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Climate Change and Pension Funds: Risk, Opportunity, or Distraction?

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CLIMATE CHANGE AND PENSION FUNDS: RISK, OPPORTUNITY OR DISTRACTION?

“As institutional investors, cognizant of our roles as major shareholders and bondholders in many of the world’s companies and as significant investors in other assets such as real estate, we accept the broad scientific consensus that greenhouse gas emissions from human activities are a critical contributor to changes in the world’s climate. Further, we recognize that climate change is likely to result in profound negative consequences for human society, the global economy, and the world’s natural systems. As such, climate change presents a series of material business risks and opportunities – for investors and companies – to which investors must respond.”

Investor Statement on Climate Change, Institutional Investors Group on Climate Change (2009).¹

CASE DESCRIPTION

A MEMO FOR THE BOARD

Stephen Henderson is the Chief Executive Officer (CEO) of Canadian Resource Industries Pension Plan (CRIPP), a mature multi-employer Canadian plan. It has existed in its current form for ten years, and resulted from a number of mergers in the 1990s of smaller pension plans serving the mining, forest and energy industries. In the past few weeks, Stephen read a number of bulky documents and internal reports on the topic of climate change. Yesterday, Stephen had a meeting with Celine Boyer, the newly appointed Chief Risk Officer (CRO), and Hugh Stone, the Chief Investment Officer (CIO). The three of them discussed the likely impact of climate change on the pension sector in general and on CRIPP in particular. After the meeting, they decided that Stephen would develop a concise memo for the Board, to summarize the likely impact of climate change on the CRIPP balance sheet and propose a conceptual action plan on climate change for the next strategic planning session. Today, Stephen has to finalize the Board memo, despite some disagreements among the three of them on the content and prioritizations of the actions. Framing the memo correctly is important, as the CRIPP Board is rather skeptical to any action plan that is not directly related to improving the underfunding problem of the fund.

AN EYEOPENER IN COPENHAGEN

A few weeks ago, Stephen attended the yearly *European Pension Think-Tank Conference on Strategic Risks* in Copenhagen. Regarded as a well-respected strategic thinker in the Canadian pension fund industry, Stephen had been invited to give a keynote dinner speech on the strategic risks that pension funds are facing in the 21st century. In his talk, he highlighted the possible impact of inflation risk (in the aftermath of the Financial Crisis), longevity risk, political risks in various dimensions, and last but not least, the decreasing willingness of individuals to participate in intergenerational solidarity, on the sustainability of the pension fund sector.

Interestingly, most attendees acknowledged Stephen's analysis and the implications he sketched for pension funds in the future. But at some point, a Danish pension fund representative suggested that Stephen was missing a very important risk factor in his analysis: the risks and uncertainties associated with climate change and possible implications of this development on asset pricing. This suddenly made the Q&A session very lively. Representatives of various European funds and their investment consultants posed questions on the impact of climate change in varying levels of detail. For instance, he was asked to provide a summary of the ESG (environmental, social, governance) activities and policy² of CRIPP. Unfortunately, he was unable to answer this question as CRIPP does not have a well-articulated ESG policy. Another question from the audience especially triggered Stephen's curiosity. A professor from the Stockholm School of Economics confronted Stephen with the notion that climate change will possibly also affect the pension system as a whole. According to this professor, higher temperatures could lead to a huge increase in global migration and consequently, pension arrangements would need to have a higher degree of portability than today. Most likely, this would put an extra burden on DB pension systems in countries with rising temperatures.

Despite being well prepared for his talk, Stephen was unable to answer most of the questions in a satisfactory manner. CRIPP does not have a clear view on the topic of climate change nor does it integrate climate change risks into the strategic decision-making process of the fund. Unlike many European funds, CRIPP does not have clearly stated investment beliefs and investment principles in the domain of environmental, social and governance factors. During his flight back to Canada, he thought about whether, when, and how to put this topic on the agenda of the upcoming Board Meeting. Rather quickly, he reached the conclusion that he had to be better prepared for the first Board discussion on the long-term impact of climate change. The CRIPP Board consists of trustees with a clear focus on managing the balance sheet of the fund in financial terms. Most likely, they would view climate change as a factor outside their scope of responsibility and with too much emphasis on non-financial (i.e. environmental) instead of financial objectives.

Once back in Canada, Stephen decided to prepare for the future Board discussion on the impact of climate change with two open-minded colleagues in his Management Team: the CIO (Hugh Stone) and the CRO (Celine Boyer). A few hours of brainstorming resulted in a decision to establish an informal reading group that will aim to bridge the knowledge gap with the European pension funds on the climate change discussion in general and in particular on the projected scenarios on temperature rise and its implications for companies and financial markets. For that reason, they agreed to first read the Executive Summary of the well-known Stern Review and the reactions from renowned economists to the Review in subsequent years. In addition, it was agreed that Hugh and Celine would prepare a short overview, based on an additional selection of recent academic articles and consultant reports, on the projected impact of climate change on asset pricing in the medium- and long-term.³ Stephen would investigate the degree to which peer pension funds in Canada are active in the climate change discussion, as this would be highly relevant information for the Board. Based on this, they would prepare a complete discussion memo for the Board on whether and how to respond to current climate change projections.

THE ECONOMICS OF CLIMATE CHANGE

Stephen started his reading assignment by first scrolling through the famous Stern Review on the Economics of Climate Change.⁴ The report had been released in October 2006 by British economist Nicholas Stern, now Chair of the Grantham Research Institute on Climate Change and the Environment at the London School of Economics. The Review first examines the scientific evidence on the economic impact of climate change itself and explores the economics of stabilizing greenhouse gases (GHG) in the atmosphere. The second part of the Review discusses the complex policy challenges involved in managing the transition to a low-carbon economy and in ensuring that societies adapt to the consequences of climate change.

Throughout the analysis, the Review takes an international perspective, as climate change is considered to be global in its causes and consequences. The Executive Summary clearly stated that:

“Climate change presents a unique challenge for economics: it is the greatest and widest-ranging market failure ever seen. The economic analysis must therefore be global, deal with long time horizons, have the economics of risk and uncertainty at centre stage, and examine the possibility of major, non-marginal change.”

Stephen realized that the debate about climate change resembles the ongoing discussion on the sustainability of the pension fund sector. Terms such as *long horizon*, *uncertainty* and *major change* were being used frequently in the pension debate as well. However, the situation for public policy makers in the context of climate change is even more problematic than for those responsible in the pension fund sector. It is virtually impossible to predict the exact consequences of climate change with any degree of certainty. Moreover, the effects of actions right now on future climate change have long lead times, and any action plan to mitigate these risks is surrounded with a number of uncertainties about the input and output factors.

Exhibit A provides a list of key statements made in the Executive Summary of the Review. The scientific logic was immediately clear to Stephen: people emit greenhouse gases, which cause concentrations of these gases to rise. Consequently, temperatures rise and lives and livelihoods are disrupted. Uncontrolled climate change would take the world to concentrations that would imply a 5° Celsius temperature increase. This would lead to a high degree of migration and associated economic and social losses. Sensible limits on concentrations would require a significant drop in global emissions levels in the 21st century.

