

Module 3: Carbon Finance



Lesson 11: What's next?

UNEP Finance Initiative (UNEP FI) e-Learning Course on
Climate Change: Risks and Opportunities for the Finance Sector

in collaboration with



United Nations Institute for Training and Research



Lesson 11: What's next?

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Objectives

This lesson has four main objectives:

- To consider how climate change policy might evolve for the post-2012 era.
- To examine how financial institutions (FI's) are gearing up to deal with climate change.
- To suggest how FI's might address the issue of managing climate change risk.
- To discuss briefly how financial instruments might be used to deal with other environmental issues apart from climate change.



11.1 Introduction

In Section 11.2 we consider how policy on climate change might evolve for the post-2012 period i.e. when the first commitment period of the Kyoto Protocol ends. While real negotiations will get underway on the structure and content of a new global deal, involving developed and developing countries, as well as the next phase of the Kyoto Protocol, details the nature of the final outcome is not yet clear. Pressure for decisions is mounting on policymakers from all quarters, as reflected in increasing Heads of State engagement following the Bali round of UN climate convention talks, during 2008 and 2009, including President Obama, who made an unprecedented reference to global warming in his inauguration address. Adding to this political momentum and time pressure, there is an ever stronger engagement from business and finance in the debate as companies recognise that the post-Kyoto framework will materially affect the returns on investments made now.



Section 11.3 describes a number of initiatives by financial institutions (FI's), collectively or individually, to deal more effectively with climate change. There is little point in an FI joining initiatives however, until it is prepared to address the issue of climate change internally- Section 11.4 gives some pointers.

In Section 11.5 we discuss briefly how financial instruments can be applied to other environmental issues than climate change, such as clean air, clean water, and biodiversity. There are clearly similarities and linkages between the problems, so that FI's familiar with climate change may see new markets opening up for the skills they have acquired on climate change.

11.2 Post 2012 issues



Policy and regulation of carbon emissions, energy usage and related issues have a fundamental influence on the value of carbon, and the underlying assets. Investments in these areas are made on the basis of revenue projections stretching into decades. However, the farthest that the UNFCCC (United Nations Framework Convention on Climate Change) policy framework reaches currently is 2012, which marks the end of the first commitment period

of the Kyoto Protocol. As the Protocol houses the legal framework for many aspects of the GHG trading markets, clearly FI's need clarity as soon as possible, as far ahead as possible, to understand how ambitious governments are going to be in reducing emissions, and how this might translate into policy and emissions markets, as they evolve. This will inform a strategy to ensure that the best possible returns are generated, and that investments are not "stranded" unexpectedly. Parallel with that, FI's should engage with the development of adaptation policy as possible beneficiaries and service-providers.

11.2.1 UNFCCC and the Kyoto Protocol

International policy underpins the global 'compliance' market in carbon¹, and sets the ambition level for the scale of emissions reductions that can be expected to impact on domestic energy, transport and infrastructure policies. Government agreement on emissions goals and national policies to implement those, will have a fundamental influence not only on the value of carbon, with implications for many sectors in the economy, but also the liabilities and opportunities that are now emerging. The first round of targets under UNFCCC's Kyoto Protocol run from 2008 to 2012. [See Lesson 3 for more details on the Kyoto Protocol].

The actual negotiations to agree on a further round of commitments after 2012 will be characterised by complex political dynamics.

As outlined in Chapter 3, there are two strands to the negotiations, both of which are to be concluded at the Ministerial round of talks in Copenhagen, December 2009, and which are widely expected to merge in some form:

* Defining further commitments under the Kyoto Protocol itself² – currently it sets binding emissions targets for industrialised countries, but only up to 2012. Talks are now under way for a further round of commitments under the Kyoto Protocol. The US is only an observer at these talks, having declined to ratify the Protocol.

* the 'Convention track' which was agreed at the December 2007 round of UN talks, in Bali: the "Bali Roadmap" with its Bali Action Plan, (see Box 1), set out the agreed terms of reference for a new round of commitments shared between both developed and developing countries, although different in character. This 'global deal' must be concluded at the Ministerial talks in December 2009 in Copenhagen.

¹ Note there is growing voluntary emissions market in anticipation of strong government policy, and reflecting consumer concerns over global warming.

² The formal name of the talks is the Adhoc Working Group (AWG) on Further Commitments for Annex I Parties under the Protocol

The awkward two track approach simply reflects the fact that the US is not part of the Kyoto Protocol but would be essential in any global effort, both politically, and scientifically.

During 2009 it can be expected that the politics will intensify. Industrialised countries will face domestic pressure to ensure that developing countries are prepared to cut emissions, with economic competitiveness arguments being brought to bear, and in light of the financial crisis key industries will be seeking government support. Developing countries equally will want to see that industrialised countries have taken their existing and next stage commitments seriously, and are willing to provide significant finance and resources for developing countries (for mitigation and adaptation support), before they agree to new measures themselves, although as noted many countries such as China and India have domestic energy-related goals for renewable energy or energy efficiency, for example, that are consistent with responding to climate change. Clearly the positioning of the US Administration will be pivotal in the above context.

The Kyoto negotiations and international emissions market activity

The Kyoto ‘architecture’ is seen as having been fundamental by many governments and businesses: the binding, absolute emissions targets set clear goals against which progress towards environmental objectives can be measured, as well as setting boundaries within which carbon markets can anticipate longer term supply and demand.

From an emissions market point of view, the European Union’s Emissions Trading Scheme (ETS) was established to enable the EU to meet its Kyoto Protocol obligations; and although it is technically ‘stand alone’ under European law, it has a direct link with the Kyoto Protocol through the use of carbon credits from the CDM for compliance.

The European Commission’s proposal for an EU unilateral 2020 target in an effort to break the ‘we will if you will’ type of deadlock, and the details of a 2012-2020 ‘Phase 3’ of the EU ETS with linkage to the CDM, in this context, are intended to provide a clear signal that international carbon market activity will continue. In terms of the level of the cap: in March 2009 the European Environment Council (Ministerial level) confirmed the adoption of a 30% reduction target for GHGs by 2020 as part of a ‘global and comprehensive’ post-2012 agreement, and ‘provided that other developed countries commit themselves to comparable emission reductions’; alongside that is the a minimum ‘unilateral’ EU target of 20% cut by 2020. The ‘effort sharing’ of that 20%, between the 27 EU Member States, was agreed as part of a broader Climate and Energy Package in December 2008, which included the EU ETS arrangements, and a binding 20% target for renewable energy within overall energy consumption in the EU. Furthermore it suggests that an 80-95% emissions reduction by industrialised countries will be required. The EU The international climate talks have also obliquely referred to IPCC scenario work indicating that the lowest global emissions trajectories, would require a cut in industrialised country emissions by 25-40% by 2020 – this is indicative of the scale of the challenge that governments are grappling with.

The Obama Administration, in a clear departure from his predecessor, has a General Policy Statement on the agenda for Energy and the Environment has a stated goal of implementing an economy wide cap-and-trade program to achieve an 80% reduction in GHG by 2050. It also contained a wide range of other measures and policies.

Observations on the 'Bali Roadmap' talks

There are two key elements to this: what will a new US Administration have a mandate to do; and the matter of developing country 'mitigation actions or commitments', as defined in the Bali Roadmap (see Box 1), and the financial resources that industrialised countries are prepared to put on the table to support those mitigation and adaptation actions.

It is worth noting that countries like India and China – on energy efficiency and renewable energy – and, for example, Brazil on biofuels – are already have adopted sustainable energy policies aligned with climate protection, even if these policies have been adopted for other reasons such as energy security.

South Africa has been at the helm of developing the idea of 'Sustainable Development Policies and Measures' (commonly known as 'SD-PAMs') as one avenue for examining developing country action.

There are discussions over what 'sectoral approaches and sector-specific actions' might mean in the international context, and how that might dovetail with the discussions over the development of the Clean Development Mechanism (CDM). There are also discussions over technology transfer (an integral part of the UNFCCC in 1992); the role of mechanisms or measures related to forest protection, and of course finance for developing country activity.

When will 'The Deal' become clear?

There is an unprecedented number of sessions in the lead up to the Copenhagen December 2009 talks when the details are due to be finalised. This means it is a fluid process, and an indication of where things are headed is unlikely before the middle of 2009 itself, in order to give time for the new US Administration to evolve its views. Although all the elements will be clearer by mid-year, the actual trade-offs and bottom lines may not become evident until Copenhagen itself – the real negotiations. In the US there will be care to ensure there is real Congressional support for an international agreement (as well as the domestic package)– to avoid a 'Kyoto' situation where although the international deal was signed, it was derailed back in the US afterwards.. The Ministerial round of talks mid-way between Bali and Copenhagen (Poznan, December 2008) are covered in more detail in Lesson 3, suffice to say it was a useful staging post and was able to set the timetable for starting the real negotiations in 2009.

