ASN Bank
Our vision on Climate Change

A livable planet for everyone

How ASN Bank seeks to contribute to a safe, stable and livable climate for everyone

ASN BANK

FOR THE WORLD OF TOMORROW

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In this document the following issues will be discussed:

A Introduction

Human rights, climate change and biodiversity are the pillars of ASN Bank's sustainability policy. Together, these pillars cover almost all subjects that are important in everything that ASN Bank does. That includes the selection of our investments:

- Climate change: how do we select our investments in such a way that they contribute to a safe, livable and stable climate?
- Biodiversity: how can we contribute to conservation of nature with our investments?
- Human rights: how do we protect human rights through our investments?

The common ground beneath these three pillars is the concept of justice.[1] This is the essence of the sustainability vision of ASN Bank.

Human rights and climate change

In 2010, the assembly of nations meeting in Cancún, Mexico, stated for the first time that climate change poses a direct as well as an indirect threat to the human rights of every individual and every society in the world. This statement was made in connection with the 1992 convention on climate change (United Nations Framework Convention on Climate Change, UNFCCC). The resolution in question refers to the rights to housing, health, self-determination and livelihood as examples of rights that have come under pressure from climate change worldwide. According to the resolution, the protection and safeguarding of human rights provide an excellent framework for reaching sound, coherent and legitimate national and international political decisions about climate change.[2]

In July 2011, the United Nations Security Council took it one step further, stating that climate change can also threaten world stability and peace. Floods, long periods of drought and other extreme weather conditions can lead to regional food insecurity and the displacement of large groups of people, creating refugee flows. This may jeopardise peace, public order and security, both in the country of the climate disaster and in surrounding countries.[3]

1 Based on Our Common Future, Brundtland Report, 1987: http://www.un-documents.net/ocf-cf.htm.

2 See: UNFCCC, The Cancun Agreements: Outcome of the work of the Ad Hoc Working Group on Long-term Cooperative Action under the Convention. This is also discussed in other UN documents, such as: United Nations Human Rights Council, Resolution 10/4 Human Rights and Climate Change, 25 March 2009.

3 United Nations Security Council, Statement by the President of the Security Council, S/PRST/2011/15*, 20 July 2011.

In other words, climate change has a major impact on people's lives worldwide, and that impact is becoming increasingly severe. The poorest regions of the world will be hit the hardest. Human rights principles, such as justice, are vital in our response to climate change. ASN Bank endorses that view. As Gro Harlem Brundtland put it:

"(...) there were those who wanted its considerations to be limited to "environmental issues" only. This would have been a grave mistake. The environment does not exist as a sphere separate from human actions, ambitions and needs (...)."[4]

A.1 Climate change and climate change policy

The climate has changed regularly throughout Earth's history. Currently, however, climate change is mainly induced by human activity. Global warming is brought about by greenhouse gas emissions. As a sustainable bank, ASN Bank aims to:

- contribute to preserving a safe, livable and stable climate for man and nature, and
- limit the – now inevitable – impact of climate change.

This document describes how we intend to do that. It formulates our goals and strategy for tackling the problem of climate change. This requires clear choices, which we will make and explain in this policy document.

'Climate change problem' means the effects of global warming resulting from greenhouse gas emissions caused by human activity. ASN Bank endorses the reports drafted by the International Panel on Climate Change (IPCC) about the facts underlying human-induced global warming, and refers to these reports.

Key conclusions from those reports are the following [1; 2; 3; 4]:

- It has been irrefutably established that the concentration of CO_2 in the atmosphere has increased and that the earth is warming.
- It has been established that in all likelihood (i.e. with a scientific certainty of 90% to 95%):
  - global warming is the result of human-induced greenhouse gas emissions into the atmosphere;
  - the main human activity contributing to the increase of CO_2 is the consumption of fossil fuels; land use change is also a major contributor, but to a lesser extent;
  - the global temperature rise in the 21st century will exceed the rise of 0.74 degrees Celsius in the 20th century as well as the rise of 0.8 degrees Celsius observed since records began;
  - the CO_2 concentration in the atmosphere has increased from 379 ppm[5] in 2005 to 390 ppm in 2011; that is well above the natural range of 180 ppm to 300 ppm of the last 650,000 years.

Greenhouse gases

Apart from carbon dioxide, there are five more so-called 'Kyoto greenhouse gases'. Although they contribute to the exacerbation of the greenhouse effect to a much lesser extent than CO_2, their contribution is still considerable: together they account for around 45%. These are the LLGHGs (Long Lived Greenhouse Gases), in order of decreasing importance: methane (CH_4); nitrogen oxide (N_2O); perfluorocarbons (PFCs); hydrofluorocarbons (HFCs) and sulphur hexafluoride. The 'Montreal gases' (CFCs and HCFCs) and water vapour in the higher layers of the atmosphere also contribute to the greenhouse effect.

The degree to which all these gases contribute to the greenhouse effect is expressed in carbon dioxide equivalents (CO_2eq). Accordingly, where this document refers to CO_2eq, we mean all greenhouse gases taken together; in other cases, we mean only CO_2.