Exhibit A: Executive Summary Stern Review (2006) – Key Statements

Key Statements

- The benefits of strong, early action outweigh the costs.
- The scientific evidence points to increasing risks of serious, irreversible impacts from climate change associated with business-as-usual (BAU) paths for emissions.
- Climate change threatens the basic elements of life for people around the world such as access to water, food production, health and use of land and the environment.
- The damages from climate change will accelerate, as the world gets warmer.
- The impacts of climate change are not evenly distributed – the poorest countries and people will suffer earliest and most. And if and when the damages appear it will be too late to reverse the process. Thus we are forced to look a long way ahead.
- Climate change may initially have small positive effects for a few developed countries,⁵ but is very likely to be very damaging for the much higher temperature increases expected by mid- to late-century under BAU scenarios.
- Integrated assessment models provide a tool for estimating the total impact on the economy; our estimates suggest that this is likely to be higher than previously suggested.
- Emissions have been, and continue to be, driven by economic growth; yet stabilization of greenhouse gas concentrations in the atmosphere is feasible and consistent with economic growth.
- Achieving deep cuts in emissions will have a cost. The Review estimates the annual costs of stabilization at 500-550ppm CO₂e to be around 1% of GDP by 2050 – a level that is significant but manageable.
- Resource cost estimates suggest that an upper bound for the expected annual cost of emissions reductions consistent with a trajectory leading to stabilization at 550ppm CO₂e is likely to be around 1% of GDP by 2050.
- Looking at broader macroeconomic models confirms these estimates.
- The transition to a low-carbon economy will bring challenges for competitiveness but also opportunities for growth.
- Reducing the expected adverse impacts of climate change is therefore both highly desirable and feasible.
- Policy to reduce emissions should be based on three essential elements: carbon pricing, technology policy, and removal of barriers to behavioral change.
- Establishing a carbon price, through tax, trading or regulation, is an essential foundation for climate-change policy.
- Policies are required to support the development of a range of low-carbon and high-efficiency technologies on an urgent timescale.
- Greater international co-operation to accelerate technological innovation and diffusion will reduce the costs of mitigation.
- Curbing deforestation is a highly cost-effective way of reducing greenhouse gas emissions.
- Adaptation efforts in developing countries must be accelerated and supported, including through international development assistance.
- Building and sustaining collective action is now an urgent challenge.
- There is still time to avoid the worst impacts of climate change if strong collective action starts now.

Source: Stern Review (2006)

Exhibit B provides more detailed information, for instance on how the effects of climate change differ between developed and emerging countries. It summarizes the scientific evidence of the links between concentrations of GHG in the atmosphere (upper panel), the probability of different levels of global average temperature change (upper panel), and the physical impacts expected for each level (lower panel). Exhibit B clearly shows that the risks of serious, irreversible impacts of climate change increase strongly as concentrations of GHG in the atmosphere rise.⁶ After scanning through the full report of the Review, Stephen was overwhelmed with the abundance and breadth of information on climate change. He realized that the climate change discussion has a lot of different dimensions and perspectives, and that the management and use of this knowledge in an organization like CRIPP will be an important task in the future.

A quick search on the Internet revealed that the Stern Review received a lot of positive critical responses by a number of well-known economists and policy makers,⁷ such as that of Joseph Stiglitz (Nobel Prize economist 2001):

“The Stern Review of the Economics of Climate Change provides the most thorough and rigorous analysis to date of the costs and risks of climate change, and the costs and risks of reducing emissions. It makes clear that the question is not whether we can afford to act, but whether we can afford not to act. To be sure, there are uncertainties, but what it makes clear is that the downside uncertainties – aggravated by the complex dynamics of long delays, complex interactions, and strong nonlinearities – make a compelling case for action. And it provides a comprehensive agenda – one which is economically and politically feasible – behind which the entire world can unite in addressing this most important threat to our future well being.”

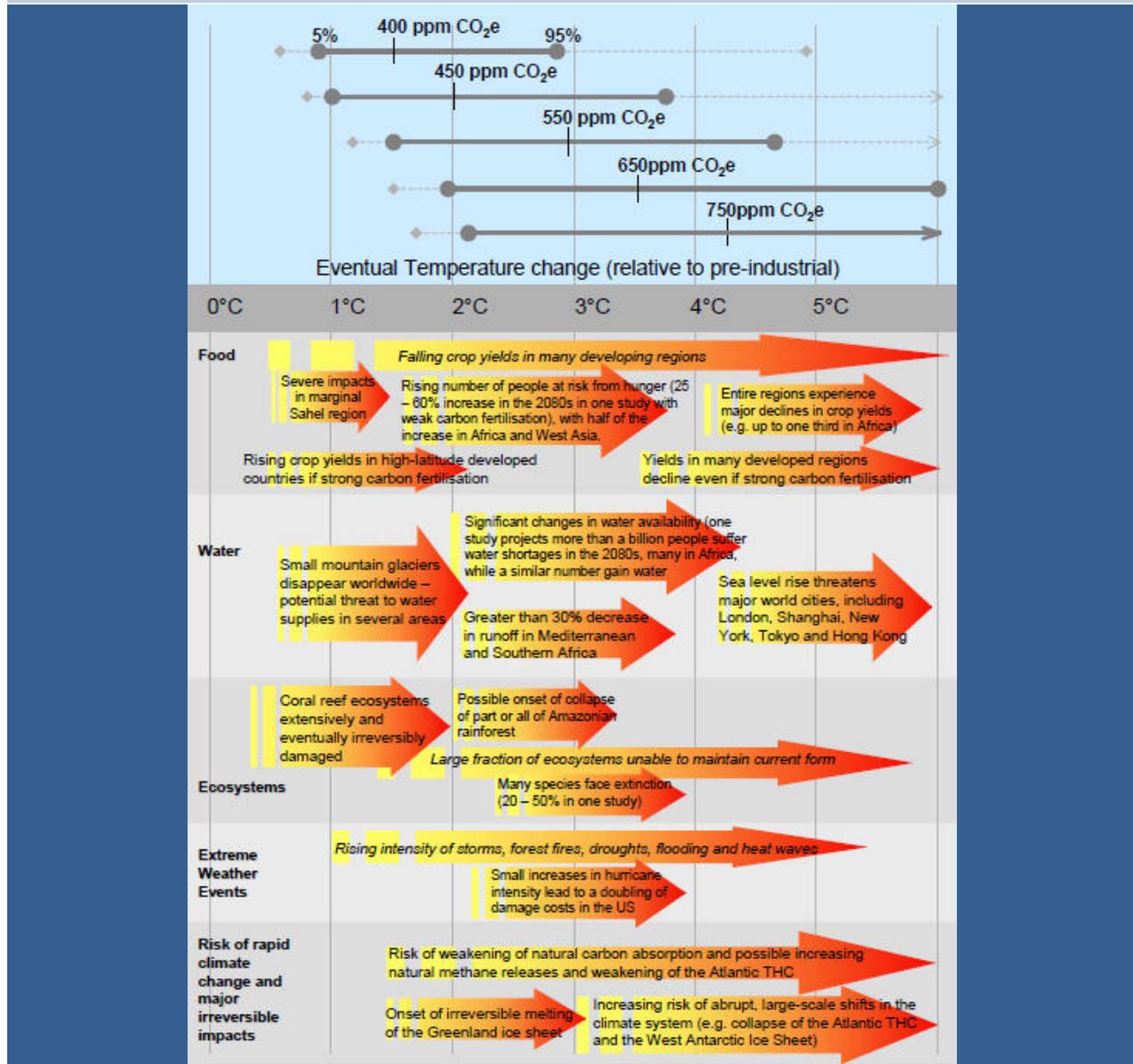
However, the Review also received a lot of unfavorable critical responses by equally well-known policy makers, economists and other experts in the field of climate change. For instance, the environmental writer Bjørn Lomborg (2006)⁸ criticized the Review:

“Mr. Stern’s core argument that the price of inaction would be extraordinary and the cost of action modest [...] falls apart when one actually reads the 700-page tome. Despite using many good references, the Stern Review on the Economics of Climate Change is selective and its conclusion flawed. Its fear-mongering arguments have been sensationalized, which is ultimately only likely to make the world worse off.”

One of the most heavily debated issues among economists is the discount rate used in the Review. The discount rate is instrumental in the calculation of the costs of mitigation as well as in measuring the costs of climate change in the distant future. The *time discount rate* used in the Review involves the relative weight of the economic welfare of different households or generations over time. It refers to the discount in future welfare. A *zero time discount rate* implies that future generations are treated symmetrically with present generations. A *positive discount rate* means that the welfare of future generations is discounted compared to nearer generations.

Exhibit B: Stabilization Levels and Probability Ranges for Temperature Increases

From Figure 2, The Stern Report, Executive Summary (2006). The figure below illustrates the types of impacts that could be experienced as the world comes into equilibrium with more greenhouse gases. The top panel shows the range of temperatures projected at stabilization levels between 400ppm and 750ppm CO₂e at equilibrium. The solid horizontal lines indicate the 5-95% range based on climate sensitivity estimates from the IPCC 2001² and a recent Hadley Centre ensemble study³. The vertical line indicates the mean of the 50th percentile point. The dashed lines show the 5-95% range based on eleven recent studies⁴. The bottom panel illustrates the range of impacts expected at different levels of warming. The relationship between global average temperature changes and regional climate changes is very uncertain, especially with regard to changes in precipitation (see Box 4.2). This figure shows potential changes based on current scientific literature.