Box 1 The Bali Roadmap

In principle, governments recognise that "deep cuts in global emissions" will be required to avoid "dangerous climate change", and will consider "a long-term global goal for emission reductions".

The Bali Roadmap commits developed countries to "measurable, reportable and verifiable nationally appropriate mitigation commitments or actions, including quantified emission limitation and reduction objectives,... while ensuring the comparability of efforts among them, taking into account differences in their national circumstances."

Developing countries will undertake "nationally appropriate mitigation actions ... in the context of sustainable development, supported by technology and enabled by financing and capacity-building, in a measurable, reportable and verifiable manner."

Negotiations will occur in two work streams:

- The AWG on further Commitments for Annex I Parties under the Kyoto Protocol (AWG-KP), these negotiations are heading towards further binding emission reductions targets for developed countries (excluding USA at present).
 - The AWG on Long Term Cooperation under the Convention (AWG-LCA). Here developed and developing countries have agreed to consider different types of new commitments, as well as adaptation, technology transfer, and financing. This track also permits the United States to reengage in the international process.
- **Deforestation:** The Reduced Emissions from Deforestation in Developing Countries (REDD) scheme was agreed, with a commitment to "early action" before 2013. In Bali there was agreement that:
- there is an urgent need to take meaningful action,
 - parties should be encouraged to take actions, including activities demonstrating emissions reduction projects in this area,
 - formal work on methodologies should be implemented and
 - under the Bali Roadmap further options of 'policy approaches and positive incentives' should be considered.
- **Technology:** Countries agreed to scale up the level of investment for technology transfer to help developing countries in the short-term. Countries also renewed the terms of reference of the Expert Group on Technology Transfer for five years. It will address technology needs assessments, technology information, capacity building including regional workshops, and mechanisms for technology transfer.

11.2.2 Business issues on mitigation policy

An increasingly strong theme from the business community, including from the financial services sector, is the importance of providing early, clear guidance on international and national climate policy regulations beyond 2012.

UNEP Finance Initiative – Climate Change Working Group (CCWG)

In its recent view, CCWG stated that the most immediate business issue is to ensure continuity in the regime beyond 2012. Currently, the political timeframes built into the regime are not well aligned with investment horizons, which need clarity over a 10 to 20 year period. As a result, the incentive for financial players to invest in long-term clean energy projects is, as yet, rather limited. Attention must focus on creating clarity as to how climate policies will develop in the medium term, particularly the scale of emissions caps out to 2020-2025, to send a strong 'carbon' signal to near-term commercial investments, particularly in energy and energy infrastructure. There also need to be consistent signals sent through broader economic and fiscal policy.

These UNEPFI companies believe that the Kyoto Protocol structure must be retained to build investor confidence in the continuity of emerging carbon markets, and it must be reflected in national policies, for example in the area of energy efficiency and renewable energy projects (paralleling the CDM framework).

CCWG made recommendations to policy-makers at the international talks in 2005 on how international climate policy should develop up to 2012 and beyond. These were to:

- Adopt a clear, precautionary, long-term reduction target and pathway for greenhouse gas emissions.
- Provide early, clear guidance on the continuation of the international climate policy regime beyond 2012.
- Foster an appropriate framework to ensure a liquid and efficient global carbon market.
- Set clear targets for renewable energy and energy efficiency, coupled with an effective, stable support mechanism.

Two years later, at Bali in 2007, CCWG stated “there has been insufficient action to foster an appropriate framework to ensure further large-scale investments in renewable energy, energy efficiency and a liquid and efficient global carbon market.” It recommended that policymakers should:

- End the uncertainty over international climate policy post-2012 through clear regulation by setting long-term emission reduction targets post-2012, especially for the critical period 2013-2030. This should be set no later than 2009.
- Ensure a systematic approach to adaptation that integrates climate change into existing and new programmes on disaster reduction/management and sustainable development.
- Involve finance and treasury functions in this area, in order to ensure the efficient use of available funds and financial mechanisms.
- Provide clear and compatible regulation of the carbon market and further globalise the carbon market to ensure its liquidity and effectiveness.
- Promote significant upscaling of R&D and investments in renewable energy and energy efficiency e.g. by setting clear targets and implementation mechanisms.

CCWG also recommended that Financial Institutions should:

- Integrate climate change related risks and opportunities into core financial operations.
- Engage with government decision makers to optimise the allocation of available funds to combat climate change and to promote innovation and technology development at local, regional, national, and international levels of governance.
- Reduce their own direct impacts contributing to climate change and report annual emissions transparently.

CCWG is formulating a White Paper “Financing a Global Deal on Climate Change” for release in June 2009, with specific proposals for policies to facilitate the entry of private sector finance into key areas such as renewables.

Businesses involved in CDM projects are particularly sensitive to delays in defining the post-2012 agreements: at present companies developing CDM projects can only rely on carbon-related income until 2012³.

³ Various organisations have conveyed this issue to governments at the international level. For example: the International Emissions Trading Association; Business Councils for Sustainable Energy; London Climate Change Services which brings together London based companies involved in carbon market services internationally.

In the context of the European Emissions Trading Scheme, there is also a set of financial companies which are calling for a tightening up of the caps under the ETS⁴. F&C Asset Management, for example, stated: “*Although it might seem surprising for a group of businesses to call for tighter constraints on carbon emissions, the objective is to enable the carbon market to act as an effective means of encouraging investment in carbon reductions.*”⁵

Broader Business Views

Heavy industry has always been involved in the UNFCCC process as observers and lobbyists, traditionally with the objective of delaying any agreement on emission targets. Now the wider business community is rapidly engaging in this debate, including directly at the negotiations, reflecting increased corporate awareness of necessity for action, and the implications of international and domestic policy on business models.

For example the Prince of Wales Corporate Leaders Group published a Poznań Communiqué on Climate Change, signed by 140 major companies headquartered in Europe, Australia, USA, China and Japan. It notes that in view of the global economic downturn, decisive action on climate change will stimulate global economic activity, whereas delaying action would increase the costs of meeting any temperature or emissions targets and raise the risk of irreversible impacts as temperature thresholds are exceeded. It proposes that developed countries need to take on immediate and deep economy-wide emission reduction commitments, while rapidly developing countries should be prepared to adopt emissions targets by 2020. Key supporting elements of the agreement would include:

- Measures to deliver a robust global greenhouse gas (GHG) emissions market in a series of national or regional “cap-and-trade” markets linked together.
- A revised Clean Development Mechanism (CDM) – no longer project-based, but a wholesale mechanism, supporting programmatic, sector-specific or technology based mitigation strategies to accelerate the transfer of technology to developing countries.
- Non-price interventions, such as technological performance standards, public procurement commitments and the development of incentives.
- An adaptation strategy and funding solution to assist the poorest countries which are particularly vulnerable to the effects of climate change.
- A mechanism to Reduce Emissions from Deforestation and Forest Degradation in Developing Countries (REDD) to deliver financial flows to developing countries that achieve measurable and verifiable reductions in emissions from deforestation and forest degradation.

A detailed survey of business views of the international climate policy regime and business investment - including the effectiveness of domestic implementation – showed that in UK-based international companies, climate change was dealt with at senior executive, if not Board level⁶. Box 2 summarises the key issues.

⁴ European Carbon Investors and Services (ECIS)

⁵ Carbon Market Europe, June 9, 2006, ‘Guest Commentary, The rationale for business to call for a tighter EU ETS’, available from www.pointcarbon.com.

⁶ Hamilton, K., and Kenber, M., April 2006, “Business Views on International Climate and Energy Policy”, report commissioned by UK Government. This report outlines the results of detailed interviews with a dozen UK based multinational or EU focused companies, on how climate policy impacts on business investment – including representatives of the financial services sector, carbon market actors, and major utility and oil and gas companies. Available online from URL: www.bcse.org.uk; or www.theclimategroup.org.

Box 2 The Kyoto Protocol – some business views

- It is an important framework for international collaboration on a global problem;
- It creates compliance pressure on governments;
- It sets the context for carbon price – very important for driving business attention on issue. In particular the ETS has resulted in businesses managing new assets and liabilities, and considering new commercial opportunities;
- It is a clear signal of policy direction. Dismantling or changing at this early stage would send the wrong message to the market - that government cannot implement a policy framework and stick to it.

11.2.3 Business issues on adaptation policy

Adaptation has been the neglected half of climate change policy under UNFCCC, and also for businesses, because impacts are as yet relatively small and threaten developing countries, whereas changes to the price of carbon are immediate and threaten strong vested interests in developed nations. Climate change is now certain, so we must plan for the reality that dangerous changes in weather patterns will disrupt economic activity. On one scenario given by CCWG, disaster losses could reach over 1 trillion USD in a single year by 2040.

