

3 The Ground Zero of Global Risk

Global climate is changing at a pace scientists could not have predicted just a few years ago. In just five years the Arctic sea ice will have melted completely. This is 30 years sooner than the international climate panel IPCC forecasted only 18 months ago, and just one of many indications that we are much closer to the climactic turning point than we ever previously imagined. Irreversible climate changes threaten to destabilise ecosystems on an immeasurable scale, causing a 'global meltdown'. The crisis can be avoided. But immediate and radical steps have to be taken. The biggest challenge is to get the world population to take the threat seriously. The sheer magnitude of the climate crisis means that every single employee, consumer and voter has a key role to play in solving the problem. Monday Morning's risk analysis shows that politicians, businessmen, scientists and the man in the street must make a concerted effort to accelerate the decisions, investments, innovation and changes in behaviour needed to solve the crisis quickly and effectively.

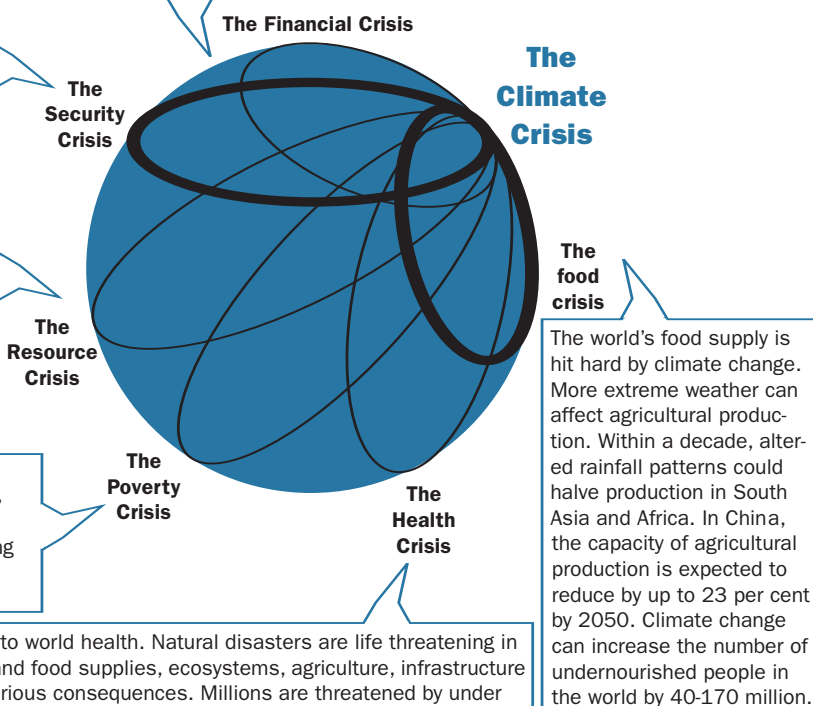
The climate crisis has no direct influence on the pending financial crisis. On the other hand, an unresolved climate crisis has monstrous economic consequences. If the financial system neglects investments in businesses and projects that could solve the climate crisis, it will throw the global economy into a vicious circle that risks drying up financial sources. The price for neglect can, according to renowned economists, run up to 20 per cent of the world's BNP over the next decades.

Security analysts see climate changes as a great threat to national security and global stability. The melting of the North Pole has already created a race for territorial ownership of new oil and gas deposits. The shortage of resources risks increasing the gap between rich and poor countries. This could result in uncontrollable migration and increase the number of failed nations which are breeding grounds for terrorists and organized crime.

Water resources are especially affected by global warming with widespread consequences for food and energy supplies. Climate changes affect drinking water supplies; drains and watering systems; hydro electric power; dikes; coastal defences; and the acid balance in the world's seas. It risks creating a global collapse in fishing, mankind's single largest protein source. It will exacerbate a global health and economic catastrophe.

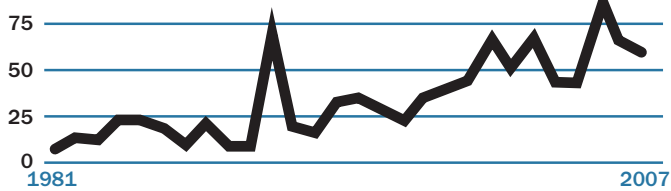
The poorest regions are most affected by climate change. Even though Africa's global CO2 emissions are very limited, this is where global warming alters the local conditions for habitation most radically. Many countries are already fighting an unequal battle to keep their sustainable economies functioning.