Water vapour in the troposphere is also a greenhouse gas. Depending on the temperature, water can condense, freeze and vaporise. Consequently, physical conditions determine whether water vapour leads to temperature changes. Water vapour in the atmosphere increases at higher temperatures. This way, water vapour aggravates the greenhouse effect caused by other factors.

4 Our Common Future, Brundtland Report, UN, 1987: http://www.un-documents.net/ocf-cf.htm.

5 ppm is parts per million, an indication of the concentration of CO_2 in the atmosphere.

New international studies about climate change are being published all the time

New international studies about climate change are being published all the time. They make it increasingly clear that climate change is a very persistent problem. Further global warming has by now become inevitable due to the delayed effect[6] in the climate system. If greenhouse gas emissions are reduced now, we will not notice that until after 2040. This means that temperatures will continue to be affected by current emissions for a long period of time, even if we were to stabilise global carbon emissions today.

Climate controversies
The climate is a complex system affected by hundreds of variables. It will be a long time before we fully understand the exact influence that different variables have on the climate. This fuels scientific debate but also regularly creates controversies. ASN Bank has concluded that sufficient scientific proof has been provided for the human origin of the current climate change issue [18; 24; 25].

A reduction of carbon emissions is not yet in sight. Despite the economic crisis, global carbon emissions in 2011 exceeded the levels of 2010 by 3 percent. Worldwide emissions rose by an average of 2.7 percent per year in the last decade [8]. This rise is even accelerating: in the period 1990-1999 emissions rose by 1.1% per year [9]. Greenhouse gas emissions are currently increasing according to the IPCC scenarios with the highest growth figures, or even more. A continuation of greenhouse gas emissions in this way will make it less likely that the temperature rise will remain below the internationally agreed 'safe' threshold of a maximum temperature rise of 2 degrees Celsius or 450 ppm [7; 8; 9; 10; 11; 12; 13; 14]. Many scientists have pointed this out.

Dangerous climate change
The discussion regarding the level of CO_2 in the atmosphere that may be considered 'safe' enough to prevent dangerous climate change[7] has been going on for many years. Dangerous climate change means that points of return are passed and processes in the climate are initiated that probably cannot be reversed. At the same time, the process of climate change accelerates and the climate rapidly goes through changes that would ordinarily take centuries or even millennia. Mankind cannot prepare for such an abrupt climate change [15; 16; 17; 18; 19].

At the same time, a growing number of scientists point out that the safe upper limit of global warming is 1.5 degrees Celsius, or around 350 ppm [15; 16; 17; 18; 19]. Recent scientific research has revealed that the damage caused at a temperature rise of 2 degrees Celsius or more may be much greater than previously assumed.

The effects of climate change are becoming increasingly evident. Temperature measurements started around 1850. Since that time, nine of the ten hottest years to date were in the 21st century, the exception being 1998 in the last century [http://data.giss.nasa.gov/gistemp/2011/]. Polar ice packs are disappearing as we speak [20; 21; 22]. Extreme weather conditions are also becoming increasingly common and more intense, and forecasts about rising sea levels are adjusted upwards.

6 It will be at least thirty to fifty years (forty years on average) before the average temperature of the atmosphere and the earth surface rises, once the atmosphere contains a higher concentration of CO_2.

7 Article 2 of the Climate Change Convention (United Nations Framework Convention on Climate Change (UNFCCC)) reads as follows: 'The ultimate objective of this Convention and any related legal instruments that the Conference of the Parties may adopt is to achieve, in accordance with the relevant provisions of the Convention, stabilization of greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system. Such a level should be achieved within a time-frame sufficient to allow ecosystems to adapt naturally to climate change, to ensure that food production is not threatened and to enable economic development to proceed in a sustainable manner.'

Disappearance of Arctic summer ice

In 2007 the IPCC still expected that the North Pole would be free of ice during the summer for the first time around the year 2100. Recent studies have indicated that chances are high that the North Pole will be free of ice during the summer well before the middle of this century. The ice cover has been shrinking every summer by an average surface twice the size of the Netherlands for the last thirty years. Scientists say that this rapid melting of ice masses is a matter of grave concern. This is because ice masses normally change very slowly, over periods of hundreds to thousands of years [20; 21; 22].

Extreme weather and further sea level rise

Scientists increasingly refer to climate change as a cause of extreme weather conditions (http://www.giss.nasa.gov/research/news/20120806/) [23]. Sea level rise forecasts have been adjusted upwards since the IPCC published its report in 2007. In recent years various research groups concluded that a rise of one to two metres in 2100 may be possible. This would have major consequences for islands and countries with long, low coastlines that do not have the means to protect themselves. One example is Bangladesh (source: KNMI).

Global Carbon Budget

Having calculated the remaining Global Carbon Budget, scientists estimate that we can still release approximately 565 billion tonnes of CO_2 into the atmosphere by burning fossil fuels until around 2050. If we do not burn more, there is a reasonable chance that we will manage to stay below the climate change threshold of up to 2 degrees of global warming [7; 8; 14; 41; 42]. In 2011 global emissions were 34 billion tonnes of CO_2, a new record. Worldwide emissions grew by an average of 2.7 percent in the last decade [5]. Research indicates that proven reserves of fossil fuels in the ground are now approximately 2,795 billion tonnes of CO_2, five times more than the remaining Global Carbon Budget. Oil, gas and coal companies are already counting on extracting those reserves [39; 40].