The World Bank has tentatively put the incremental annual costs to adapt capital expenditure to climate change in the 10 billion to 40 billion USD range globally, of which about a third is associated with public finance. The cost of funding damage from disasters is much greater. The entire capital of the global insurance industry is around 700 billion USD. Perhaps 200 billion is earmarked for catastrophe, including earthquake. This provides security for only 20% of today's economic losses, so to fully fund disaster risk needs around 1 trillion USD. Allowing for economies of scale might reduce this by one-third, but still the gap is enormous. The sector's contribution would be principally through skills, but more capital would flow as local capacity builds and commercial viability is demonstrated.

There are UNFCCC adaptation funds but currently the committed funds remain at around 200 million USD annually. Other sources include disaster relief, which could be switched to hazard reduction. The net effect on donors would be an increase at the beginning, then a fall as capacity grows, vulnerability reduces and resilience improves. Also, a portion of revenue raised under mitigation actions like emissions trading and CDM could be earmarked for adaptation, possibly via the adaptation funds.

A key issue is that adaptation has to be integrated with development policy and disaster management. It is clear that damage from climatic disasters already threatens economic growth in many areas in various ways, and that these stresses will accelerate in coming decades. Even major public insurance schemes have faced technical insolvency, in France from subsidence claims, and in the US from flood claims following Hurricane Katrina. Experience also shows that relying on disaster relief is inefficient, because of the time it takes to mobilise uncommitted resources.

The private sector can only participate in large-scale adaptation initiatives on a commercial basis. Image and corporate responsibility are not sufficient. In partnership with the public sector, the barriers to entry can be overcome, and the public sector and those at risk can benefit from the private sector's inherent need to innovate and be efficient.

Box 3: CCWG's Key Recommendations on Adaptation.

Policymakers

- Mainstream climate change- ensure that the responses to projected impacts are integral to policymaking priorities at all levels and in all sectors
- Integrate adaptation with disaster management and economic development policy to maximise the return on scarce resources, and achieve a “triple dividend”. Emphasise capacity building, resilience, and economic diversification.
- Improve the knowledge base about climatic hazards, and specifically ensure the availability of weather data to support the growth in weather derivatives, catastrophe bonds, insurance and other risk transfer products, especially in developing countries.
- Prepare for disasters on the basis that they will be greater than any seen to date. Specifically, work with the private sector to develop seamless, efficient risk transfer systems to deal with climatic disasters.
- Enable the private finance sector to operate more effectively in developing countries, by providing good governance and economic stability.

Financial sector

- Recognize the reality of climate change and mainstream it into all business processes. It is a decision factor for business planning and strategies, portfolio management, and at individual transaction level.
- Develop and supply products and services for the new markets which will come with integrated adaptation eg at micro-level in developing countries, and for ecological services.
- Work with policymakers to realize the transition to integrated adaptation.
- Ensure that contingency plans consider “worst case” disasters.

The current UNFCCC negotiations are showing renewed interest in the possibility of insurance as a financial tool to assist adaptation in developing countries. A technical paper was presented to negotiators at COP14⁷, and Munich Re is the driving force behind a proposal⁸ from the Munch Climate Insurance Initiative (MCII) for a twin tier approach, designed to cope with catastrophic and mid-level impacts, underpinned by a risk prevention phase.

⁷ “Mechanisms to manage financial risks from direct impacts of climate change in developing countries” UNFCCC. FCCC/TP 2008/9. 21 November 2008

⁸ “Insurance Instruments for Adapting to Climate Risks: A proposal for the Bali Action Plan” 18 August 2008. Submission by the Munich Climate Insurance Initiative (MCII) to the Third Session of the Ad Hoc Working Group on Long-Term Cooperative Action under the UNFCCC (AWG-LCA 3). Accra 21-27 August 2008

11.3 Other relevant climate change initiatives for financial institutions

Given the immense size of the financial markets, there is a limit to what a single FI can achieve in terms of changing the way business is done. Any attempt to introduce additional analysis risks being undermined by competitors taking a less rigorous approach. At present therefore there is considerable attention to improving data through focussed exercises like the Carbon Disclosure Project, with a few more active investors involved in broader campaigns on climate change. Other broad-based business initiatives have sub-groups for FI's. This section summarises their objectives and work programmes so that e-learners can decide which might be of interest.



Carbon Disclosure Project (CDP) – international, based in London;

CDP is an initiative primarily focussed on disclosure of corporate exposure to climate change, through an annual questionnaire to listed companies, on behalf of institutional investors. It is now entering its seventh cycle, and in 2008, it stood at 475 institutional investors with assets of \$55 trillion under management. It started in the first cycle by writing to the biggest 500 companies in the world, ranked by listed capital (FT500), and has now expanded to seek data from 3,700 quoted companies, organised with local partners in a number of surveys focussed on geographical markets or sectors, like power utilities. In addition, it has developed complementary projects to cover corporate supply chains following a successful pilot with Walmart in 2007, and most recently it has extended its methodology to cities, and public procurement.

Box 4 Carbon Disclosure Project - 2008

The key findings from the corporate responses in the sixth cycle (CDP6) were released in September/October 2008:

- The response rate for the FT500 was 77%, compared to 72% in CDP4, and just 47% in CDP1. 83% of European-based firms answered, though no Russian companies did. The response in North America was 82%, compared to 74% in CDP5..
- The quality and comparability of responses are improving, e.g. through better take-up of standardised carbon accounting protocols, thereby enhancing the value of the data to investors. This enabled “climate disclosure” scores to be published for all FT500 respondents.
- Attention to climate change at Board level has risen, with 80% of the FT500 assigning responsibility for the issue at this level.
- Globally, the response rate across all CDP6 surveys was 54%.
- The biggest gap between the FT500 and other companies is in the management of emissions: 80% of FT500 companies disclosed their emissions , compared to 66% in the other surveys, and 74% of FT500 respondents have a plan to reduce emissions, compared to 58% of the firms elsewhere.
- **Emission intensity (emissions per unit of sales) varies significantly within and among sectors- indicating there are potential winners and losers when emissions regulations start to bite.**

Institutional Investors Group on Climate Change (IIGCC) – based in UK.

IIGCC, a coalition of institutional investors, mainly UK pension funds, was founded by Universities Superannuation Scheme to carry forward the action plan it identified in its ground-breaking 2001 report on climate change⁹. It currently has 52 members, with around €4 trillion assets under management. The plan was to have four work-groups: engagement, property, policy, and fund management. However, since its inception it has suffered from a lack of funding and commitment. The property workstream has now integrated with Investors Property Forum, which is about sustainability, not just climate change, so the climate focus is diluted, with the emphasis on the implementation of the Directive on Energy Performance of Buildings. The IIGCC has now merged with The Climate Group (see below) to become its institutional investor workgroup. This will cut overheads and gain synergy. It plans to look at the remaining three issues (engagement, policy, and the asset management process), and regularly responds to the government consultation process on climate-relevant policies. In another positive step, IIGCC now often collaborates with INCR, and IGCC, the parallel investor groups in USA and Australasia, to produce practice guidelines and policy-oriented papers (see below for more on INCR and IGCC).

On 17 April, 2008, IIGCC published its first report on members' activities. This is highly commendable, since there is a growing suspicion that many environmental declarations do not lead to effective action. The report found that investors are struggling to assess the risk posed by uncertainties over future climate change regulations and the physical impacts of global warming. But an increasing number of asset managers are focusing on the issue and are expanding their ability to analyse the effects of climate change. Asset managers increasingly are looking to invest in low-carbon or clean energy funds, are working with companies to improve their disclosure of greenhouse gas emissions and are using environmental rankings or analysing climate change impacts on their whole portfolio. Around 80% of the IIGCC's pension funds and asset owners are asking their managers to exercise their voting rights on climate change issues. However, only 30% of respondents are integrating climate change considerations when appointing fund managers or seek advice on the matter from their advisors. Investors are also failing to challenge companies about risks and opportunities from climate change.

Another significant initiative was the development of voluntary climate change disclosure standards for electricity firms, in collaboration with two other investor groups INCR and IGCC (see later). These standards for power companies cover things such as exposure to regulatory constraints on emissions, climate change strategies and planned new builds. It was clear that climate-related risks and opportunities are becoming vital to electric power companies and their investors, so financial markets need better information on them. The standards were drawn up in consultation with the power sector, and CDP is to use some of the new forms, which were released on 14 February 2008. Subsequent papers in collaboration with INCR and IGCC have focussed on the real estate and automobile sectors.

The Investor Group on Climate Change (IGCC) – covering Australia/New Zealand

With 34 members, IGCC represents investors with total funds under management of over \$Aus 550 billion, and others in the investment community interested in the impact of climate change on investments. The IGCC aims to ensure that the risks and opportunities associated

⁹ Climate Change - A Risk Management Challenge for Institutional Investors, by Mansley and Dlugolecki, USS 2001.

with climate change are incorporated into investment decisions for the ultimate benefit of individual investors through:

- Raising awareness of the potential impacts, resulting from climate change to the investment industry, corporate, government and community sectors;
- Encouraging best practices approaches to facilitate the inclusion of the impacts of climate change into investment analysis by the investment industry; and
- Providing information to assist the investment industry to understand and incorporate climate change into the investment decision.