The climate crisis is a major threat to world health. Natural disasters are life threatening in themselves, but changes of water and food supplies, ecosystems, agriculture, infrastructure and economies can have equally serious consequences. Millions are threatened by under nourishment and malnutrition; new contagion patterns for epidemic diseases; and respiratory illnesses as a result of higher concentrations of ozone in cities. The largest risk groups are small children; the elderly; the poor; and people who are already weak or ill.

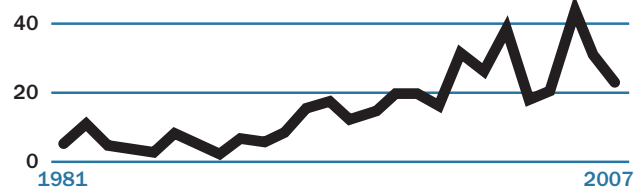


MM | Bad weather ahead

Number of extreme weather situations, 1981-2007



Number of floodings, 1981-2007



Source: EM-DAT. Emergency Events Database.

THE GROUND ZERO OF GLOBAL RISK

Climate change has developed into one of the greatest challenges that mankind has ever had to face. The prospects are horrifying. If the world’s principal economies continue to function as they have done for the past century, conditions for healthy, prosperous life on this planet will slowly but surely disappear.

The good news is that scientists are aware of these developments and have a general idea of what is needed to stop them. The bad news is that the scientists cannot do it on their own.

Monday Morning’s risk analysis reveals that the biggest challenge facing us in solving the climate crisis is not technology. The greatest difficulty is that major groups in the world population still do not truly appreciate the seriousness of the situation. Thus, leading global companies regard a lack of acceptance and awareness of climate changes on the part of their own employees as one of the greatest barriers that must be overcome before serious climate initiatives can be realised.

Politicians, businessmen, scientists and the individual must make a concerted effort to fast-track the decisions, investments, innovation and changes in behaviour needed to solve the crisis quickly and effectively. The individual has a key role to play in ensuring that initiatives are sufficiently ambitious. Without the contributions of individual citizens, employees, consumers and voters, it will be impossible to forge ahead with significant climate initiatives.

If the global average temperature increases by more than 2°C relative to the pre-industrial era, our world faces climate changes that will destabilise ecosystems on an immeasurable scale. If we are to avert a climate crisis of catastrophic proportions, a rapid reaction is required in a number of areas.

- **CO2 EMISSIONS MUST BE REDUCED.** Anthropogenic emissions of the greenhouse gas CO2 must be reduced. If new scientific predictions prove correct, annual emissions must be reduced by 80 per cent by 2050, relative to 1990 levels. Western countries must complete a 40 per cent reduction by 2020 to prevent global warming from reaching a tipping point.
- **THE ENERGY SECTOR MUST BE REVOLUTIONISED.** The greatest single cause of the climate crisis is the burning of fossil fuels, such as coal and oil. Development and application of

sustainable technologies to replace energy derived from fossil fuel resources must be fast-tracked. By 2050, at least 50 per cent of world energy supplies must come from sustainable sources.