A.2 Mitigation and adaptation

Further global warming is inevitable, which is why it seems impossible now to fully resolve the issue of climate change. That is an important fact in determining ASN Bank's climate change policy. After all, it means that adaptation is unavoidable. In other words, our climate change policy should also address the absorption of climate change effects, such as droughts, floods and biodiversity loss. Mitigation is necessary, too: preventing a continuous rise of temperatures and thus limiting the problem of climate change. Slowing down the temperature rise enhances the adaptation options and might still prevent dangerous climate change. Consequently, mitigation and adaptation are strongly intertwined.

Given current developments it is also becoming increasingly important to contribute to adaptation, especially in those areas that are particularly hard-hit by the effects of climate change, such as low areas and regions already experiencing droughts [26]. ASN Bank prioritises mitigation for two reasons: first of all to increase the chances of preserving a climate that is livable for man and nature, and secondly because many reports show that mitigation is much cheaper than adaptation [7; 8; 27]. However, adaptation will also become vital.

A.3 Towards a carbon-neutral[8] society

As stated earlier, we have already crossed the safe climate change threshold of temperatures rising by around 1.5 degrees Celsius, or approximately 350 ppm of CO_2 concentration in the atmosphere. Global carbon emissions are increasing faster every year. There is no sign of reduction yet. Where global warming will ultimately end will mainly depend on the time at which carbon emissions are stabilised and the rate at which emissions are then reduced. The further into the future that time lies, the more CO_2 will collect in the atmosphere, and the more the average global temperature rise will be. The sooner carbon emissions will be reduced, the higher the chances that the temperature rise will remain below the limit of dangerous climate change.

8 Being carbon-neutral means that your actions or a company's actions do not adversely impact the climate (source: Climate Neutral Group).

For this reason, we have made it our goal to achieve net carbon neutrality in our investments by 2030

One condition for the latter aspect is that the world reaches a turning point in its emissions before 2020. After that we must get to a net carbon-neutral situation as quickly as possible, but certainly by the year 2050. Western countries should then even become carbon-negative, a situation in which we remove CO_2 from the atmosphere[9] [10; 11; 12; 13; 14]. This requires a very strong reduction of carbon emissions in the short term [6; 7; 8; 9; 10; 11; 13]. The longer we wait, the more difficult and costly it will become for later generations. Rich countries should be at the fore in creating a carbon-neutral world as quickly as possible. ASN Bank wants to take the lead in that.

ASN Bank considers the problem of climate change a very urgent matter. It requires all of us to do whatever we can to contribute to a solution. As a bank, we intend to do so by personally contributing as much as we can and being a role model for other organisations.

For this reason, we have made it our goal to achieve net carbon neutrality in our investments by 2030.

Today, some banks occasionally measure their impact on climate change. As far as we are aware, however, there is not a single bank in the world that has formulated a goal like ours. We, however, believe it is high time to do so. Moreover, many studies have revealed that the transition to a carbon-neutral economy is feasible [see text box; 29]. As early as 2030, in fact.

Strategies for a carbon-neutral society

There are various well-substantiated, feasible strategies to provide for our energy requirement in such a way that we prevent dangerous climate change. The Melbourne Sustainable Society Institute, for example, has collected the most promising strategies in the "Post Carbon Pathways" project [29]. Examples include:

- A Plan to Power 100 Percent of the Planet with Renewables by Jacobson, M.A. and Delucchi [30];
- Zero Carbon Britain 2030: A New Energy Strategy, The second report of the Zero Carbon Britain project by the Centre for Alternative Technology [31];
- The Energy Report: 100% renewable energy by 2050, Ecofys & WWF [32];
- Global Energy Assessment: toward a sustainable future, International Institute for Applied Systems Analysis, 2012 [33];
- Roadmap 2050: a practical guide to a prosperous, low carbon Europe. www.roadmap2050.eu/attachements/files/Volume1 fullreport PressPack.pdf [34].

We have formulated a climate change objective for our equity funds

Together with our stakeholders, we will determine exactly how we will do that (see section A.4, ASN Bank's role). We already have various instruments at our disposal to achieve that goal. For example, we do not invest a penny in fossil energy, but we do invest as much as possible in renewable energy. We have formulated a climate change objective for our equity funds. In addition, we are collaborating with partners to step up the introduction of solar energy in the Netherlands and the use of energy conservation measures in residential construction. Going forward we will develop and deploy new instruments, such as a method for measuring the carbon footprint of all our lending activities.

9 *'Given the present trend in emissions and scientific analyses of required reductions, action needs to be taken urgently to increase the level of mitigation action so that emissions peak before 2020. This is necessary to ensure that emission levels by 2020 are consistent with mid- to long-term technologically and economically feasible pathways to hold warming below 2 degrees Celsius, and ultimately leave open the option of limiting warming to 1.5 degrees Celsius in the longer term.'* From: Closing the 2020 emissions gap: Issues, options and strategies, August 2012: p. 1.