Specific activities include acting as the local partner for CDP in Australia/New Zealand, and producing guidance on climate change risk management for pension fund trustees. As noted, IGCC also collaborates extensively with IIGCC and INCR.

Investors' Network on Climate Risk (INCR) - USA

INCR is a project of CERES (Coalition for Responsible Economies), based in Boston, Mass., a national network of investors, environmental NGO's and other public interest groups working with companies and investors to address sustainability challenges such as global climate change. INCR started after IIGCC, but is better funded and has produced a series of excellent reports and analyses. It comprises more than 70 investors managing over \$7 trillion of assets, including asset managers, state and city treasurers and comptrollers, public and labor pension funds, and other foundations. INCR leverages the collective power of these investors to promote improved disclosure and corporate governance practices on the business risks and opportunities posed by climate change. It has an action plan that mirrors USS's ten action points, but substitutes private equity into low-carbon technology for the property focus, and has a more active engagement style.

Recent research includes; an April 2009 report, From Risk to Opportunity: Insurer Responses to Climate Change, the third in a series on the insurance sector; a February 2009 report, Water Scarcity & Climate Change; a January 2008 report, Corporate Governance and Climate Change: The Banking Sector, analysing how 40 of the world's largest banks are addressing the business challenges from climate change; and a January 2007 report, Climate Risk Disclosure by the S&P 500.

INCR together with CERES has proposed climate-change related motions for corporate Annual General Meetings, including the financial sector itself. In 2006, a resolution filed with Chubb Group requesting that the insurance company publish a sustainability report was withdrawn after the company pledged to arrange a meeting with shareholders to discuss climate risk issues. In 2007, two FI's were included in INCR's Climate Watch List, a list of 10 companies that have been identified as lagging behind their industry peers in their responses to climate change. Wells Fargo bank, and ACE insurance group were targetted for refusing to disclose their strategies to manage the risks of climate change, or even whether they had such strategies. INCR members were instrumental in filing a record 57 climate-related shareholder resolutions with U.S. companies in the 2008 reporting season.

More generally, INCR has convened three Investor Summits. The 2008 Investor Summit on Climate Risk brought together more than 450 institutional investors, Wall Street leaders and CEOs from around the world to consider the scale and urgency of climate change risks, as well as the economic opportunities of a global transition to a clean energy future. At the summit, nearly 50 leading U.S. and European institutional investors managing over \$1.75 trillion in assets released a **climate change action plan** meant to boost investments in energy efficiency and clean energy technologies and require tougher scrutiny of carbon-intensive investments that may pose long-term financial risks. The initial summit, held in 2003,

provided a forum to launch INCR. The event in 2005 highlighted best practices in corporate climate risk disclosure and governance, to encourage research analysts to adequately consider climate risks, and educate fund managers about the potential financial implications of these risks in making portfolio decisions.

P8 - an international initiative for major pension funds. The P8 Group brings together some of the world's largest institutional investors on issues relating to global issues, particularly climate change. They represent over \$3 trillion of investment capital and as pension funds have an inherently long term focus. It was convened by the Prince of Wales in 2007, and has been developing strategies to bring about a low carbon economy e.g. ways for large-scale funds to support firms specialising in renewable energy and carbon dioxide reduction technologies, and also to finance initiatives on forestry.

The first practical signs of progress are that Californian members announced in April 2009 they will buy \$300m of World Bank climate bonds, designed to raise capital for projects that aim to combat climate change..

The P8 group - actually 10 pension funds, three each from Europe, Asia, and the US plus one from Australia – includes some of the largest schemes in the world, including ABP, the pension plan for Dutch civil servants, as well as CalPERS and CalSTRS, the two largest US pension funds, which manage the retirement funds of Californian civil servants and teachers respectively.

Climatewise - a UK-based international collaboration of insurance sector organisations. The ClimateWise Principles were launched in September 2007 by The Prince of Wales, who had previously called on the insurance industry to offer a more pro-active and collaborative effort to help reduce the risk of climate change. Currently, there are 41 insurance companies and organisations signed up to the six ClimateWise Principles:

1. lead the way in analysing and reducing risks;
2. Inform and engage in public policy debate;
3. Support climate awareness amongst customers;
4. Incorporate climate change into investment strategies
5. Reduce the environmental impact of business operations
6. Report in public and be fully accountable.

The ClimateWise members include many global insurance companies. In the UK, they account for 60% of the general insurance sector and approaching 50% of the life insurance sector. In view of their widespread connections, UNFCCC invited Climatewise to address its Poznan Conference (COP14) on policy needs.

The first independent review of Climatewise was published in November 2008, based on scrutiny of members' progress reports by Forum for the Future. While the review was broadly positive, it noted that evidence of progress in the area of investment strategies was lacking, and that some members had only just begun to address climate change. In addition some members did not report fully enough.

The review called for a more urgent and radical approach to climate change, involving the inclusion of longterm trends and scenarios in risk assessment, stakeholder communications, and business decisions

The Principles of Responsible Investment (PRI)

There is a growing view among investment professionals that environmental, social and corporate governance (ESG) issues can affect the performance of investment portfolios. Investors wishing to fulfil their fiduciary duty therefore need a framework to address these issues. The Principles for Responsible Investment provide this framework. The Principles are voluntary and aspirational. They are not prescriptive, but instead provide a menu of possible actions for incorporating ESG issues into mainstream investment decision-making and ownership practices.

PRI was launched in 2006 under the aegis of UNEP FI and the UN Global Compact. The framework reflects the core values of large investors whose investment horizon is generally long, and whose portfolios are often highly diversified. However, the Principles are open to all institutional investors, investment managers and professional service partners to support.

In 2009 PRI published a useful report on climate change “Investor leadership on climate change”. As well as outlining the rationale for involvement , and providing examples of good practice, the report identified four key areas for action.

- (1) Developing new asset classes such as sustainable forestry, energy-efficient property portfolios and CDM projects. In a carbon-constrained economy, low-carbon investment opportunities will be attractive to investors. Therefore, it makes sense for investors to prepare themselves for exploiting these opportunities by undertaking pilot investments in new asset areas in order to gather experience and intelligence.
- (2) Mainstreaming climate change into asset management. The predicted scale of the economic impacts of climate change and efforts to mitigate it and adapt to it are not yet well reflected by the markets. Partly this is due to firm public policy (see later). However, investors could bring pressure to bear to improve corporate disclosure on climate risks, and also require greater depth of knowledge and analysis from their advisors.
- (3) Corporate engagement on climate change. Companies tend to have short-term horizons, and investors may be disadvantaged if climate change is ignored by managements and boards.
- (4) Policy engagement. A stable and effective long-term policy regime is urgently needed. Investor groups should collaborate closely and be prepared to commit to ongoing direct dialogue with policymakers, and even education of negotiators, particularly in developing nations, in the practicalities of investment, to ensure a well-designed policy framework. Given the current credit crisis, innovative approaches such as government-backed climate bonds may help to source finance for mitigation and adaptation projects.

Broadly based business groups also have initiatives or projects for their FI members e.g. Global Roundtable on Climate Change, World Business Council for Sustainable Development, World Economic Forum and The Climate Group.

The Climate Group - an international NGO for business and local government.

The Climate Group’s mission is to catalyse business and government leadership on climate change to put the world on track for a low carbon economy. Its membership is drawn from Corporates, Cities and Regions (i.e. sub-national legislatures, such as US states, Canadian provinces, German Bunder etc). TCG now serves as the secretariat for the investor collaboration IIGCC (see above).One issue of relevance to the financial sector, was the development of a Voluntary Carbon Standard (VCS) for non-mandatory emissions credits.

TCG partnered with the International Emissions Trading Association and the World Business Council for Sustainable Development to develop the VCS, and it was launched on 19 November 2007, providing a robust, new global standard for voluntary offset projects- see www.v-c-s.org. However, work on an international protocol for carbon neutrality has been suspended.

In the banking area, TCG is one of the partners in HSBC's \$100 million climate change partnership. This will support TCG's first offices in India, mainland China and Hong Kong and focussed programmes to engage business, government and consumers in five world cities (Hong Kong, London, Mumbai, New York and Shanghai) for example on government adoption of policy frameworks at all levels to produce lower emissions.