Source: Stern Review, Executive Summary (2006). Endnotes in this Exhibit can be found there.

William Nordhaus (2007) and many other well-known economists argue that the Review depends decisively on the assumption of a near-zero time discount rate combined with a specific utility function. In a direct reaction to the Review, Nordhaus concluded:

“The Review’s unambiguous conclusions about the need for extreme immediate action would not survive the substitution of assumptions that are more consistent with today’s marketplace real interest rates and savings rates. Hence, the central questions about global-warming policy – how much, how fast, and how costly – remain open.”⁹

Stephen read that Lord Stern countered the criticism by Nordhaus and other economists¹⁰ by stating that the two fundamental issues guiding the appropriate strength and timing of climate change policy are both risk and ethics. The case for strong and urgent action as set out in the Stern Review is based on the severe risks and additional uncertainties documented by science and by the ethics of responsibility of current generations for future generations. Stern argues that the interaction between risk and ethics is crucial: greater climate risks fall in the future and it is only through affording future generations significant ethical weight that we would be motivated to protect them from these risks.¹¹ In Stern’s view, it is a conceptual mistake to omit ethics from the climate change discussion, arguing that climate change mitigation is purely a question of risk management.¹² Again, Stephen was intrigued by the similarities between the climate change discussion and the pension debate in which risk and ethics (and discount rates) play a prominent role.

After digesting this information, Stephen contemplated further on the possible impact of climate change on the pension fund sector. Although the Review does not explicitly discuss the implications for the financial sector, it clearly anticipates that climate change will have a huge impact on both real and financial markets and hence on a variety of asset classes that CRIPP invests in, both today and in the long-term. Immediate action to mitigate climate change risk will considerably affect the growth rates of many of the developed economies in the next few decades. Continuing with a BAU scenario will probably lead to high adaptation costs in the very long term.

The more reading material Stephen consumed, the more risks and uncertainties seemed to emerge. Several questions came to mind: Which impact does climate change have on the balance sheet of a pension fund in general and CRIPP in particular? Is the topic of climate change an important factor that must be addressed in the strategic policy of the fund? If yes, how exactly? Moreover, Stephen was not sure whether CRIPP could independently prepare for the future. Is there a need to collaborate with other pension funds and institutional investors? How would CRIPP manage the enormous information overload on the topic of climate change that is continuously published? Finally, Stephen was very surprised to learn that the climate change discussion has an analogy to the nature of defined benefit pension arrangements in which intergenerational solidarity between current and future generations plays an important role as well. Does this imply that pension funds have a particular responsibility to be proactive in developing climate change policies in their strategic (investment) plans?

Stephen concluded that it is very important to take a much closer look at the impact of climate change in the context of CRIPP before formally approaching the Board on this matter. He anticipates that he will receive a lot of resistance on any issues that do not explicitly address financial risks and opportunities for CRIPP, which implies that his main task is to now inform the Board about the inherent risks and opportunities associated with climate change.

SOME BACKGROUND ON CRIPP

Having read the various documents on climate change, Stephen was convinced that climate change in the long term would be an important strategic risk factor to be managed explicitly by CRIPP. Moreover, he sensed that climate change and the associated adaptation and mitigation policies could also lead to interesting opportunities in the investment portfolio in the short-to-medium term. However, his initial thoughts soon needed to be converted into an easy-to-understand memo that could convince the Board. That would not be an easy task because of the origin and background of CRIPP.

CRIPP is a C\$75 billion multi-employer pension plan. It has existed in its current form for ten years, and resulted from a number of mergers in the 1990s of smaller industry pension plans serving Canada's mining, forest, and energy industries. CRIPP currently has 500,000 members, of which 200,000 are pensioners. It is a target benefit plan. Combined with OAS (Old Age Security) and CPP/QPP (Canada/Quebec Pension plans), the target benefit is to replace 65% of average earnings. Relative to that target, the plan is currently 75% funded. Contributions into the plan are determined through an employer/unions bargaining process. The CRIPP Board of Trustees has the option to reduce plan benefits below the target if it deems the combination of current assets and future contributions make it unlikely that the target benefit can be paid on an ongoing, sustainable basis. Obviously, with the current unsatisfactory funded status of the Plan, this issue is very much on the Board's mind. Should it cut benefits? Should it ask for significant contribution rate increases in the next employer-union bargaining rounds? Or should it move to a less risky investment policy? Or maybe a combination of each?

CRIPP has a strategic asset allocation that is similar to that of many other large pension fund organizations in Canada, as shown in Exhibit C. In the past decade, a partial shift from public to private investments took place. CRIPP currently invests a substantial part of its assets (35%) in private equity, real estate and infrastructure, commodities, and timberland. Generally, public investments are managed internally, whereas the majority of private investments are managed externally through funds or fund-of-funds. To date, climate change risk, nor any other ESG factor, has played a significant role in the weighting of strategic assets. Given the information in the Stern Review, and in particular in Exhibit B, Stephen was convinced that climate change could have a huge impact on the expected returns and risks (and co-variances) of asset classes. However, it was unclear how exactly these asset classes could be affected and which strategic policy changes it would imply for CRIPP.

Exhibit C: Strategic Asset Allocation of CRIPP

Asset Class	Allocation
Public Investments	
Canadian and US Equity	15%
International Equity	15%
Emerging Markets Equity	5%
Canadian and US Government Bonds	15%
Emerging Market Bonds	5%
International Credits	10%
Private Investments	
Private Equity	10%
Real Estate and Infrastructure	15%
Commodities and Timberland	10%

Stephen believed that the composition of the CRIPP Board was not irrelevant in this discussion. Over ten years ago during the merger process in the 1990s, the employer and labor union groups agreed on a nine-member Board at the time of the mergers, with four appointees coming from each of the employer and union sides, and joint agreement on an independent Chair. Given the size of the Plan, the employer and union groups also agreed that the Board must have demonstrated collective competence in fulfilling key Board functions such as understanding the *pension deal*, assessing its intergenerational fairness, monitoring risk exposure, understanding the strategic investment plan, and assessing whether the CRIPP organization is capable of implementing it. As a result, the CRIPP Board is reasonably capable of dealing with complex strategic financial and organizational issues. However, because of the Chair's background and personality, he has significant influence on all major Board decisions. Alexander Knowles was appointed CRIPP Board Chair in 2005 after retiring from a long and successful career at one of Canada's Big 5 Banks. Prior to being appointed the bank's CEO in 2000, Alexander had been in charge of the bank's investment banking division since the mid-1980s.

Stephen Henderson, the CEO and Celine Boyer, the CRO are expected to attend the monthly Board meetings in order to brief the Board on the major issues affecting the CRIPP balance sheet. Because of the current deficit, it is expected that the Board will not easily embrace the notion that climate change is an important strategic risk factor for CRIPP in the immediate future. Moreover, the Board's current stance towards environmentally oriented issues is not expected to be very positive or open-minded. Last year, Alexander Knowles heavily influenced the discussion on CRIPP's proxy voting policy. Stephen had proposed a voting policy in which CRIPP would be more active than before in the filing of shareholder proposals or in the voting of proposals filed by other investors. Although the focus of the voting policy would be mainly on issues related to executive compensation, Stephen had also proposed that the Board consider filing and voting on proposals on social or environmental issues.¹³ This request was inspired by new SEC legislation (SEC Rule 14a-8) in the United States regarding the grounds on which a public company can exclude from its proxy materials shareholder proposals relating to environmental,

financial or health risks, including those seeking disclosure of climate-related risks.¹⁴ However, the Board, and especially Alexander, was strongly opposed to a broadened mandate on the voting policy. On top of that, Stephen knew that CRIPP is closely connected to the mining, forest, and energy industries, which are an ongoing target for many climate change activists on a day-to-day basis. This would definitely complicate the development of a strategic policy on climate change even further.

WHAT DO PEERS DO?