Customer perspective
We guarantee our customers that we continually aim to increase our contribution to reducing the climate change problem with each euro saved or invested. We are also committed to creating a safe climate in every other way open to a bank. At the same time, we aim to achieve returns that safeguard ASN Bank's continued healthy existence. This way, we demonstrate that profitability and an ambitious climate change policy go together very well. At the same time, we also recognise the necessity to manage the funds entrusted to us by our customers in a manner that does justice to their expectations.

A.4 ASN Bank's role

ASN Bank seeks to contribute to solving the climate change problem, primarily as an investor but also in other ways.

Role of investor

In relation to its core business, ASN Bank plays a role as financier and investor. We use three strategies to achieve our mitigation and adaptation goals:

A. **Selection:** we avoid financing and investing in activities that are major contributors to greenhouse gas emissions. Instead, we focus our investments on activities with low greenhouse gas emissions.
B. **Engagement:** we engage with companies in the ASN Investment Universe with lagging climate change performance to encourage them to improve their performance. We also seek to encourage companies in the universe to take up opportunities for adaptation. Sometimes the interim evaluations of the investments in the universes of ASN Investment Funds or ASN Bank reveal that a company's climate change performance lags behind the performance of its peers. This could bring us to sell off the investment. Before we do that, we will engage with the relevant company and ask it to improve its climate change performance or step up its efforts in the area of adaptation. See also the ASN Bank Engagement Policy [35].
C. **Voting:** at shareholders' meetings, we vote in favour of companies' measures to improve their climate change performance, in favour of linking remuneration to climate change performance, and in favour of the implementation of adaptation measures.

As they invest in listed stocks, the ASN Investment Funds have voting rights. Especially in the US, and likely in other regions as well before long, shareholder proposals are a regular item on the agendas of shareholders' meetings. They often concern climate change. Shareholders may ask the company to improve its climate change performance by investing in renewable energy or by improving its energy efficiency. The ASN Investment Funds vote in favour of such proposals.
When the occasion arises, they vote in favour of linking the board's variable remuneration to climate change targets. They also vote in favour of enhanced transparency in, and targets for climate change performance, as well as measures for adaptation. See also the ASN Bank Voting Policy [36].

Role of activist and lobbyist

We also work on our climate change policy by promoting climate-saving measures among all sorts of target groups:

- We join the debate with stakeholders and make choices in the area of climate change.
- Via the ASN Foundation and by sponsorship, we support projects that contribute to climate protection, such as renewable energy.
- We support NGOs that share our view on the climate by creating publicity for them or contributing to their actions.
- We get people on board and involve them in our activities in the area of climate change, for example through our partners and 'Voor de Wereld van Morgen', our online platform for sustainable go-getters.
- We launch campaigns targeting the government and companies for the purpose of contributing to a carbon-neutral economy.

Role of advocate

We also shape the ASN Bank Climate Change Policy by acting as advocate in domestic and international platforms such as:

- Carbon Disclosure Project;
- UNEP FI;
- Global Compact Caring for Climate Initiative;
- De Groene Zaak;
- Duurzame Energie Koepel.

Role of employer
ASN Bank's investment policy in the area of climate change is reflected in the approach of our immediate impact on the climate. 'Practice what you preach' is our basic principle in that regard. Our goal is to continue to be a fully carbon-neutral office organisation. To that end, we apply the following measures, now or in the future:

- We continually reduce our carbon emissions per FTE compared to 2006.
- We only use green energy.
- We fully offset all other carbon emissions.
- We have a climate-aware lease policy.
- We are located in an energy-efficient renovated building.

B Application of the sustainability policy

We use our climate change criteria when examining the sustainability of companies and countries. On the basis of this, we determine which companies and countries will be accepted into our investment universe. This is the pool of companies and countries in which we can invest. We also use the criteria to re-examine companies and countries that have already been accepted into our investment universe. They also provide guidance in our discussions with companies and the substance of our voting policy.[10]

On the basis of our first examination of a company, we determine whether it meets our criteria and can be accepted into our investment universe. If a company is accepted, we review every three years whether it still meets our criteria. If there is reason to do so we bring the assessment forward, for example if controversial activities have come to light.
Our examination is a snapshot. The outcomes are dependent on the information that is available at that moment. Of course, we do our very best to obtain as much information as possible. We have in-house sustainability experts at our disposal. We make use of detailed information from specialised, international agencies, information from the businesses themselves and information from NGOs (local or otherwise), trade unions, local media, etc.

The climate-related criteria apply to all of ASN Bank's investments and activities and the assets managed by ASN Beleggingsinstellingen Beheer B.V. and ASN Asset Management. In addition, the 2010 Green Project Regulations [Regeling Groenprojecten] apply to ASN Groenprojectenfonds.

