principles for investment* through existing processes or through the introduction of a stewardship code
- *Diversifying portfolios* to include all investment types.

"We need to reintroduce the concept of stewardship… We need a stewardship code for natural capital" **Donald McDonald, BT Pension Scheme**

"Quite a few investors would be interested to invest in natural capital. However, potential investment opportunities need to meet certain return criteria and be well structured including a clear governance structure. Such investments could be a catalyst for change." **Claudia Kruse, APG Asset Management**

Influential players

Key players that can influence change include **Investment consultants** occupying influential positions acting on behalf of others and allocating significant capital, **Fund/asset managers** if their performance is based on longer-term timeframes, **Asset owners** who request information on ESG performance from asset managers and factor long-term natural capital issues into their strategic asset allocation plans (recognising universal ownership challenges), **Trustees**, who may not be aware currently of natural capital issues, **Investment banks** playing a role in new market development, **Policy makers** who address market failures and provide vision and strategy, **Corporates** that understand supply networks and have buy-in from CEO level down, and **NGOs** that collaborate with business and influence societal and business values. (See also Part B, Table 11).

"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**

Mainstream integration of natural capital could come through stewardship promoted by a business-led initiative at CEO / Chairman level, cascaded through their companies.

"To mainstream natural capital into investment decisions, future actions must be communicated to CEO, Chair and Board level. Targeting any other level will not gain any serious change." **Emma Howard Boyd, Jupiter Asset Management**

Transformational Change

Current initiatives do not promote transformational change at the pace and scale necessary to protect natural capital from severe loss and degradation. Linked and integrated actions have to take place across all levels. Most investors will not forge ahead alone given the nature of their role in society and their investments. Action is required from other stakeholders also.

Initiatives need to make the business case to government since policy and a strong vision will be key drivers for change. Clear, robust policy that provides strong market incentives is the preferred transformational mechanism. The process of holistic change should be de-politicised to allow long-term strategic thinking. Capitalism and GDP may need to be redefined before more representative national socio-economic-environmental indicators can be developed.

"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**

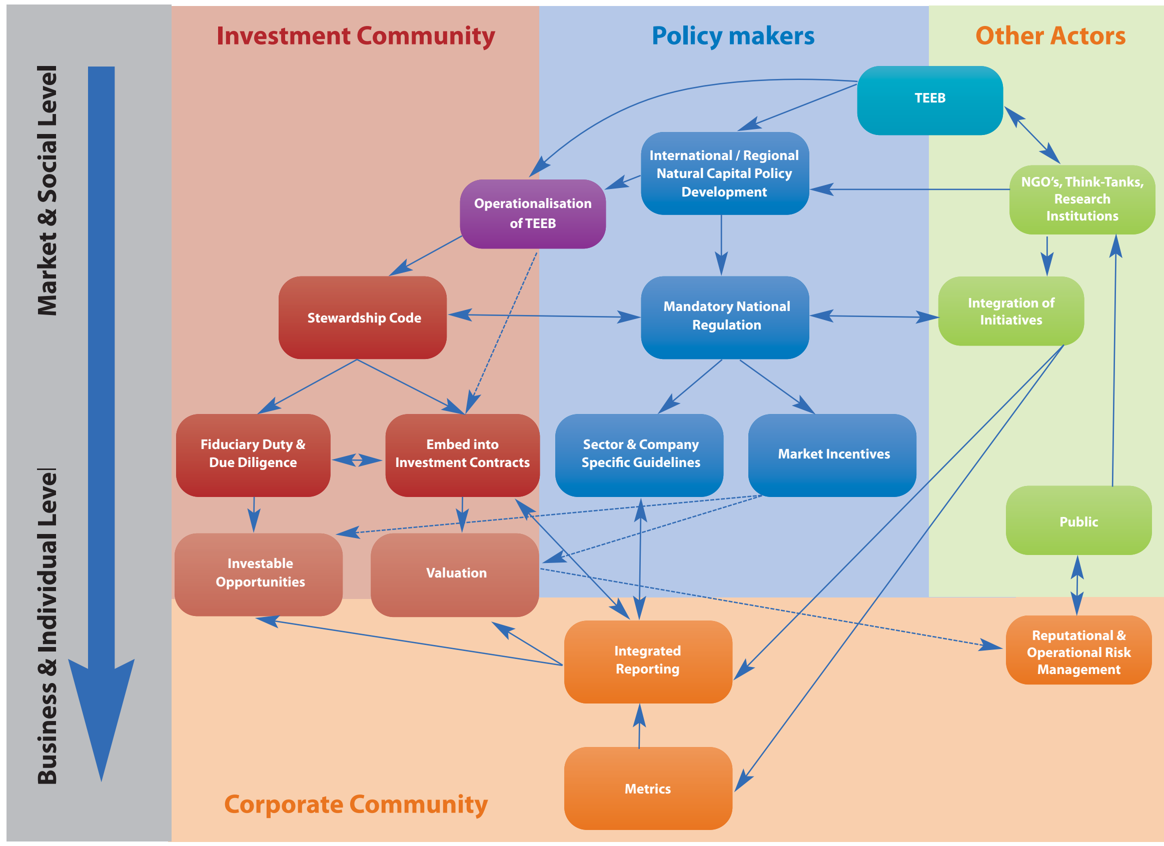
"I'm hopeful natural capital will be a major part of future markets, otherwise we will lose major global ecosystems and their services." **Ricardo Bayon, EKO Asset Management Partners**