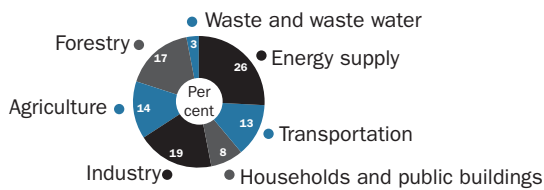
- **THE COMBUSTION ENGINE MUST BECOME A THING OF THE PAST.** The primary fuel used by land, sea and air transport is oil, which emits large amounts of CO2 when combusted. The transport industry today emits just under 25 per cent of total man-made CO2. These emissions are expected to double over the next four decades unless the development and introduction of new technologies, such as electric motors, hydrogen and energy cells that can be “recharged” with energy from sustainable sources, are accelerated.
- **CARBON PRODUCTIVITY MUST BE INCREASED.** New energy forms are not expected to be implemented radically or fast enough to ensure that these initiatives alone can meet the 2°C target. Reducing CO2 emissions will inevitably have a negative effect on economic growth, unless we can improve CO2 productivity fifteen-fold within the next 40 years. This will require energy-saving on a massive scale and a breakthrough for optimisation philosophies, such as green Lean.
- **DEFORESTATION MUST CEASE.** Deforestation, especially of tropical rainforests, is responsible for 20–40 per cent of CO2 emissions. Forests and other verdant areas absorb and bind CO2. Experts see only one efficient method of reducing deforestation and that is to upgrade the “positive climate currency” that forestry and agriculture represents, rewarding especially third-world countries, for not cutting down trees.
- **ADJUSTING MARKET PRICE STRUCTURES.** Finally, consumers and companies must change their habits and make an active contribution of their own to solving the climate crisis. The cost of products and services today bears no relation to the de facto cost to the climate. Market prices must be corrected to reward climate-friendly consumption and production.

The need for new business models

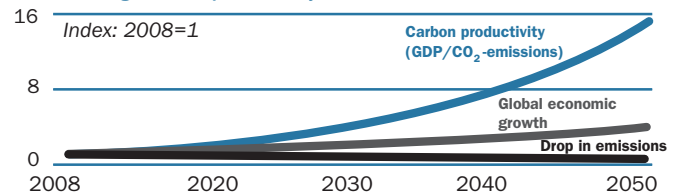
The solution of the climate crisis remains within reach. However, the required restructuring process is all-embracing and far too com-

MM | The CO₂-challenge

Emission of divided in sectors



Demands for growth in productivity



Source: McKinsey, 2008, and IPCC, 2007.

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plex for politicians to tackle alone. Strict national and international regulations will be decisive factors – and not least a reciprocal agreement at the COP15 Climate Summit in Copenhagen 2009, obliging nations to commit themselves to ambitious targets for reducing emissions. It is, however, important to accept that responsibility cannot be laid solely at the feet of the UN international climate negotiations.

The seriousness of the climate crisis and the imperative for immediate action means that politicians, companies and individuals must work together with a common aim to adapt society as quickly as possible to a new world economy. The task is growing by the day.

- TIME IS RUNNING OUT.** The world community is under increasing pressure to find a solution to the climate crisis. Climate changes and growing global CO₂ emissions are accelerating far more steeply than even climate scientists had foreseen. Recent data from the United Nations Environment Programme (UNEP) reveals that global CO₂ emissions increased by 3.5 per cent annually in the period 2000–2007 – in contrast to the IPCC-forecast 2.7 per cent. The International Energy Agency (IEA) has also revised its long-term scenarios for global CO₂ emissions. If global political and financial systems continue along this path, the IEA estimates that CO₂ emissions will increase 130 per cent by 2050. This will bring a catastrophic 6°C increase in average global temperature. New research shows that global warming in the Arctic regions even now threatens to cause irreversible climate changes. Within the next five years, temperature increases will melt sea ice. This is 30 years sooner than the international climate panel IPCC forecasted only 18 months ago. The Earth has not witnessed such enormous change in the last million years – a depressing turning point with a real risk of other serious climate changes in its wake.
- THE COSTS ARE RISING.** The longer the world community hesitates to curb CO₂ emissions, the more it will cost to carry out initiatives to solve the problem. In 2006, the renowned British economist and former UK government advisor on climate issues, Nicholas Stern, pointed out that it is less costly to prevent climate change than it is to minimise the consequences. By which he meant: prevention is worth the invest-

ment long-term. Twice in the past two years, Stern has revised his estimates for what it will cost to fight ever-increasing climate change. In his ground-breaking report on the financial aspects of climate change in October 2006, Stern estimated that fighting climate change would cost 1 per cent of global GDP. At the beginning of 2008, he increased his estimate to 1.5 per cent global GDP, in the light of ‘climate changes developing far more quickly than predicted’. By June this year, Stern had to adjust his estimate to 2 per cent for the same reason. Depending on precisely how long the world continues to hesitate to launch a ‘radical effort’ to break the negative spiral, Stern currently predicts that the cost can easily rise to 20 per cent of global GDP.