ASN Bank provides capital to companies and organisations that promote a sustainable society

C Selection criteria for companies, institutions and projects

The climate-related criteria are derived from the following generally applicable business principle of ASN Bank:
'ASN Bank provides capital to companies and organisations that promote a sustainable society. Businesses and sectors that undermine a sustainable society are excluded from ASN Bank's activities and products.'

In order to meet this principle, we select investments on the basis of their climate change performance. We strive for a maximum contribution per euro invested to both mitigation and adaptation.
Based on the relative criterion 'climate change performance' we will first describe the activities in which we do invest, followed by a description of activities that we avoid: those that directly and indirectly emit a large quantity of greenhouse gases.

We only assess the climate change performance in this document, and not the environmental and human rights aspects that ASN Bank also considers. For these aspects, we refer to our policies on human rights and biodiversity.

10 For more information, please visit www.asnbank.nl.

C.1 Activities to be approved

Activities in the context of mitigation

ASN Bank's key priority is mitigation. In this context, we invest in activities that contribute to creating a carbon-neutral society. We select ASN Bank's investments on the basis of their 'climate change performance'. Energy-saving measures, or energy efficiency, play an important part here. Many sources refer to energy-saving measures and energy efficiency as the most cost-effective way to curb greenhouse gas emissions [7; 8; 12; 32; 33]. First and foremost, we select investments that contribute relatively little to the emission of greenhouse gases. In addition, we invest in all sorts of energy-saving technologies, such as LED lighting, thermal insulation, heat pumps and thermal storage.

The natural gas industry contributes substantially less to the emission of greenhouse gases than the rest of the fossil fuel industry. Moreover, natural gas is the only fossil energy source that can ensure a 'low-CO_2' transition to fully renewable energy supply.
Still ASN Bank prefers not to invest in the natural gas industry. However, we can make an exception for cogeneration and natural gas fuelled CCGTs (dimensioned heat requirement) because they emit much less greenhouse gases across the entire supply chain. This means we avoid coal gasification and shale gas.

Renewable energy production contributes significantly to reducing greenhouse gas emissions. The following types of renewable energy production are eligible for investment:

- Solar CSP (concentrated solar power);
- Wind energy;
- Solar PV (photovoltaic solar cells);
- Geothermal energy, heat pumps, tidal power, etc.;
- Hydropower;[11]
  Although hydropower is currently the largest renewable energy source in the world, we are cautious with investments in this source. Hydropower can help reduce greenhouse gas emissions, but generally includes more drawbacks than benefits. In respect of human rights, the construction of large dams often forces people to move away. In respect of the environment, protected areas of natural beauty disappear or greenhouse gas emissions (methane) actually increase.
  For these reasons, investments in dams and all other water infrastructure projects and in dam construction or management companies must satisfy the recommendations issued by the World Commission on Dams (see: http://www.internationalrivers.org/campaigns/the-world-commission-on-dams or http://www.internationalrivers.org/resources/dams-and-development-a-new-framework-for-decision-making-3939). See the ASN Bank Dams Memorandum and the ASN Bank Practical Guide to Sustainability Research. Furthermore, all investments in dams and all other water infrastructure projects must satisfy ASN Bank's policies on biodiversity and human rights.
- Bioenergy and biofuels.
  ASN Bank regards the application of biofuels as a technology with a limited application and a risk of new sustainability risks[12]. We do see possibilities in demonstrably sustainable biomass supply chains. We invest in those supply chains under specific sustainability conditions, including requirements to the contribution to CO_2 reduction. It is important here that guarantees are given as to the sustainabil-

11 Scientific research has revealed that hydropower plants produce a lot of methane gas. This highly powerful greenhouse gas is produced by, for example, rotting of the growth on the reservoir bottom. The methane gas is released when the water is channelled through the turbines. As a result, some hydropower plants produce more greenhouse gases than similar-sized power plants fuelled with fossil fuels. We take this aspect into account when assessing small-scale hydropower plants. Source: Why Hydropower is Not Clean Energy, Philip M. Fearnside (National Institute for Research in the Amazon), Scitizen, 9 January 2007.

12 Until 2050, all available agricultural land will still be insufficient to meet the growing demand for food. This is what the United Nations Food and Agriculture Organization (FAO) indicated in a recent study. The FAO therefore qualifies the large-scale production of biofuels as a potential threat to food security. The remaining potential of sustainable biomass (including agricultural and forestry residues) can provide for up to 10% of worldwide energy demand. If the Netherlands wishes to obtain 10% of its own energy consumption from biomass in the future, it must import at least three-quarters of the biomass required.

ity of the origin of the materials used, the conversion technology used and the application of biofuels. The conditions for bioenergy and biofuels can be found in the ASN Bank Biofuels Memorandum.

Our goal is to invest more in activities that absorb the negative effects of global warming

Activities in the context of adaptation
The second priority in ASN Bank's climate change policy is adaptation. Our goal is to invest more in activities that absorb the negative effects of global warming. It has been demonstrated that these negative effects have now become inevitable and are even already manifesting themselves:

- The number and intensity of periods of drought are increasing;
- Floods are becoming more frequent;
- Less food is being produced;
- Certain diseases are spreading;
- Biodiversity is decreasing.