In December 2008, TCG launched The Climate Principles for the finance sector.
Adopting organisations commit to:

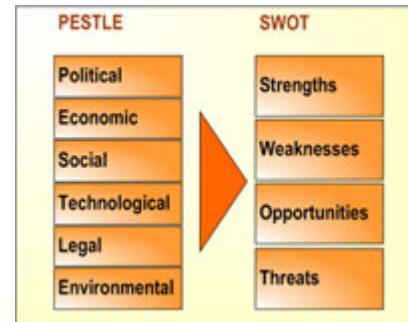
- "Minimise our operational carbon footprint"
- "Make business decisions that will reduce climate change risks and allow the development of climate-change related opportunities"
- "Develop products and services that enable our customers to manage their climate change related risks and business opportunities"
- "Engage with our customers, suppliers and wider society to seek opportunities for a low carbon economy"
- "Support the development of sound energy and climate change policy"
- "Disclose progress against our commitment"

Five leading financial institutions have signed up to the Climate Principles- Banks Crédit Agricole, HSBC and Standard Chartered and reinsurers Swiss Re and Munich Re. However, initial take-up was not as wide as hoped, due to the financial crisis. The intention is that signatories will incorporate carbon and climate risk into their research activities and investment decisions, engage with clients to understand climate risks and opportunities, and develop products and services that support them in managing those risks and exploiting those opportunities. However, the Climate Principles will not require signatories to turn away business – unlike the Equator Principles.

The NGO Banktrack has called for the Climate Principles to be strengthened by the adoption of performance targets, and a higher priority for climate protection. TCG has noted in reply that the initiative will evolve, and that a low-carbon society will take time, and government intervention.

11.4 Internal action plan

Each FI will tackle climate change differently, but to do it effectively there must be a focal point. Strategically, a senior executive must be allocated responsibility for managing the issue and reporting on it. Tactically, he or she needs to be supported. Allianz Group did this by a Core Group, a cross-company committee, with the aims of identifying new corporate workstreams, opportunities for product development, better practices for existing processes, and priorities for stakeholder engagement. AIG decided to set up a central department with bought-in resource. In both cases, the FI retained external consultants to prepare reports for them on the risks and opportunities of climate change.



Once a unit has been created to develop a strategy, techniques such as brainstorming within frameworks like SWOT (strength, weakness, opportunity, threat) and PESTLE (political, economic, social, technology, environment), gap analysis (where would we like to be, and how will we get there?), and consultation of experts and representative stakeholders will help to ensure a valid strategy evolves. A number of themes are likely to emerge that apply to all FI's, besides issues related to products and markets.

Common Themes

The critical ingredient is government policy. Private companies cannot undertake major developments speculatively based on hopes about government decisions. However, the best scientific guidance is that a dramatic change is needed in the way we produce and consume energy, and that this has to happen in a few key countries. (Twenty countries are responsible for 90% of ghg emissions). FI's should take part in the policy debate to protect their interests, generally in partnership with other stakeholders, and co-ordinated through the whole company.

Client focus is important; Client awareness of climate change is low generally, and clients' needs may not fit neatly into conventional financial service boxes. Sectors like energy and metals are most affected, and should be addressed early.

In-house performance on climate change (e.g. emissions reduction targets) is important in establishing credentials with clients and stakeholders, and can also help to gain a reputation for strategic thinking with credit rating agencies. Independent audit of the performance underlines credibility. HSBC has decided to become 'climate neutral' to ameliorate its direct impact on the climate, using the issue of climate protection as a marketing and communication device. A holistic approach is needed; Allianz Group sponsors Formula One racing, which is a high-energy use sport. On the other hand, Aviva sponsored a round-the-world yacht, which seems more environmental.

Partnering - It is acceptable for each company to try to impress customers and policymakers with its credentials, but the cost of mounting a solitary campaign on climate change would be prohibitive. Additionally, a lot of time could be spent in "re-inventing the wheel". We saw in the previous section, that there are a number of business organisations that offer collaboration, research, networking and interaction with each other and stakeholders.

Corporate risk assessment processes and procedures should be fully reviewed to take account of climate change, starting with the high-risk areas, and using expert advice to evaluate all aspects: Direct climate risk, political/legal risk, business risk through clients,

market risk, due to the immature nature of the carbon markets for example, operational risks, and reputational risk. Finally, financial conglomerates need to be aware that climate change could result in a compounding of risk across the entire business, diluting some of the benefits of diversification. For example, an insurer is exposed to property losses from extreme events, but so too is a property investor, and also a banker providing services to the property management sector.

Formal knowledge management can promote the flow of knowledge about climate change internally to provide more effective solutions to client needs, while avoiding conflicts of interest and preserving confidentiality (eg at due diligence stage).

For FI's, human resources are crucial. It is common to find a lack of staff awareness of the relevance and reality of climate change, particularly in the USA, in asset management, and in more senior executives. Without a correct understanding among staff, it is unrealistic to suppose that an FI can deal with climate change effectively, because they will not be able to identify risks and opportunities, nor prioritise and assess them correctly. Potentially, such disengagement is a reputational risk. At the minimum, an awareness programme should be carried out, linked to training in revised business procedures. The need to incentivise staff and managers to think longer term also needs to be addressed, so that multi-year programmes are not given less priority than quick fixes.

If something is worth doing, it is worth doing it well. FI's should aspire to climate leadership. In their reports on the Global FT500, CDP give a climate disclosure leadership index, based on the rating of the responses and other subjective information. Despite relatively small direct emission levels, the Banks/Diversified Financial and Insurance sectors have significant exposure to climate change-driven credit risk, insurance losses and downstream liability concerns. The table below shows the scoring for the highest companies in the CDP5 and 6, reports. Respondents omitted from the table (e.g. AIG, Wachovia, Zurich Financial Services) scored less than 76 in CDP6, or did not also appear in CDP5.

Of course, it has to be remembered that high-quality reporting on climate change does not mean that other risks are equally well controlled. Also, a company may be let down by a weak performance report, which may not reflect the reality of its actions and strategies.

Table 1: Climate disclosure leadership ranking – Carbon Disclosure Project rankings

Full score = 100

Banks		Insurers	
	CDP6 CDP5		CDP6 CDP5
Barclays	98 85		
Nat Australian Bk	98 75	Munich Re	98 75
Merrill Lynch	98 45		
Citi	97 95		
ANZ	97 90		
RBCan	97 90		
Lloyds TSB	97 75		
Wells Fargo	97 45		
Westpac	95 100		
HBOS	95 95		
RBS	94 95		

St Chartered	94	90		
Credit Suisse	92	75		
HSBC	91	85	Allianz	91 90
Bk of Montreal	90	65	Hartford	90 65
			Millea	88 50
UBS	87	90	Travellers	87 80
CIBC	86	85	Axa	86 70
Deutsche Bank	86	80		
Fortis	83	80	Aviva	83 85
Morgan Stanley	82	60		
Cred Agric	81	60	Aegon	81 45
Am Express	80	35		
B'co Bradesco	79	70	Manulife	79 60
B'co Popular Esp	79	30		
			Swiss Re	78 85
Soc Gen	76	85		
BNP	76	80		
Goldman Sachs	76	45		

Products and markets: the critical issue is to mainstream climate change, so that it becomes an integral part of risk assessment and market appraisal. This has been covered in detail in Lesson 2.

11.5 Use of financial instruments for other environmental issues

Other environmental issues like pollution, biodiversity and clean water may be amenable to the introduction of market-based solutions, in the same way as climate change. This could enable the FSS to develop new products and services in those areas, but could also mean risks for existing practices and exposures. UNEPFI has workgroups in the areas of Water and Biodiversity.



The carbon markets are still unproven, and indeed early experience with over-allocation of emissions permits within the EU ETS, and the cumbersome operation of the CDM have given ammunition to sceptics. However, the experience of emissions abatement in the USA is proof that market-based systems can work (see Box 5). If ecosystem services provide valuable services, then why don't more payment schemes exist? The answer is threefold – ignorance, institutional inadequacy, and public goods. However, as pressure on resources mounts, these barriers will surely crumble.

Emissions trading (or cap and trade) is probably the prime tool. Companies or other groups that emit the pollutant are given *credits* or *allowances* by a central authority. These credits represent the right to emit a specific amount. The total amount of credits constitutes a cap, limiting total emissions to that level. Companies that pollute beyond their allowances must buy credits from those who pollute less than their allowances, or pay a fine. The overall goal of an emissions trading plan is to reduce pollution.

While the cap is usually set by a political process, individual companies are free to choose how or if they will reduce their emissions. In theory, firms will choose the least-cost way to comply with the pollution regulation, creating incentives that reduce the cost of achieving a pollution reduction goal. Emissions trading markets can be easier to enforce because the government overseeing the market does not need to regulate specific practices of each pollution source.

It is possible to run the system in reverse, so that permits are given for using sustainable processes, for example, “green tags” in the USA renewable energy provider is issued one green tag for each 1000KWh of energy it produces. The energy is sold into the electrical grid, and the green tag can be sold on the open market as additional profit.

Box 5: Acid Rain abatement in the USA

Sulfur dioxide (SO_2) and nitrogen oxides (NO_x) are the key pollutants in the formation of acid rain. NO_x combines with volatile organic compounds (VOCs) to form ground-level ozone (smog) and nitrate pollutants which lead to the acidification of lakes and streams and kill fish. In addition, they impair visibility, create respiratory and other health problems, weaken forests, and degrade monuments and buildings.