Based on the above, Stephen realized that it would be a difficult job to convince the Board of the fact that climate change will be an important strategic policy issue for tomorrow's pension fund. Nonetheless, Stephen was quite optimistic. One of the most powerful arguments that might trigger the Board to take climate change seriously would be that a substantial part of peer pension funds currently integrate climate change into their strategic risk management processes in a visible and material way. Stephen expected that Alexander Knowles, when confronted with this information, would at least ask for more information on the topic and subsequently consider whether concrete action is needed.

That is why Stephen conducted a quick scan of climate-change related activities by pension funds and other institutional investors. The scan revealed several developments in the area of climate change related matters that had taken place in the past decade:

1. A group of large institutional investors, including major pension funds, increasingly shared experiences in informal or formal settings. A good example of a global initiative is the United Nations Principles for Responsible Investing (PRI). Moreover, several regional collaborative efforts on climate change have emerged in the past decade: the Institutional Investor Group on Climate Change (IIGCC: Europe), The Investor Network on Climate Risk (INCR: United States) and the Investor Group on Climate Change (IGCC: Australia and New Zealand). For example, the Europe-based membership of IIGCC consists of several large pension delivery organizations (e.g. Hermes, APG, and PGGM), pension funds (e.g. BT Pension Scheme, USS, and ATP), commercial asset managers (F&C Investments, Robeco, and Henderson Global Investors), and a diverse set of other organizations (e.g. faith-based organizations and non-governmental organizations). A similar initiative does not exist separately in Canada, nor could Stephen find any Canadian pension funds on the INCR (United States) member list.¹⁵
2. Individual pension funds and other institutional investors started articulating more explicitly on how to deal with environmental risk and opportunities (and climate change in particular), often part of a broader strategy in which social and governance risk factors are mentioned as well. The joint 2009 "Investor Statement" by IIGCC, INCR and IGCC clearly stated that the members agree that climate change presents a series of material business risks and opportunities – for investors and companies – to which investors must respond. The members also believe that it is essential to adopt a proactive approach to this issue and to take action now that will result in substantial reductions in GHG emissions within a timeframe that minimizes the risk of serious impact. IIGCC

firmly states that these responses should be coordinated internationally in a collaborative fashion. Investors should be ready to work together with international bodies, governments, non-governmental organizations, and clients and beneficiaries.¹⁶

3. Increasingly, these policies have been translated into real action. Assessments of climate change related risk and opportunities have started to become integrated into the (mainstream) public and private investment process, and engagement with companies and governments on climate change related issues has been intensifying rapidly.
4. Last but not least, these developments have been fueled by a number of research initiatives in the commercial sector and the academic community. The reports produced by the Intergovernmental Panel on Climate Change (IPCC)¹⁷ review and assess the most recent scientific, technical, and socio-economic information produced worldwide relevant to the understanding of climate change. Unfortunately, relatively few studies are conducted on the exact impact climate change may have on financial markets.

Up until now, Stephen was not aware of the high degree of collaborative efforts in the institutional investment community on the topic of climate change, primarily outside Canada. For example, in early 2005 the United Nations Secretary-General invited a group of the world’s largest institutional investors to join a process to develop the Principles for Responsible Investment. Individuals representing 20 institutional investors from 12 countries agreed to participate in the Investor Group. The Group accepted ownership of the Principles, and had the freedom to develop them as they saw fit. This process was coordinated by an investment consulting firm, and supported by a 70-person multi-stakeholder group of experts from the investment industry, intergovernmental and governmental organizations, civil society and academia. The well-known *Principles for Responsible Investment* emerged as a result of these meetings. The PRI reflect the core values of the group 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. As of July 2010, the PRI has 780 signatories most of whom are asset owners (207) or commercial investment managers (424) from all continents.¹⁸ A list of Canadian pension funds (asset owners) that had signed the PRI is shown in Exhibit D.

Exhibit D

Canadian Pension Fund Signatories to the PRI (as at July 2010)	
• British Columbia Municipal Pension Plan	• OPSEU Pension Trust
• Caisse de dépôt et placement du Québec	• PSAC Pension Fund
• CPP Investment Board	• Régime de Retraite de l'Université de Montréal
• Comité syndical national de retraite Bâtirente	• Régime de Retraite de l'Université de Quebec

Interestingly, only a minority of asset owners in Canada signed the PRI. Stephen found it odd that two large pension funds, Ontario Teachers' Pension Fund (OTPP) and Ontario Municipal Employees Retirement System (OMERS), had not. However, some Canadian pension funds are active in other collaborative efforts. For instance, a number of Canadian asset owners and its asset managers are signatories to the Carbon Disclosure Project (CDP).¹⁹ OTPP explicitly integrates ESG (and climate related issues) in its investment principles,²⁰ articulated in detail on the OTPP website as follows:²¹

“Our analysis and due diligence process takes environmental, social, governance (ESG) considerations into account as risk factors. We look at these factors to help us understand how they could affect a company's long-term performance and potentially impact the long-term value of the company (Principle 6).”

“We are signatories to the U.K.-based Carbon Disclosure Project (CDP) and the Extractive Industries Transparency Initiative (EITI). We support these initiatives due to their focus on enhanced disclosure for investors, which further assist us to understand all the risks that could impact the value of the fund's investments (Principle 8).”

Stephen also discovered during his review that international pension funds increasingly report on their responsible investment activities by issuing formal annual reports. A good example is PGGM (Netherlands), which reports in detail on its responsible investment policy (including climate change), its integration of ESG factors in investment decisions, its voting policy and implementation, and its engagement policy and implementation. The section on voting on climate change immediately caught the attention of Stephen.²² It showed that PGGM actively votes on shareholder resolutions submitted on the subject of climate change in both Canada and the United States. In 2009, one such resolution (Idacorp, an American-based energy company) for the first time received a majority vote. The resolution called on Idacorp to set quantitative targets for the reduction of greenhouse gas emissions. Eventually, this voting outcome resulted in quantitative targets set by Idacorp. So, it seemed that engagement on climate change can lead to an actual change in behavior by companies. Stephen wondered whether the same reporting and engagement effort had started among institutional investors in Canada.

Interestingly, the Stern Review also addresses the collective action problem in the context of climate change. According to Stern, an efficient response will require international collective action on a large scale and in many areas, for instance in creating an efficient and transparent carbon market and stimulating new technology research. Moreover, the Review states that action must be strong and begin soon. The risks of delay are very large (the so-called ratchet effect). Stern estimates that investments and other costs in the next few decades are in the region of 1-2 % of GDP, which according to Lord Stern: “is good value relative to the risk reductions the investments bring”.²³ The gains are also likely to be broad ranging. Low-carbon growth economies will be more energy secure, cleaner, safer and more bio-diverse. The transition to this state of the world will spur innovation and technological development. Ignoring the climate change problem will eventually damage economic growth. This all made sense to Stephen, but which role, if any, would financial institutions have in the definition and implementation of an efficient response?

In the past two decades, the academic community has intensified the research effort on the effects of climate change. The scientific output is reviewed and assessed in a collective effort as well. Shortly after the Stern Review, the IPCC released the 4th assessment report (2007) and a 5th report will be released in a few years time. However, to Stephen's knowledge, relatively few scientific research projects have been conducted on the impact of climate change on financial markets and financial market players, and in particular on pension funds. This apparent lack of academic research output surprised Stephen, as the majority of public and private companies will be affected by climate-change related risks and opportunities in the next few decades. In turn, this will hugely impact the returns and risks investors in financial claims of these companies can expect in the future and hence also the balance sheet of pension funds.²⁴ Stephen realized that he might not be aware of all the research efforts in this field, which in itself is a good reason to team up with other institutional investors.

Summarizing, Stephen concluded that pension funds in Canada take little action to date relative to their international peers. International asset owners take the collective action problem very seriously by joining one or more collaborative efforts in the field of climate change. Through these vehicles, these organizations share and manage knowledge, coordinate action, lobby with governments and are able to engage more effectively with companies. Moreover, pension funds seem to increasingly become more transparent on their activities in this domain. Whether these reports are merely a window-dressing exercise or a genuine example of accountability of pension funds directed at current and future beneficiaries is so far unclear.