The regions where these changes concentrate and that have limited adaptation options are the most vulnerable to these negative effects. These are mainly the poorer regions around the lower latitudes.

We preferably invest in activities specifically focusing on adaptation as they anticipate the aforementioned negative effects. These include investments in [26]:

- Water management (Dutch water boards and water board banks, water companies and water distribution companies) and coastal protection;
- Fighting poverty via microcredit and other methods; especially in the poorer regions, microcredit creates more prosperity and, as a result, better possibilities for adaptation;
- Adjusting food production to new climatological conditions;
- Economic development based on greater independence from climatological conditions;
- Development of affordable, effective medicines for poorer regions;
- Activities aimed at conserving and expanding woodlands and at sustainable fishery management.

C.2 Activities to be avoided
In order to achieve its mitigation objective, ASN Bank avoids activities that directly and indirectly emit large quantities of greenhouse gases and thus strongly contribute to climate change[13] (see also the figure in the appendix):

1. **Electricity production by means of lignite, coal, (tar sands) oil and (shale) gas.**
   The various types of electricity production require additional explanation. Electricity production is the activity with the largest emission and in itself very diverse. We apply the following criteria when selecting the various energy sources used for electricity production:

   1. The energy source, including its entire production chain, is one of the smallest contributors to greenhouse gas emissions.
   2. The energy source's undesired side effects are minimal, including those relating to safety, other environmental effects and human rights.

   That is why we avoid investments in electricity production that directly and indirectly emits large quantities of greenhouse gases and has many undesired side effects. In other words, electricity production by means of:
   A. lignite, coal, shale gas and (tar sands) oil;
   B. natural gas in which the released heat is not utilised (based on heat requirement);
   C. first-generation biofuels.

13 These activities are jointly responsible for approximately 70% of the world's total greenhouse gas emissions (see also the figure in the appendix). .

Re A: Lignite, coal, shale gas and (tar sands) oil
This form of electricity production creates the largest greenhouse gas emissions. These emissions can be reduced by improving efficiency. However, for us this is not enough. We also do not believe in the existence of 'clean coal-fired power plants', not even if the CO_2 is collected in gas fields, for example (CCS: Carbon Capture and Storage). Leading to additional energy consumption, this technology is still in an experimental stage.

Re B: Natural gas in which the released heat is not utilised
We also avoid gas-fuelled electricity production. Still, from the perspective of climate change, this type of electricity production is markedly better than electricity production using other fossil sources. That is why we could possibly invest in gas-fuelled cogeneration plants and natural gas fuelled CCGTs (so not fuelled by fossil gas with a worse CO_2 balance, such as gas from coal gasification or shale gas).

Re C: First-generation biofuels
Biofuels, or organic material, can be used to generate electricity and to produce biodiesel and biopetrol. There are many kinds of biofuel. They do not equally contribute to reducing greenhouse gas emissions. So-called first-generation biofuels can reduce carbon emissions throughout the production chain by half at most. Reduction is often even less. Due to the sustainability risks, we avoid investments in these first-generation biofuels. See the ASN Bank Biofuels Memorandum.

2. Activities that consume large quantities of fossil energy such as mining, the extraction and production of lignite, coal, (tar sands) oil and (shale) gas, basic chemicals (including petrochemicals), basic metals and the production of concrete.

   A. Extraction and production of lignite, coal, (shale) gas, (tar sands) oil
   The extraction and production of lignite, coal, gas and oil strongly contributes to the emission of greenhouse gases. Shale gas and tar sands are what are known as non-conventional fossil energy sources. They not only strongly contribute to greenhouse gas emissions, but also cause new sustainability risk for people and planet.

   B. Mining
   ASN Bank does not invest in mining companies or mining activities at all, for two reasons. First of all, almost without exception these companies create major environmental problems. They emit greenhouse gases and hazardous substances into the soil, water and air, or conduct mining operations in natural areas. Secondly, almost all mining activities are accompanied by serious violations of human rights. In countries with weak government control, mining companies often abuse their power to pay hardly any tax or no tax at all on the commodities they extract in that country. The local population often experiences only the drawbacks of mining.

   C. Basic chemicals (including petrochemicals) and basic metals
   We avoid the basic metals and chemicals industry, mainly because of the substantial emission of greenhouse gases and all sorts of other hazardous substances.

   D. Concrete production
   The production of concrete involves disproportionately high greenhouse gas emissions. That is why we cannot qualify current production as sustainable.

3. **Deforestation.**
   Deforestation involving the large-scale disappearance of forests affects the climate. As trees grow, they absorb CO_2 from the air. If they are cut down, this CO_2 is largely released back into the air again when the trees are used as fuel. Approximately 11% of the CO_2 that people emit into the atmosphere is the result of logging[14]. In addition trees create a water buffer, ensuring continuity in ground water levels. They also protect the soil against erosion and limit temperature differences. The loss of forests furthermore leads to desertification. Forests are logged both legally and illegally for the sale of wood, as well as for mining, gas and petroleum extraction, and the construction of palm oil plantations, soy farming and livestock farming.