In the United States, the electric power industry accounts for approximately 67 percent of total annual SO_2 emissions and slightly more than 20 percent of total annual NO_x emissions. Since the start of the Acid Rain Program in 1995, the lower SO_2 and NO_x emission levels from the power sector have contributed to significant air quality and environmental and human health improvements. A key element is that utilities are granted a threshold number of permits or allowances for each pollutant. These can be traded if the utility manages to reduce its emissions below its threshold, but fines are paid if the threshold is exceeded.

The Acid Rain Program was created to implement Title IV of the 1990 Clean Air Act Amendments. It aimed to reduce annual emissions of SO_2 and NO_x by 10 million and 2 million tons below projected levels, respectively. Since its inception, the Acid Rain Program has:

- Reduced SO_2 emissions in 2007 by some 6.8 million tons from 1990 levels, or about 43 percent of total emissions from the power sector. Compared to 1980 levels, SO_2 emissions from power plants have nearly halved, and are already below the statutory cap set for compliance in 2010. .
- Cut NO_x emissions in 2007 by over 3 million tons from 1990 levels, so that emissions in 2005 were less than half the level anticipated without the program. Other efforts, such as the NO_x Budget Trading Program in the eastern United States, also contributed significantly to this reduction.
- Led to significant cuts in acid deposition, including reductions in sulfate deposition of about one-third in some regions of the United States and improvements in environmental indicators, such as fewer acidic lakes.

It is estimated that in 2010, the Acid Rain Program's annual benefits will be approximately \$122 billion (in 2000 values), at an annual cost of about \$3 billion - a 40-to-1 benefit-to-cost ratio.

There is currently (2009) some confusion in the regulatory regime, owing to a successful legal challenge in July 2008 to the competence of the Environment Protection Agency (EPA) to introduce the Clean Air Interstate Rule (CAIR), which was intended to prevent pollution drifting down-wind. CAIR would have broadened emissions trading into NO_x as well as SO₂. A later court ruling (December 2008) has given a reprieve to EPA so that it can redraft the regulations, and hopes are high that the markets for both gases will survive.

Biodiversity¹⁰

As Table 2 shows, biodiversity is an issue that offers considerable financial potential, as well as the potential environmental advantages and benefits for the rural poor and indigenous peoples. There are some potential clashes with climate change strategies, in particular monoculture crops and forestry to store carbon or grow feedstock for biofuels.

Traditionally business has tended to look on biodiversity as a source of potential liability, or a high cost/low return area. Then it seemed there were possible image opportunities. The next phase seems likely to be one where real markets will develop, often stimulated by consumer concerns over contaminated food, illegal logging, or climate change. There are significant problems to be overcome, particularly in developing countries, over basic frameworks such as valuation and regulation.

Table 2 Selected ecosystem markets and their potential for growth

Ecosystem Market	Current Size(US\$ per annum)	Potential Size – 2010 (US\$ per annum)	Potential Size – 2050(US\$ per annum)
Certified Agriculture and Fisheries	\$26,000 million in global sales; \$21,000 million	\$60,000 million	\$200,000 million
Carbon Sequestration through Forestry (e.g. Kyoto, and LULUCF)	\$100 million (much of this in developing countries)	\$1,500 million (if EU ETS allows sinks by 2008)	\$6,000 million
Certified Products (Timber and NTFP)	Forestry Stewardship Council alone estimated at \$5,000 million	\$15,000 million	\$50,000 million
Government Payments for Water-Related (WRP) Ecosystem Services	Mexico programme \$15 million; Costa Rica programme \$5 million; China Program \$1+ billion?	\$3,000 million	\$20,000 million
Private Watershed Management Payments	\$5 million (many public payments for environmental services are partially public – like Costa Rica approx. 30 percent private funds for electricity, also Ecuador, public utility revenues)	\$50 million	\$10,000 million

¹⁰ Exploring the potential of biodiversity offsets. Bishop, J.; Bayon, R.; Kate, K. / International Union for Conservation of Nature and Natural Resources (IUCN) / World Conservation Union , 2004

Bioprospecting	\$17.5–30 million	\$35 million	>\$500 million
Regulatory Driven Ecosystem Offsets (including US Wetland Mitigation Banking)	\$200 million – just private for profit wetland and stream; \$1,000 million total (including in-lieu fee etc.) Unknown how many ecosystem offsets are driven by EIA regulation in developing countries	\$600 million (banks); \$1,500 million total	\$2,000 million (banks); \$3,000 million total
Regulatory Driven Species Offsets (including US Conservation Banking)	\$45 million in the USA. Programme just begun in Australia and possibly similar programme in France, size unknown	\$65 million	\$200 million
Voluntary Conservation Payments and Biodiversity Offsets	\$20 million (increased if money flowing through conservation organisations is included)	\$25 million	\$150 million – if corporations take to the concept
Government Conservation Payments and Biodiversity Offsets	\$3,000 million – just flora and fauna programmes (excluding water and soil); in developing countries, may be through state electricity, water and road agencies	\$4,000 million	\$10,000 million
Land Trusts, Conservation Easements (and expenditure by NGOs for conservation)	\$6,000 million in USA alone. Size and use of easements in developing countries is unclear	\$10,000 million	\$20,000 million

Source: Building Biodiversity Business, from information supplied by Michael Jenkins (Forest Trends)

Let's consider biodiversity offsets. These are conservation activities that intend to compensate for the residual and unavoidable harm to biodiversity caused by development projects. Preliminary studies indicate that biodiversity offsets are widely seen as a useful tool for managing the adverse impacts of development activities on biodiversity.

Some of the potential benefits of biodiversity offsets include:

- the ability to undertake projects that might not otherwise be possible
- promoting better relationships with local communities, government regulators, environmental groups and other important stakeholders
- providing a practical tool for managing social and environmental risks and liabilities
- the possibility of influencing emerging environmental regulation and policy
- reduced costs of compliance with environmental regulations
- providing a mechanism to encourage companies to make increased contributions to biodiversity conservation, without necessarily requiring elaborate new rules.

However, there are disadvantages and risks, including:

- offsets are no substitute for no go areas
- offsets are not supported by all conservation organisations, with some groups oppose to the concept entirely, preferring to lobby for an outright ban on habitat conversion

- some local communities do not consider that they stand to gain from offsets, particularly if the offsetting activities take place far from the development site.

Companies or FI's intending to become involved in biodiversity offsets should:

- communicate a clear strategy for how they plan to implement their policy commitments, preferably including specific, time-bound targets
- search for opportunities to participate in pilot projects to design and implement biodiversity offsets, working in collaboration with representatives from local communities and government and drawing on appropriate expertise.

Table 3 gives a perspective on the current viability of the biodiversity market from various finance sector viewpoints.

Table 3 The viability of biodiversity financing

Financial Instruments	Financial risk (probability of losing the investment)	Transaction costs (staff time and other costs to implement the instrument)	Ability to exit (ease of recouping an investment within an acceptable time frame)	Sustainability (likelihood of generating competitive returns over the long-term)
Grant	L	L	H	L
Recoverable grant	L	L	H	L
Interest rate write-downs	L / M	M	H	L
Loan guarantees	L / M	M	H	L
Short-term loans	M	M	M	L
Medium / long-term loans	M / H	M	M	H
Mezzanine finance (convertible long-term debt)	M / H	M	M	H
Programme-related investments	M / H	H	M	M
Equity investments (minority shareholder)	H	H	L	H
Majority / outright ownership	H	H	L	H

Key:
H = High M = Medium L = Low

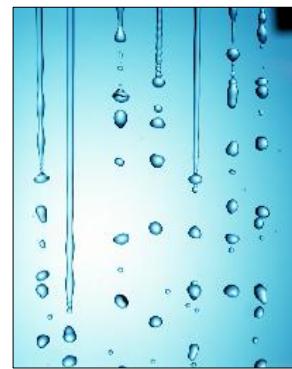
Source: Building Biodiversity Business

To progress further, the key issue, as with climate change, is lack of a policy framework that assigns value to ecosystems, and promotes collaboration to manage shared natural resources. The good news is that there is a number of risk assessment tools available, some new or under development. For example, the World Resources Institute (WRI), with the World Business Council for Sustainable Development (WBCSD), has developed a way for companies to start thinking about ecosystem services and the bottom line, which may or may not include valuation. The Corporate Ecosystem Services Review (CESR) takes companies through 5 steps to look at the link between operations and ecosystem services. What is their dependence on ecosystem services (e.g. water, agricultural commodities), and what are their impacts that present a potential risk to the bottom line (e.g. reputation, enforcement). The tool also helps companies to identify business opportunities, such as large landowners participating in new environmental markets, or technology developers producing tools that help companies meet stricter legislation.