- COMPLEXITY IS INCREASING.** The climate crisis is not one we can view in isolation. Climatic conditions have a decisive effect on our access to the world’s limited resources. With a global population that is expected to increase from 6.5 to 9 billion within the next four decades, distribution of resources will become an increasingly pressing global challenge. This means that climate change becomes a critical factor in strategic and military risk scenarios. Global warming is predicted to become a decisive factor in evaluating the effects of global food and poverty crises on different regions. The challenge is to evaluate the interdependency of these crises and to promote international legislation and initiatives that will have the most widespread, positive effects.

The outcome of all the above-mentioned challenges is the urgent need for new business models. The world economy is on the brink of a period of massive growth in the period up to 2050 – developing countries like China and India being the locomotives for growth. Demand for technologies and new, sustainable business models that can supply this rate of growth without increasing pressure on the climate is expected to explode within the next few years.

Stern estimates that investment requirements will not be listed only as costs. Investments must be seen as part of an imperative process of global economic redistribution that will lay productive foundations for new green growth and new green jobs that will bring huge returns in the long term.

BAD SIGNS

- Increasing CO₂ emissions will mean that global warming increases more quickly than researchers were predicting just a year ago.
- New research shows that the world's seas will rise by 0.8-1.5 meters between now and 2100. The international climate panel's previous estimation was 0.9 meters.
- From 1960 to 2003 the water level of the world's seas rose by 1.8mm per year. From 1993 to 2003 it rose by 3.1mm per year.
- The earth's glacial mass has been declining twice as fast in the last decade as it did from 1986-1995, and four times as fast as from 1976-1985.

- The temperature at the top of the permafrost layer has increased by 3 degrees since 1980.
- The average temperature in the Arctic region has almost doubled over the last century.
- The combined quantity of water in Africa's major reservoirs in Nigeria, Lake Chad and Senegal has reduced by 40-60 per cent.
- Increasing temperatures are reducing global corn production by 40 million tons per year.
- By 2080, 400 million people will risk being infected by malaria because of climate changes. 1.8 billion people are at risk of insufficient access to drinking water.

THE GROUND ZERO OF GLOBAL RISK

Turning our backs on an oil-based economy

To resolve the climate crisis, it is necessary to change the economy we have been living under for the past century. The current world economy is essentially based on extracting and utilising fossil fuel resources. Fossil fuels have provided the impetus for explosive industrialisation and globalisation. Fossil fuel consumption has reduced the political will on climate issues to merely making circumspect and, to date, ineffectual initiatives, for fear of bringing global economic development to a standstill.

The introduction of energy-saving initiatives and new energy technologies is far too sensitive to fluctuating prices for fossil fuels, which are the principal "CO₂ sinners". The market potential for green technologies is, to a great extent, measured against the price of oil.

At the same time, the world economy has become increasingly determined by free market forces while little effort has been made to count the true cost of exploiting natural resources. Factors such as market value and profit have become decisive for product supply, while the cost of raw materials and natural resources is omitted from the equation. And it is this model that is beginning to backfire today, in the form of the climate crisis, depleted natural resources and global instability.

The current financial crisis is the perfect example, showing that the model is no longer sustainable in financial terms either. The crisis has been created by short-sighted focus on profiting as much as possible from the speculative bubble in the housing and construction markets, without thinking of the long-term consequences of investing in risky projects.

The lesson to be learned from the financial crisis is that the market cannot stand alone. There is a need for international regulations, legislation and standards to ensure long-term, sustainable economic development. In this way, the economic crisis may pave the way for the kind of innovative thinking that is needed to avert the climate crisis.

In his best-selling book "The Chrysalis Economy" in 2001, British business visionary and CSR guru, John Elkington, predicted that, in the 21st century, the world would first experience economic collapse after which it would be in a position to construct a sustainable economic system. Elkington is currently arguing that we are now seeing the collapse of a financial system that is out of control and bars the way for the development of a sustainable economy.

Financial collapse is a brutal wake-up call but it does provide a unique opportunity for rethinking the global economy. The challenge now is to find international consensus on sustainability and gradually construct a new financial and economic system with sharp focus on long-term sustainability. This will entail turning our backs on an economy that is currently firmly anchored to the exploitation and utilisation of fossil fuels as sources of energy for use in industry and transportation.