14 See: http://www.globalcarbonproject.org/carbonbudget/12/data.htm

4. **Products that consume much fossil energy while in use**
   such as road and air transport based on combustion engines.

5. **The production (including recycling) of combustion engines.**
   The production of combustion engines is contrary to ASN Bank's view of a sustainable society without the use of fossil fuels. There is no place for combustion engines in a carbon-neutral society. Here we draw a clear line at the production of combustion engines, as we likewise avoid coal-fuelled and gas-fuelled power plants, for example. However, we do not exclude the application of combustion engines in public transport buses, for example. We do apply strict criteria on carbon emissions in that regard. See also the ASN Bank Policy on Transport and Mobility for specific criteria regarding climate change performance.

Lastly, ASN Bank also wants to avoid being indirectly (via financial institutions, for example) involved in investments in any of the aforementioned activities. With some emphasis, we note here that only the performance on climate change is considered in this document, and not all the other aspects on the environment and human rights that ASN Bank weighs in its assessments.

Nuclear energy

In view of its sustainability risks, the nuclear energy sector actually belongs in ASN Bank's biodiversity and human rights policies. Nevertheless, for the sake of completeness we will briefly discuss this subject in this document as well. After all, some consider nuclear energy to be part of the solution for the issue of climate change.
However, nuclear energy involves the following sustainability risks:

a) The safety of nuclear power plants is still not guaranteed, despite the lessons learned from Harrisburg, Chernobyl and Fukushima. None of the existing power plants and the power plants under construction (all of the so-called Type III or III+) are entirely safe. Even in respect of the 'inherently safe' nuclear power plants, there is no full guarantee that nothing serious will ever happen with them.
b) There are currently no final storage facilities for radioactive waste. This waste is stored in such a way that it can also be reached again. ASN Bank, however, considers sustainable final storage necessary, as the current interim storage is not a solution for the long term (in other words, for more than 10,000 years).
c) Uranium extraction does not satisfy the criteria from ASN Bank's biodiversity policy. The key environmental aspects of uranium extraction are: damage to the landscape (especially with open-pit mining); the release of radon gas and heavy metals; and soil pollution due to acids used in solution mining. Especially in the past, uranium was extracted irresponsibly. It is unclear to ASN Bank whether that situation has sufficiently improved.
d) Even if the Nuclear Non-Proliferation Treaty is fully observed worldwide, five countries (US, China, Russia, France, UK) retain the right to produce nuclear weapons. India, Pakistan, North Korea and Israel are also known to be able to produce nuclear weapons. Nuclear power plants play an important part in the production of radioactive material used for manufacturing nuclear weapons.
e) Not all the costs are internalised. This means that some costs associated with the entire nuclear energy supply chain, such as costs incurred in the event of disasters, are not incorporated in the price of electricity.
f) No general statements can be made about the influence of stakeholders. They must be consulted extensively and be given sufficient opportunity to have their say before the decision is made to construct a nuclear facility. It is a local matter, which must be assessed locally [37; 38].

That is why ASN Bank excludes companies that generate nuclear energy, operate nuclear power stations, or distribute or trade in nuclear products. We also exclude companies that focus specifically on this sector as suppliers, or supply vital services or products for the realisation or construction of nuclear power plants.

D Selection criteria for government bonds

In addition, we assess countries as to their climate change performance, and that performance carries weight in our selection of government bonds. First of all, we exclude countries if they do not actively contribute to protecting the climate based on their unwillingness to sign international treaties on climate change. We admit countries that actively contribute to protecting the climate because they are outperformers as regards their greenhouse gas emissions per capita and the share of renewable energy in electricity production.

Sources:

1. IPCC; Climate Change 2007: The Physical Science Basis, Summary. Working Group I Contribution to the Intergovernmental Panel on Climate Change (February 2007)
2. IPCC; Climate Change 2007: Impacts, Adaptation and Vulnerability, Summary. Working Group II Contribution to the Intergovernmental Panel on Climate Change Fourth Assessment Report (April 2007)
3. IPCC; Climate Change 2007: Mitigation of Climate Change, Summary. Working Group III Contribution to the Intergovernmental Panel on Climate Change Fourth Assessment Report (April 2007)
4. IPCC; Synthesis Report (Nov 2007)
5. Olivier, J.G.J., G. Maenhout-Janssen, J.A.H.W. Peters, (2012), Trend in global CO_2 emissions; 2012 report. PBL Bilthoven. Report number 500114022
6. Raupach et al.; Global and regional drivers of accelerating CO_2 emissions. PNAS Early Edition (2007)
7. World Energy Outlook 2011, EIA
8. World Energy Outlook 2012, EIA
9. Theme Issue 'Four degrees and beyond: the potential for a global temperature increase of four degrees and its implications' compiled and edited by Mark G. New, Diana M. Liverman, Richard A. Betts, Kevin L. Anderson and Chris C. West January 13, 2011; 369 (1934)
10. UNEP (2010). The emissions gap report: Are the Copenhagen Accord Pledges sufficient to limit Global Warming to 2 degrees Celsius or 1.5 degrees Celsius? A preliminary assessment, United Nations Environment Programme (UNEP).
11. UNEP 2012. The Emissions Gap Report 2012. United Nations Environment Programme (UNEP), Nairobi
12. Closing the 2020 emissions gap: Issues, options and strategies, Authors: Bill Hare, Michiel Schaeffer, Marcia Rocha, Joeri Rogelj (Climate Analytics), Niklas Höhne, Kornelis Blok, Kees van der Leun, Nicholas Harrison (Ecofys), Date: 03 August 2012
13. https://www.cdproject.net/CDPResults/CDP-Global-500-Climate-Change-Report-2012.pdf
14. Meinshausen M., Meinshausen N., Hare W., Raper S.C.B., Frieler K., Knutti R., Frame D.J. and Allen M.R. (2009). Greenhouse-gas emission targets for limiting global warming to 2 °C, Nature, 458, 1158-1162, doi:10.1038/ nature08017. http://www.nature.com/nature/journal/v458/n7242/full/nature08017.html