CLIMATE CHANGE AND THE BALANCE SHEET

Yesterday, Celine Boyer and Hugh Stone reported back to Stephen on the possible impact of climate change on the CRIPP balance sheet. The feedback clearly showed that investors and analysts are increasingly taking ESG factors into account in their investment process. Climate change is one of the factors addressed, but in most cases is done so in combination with other factors in the ESG domain. Hugh shared his impression that climate change-related investments predominantly took place in the private investment space, in which clean technology and renewable energy companies received a lot of funding in the past decade. Unfortunately, the current financial climate did not provide much room for follow-up investments in the near future.

As Chief Risk Officer, Celine was obviously less interested in the opportunities discussion. In her analysis, she had instinctively focused on the risk dimension. First, she wondered how the predicted negative impact of climate change on future GDPs under different scenarios would impact the expected returns and risks of the various asset classes CRIPP invests in. She felt that the next Asset Liability Management study and the resulting strategic asset allocation should somehow take climate change considerations into account. The broker reports she read showed that change is gradually coming.²⁵ Climate change has become an emerging investment theme taken into account by buy-side and sell-side analysts at both the individual asset level and the strategic asset allocation level. Nonetheless, Celine was not very impressed by the quality of the average broker report on climate change. In most cases, the opportunities are

highlighted more than the inherent risks and the planning horizon is generally shorter than necessary in the climate change debate. Celine was convinced that the pension sector has to involve itself in order to make this type of research and projections relevant for pension funds.

As a next step, Celine tried to find more information on the impact of climate change on individual asset classes. In her opinion, the information in Exhibit B must impact financial markets in various ways. For instance, rising temperatures will affect commodity markets and therefore any company that is largely dependent on commodities in its production process. Moreover, timberland and farmland will most likely be affected as well. Stephen realized that these considerations are extremely important for the pension sector, as a large part of these funds started investing in commodities, timber, and farmland in the past decade. Would these asset classes remain attractive investments in the future?

As CRIPP has a substantial position in equity and bonds (75%), Celine investigated how these public investment asset classes could be influenced by climate change. A number of academic studies found evidence of a positive relationship between environmental performance and the performance of equities in the past decade,²⁶ but none of these studies focused primarily on climate change. Moreover, these studies review an earlier time period in which the perceived relevance of climate change was much less pronounced than it is now being regarded. In her first attempt to collect more information, Celine did not find a single academic study that investigated the asset pricing impact of climate change on corporate bonds.²⁷

Celine was also intrigued by the question of how climate change would affect investments in emerging markets. In the past decade, CRIPP had increased its exposure to emerging debt and equities in each strategic round, resulting in a 10% position today. The Stern Review expects that the impact of climate change will not be evenly distributed across the globe: emerging markets are very likely to be affected more than developed markets, especially under the BAU scenario. Does this imply that CRIPP has to reconsider its strategic allocation to emerging markets? Or, could CRIPP identify opportunities related to climate change development in these markets?

The likely impact of climate change on real estate is more straightforward. For instance, energy constitutes up to 10% of the occupancy costs of an office building. Rising temperatures will considerably affect the energy costs of buildings (and homes) in some parts of the world. Celine found a recent survey on the environmental performance of the global real estate sector.²⁸ Interestingly, real estate funds (private or listed) are increasingly articulating an environmental management policy, but to a lesser extent they are implementing it. A striking result of the survey was that the large majority of these funds was not even were aware of its energy and water consumption. This finding shocked Celine. Should CRIPP immediately start engaging with its real estate fund managers and demand more information on their environmental policy and its implementation?²⁹ Hugh observed that climate change also provides CRIPP with a clear opportunity in the context of real estate investments. If CRIPP would give a lot of weight to the quality of environmental risk management (policy and implementation) in the selection of real estate funds, this would probably have a positive effect on the returns and risks on this asset class in the long term.

Celine was also unable to find a lot of high-quality academic research reports on private equity and infrastructure investments in the context of climate change. Hugh had found some evidence of an increase in investments in venture capital investments in clean technology and renewable energy. In the past decade, some institutional investors seemed to have bet on the opportunities associated with the development of new technologies for mitigation and adaptation of climate change risks. However, a lot of uncertainty about the impact of climate change risk on private equity investments still remained and the financial crisis had put these investments largely on hold.

At the end of the conversation, Stephen asked Celine and Hugh whether they had any idea how climate change could impact the liability side of the balance sheet. Celine had given this some thought, although there was no academic literature directed at the pension fund sector to which she could refer.³⁰ However, she found an interesting graph in the Stern Review on the effect of rising temperatures on mortality. Exhibit E shows that climate change will most likely lead to more deaths related to heatwaves in tropical areas or continental cities and more cold-related deaths in higher latitudes.³¹ How would this affect the projected liabilities of pension funds?

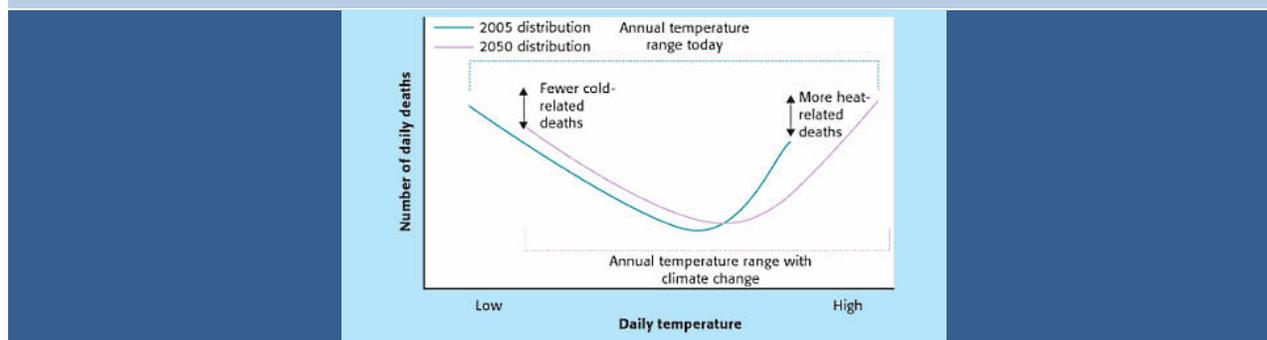
Celine added that rising temperatures in some part of the world will lead to increased migration³² and hence, current pension systems need to be reformed. The portability of pension promises between countries will most likely be more important in the future than today. This could put even more pressure on DB pension arrangements. Celine did not have any clue how this would impact Canadian pension funds and CRIPP in particular. Finally, Hugh added that increasing uncertainty could eventually also influence key macro-economic parameters such as (real) interest rates and inflation. This would affect the valuation of assets and liabilities, but they agreed that the degree of uncertainty is again, very high.

Exhibit E: Mortality as a Function of Temperature

From Figure 3.7 Stylized U-Shaped Human Mortality Curves as a Function of Temperatures

Note: the blue line shows as stylized version of today's distribution of daily temperatures through the year, and the purple line shows a future distribution shifted to the right because of climate change. Deaths increase sharply at both ends of the distribution, because heatwaves and cold snaps that exceed thresholds for human temperature tolerance become more frequent. With climate change, there will be more heatwaves (in tropical areas or continental cities) but fewer cold snaps (in higher latitudes). The overall shape of the curve is not yet clearly characterized but is crucial because it determines the net effects of decreased deaths from the cold and increased deaths from heatwaves. These costs and benefits will not be evenly distributed around the world.

Re-drawn from McMichael et al. (2006).



Source: Stern Review (2006)

Finally, the three executives gave some thought to the fact that active and future CRIPP plan members are employed in industries that are subject to significant commodity cycles (e.g. metals, timber, and energy) and possibly directly exposed to climate change risk through their jobs. In some scenarios, governments will increasingly install carbon emission caps on resource intensive industries. Moreover, the global climate debate might reduce the demand for oil extracted from Alberta's oil sands. Should these projections have some impact on how they think about CRIPP asset and liability risks in general, and about climate change risks and opportunities in particular?