Water - the Next Oil?¹¹

The UN predicts that by 2025, 60% of the world's people will be living in "water-stressed" countries. This is a major problem for consumers, agriculture (which accounts for 70% of human uses of water) and industry. Water can be a source of major corporate difficulties, as Coca-Cola has found in India, with accusations that it has caused water scarcity, polluted ground water, and allowed its products and by-products to become polluted by insecticides.

Investing in natural capital can prove more efficient than built capital in delivering key services. As an example, consider the case of flood control. One can address floodwaters through engineered works (e.g., construction and maintenance of dikes and levees) or through landscape management (restoration of wetlands in flood plains). In some instances, landscape management may prove a better public and private investment strategy for providing flood control once one accounts for the positive externalities of improved water quality, wildlife habitat, and recreational amenities.



Watersheds or river basins are the appropriate units for water management. A watershed is the area of land that feeds water into a river. The upstream ecosystems within the watershed provide watershed services that benefit people and nature downstream.

Providing incentives by paying land and water managers to maintain watershed services is an innovative way of strengthening water security. Table 4 indicates the sort of values that would attach.

Table 4 Estimates of economic values of watershed services (annual cost in \$ per hectare serviced)

Service Type	Service provided	Developed economies (US\$/ha/year)	Developing economies (US\$/ha/year)
Provisioning services	Water for people Fish/shrimp/crabs Agriculture and grazing Wildlife (for food) Vegetables and fruits Fibre/organic raw material Medicinal plants Inorganic raw material	45 - 7500 200 40 - 520 40 - 520 40 - 470 45 15 - 160	50 - 400 6 - 750 3 - 370 0.02 - 320 1 - 200 1 - 40 6 0.1
Regulating services	Water quality control Flood mitigation Groundwater replenishment Erosion control Carbon sequestration Microclimate stabilisation	60 - 6700 15 - 5500 130 - 270	20 - 1400 2 - 1700 10 - 90 20 - 120 2 - 2000 10
Supporting Services	Biodiversity conservation		0.6 - 3600
Cultural and Amenity services	Recreation and tourism Cultural/religious activities	230 - 3000 30 - 1800	20 - 260 80

Source: Pay. Establishing payments for watershed services. IUCN, 2006

¹¹ Pay. Establishing payments for watershed services. IUCN, 2006. Authors: Smith, M., de Groot, D., and Bergkamp, G.

A well-known example in the water quality field makes the point in a concrete setting. In the early 1990s, a combination of federal regulation and cost realities drove New York City to reconsider its water supply strategy. New York City's water system provides 1.4 billion gallons of drinking water to almost nine million New Yorkers every day. Ninety percent of the water suppliers were now required to filter their surface water supplies unless they could demonstrate that they had taken other steps, including watershed protection measures that protect their customers from harmful water contamination. A filtration plant would cost between \$6 billion and \$8 billion to build and another \$300 million annually to operate. By contrast, watershed protection efforts, which would include not only the acquisition of critical watershed lands but also a variety of other programs designed to reduce contamination sources in the watershed, would cost only about \$1.5 billion. Acting on behalf of the beneficiaries of the Catskills' water purification services, New York City chose to invest in natural rather than built capital. Nor is New York City alone. The U.S. EPA estimates that more than 140 cities are considering watershed conservation as a means of ensuring high drinking water quality.

This approach is not limited to the United States. In Australia, Premier Bob Carr announced that the government would pay farmers A\$120 million to preserve native vegetation, following the recommendation of the Wentworth Group. As Wentworth Group member Peter Cosier described, "We're not giving farmers' money; we're buying an environmental service from them and that environmental service provides a benefit for the whole community. It's a radical new way of doing business in the bush."

Table 5 gives some further examples.

Table 5 Innovative payment schemes for watershed services

Mechanism	Description	Examples
User fees	Fees for watershed management charged to consumers.	Municipal water rates increased for example in New York (USA); Bern (Switzerland); Heredia (Costa Rica); and Pimampiro (Ecuador) to finance payments for watershed services.
Private sector payments	Payments by business for watershed services needed to sustain their income, or as grants to build reputation.	Payments for watershed services by hydropower companies in Costa Rica and by Nestlé Waters in France.
Government bonds	Public borrowing to finance payment schemes, by institutions with the legal right to do so and which believes it can raise the funds to repay the money.	Bonds issued by New York City to finance watershed management programme developed as a cheaper alternative to construction of a filtration plant.
Water bank	Bank set up cooperatively by water boards to finance investments in water infrastructure.	Dutch Water Bank (Nederlandse Waterschapsbank NV).
Debt for nature swaps	Public debt is purchased at a discount by an outside agency – such as an NGO – in exchange for commitments to fund conservation activities.	Potential future applications in financing payment schemes for watershed services.
Trust funds	Endowment funds held to finance investment in water infrastructure and watershed management.	The Water Protection Fund, Quito, Ecuador, which uses investment returns to fund management of watersheds supplying city water.

Source: Pay. Establishing payments for watershed services. IUCN, 2006

In practice, FI's face significant barriers to involvement in water infrastructure projects¹²:

- Project profile: capital intensive with high initial investment and long payback period.
- Low rate of return.
- Foreign exchange (FX) risk: mismatch between revenues in local currency and finance in foreign currency.
- Sub-sovereign risk: decentralized water agencies with service responsibility but lacking financial resources and credit standing.
- Risk of political pressure on contracts and tariffs, with weak and inconsistent regulation.
- Contractual risk: projects of long duration entered into on the basis of poor initial information.

Key steps are to ensure the water agency is divorced from political interference, and to control the FX risk.

Aside from direct investment, FI's face exposure to water through the companies they invest in eg beverages, agriculture, refining and processing. A study on climate change and water for CERES by the Pacific Institute showed that only 20 percent of 121 of the largest companies in 11 water-intensive industry sectors report water-related risks or describe programs to assess water risks, and only 10 percent describe supply chain considerations in relation to water management. UNEPFI's Water Working Group is actively engaged in this area¹³.

11.6 Conclusions



Because of the great uncertainties on climate change policy, FI's should be careful not to over commit themselves. Now is the time to develop strategy, acquire resources and plan for action. A variety of scenarios could be used to map out contingency plans.

In addition, FI's could select one or two initiatives to work with, in order to ensure that their strategies are well-chosen, and that the political outcome is as close to their best case.

Internally, a lot of work can be done to prepare the FI for the inevitability of a carbon-light economy, starting with internal awareness raising and education, revising business procedures, and acquiring new talents and skills. Organisational change, organic or by acquisition may also be required.

These new skills may turn out to be useful in other fields. It seems inevitable that market-based techniques will extend to other environmental problems too like water scarcity/quality, and loss of biodiversity.

¹² Becoming Bankable: Experiences and Challenges in Market-Based Finance in the Water Sector. UNEPFI Side event at World Water Week Stockholm August 2008

¹³ Bringing the Universal Owner Rationale to Life – All you Need is Water. UNEPFI Workshop 08 September 2008, London

11.7 Lesson Review

This lesson had four main objectives. Section 11.2 discussed how climate change policy might evolve for the post-2012 era. We saw that there are considerable uncertainties about the shape of the future framework, which will not be resolved before 2009. These affect mitigation (i.e. emissions reductions) particularly. On adaptation, the main issue is under-funding.



Section 11.3 looked at the various initiatives that have sprung up to enable FI's to manage the issue of climate change more effectively.

In Section 11.4 we considered how FI's might go about the practicalities of managing climate change themselves. It means creating a new focus, and looking honestly and holistically at the issues over a wide spectrum, from human resources to corporate risk management and client needs.

Finally in Section 11.5 we reviewed briefly how financial instruments might be used to deal with other environmental issues apart from climate change. Clean air markets have proved very successful in the USA. There is every likelihood that problems like biodiversity and water quality will benefit from market-based solutions, and using them might help to improve the viability of projects.

Additional Reading

[Carbon Disclosure Project](#)

www.cdproject.net



- Carbon Disclosure Project Report 2007: Global FT500 authors: Innovest
- The adaptation tipping point: are UK businesses climate-proof?: FT 350 Authors: Acclimatise and UK Climate Impacts Programme 2006

[CERES \(Coalition for Environmentally Responsible Economies\) reports](#)

www.ceres.org

- Investor Guide to Climate Risk: Action Plan and Resource for Plan Sponsors, Fund Managers and Corporations. Investor Network on Climate Change, 2004
- Framing Climate Risk in Portfolio Management. CERES/WRI (World Resources Institute) 2005
- April 2009 report, From Risk to Opportunity: How Insurers Can Proactively and Profitably Manage Climate Change. Authors E. Mills and E. Lecomte, 2006
- February 2009 report, Water Scarcity & Climate Change: Growing Risks for Businesses & Investors.
- January 2007 report, Climate Risk Disclosure by the S&P 500
- January 2008 report, Corporate Governance and Climate Change: The Banking Sector, analysing how 40 of the world's largest banks are addressing the business challenges from climate change

Intergovernmental Panel on Climate Change (IPCC)

website www.ipcc.ch

- *Fourth Assessment Report Working Group II and III (Summary for policymakers) 2007 (April and May)*
- *Third Assessment Report (2001), Working Groups II and III* Full text at www.grida.no.