In the short term, the financial crisis will have not only a positive but also a negative effect on the fight to protect the climate. The good news here is that the uncertain financial climate can be expected to provoke consumers, companies and organisations to make energy-savings and to utilise resources more efficiently. The bad news is that the financial crisis involves a risk that investment in expensive research, development and distribution of the new technologies that can free economic growth from fossil fuels, could be shelved.

Moving in the right direction (slowly)

Despite current economic uncertainty and the lack of international legislation, there are signs that trendsetters in industry and financial markets are increasingly pushing for self-regulation, committing themselves and each other to sustainable patterns of behaviour.

The UN Principles for Responsible Investment Programme (UNPRI) has registered 37 per cent new institutional investors since the beginning of 2008, when the financial crisis really started to make its presence felt across the world. More than 400 global investors, representing investment capacity in excess of 15,000 billion dollars, have now committed themselves to follow UNPRI principles, which oblige investors to assume environmental, social and governance responsibilities by means of active ownership policies.

The world's first voluntary register of commercial CO₂ emissions and climate strategies, the so-called Carbon Disclosure Project (CDP), received a record number of new respondents – 1,550 global companies registered with CDP for the first time this year. CDP is currently supported by 385 institutional investors, representing more than 57,000 billion dollars. Investors are using CDP to decide in which companies to invest.

Climate change issues – like environmental and social sustainability generally – are slowly but permanently becoming integra-

THE CORPORATE AGENDA

The four greatest hurdles for an ambitious climate strategy:

- It is difficult to build business models based on CO2 reduction.
- It is difficult to find financing for implementation of climate-friendly business models.
- Insufficient awareness of climate changes internally.
- Insufficient awareness of climate challenges among suppliers and customers.

The four greatest hopes for political action:

- Increase awareness of climate challenges, e.g. through education.
- Support research and innovation regarding climate solutions.
- Create incentives for investment in climate solutions.
- Introduce regulation and obligatory reporting.

The four greatest hopes for an international climate agreement:

- The inclusion of all major CO2-producing countries.
- Persuade the USA to take the lead in reduction of emissions.
- Support CO2 reductions in developing countries' economies.
- Make halving CO2 emissions by 2050 a binding target.

Source: Globescan

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ted into the global economy. In coming years, investors are expected to allow perspectives such as climate and sustainability to play an ever greater part in their investment decisions. Meanwhile, industrial organisations like the World Business Council for Sustainable Development (WBCSD) can be expected to focus more sharply on how commercial practices can contribute to sustainable development. There are three principle reasons for this:

- **FOCUS ON RISK.** Escalating climate change has sent global warning closer to the top of the list of risks that companies and organisations need to assess. Changed climatic conditions can affect patterns of demand, barring companies' access to raw materials and making productive and logistical processes disastrously expensive. In order to protect their investments, investors are increasingly interested in ensuring that their partners have climate strategies in place, giving them room to manoeuvre between risk factors. At the same time, there is a growing tendency for companies to be "politically active", making clear statements about the need to get to grips with the global CO2 market. They are motivated by fear of the opposite: A patchwork of inconsequent national and regional regulations making it impossible to manoeuvre efficiently at the global level.
- **EXPECTED LEGISLATION.** Even though the politicians continue to sit on the fence, the signs are that future international environmental and climate legislation will be stricter, making CO2 emission more expensive. Attempts will be made to phase out certain markets and technologies, such as the American "gas guzzlers", by introducing new standards and new taxation policies. Investors will be motivated to seek out companies specialising in technologies, products and services that focus on solving climate problems.
- **PHILANTHROPY – AND IMAGE.** There is, finally, also a modicum of philanthropy in the world of commerce and investment. More and more people are beginning to realise the need for urgent action, recognising that climate change affects everybody and that everyone has an interest in a sustainable global climate. If not, then the conditions for business, even for life itself, will disappear. Moreover, having a good climate image is fast becoming a commercial advantage in its own right.

Turbo-charged climate innovation

Parallel to increasing awareness of climate change, billions of dollars have been pumped into energy-saving technologies and sustainable energy sources in recent years. However, even though the cleantech industry has registered record-breaking growth year on year, market mechanisms alone cannot create the technological revolution needed to break the link between CO2 emissions and economic growth.