FINALIZING THE BOARD MEMO

In a few hours, Stephen has to send the memo with the action plan to the Board. He is struggling to digest all the information he consumed in the past few weeks. Intuitively, he is convinced that climate change is a serious risk factor that needs to be integrated in the risk management framework of the CRIPP pension plan. At the same time, Stephen knows that this memo is just the start of a long discussion in the Board. Climate change is a slow-moving force influencing pension funds. New evidence will reach the market from time-to-time and therefore the Board will need to regularly adapt its policy.

Stephen needs to prepare a well-written concise memo in order to persuade the Board of the sense of urgency. It should bridge the existing knowledge gap between the Board and Management Team on climate change related issues, but not provide too much detail and too many dimensions and aspects, as this may confuse the Board. Currently, the main focus of attention for the Board is the huge underfunding problem that is real and happening right now. Moreover, the memo should propose a concrete action plan for the next quarter with a clear-cut prioritization of activities. However, content-wise, several issues still remain unclear to Stephen.

For instance, should he highlight the risks or opportunities related to climate change in the memo? Should he listen to Celine, the CRO, who believes that the memo should emphasize that climate change must be treated mainly as a risk factor? She is also convinced that climate change should be managed in conjunction with other risk factors (both financial and operational) affecting a pension fund. Possibly, this implies that certain investments have to be avoided or monitored extensively as a result of climate change risks and uncertainties. Celine also thinks that the likely impact of climate change on liabilities should be on the radar screen of the Board regularly. She proposes to conduct a proper climate risk audit on the current balance sheet. Hugh, the CIO agrees to some extent with this notion, but adds that climate change also provides CRIPP with a number of attractive and real investment opportunities. These can be found primarily in the private investment domain. This could be investigated as well. The memo can then be used to introduce an even larger shift to private investments in the future. Stephen is unclear whether he should highlight either or both of these views in the memo?

Moreover, Stephen wonders whether he should discuss the inherent uncertainties in the climate change discussion. Should he mention that the scenario analyses mentioned in the Stern Review and the IPCC assessment reports are surrounded with a lot of uncertain projections in a very distant future? Can he

expect Board members to digest this information easily? Any projection of the future or any scenario is likely to be wrong or at least heavily debatable. How can he deal with this in the memo?

Stephen is convinced that CRIPP should join some of the collaborative organizations he read about in the past few weeks. CRIPP will not be able to manage the knowledge base needed to engage with policy makers and integrate climate change in the investment process without interaction with other funds, the academic community, and commercial research organizations. It appears that the pension fund sector is relatively less informed about climate change than the insurance sector. This particularly holds for the liability side of the balance sheet. How can CRIPP contribute to a more concerted research effort that is directed at the pension fund community? Stephen feels that CRIPP has a responsibility toward future pension fund beneficiaries with respect to the environment. At least, he should brief the Board of existing national and international platforms and the way the Canadian community and peer funds in the rest of the world are participating. But is this an important issue to mention in this first memo? And which initiative should CRIPP join in the upcoming years?

Stephen is not sure whether some pension funds in the past few years developed a blueprint on how to deal with climate change in the context of pension funds. During his reading assignment, he noticed that the most experienced funds in this area have a solid basis in a well-defined ESG policy. Should CRIPP develop an ESG policy in which climate change is one of the main ingredients? And should CRIPP integrate this policy explicitly in its investment beliefs? A positive side-effect of articulating an ESG policy is that portfolio managers of CRIPP will more explicitly be involved in the discussion. Another possibility would be to change the incentive system of portfolio managers in order to move them in the desired direction. But will this top-down approach work?

Right now, it is not clear to Stephen whether he should propose a strategic approach in which the impact of climate change on the strategic asset allocation will be researched first, or a bottom-up approach in which portfolio managers and risk managers start looking at opportunities and risk factors of individual investments. Clearly, Celine prefers the first option, but a lot of peer pension funds seem to be more opportunistic by allocating a lot of capital to renewable energy and clean technology investments. Hugh's recommendation to start with opportunities will probably give CRIPP a lot of positive press on climate change. This will give the Board more time to develop a sound policy on climate change and related matters.

Finally, how should the CRIPP Board discuss this topic with its beneficiaries? Is a well-defined ESG policy a sufficient communication tool or should the Board communicate explicitly about climate change risks and opportunities to beneficiaries and other stakeholders such as the press. Stephen is unsure whether the fact that CRIPP represents workers in the mining, forest, and energy industries plays an important role in this decision. These industries (and their consumers) are large contributors to the higher concentration of GHG. Could too much emphasis on climate risk backfire on the employers contributing to CRIPP?

Stephen realizes that not all questions can be answered in this first memo. Prioritization is necessary. Should he emphasize policy engagement first i.e. the engagement with policy makers, regulators, companies etc? Or, should he emphasize the risks and opportunities climate change has for the balance sheet in the medium to long term? Or, maybe he should emphasize both? Also, which actions for the short- to medium-term should he propose to the Board in this first memo on climate change?

Alternatively, maybe Stephen should schedule a number of informal talks with Alexander and the other Board Members before developing a memo?

APPENDIX (REPETITION OF EXHIBITS)

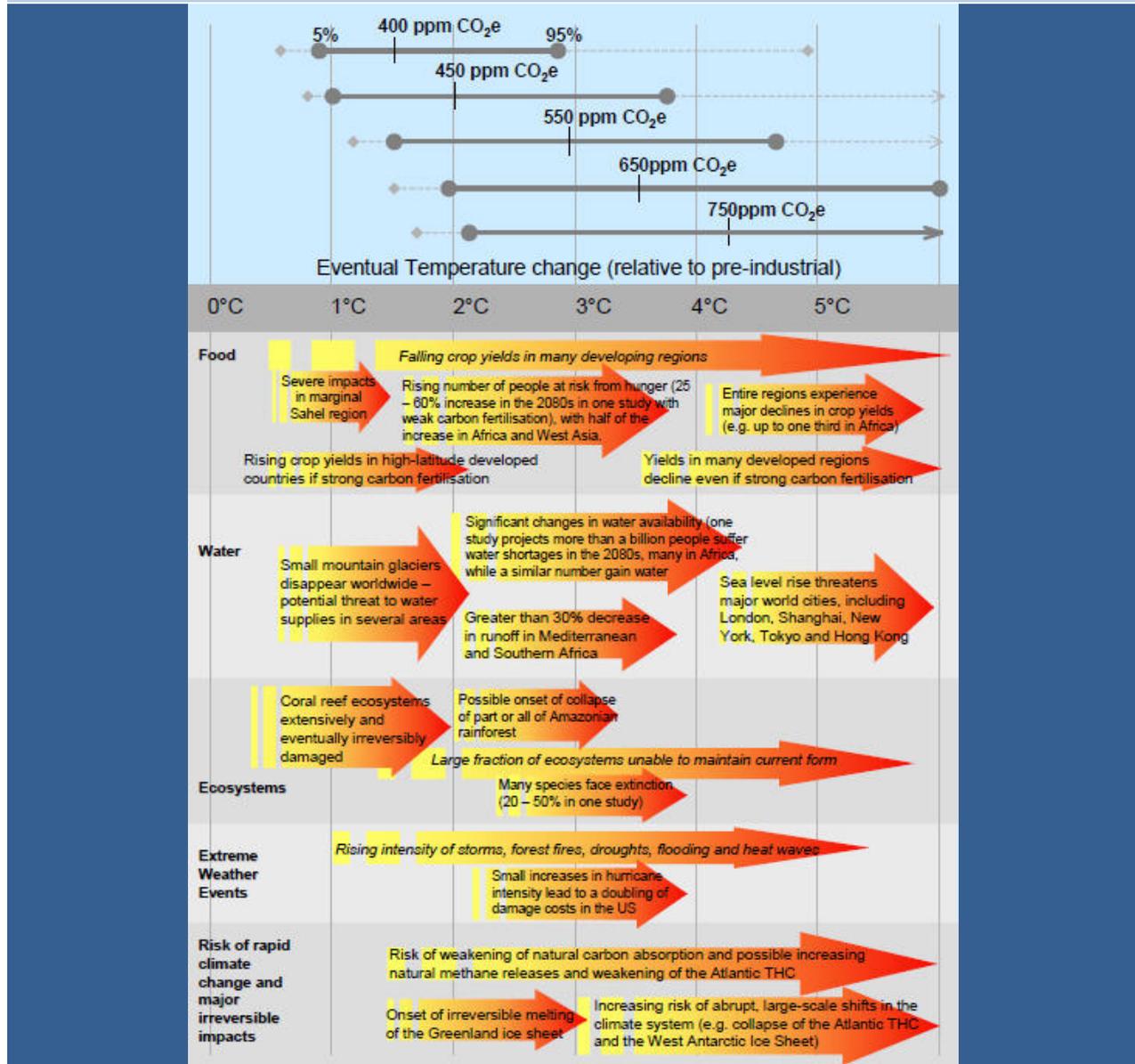
Exhibit A: Executive Summary Stern Review (2006) – Key Statements