International Energy Agency

<http://www.iea.org/>

- Implications of climate change for energy industries, especially World Energy Outlook series
- Energy to 2050: Scenarios for a Sustainable Future
<http://wwics.si.edu/subsites/lookingforward/links/scenarios.htm>

Miscellaneous

- Environmental Finance - monthly journal with excellent coverage of climate change issues.
- News-bulletins eg 360 from the climategroup, provide an easy way to stay informed.
- Farhana Yamin, Joanna Depledge, 2005. *The International Climate Change Regime: A Guide to Rules, Institutions and Procedures*, Cambridge University Press.
- The Finance of Climate Change ed K. Tang, publ Risk Books, 2005. ISBN 1 904339 62X

Reports

- Building Biodiversity Business. Shell International Limited and the International Union for Conservation of Nature:2008.London, UK, and Gland, Switzerland. Authors:Bishop, J., Kapila, S., Hicks, F., Mitchell, P. and Vorhies, F.
- Measuring Corporate Impact on Ecosystems: A Comprehensive Review of New Tools, Synthesis Report: by Sissel Waage, Emma Stewart and Kit Armstrong. Business for Social Responsibility. December 2008
- Environmental Markets: Opportunities and Risks for Business. Business for social responsibility July 2006
- The Economics of Ecosystems and Biodiversity: an interim report. EC 2008
- Pay. Establishing payments for watershed services. IUCN, Gland, Switzerland. 2006. Authors: Smith, M., de Groot, D., and Bergkamp, G.
- Financing water: risks and opportunities UNEPFI Water Working Group 2006
- Half full or half empty? UNEPFI Water Working Group 2007
- Climate Change & the Financial Sector: An Agenda for Action. Allianz Group and WWF. 2005. Authors A.Dlugolecki and S. Lafeld
- Stern Review on the economics of climate change. London, The Treasury, 2006. www.sternreview.org.uk. The Review provides a good overview of the science, economics (costs and benefits) and approaches towards the international framework.
- The World Bank. Clean Energy and Development: towards an Investment Framework. Environmentally and Socially Sustainable Development Vice Presidency & Infrastructure Vice Presidency, The World Bank, April 5, 2006

- For cross sectoral views on the transmission between international policy and investment: Hamilton, K., and Kenber, M., April 2006, "Business Views on International Climate and Energy Policy", report commissioned by UK Government, with a detailed survey of different businesses'. Available from URL: www.bcse.org.uk; or www.theclimategroup.org.
- Reference report - background on the corporate lobby: "Corporate engagement in Canada, the EU, Japan and the US and influence on domestic and international policy", Module 2 of 'The Kyoto-Marrakech System: a Strategic Assessment', Michael Grubb et al. June 2003. Available from URL: <http://www3.imperial.ac.uk/icept/publications/workingpapers>.
- "Investor leadership on climate change." PRI/Global Compact/UNEPFI 2009
- "Insurance Instruments for Adapting to Climate Risks: A proposal for the Bali Action Plan" 18 August 2008. Submission by the Munich Climate Insurance Initiative (MCII) to the Third Session of the Ad Hoc Working Group on Long-Term Cooperative Action under the UNFCCC (AWG-LCA 3). Accra 21-27 August 2008
- "Mechanisms to manage financial risks from direct impacts of climate change in developing countries" UNFCCC. FCCC/TP 2008/9. 21 November 2008

UNEPFI Climate Change Working Group publications

see website www.unepfi.org

- CEO Briefing: Carbon Crunch- Meeting the Cost. 2007. Author S. Lafeld
- CEO Briefing: Adaptation and Vulnerability to Climate Change: The Role of the Finance Sector. 2006. Author A. Dlugolecki.
- CEO Briefing on the Future of Climate Change Policy: The Financial Sector Perspective. 2005. Author S. Lafeld.
- White Paper "Financing a Global Deal on Climate Change" June 2009 ?

UNFCCC (and Kyoto Protocol)

UNFCCC, Kyoto Protocol, official website: www.unfccc.int, this contains all the documentation, including the full text of the two treaties, and links through to specialised CDM websites, and information about meetings.

Websites

- From a US sustainable business perspective: Pew Center on Global Climate Change, www.pewclimate.org, good set of briefings on topical issues for business, including a summary of its 'Pocantico Dialogue' with senior policymakers and business on the future of climate policy.
- OECD has some good items on climate change, but they are scattered across categories, so you need to search inside the site for them. <http://www.oecd.org/>
- The Climate Group, www.theclimategroup.org, business initiatives around climate change.
- Tyndall Centre for Climate Change Research, a publicly-funded UK initiative on translating science into policy, at www.tyndall.ac.uk
- IIGCC Institutional Investors Group on Climate Change (UK-based) at <http://www.iigcc.org/>
- IGCC The Investor Group on Climate Change (Australia/NZ) at www.igcc.org.au

World Business Council for Sustainable Development (WBCSD)

www.wbcsd.org

A range of useful reports, though in the past has rather emphasized heavy industry concerns over environmental precautions, and not geared to FSS issues directly. A

selection is:

- Policy Directions to 2050: A business contribution to the dialogues on cooperative action. 2007
- Energy and Climate 2006
- Facts & Trends to 2050: Energy & Climate Change. 2004.

World Resources Institute

www.wri.org

A selection of reports is listed below.

- Building on the Kyoto Protocol: Options for Protecting the Climate.
- Mainstreaming Climate Change Considerations at the Multilateral Development Banks. 2005
- Investing in Solutions to Climate Change. Report for Citigroup. 2006.

Warning on climate change sceptics

There are many websites and publications that are sceptical of climate change, some apparently genuine and plausible, some slightly crazy. If a fresh piece of apparently contradictory evidence appears, check out what realclimate.org or climate.org say, or email them for a comment.

Related Links

Carbon Disclosure Project

<http://www.cdproject.net>

Contains: (a) Carbon Disclosure Project Report 2006: Global FT500 authors: Innovest; and (b) The adaptation tipping point: are UK businesses climate-proof?: FT 350 authors: Acclimatise and UK Climate Impacts Programme



The Carbon Trust

<http://www.carbontrust.co.uk>

Contains a number of interesting climate change related resources.

CERES (Coalition for Environmentally Responsible Economies)

<http://www.ceres.org>

Contains a number of interesting resources.

Hadley Centre (UK Meteorological Office Climate Modelling Centre)

<http://www.metoffice.gov.uk/research/hadleycentre/index.html>

Intergovernmental Panel on Climate Change (IPCC)

<http://www.ipcc.ch>

Contains Assessment Reports of Workshop Groups and Summaries.

International Energy Agency

<http://www.iea.org/>

Contains information on implications of climate change for energy industries.

Energy to 2050: Scenarios for a Sustainable Future

<http://wwics.si.edu/subsites/lookingforward/links/scenarios.htm>

Munich Re Publications

<http://www.munichre.com>

Contains Annual review of catastrophe losses and other information.

UK Business Council for Sustainable Energy

<http://www.bcse.org.uk>

Contains Business Views on International Climate and Energy Policy report. Commissioned by the UK Government.

Corporate engagement in Canada, the EU, Japan and the US and influence on domestic and international policy

<http://www3.imperial.ac.uk/icept/publications/workingpapers>

Reference report; background on the corporate lobby.

UNEPFI Climate Change Working Group publications

<http://www.unepfi.org>

A number of useful climate change related resources.

UNFCCC (and Kyoto Protocol)

<http://www.unfccc.int>

This contains all the documentation, including the full text of the two treaties, and links through to specialised CDM websites.

Pew Center on Global Climate Change

<http://www.pewclimate.org>

From a US sustainable business perspective.

Organization for Economic Cooperation and Development (OECD)

<http://www.oecd.org>

OECD has some good items on climate change, but they are scattered across categories, so you need to search inside the site for them.

Stockholm International Water Institute

<http://www.siwi.org/>

A good starting point for research on water issues.

The Climate Group

<http://www.theclimategroup.org>

Business initiatives around climate change.

World Business Council for Sustainable Development (WBCSD)

<http://www.wbcsd.org>

A range of useful reports, though in the past has rather emphasized heavy industry concerns over environmental precautions, and not geared to FSS issues directly.

World Resources Institute

<http://www.wri.org>

A selection of reports relating to the Kyoto Protocol, Mainstreaming Climate Change, etc. are contained in this site.

UNEP Finance Initiative (UNEP FI)
e-Learning Course on
Climate Change: Risks and Opportunities
for the Finance Sector



in collaboration with:

UNEP FI Climate Change Working Group | United Nations Institute for Training and Research |
UNEP FI Australasian Credit Risk Advisory Committee | EPA Victoria | Bank of America