5. Next Steps

An integrated strategy across all levels of business would incorporate natural capital considerations into investment decision making and create new capital investment opportunities (see figure below). This strategy would address current market inefficiencies and failures providing a framework for future progress. A number of top-down and bottom-up actions would be needed, particularly if high-level policy consensus is not forthcoming.

Strategies and leverage points

The figure below outlines essential actions for stakeholders within and beyond the market.



Within the market

The starting point for action is to broaden investor education to address the lack of awareness about natural capital and promote greater understanding within the market. Key decision makers must recognise reputational and operational risks involved in the management of natural capital and the extent to which it underpins our economic and commercial futures.

By adopting metrics that can feed into an integrated reporting format, measurement of natural capital becomes more tangible and can be more easily incorporated into contracts and loans. Through aligning the concept of natural capital with the core business interest of resource security, natural capital issues can be embedded into investment decision making. Business leaders should be encouraged to find ways to integrate natural capital into business and to collaborate with investors to encourage the development of investments that meet institutional investment criteria. Key next steps identified by those interviewed are listed below.

1. Education. Given the current low levels of awareness and understanding of natural capital in the investment community, operationalisation of the TEEB concepts (see 'Beyond the market') could also incorporate broader investor education.
2. Measurement and Reporting. Collaboration is vital between business and the scientific and policy communities to develop useful metrics that can feed into an integrated reporting format and in turn promote the valuation of natural capital.
3. Contracts. Embed natural capital performance criteria in investment contracts and loans.
4. Risk Management. Manage reputational, and, increasingly, operational risk by recognising and managing natural capital. The BP Deepwater Horizon disaster exposed the potential impacts of such events on natural capital, stock prices, and organisational/industry reputation.
5. Core Business. The concept of natural capital must be aligned with the core business interest of resource security, which is related to water, food, energy, and climate change.
6. High-Level Targeting. Proposed initiatives should be targeted at CEO/Chairman/Board level. If they believe it underpins economic and commercial futures, these key decision-makers can effectively integrate natural capital into business.
7. Investable Opportunities. Given the supply-side limitation of investable opportunities, business and investors should collaborate to encourage the development of investments that meet institutional investment criteria.

Beyond the market

The fragmented initiatives around natural capital need to be linked together to increase their effectiveness. Mandatory regulation and the incorporation of natural capital into national economic indicators is an important step which will further communicate natural capital's increasing importance to investors. The development of specific policies could then be translated into natural regulatory directives for investors to follow.

A specific code for the investment community, reflecting these national and international policies, would re-position investors as stewards of these resources underpinned by the responsible management of natural capital. This initiative would be further strengthened through institutional investors' fiduciary duty and due diligence. These obligations would encourage them to recognise and manage natural capital in line with their responsibility to sustain investment performance and invest in a diversified portfolio of asset classes. Key next steps beyond the market are listed below.

1. *International and regional policy.* Policies are likely to be translated into national regulatory directives within the next few years for investors to follow.
2. *Mandatory regulation with sector-specific sub-directives*. This will create an even playing field in the market. Incorporating natural capital into national economic indicators is also recommended. Effort should be focused on making the business case to governments.
3. *Operationalising TEEB.* The 2010 TEEB study highlighted the global economic importance of natural capital. This now needs to be integrated into the investment community.
4. *Stewardship code.* A code for the investment community reflecting key international and national policy ambitions could assist companies to 'cure ills stemming from dispersed and disengaged ownership by bolstering boards' ability to govern like owners'.[14] Investors should regard themselves as caretakers of their considerable resources for the benefit of all, underpinned by responsible management of natural capital.
5. *Linking initiatives.* Fragmented initiatives around natural capital need to be unified or interlinked to increase their effectiveness.
6. *Fiduciary duty.* Institutional investors' fiduciary duty and due diligence may increasingly direct them to recognise and manage natural capital, in line with their responsibility to sustain investment performance and invest in a diversified portfolio of asset classes.
7. *Scenario planning.* In addition to the work completed by TEEB, natural capital initiatives could follow the example of fields such as energy, and undertake scenario planning to help communicate natural capital's increasing importance to investors.

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.

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.

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