Key Statements

- The benefits of strong, early action outweigh the costs.
- The scientific evidence points to increasing risks of serious, irreversible impacts from climate change associated with business-as-usual (BAU) paths for emissions.
- Climate change threatens the basic elements of life for people around the world such as access to water, food production, health and use of land and the environment.
- The damages from climate change will accelerate, as the world gets warmer.
- The impacts of climate change are not evenly distributed – the poorest countries and people will suffer earliest and most. And if and when the damages appear it will be too late to reverse the process. Thus we are forced to look a long way ahead.
- Climate change may initially have small positive effects for a few developed countries,³³ but is very likely to be very damaging for the much higher temperature increases expected by mid- to late-century under BAU scenarios.
- Integrated assessment models provide a tool for estimating the total impact on the economy; our estimates suggest that this is likely to be higher than previously suggested.
- Emissions have been, and continue to be, driven by economic growth; yet stabilization of greenhouse gas concentrations in the atmosphere is feasible and consistent with economic growth.
- Achieving deep cuts in emissions will have a cost. The Review estimates the annual costs of stabilization at 500-550ppm CO₂e to be around 1% of GDP by 2050 – a level that is significant but manageable.
- Resource cost estimates suggest that an upper bound for the expected annual cost of emissions reductions consistent with a trajectory leading to stabilization at 550ppm CO₂e is likely to be around 1% of GDP by 2050.
- Looking at broader macroeconomic models confirms these estimates.
- The transition to a low-carbon economy will bring challenges for competitiveness but also opportunities for growth.
- Reducing the expected adverse impacts of climate change is therefore both highly desirable and feasible.
- Policy to reduce emissions should be based on three essential elements: carbon pricing, technology policy, and removal of barriers to behavioral change.
- Establishing a carbon price, through tax, trading or regulation, is an essential foundation for climate-change policy.
- Policies are required to support the development of a range of low-carbon and high-efficiency technologies on an urgent timescale.
- Greater international co-operation to accelerate technological innovation and diffusion will reduce the costs of mitigation.
- Curbing deforestation is a highly cost-effective way of reducing greenhouse gas emissions.
- Adaptation efforts in developing countries must be accelerated and supported, including through international development assistance.
- Building and sustaining collective action is now an urgent challenge.
- There is still time to avoid the worst impacts of climate change if strong collective action starts now.

Exhibit B: Stabilization Levels and Probability Ranges for Temperature Increases

From Figure 2, The Stern Report, Executive Summary (2006). The figure below illustrates the types of impacts that could be experienced as the world comes into equilibrium with more greenhouse gases. The top panel shows the range of temperatures projected at stabilization levels between 400ppm and 750ppm CO₂e at equilibrium. The solid horizontal lines indicate the 5-95% range based on climate sensitivity estimates from the IPCC 2001² and a recent Hadley Centre ensemble study³. The vertical line indicates the mean of the 50th percentile point. The dashed lines show the 5-95% range based on eleven recent studies⁴. The bottom panel illustrates the range of impacts expected at different levels of warming. The relationship between global average temperature changes and regional climate changes is very uncertain, especially with regard to changes in precipitation (see Box 4.2). This figure shows potential changes based on current scientific literature.



Source: Stern Review, Executive Summary (2006). Endnotes in this Exhibit can be found there.

Exhibit C: Strategic Asset Allocation of CRIPP

Asset Class	Allocation
Public Investments	
Canadian and US Equity	15%
International Equity	15%
Emerging Markets Equity	5%
Canadian and US Government Bonds	15%
Emerging Market Bonds	5%
International Credits	10%
Private Investments	
Private Equity	10%
Real Estate and Infrastructure	15%
Commodities and Timberland	10%

Exhibit D

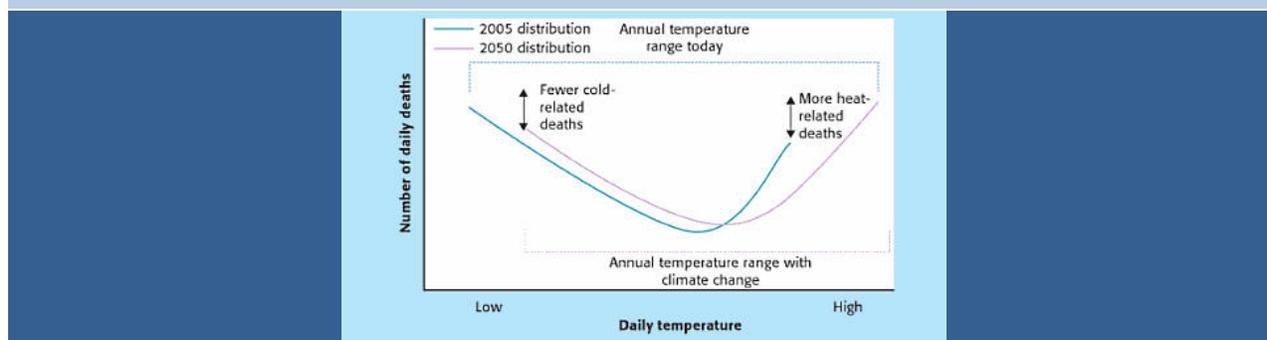
Canadian Pension Fund Signatories to the PRI (as at July 2010)	
• British Columbia Municipal Pension Plan	• OPSEU Pension Trust
• Caisse de dépôt et placement du Québec	• PSAC Pension Fund
• CPP Investment Board	• Régime de Retraite de l'Université de Montréal
• Comité syndical national de retraite Bâtirente	• Régime de Retraite de l'Université de Quebec

Exhibit E: Mortality as a Function of Temperature

From Figure 3.7 Stylized U-Shaped Human Mortality Curves as a Function of Temperatures

Note: the blue line shows as stylized version of today's distribution of daily temperatures through the year, and the purple line shows a future distribution shifted to the right because of climate change. Deaths increase sharply at both ends of the distribution, because heatwaves and cold snaps that exceed thresholds for human temperature tolerance become more frequent. With climate change, there will be more heatwaves (in tropical areas or continental cities) but fewer cold snaps (in higher latitudes). The overall shape of the curve is not yet clearly characterized but is crucial because it determines the net effects of decreased deaths from the cold and increased deaths from heatwaves. These costs and benefits will not be evenly distributed around the world.

Re-drawn from McMichael et al. (2006).



Source: Stern Review (2006)

ENDNOTES

¹ The IIGCC (www.iigcc.org) is a forum for collaboration between asset owners and asset managers, which has been established to address the investment risks and opportunities associated with climate change. Since 2005, IIGCC has been run as an independent program of The Climate Group, an NGO dedicated to identifying and supporting corporate and government leaders who are acting to avert the impacts of climate change.

² Especially in Europe, an increasing number of pension funds have articulated a so-called ESG (environmental, social, and governance) policy in which the fund's integration of these factors in the investment process is described. Most of these funds have a combination of three basic strategies: an exclusion policy in which companies are excluded based on ethical and/or legal grounds (e.g. the production of cluster bombs); an integration of ESG factors in the investment process in a variety of different ways and across asset classes; and, an engagement policy in which the funds or its advisors engage directly with companies on ESG related matters. Most funds relate ESG factors to risks *and* opportunities in their investment beliefs.

³ At the same time, they bought a number of books on the topic. An excellent example is Mark Lynas (2008).