The problem is that using market forces or existing national technological and legislative programmes to drive the commercialisation of these technologies will only bring us part of the way.

The IEA believes that even full dispersal of existing technologies will only succeed in curbing increases in CO2 emissions, so that they will peak in 10–20 years and fall to today's levels by 2050. The IEA also estimates that just to achieve this relatively modest target, annual investment in climate technology will have to be increased by a further 400 billion dollars.

If CO2 emissions are to be cut by 80 per cent by 2050, we will have to develop new energy and transport technologies that are not yet matured for the market. These technologies include fuel cells, hydrogen production, electric batteries, and Carbon Capture and Storage (CCS). Investing in technologies like these will be far more costly and new avenues will have to be found to link public and private research, development and product maturation.

The latest IEA report "Energy Technology Perspectives 2008" lists a catalogue of 17 technological areas, new and old, that IEA predicts will be able to deliver the revolution in global energy infrastructure that is needed to halve global CO2 emissions by 2050. IEA estimates the cost will run to 45,000 billion dollars over the next 40 years – approximately 1.1 per cent of global GDP a year. From a commercial perspective, the IEA report is a checklist of the technologies with greatest business potential in the future.

Need for political action

If we are to realise this technological revolution and move sustainable behaviour from the slow lane to the fast track, legislators need be proactive, developing incentive structures and business models. What is needed is legislation to provide long-term perspectives for those investors and companies who will bring about the revolution.

BUSINESS FRONT-RUNNERS

Monday Morning has taken the initiative towards forging a new alliance between some of the world's strongest business and climate organizations. With the Copenhagen Climate Council leading the way, the UN Global Compact, World Business Council for Sustainable Development, World Economic Forum, Climate Group, 3C and PEW, among others, will work together to devise

recommendations for political grants that could create the technological revolution required for solving the climate crisis. The work will, among other things, build upon the recognition that members of the Caring for Climate network have given it. The combined recommendations will be given to the Danish hosts of the UN's climate negotiators at the World Business Summit on Climate Change in Copenhagen, 24-25 May, 2009.

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One criterion for success is that there is public awareness of the acute necessity of acting to solve the climate crisis. In the end, the population is made up of consumers and employees who provide the impetus for sustainable development. Politicians must assume responsibility for creating a platform for climate initiatives through education and incentive structures which will lessen the tendency to evoke the "not-in-my-backyard" mantra, which has been a serious barrier, for example, to the dispersal of wind turbines.

Indeed, the frontrunners of the climate business universe see the lack of a popular breakthrough as one of the biggest obstacles to ambitious climate strategies. A recent survey carried out among members of a new global climate initiative, "Caring for Climate", reveals that companies experience great difficulty in realising global climate initiatives, due to a lack of understanding of climate issues on the part of not only their own, but also partners' and suppliers' employees.

"Caring for Climate" is an association of organisations involved in the UN Global Compact, UNEP and WBCSD, and currently numbers 300 companies. Despite the haziness of political standing on climate issues, members of the association have willingly cast themselves in the role of pioneers of the new climate economy. The survey was made public at the first official meeting of "Caring for Climate" signatories in Geneva, Switzerland, at the end of October 2008. Signatories were asked to describe the ideal political framework for climate initiatives. Interestingly, they put binding global targets for halving CO₂ emissions at the top of their wish list.

Over the coming months, a new global climate alliance of seven of the world's most ambitious climate networks, spearheaded by Copenhagen Climate Council, will develop the business world's wish list into proposals for a political framework that can deliver the necessary CO₂ reductions. Their proposals are intended to be included at the UN climate negotiations in Copenhagen in 2009.

Politicians cannot continue to make the business world their excuse for not taking action. On the contrary: Prominent investors and companies are now ready to put pressure on politicians to raise the level of their ambitions for international climate agreements. This means that the platform for concerted and ambitious efforts to preserve our climate is far more solid than ever before.

The task facing legislators is to find solutions to the climate cri-

sis that also contribute to solving other global problems. International agreements should, for example, ensure that the developing economies are invited to join the new lucrative climate economy. If not, they will be thrown into even further extremes of poverty, hunger and disease.