⁴ The full report and executive summary of the "The Stern Review on the Economics of Climate Change" (2006) contains postscripts, footnotes, references, etc. that are further referenced in this Case Study. http://webarchive.nationalarchives.gov.uk/20090224220031/http://www.hm-treasury.gov.uk/sternreview_index.htm.

⁵ e.g. Canada.

⁶ References mentioned in Exhibit B refer to the footnotes in the Stern Review. For those interested, the exact references can be found on Page V of the Executive Summary of the Stern Review. See Endnote 4 for website address.

⁷ http://webarchive.nationalarchives.gov.uk/+http://www.hm-treasury.gov.uk/d/20061028_quotes-7.pdf

⁸ Bjørn Lomborg (2006).

⁹ Nordhaus, William D (2007), wrote a paper forthcoming in the *Journal of Economic Literature*. In this article, he also provides an interesting discussion of the philosophical questions about the time discount rate applied in the Review. In his opinion, the near-zero time discount rate stems from the British utilitarian tradition. He provides several alternative viewpoints. For instance: "Quite another ethical stance would be to hold that each generation should leave at least as much societal capital (tangible, natural, human and technological) as it inherited. This would admit a wide array of discount rates. A third alternative would be a Rawlsian perspective that societies should maximize the economic well-being of the poorest generation. The ethical implication of this policy would be that current consumption should increase sharply to reflect the projected future improvements in productivity."

¹⁰ In 2007, a symposium was organized at Yale University. Lord Stern presented the basic conclusions of the Review and commented on the criticism of it made by other speakers, among which William Nordhaus. The papers presented at this symposium are published in a special issue (2008) of the *Review of Environmental Economics and Policy*, Volume 2:1.

¹¹ Simon Dietz and Nicholas Stern (2008).

¹² The benefits of mitigation, in terms of risks avoided, accrue many decades and even centuries after the cost is paid. If anything, these risk management approaches may blur the ethical trade-offs; see also Dietz and Stern (2008) cited above.

¹³ See: <http://www.globalclimatelaw.com/2009/11/articles/securities-disclosure/secs-division-of-corporate-finance-revises-guidelines-for-shareholder-proposals-covering-climate-risks>: “On October 27, 2009, the SEC’s Division of Corporate Finance revised its guidelines regarding the grounds on which a public company can exclude from its proxy materials shareholder proposals relating to environmental, financial or health risks, including those seeking disclosure of climate-related risks”. Issued as part of Staff Legal Bulletin No. 14E (CF) (“SLB 14E”), the revised guidance seeks to address the Division’s concern that the existing analytical framework may have led to the “unwarranted exclusion” of proposals related to an evaluation of risk – formerly seen as an aspect of ordinary business operations and therefore excludable under Rule 14a-8(i)(7) – but which focus on “significant policy issues.”

Going forward, the Division will examine the “nexus” between the nature of the proposal and the company and whether the proposal’s underlying subject matter “transcends the day-to-day business matters of the company and raises policy issues so significant that it would be appropriate for a shareholder vote.” Where the nexus is sufficient and the proposal raises such policy issues, the proposal generally will not be excludable under Rule 14a-8(i)(7). The Division also highlighted the board of directors’ oversight of corporate risk management, noting that a proposal focusing on the board’s role in overseeing a company’s management of risk may also “transcend the day-to-day business matters” and raise significant policy issues meriting a shareholder vote.

Rule 14a-8 under the Securities Exchange Act of 1934 permits shareholders to submit proposals for inclusion in a public company’s proxy statement, and also describes categories of proposals that a company may exclude from its proxy statement. Rule 14a-8(i)(7), for example, permits a company to exclude a proposal that “deals with a matter relating to the company’s ordinary business operations.” Under the prior guidelines, established in Staff Legal Bulletin No. 14C (CF) (June 28, 2005), where a proposal focused on a company undertaking an internal assessment of risks and liabilities arising from its operations, the Division permitted the company to exclude the proposal under Rule 14a-8(i)(7) as relating to an evaluation of risk, which the Division viewed as relating to the company’s ordinary business operations. Companies were not permitted to exclude proposals, on the other hand, focused on minimizing or eliminating operations that could adversely affect the environment or the public’s health.

Shareholder and environmental activists have hailed the new guidelines as a victory. Mindy Lubber, president of Ceres, a coalition of institutional investors and environmentalists, praised the guidelines for “striking the right balance of ensuring that resolutions about critical matters reach company shareowners, without opening the floodgates to proposals of more questionable significance.” Ceres and the Ceres-coordinated Investor Network on Climate Risk (“INCR”) have actively campaigned for the guideline change announced in SLB 14E; in a June 14, 2006 letter to then-SEC Chairman Christopher Cox, for example, INCR renewed earlier requests by INCR investors that SEC staff revise its interpretation of Rule 14a-8’s “ordinary business” exclusion to require inclusion of proposals seeking disclosure of financial risks due to climate change.

¹⁴ CRIPP has a significant stake in US Equities (roughly \$5 billion).

¹⁵ Shortly before the Copenhagen event in December 2009, the Investor Group on Climate Change (IIGCC) teamed up with the Investor Network on Climate Risk (INCR), the Investor Group on Climate Change and the UNEP Finance Initiative (UNEPFI) by issuing an investor statement on the urgent need for a global agreement on climate change.

¹⁶ The full statement can be found on www.iigcc.org and the first paragraph of the statement can be found in the box on page 2 of this Case Study.

¹⁷ See 4th IPCC assessment report (2007).

¹⁸ These principles and possible actions can be found at: <http://www.unpri.org/principles/>. A complete list of signatories can be found at: <http://www.unpri.org/signatories/>.

¹⁹ For more information on the mission of the Carbon Disclosure Project see <https://www.cdproject.net>. For the Canadian Report 2009, please visit www.conferenceboard.ca.

²⁰ http://www.otpp.com/wps/wcm/connect/otpp_en/Home/Investments/Investment+Principles/.

²¹ OMERS also refers to its responsible investment policy on its website in a document titled: “Statement of Investment Policies and Procedure - Primary Plan”: <http://www.omers.com/Assets/investments/SIPandP.pdf>. It provides objectives, policies and procedures for the investment management of the Primary Plan Fund, and applies to all investments managed on behalf of the Primary Plan by OMERS through its investment divisions and entities.

²² For more details, see page 38 of the PGGM Responsible Investment Annual Report 2009, which can be found at: <http://www.pggm.nl>.

²³ Nicholas Stern (2008).

²⁴ Here it is assumed that the pension deals do not change. Pension funds always have the opportunity to downsize pension liabilities in order to improve their balance sheet.

²⁵ There is an abundance of broker research on investing in climate change. One example is the report by Deutsche Bank Climate Change Advisors (2010).

²⁶ See the joint UNEPFI and Mercer Report (2007), which provides an overview of recent academic research.

²⁷ Recently, Bauer and Hann (2010) published an ECCE (www.corporate-engagement.com) working paper that shows poor environmental practices could influence the credit standing of borrowing firms through the legal, reputational, and regulatory risks associated with environmental incidents. Their findings suggest that firms with environmental concerns pay a premium on the cost of debt financing and are assigned lower credit ratings. In contrast, firms with proactive environmental engagement benefit from a lower cost of debt financing. It should be noted that this study addresses environmental risk management in general and not just the impact of climate change. Nonetheless, these results imply that investors use environmental information when they determine the credit spread for newly issued bonds.

²⁸ See Kok, Bauer, Eichholtz and Quigley (2010).

²⁹ Interestingly, this survey was commissioned and endorsed by three major European pension delivery organizations: APG, PGGM, and USS. A follow-up survey will be endorsed by a larger group of pension funds from several continents.

³⁰ The impact of climate change on the liability side of the balance sheet of insurance companies has been investigated more thoroughly. For an overview, see for instance Botzen, van den Bergh and Bouwer (2010). See also Dlugolecki (2008).

³¹ For more detailed information on climate change and health, see an excellent overview article by McMichael, Woodruff and Hales (2006).

³² The international organization for migration researched this topic in a recent report by Oli Brown (2008). This study shows that various analysts have tried to put numbers on future flows of climate migrants (or “refugees”),

the most widely repeated being 200 million by 2050. Again, the consequences of climate change for human population distribution across the planet is uncertain and unpredictable.

³³ e.g. Canada.

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