15. J. Hansen et al., 2008: 'Target atmospheric CO_2 : Where should humanity aim?', Open Atmospheric Science Journal, 2, 217-31.
16. Rockström, J., W. Steffen, K. Noone, Å. Persson, F.S. Chapin, III, E. Lambin, T.M. Lenton, M. Scheffer, C. Folke, H. Schellnhuber, B. Nykvist, C.A. De Wit, T. Hughes, S. van der Leeuw, H. Rodhe, S. Sörlin, P.K. Snyder, R. Costanza, U. Svedin, M. Falkenmark, L. Karlberg, R.W. Corell, V.J. Fabry, J. Hansen, B. Walker, D. Liverman, K. Richardson, P. Crutzen, and J. Foley. 2009. Planetary boundaries: exploring the safe operating space for humanity. Ecology and Society 14(2): 32. [online] URL: http://www.ecologyandsociety.org/vol14/iss2/art32/
17. T. Lenton et al. 2008: 'Tipping elements in the Earth's climate system', PNAS, 105, 6, 1786-93 http://www.pnas.org/content/105/6/1786.full.pdf+html
18. Klimaatverandering... Hoezo klimaatverandering: feiten, fabels en open vragen, Pier Vellinga, 2011
19. Revolutie met recht, Roger H.J. Cox, 2011
20. http://nsidc.org/news/press/20121002_MinimumPR.html
21. http://www.guardian.co.uk/environment/2012/sep/17/arctic-collapse-sea-ice
22. http://www.guardian.co.uk/environment/2012/sep/19/arctic-ice-shrinks?intcmp=239
23. http://www.ipcc-wg2.gov/SREX/
24. Climate Change Controversies (The Royal Society, June 2007)
25. Klompen in de Machinerie, Jan Paul van Soest, August 2011
26. Vulnerability and Adaptation to Climate Change in Developing Countries (WRI Earthtrends: Chris Ward, July 30, 2007)
27. Stern Review on the economics of Climate Change; HM-Treasury UK 20079.
28. Climate Change Controversies (The Royal Society, June 2007)
29. Post Carbon Pathways, reviewing post carbon economy transition strategies, John Wiseman and Taegen Edwards, CPD Occasional Paper 17, Melbourne Sustainable Society Institute, March 2012
30. Jacobson, M.A. and Delucchi, M.Z. (2009) 'A Plan to Power 100 Percent of the Planet with Renewables', Scientific American, Nov 2009 issue, accessed Feb 2012 at: http://www.scientificamerican.com/article.cfm?id=a-path-to-sustainable-energy-by-2030
31. Kemp, M. And Wexler, J. (eds) (2010) Zero Carbon Britain 2030: A New Energy Strategy, The second report of the Zero Carbon Britain project, Centre for Alternative Technology, Wales: CAT Publications, accessed Feb 2012 at http://zerocarbonbritain.org/
32. The Energy Report: 100% renewable energy by 2050, Ecofys & WWF, February 2011
33. GEA, 2012: Global Energy Assessment - Toward a Sustainable Future, Cambridge University Press, Cambridge, UK and New York, NY, USA and the International Institute for Applied Systems Analysis, Laxenburg, Austria.
34. Roadmap 2050: a practical guide to a prosperous, low carbon Europe. www.roadmap2050.eu/attachments/files/Volume1_fullreport_PressPack.pdf
35. ASN Investment Funds Engagement Policy
36. ASN Investment Funds Sustainable Voting Policy
37. SER report 'Fact Finding Nuclear Energy', September 2007
38. De rol van kernenergie in de energietransitie (SNM and VMD, 5 December 2007)
39. Campanale, M., Leggett, J., Leaton, J. (2011)´Unburnable Carbon: Are the world's financial markets carrying a carbon bubble?, http://www.carbontracker.org/carbonbubble
40. http://trillionthtonne.org/
41. Allen, M.R. et al. (2009) Warming caused by cumulative carbon emissions towards the trillionth tonne, Nature, 458:1163-1166, which argues that a one trillion tonne release of carbon gives a most likely warming of 2°C, with a likely (one-sigma) uncertainty range of 1.6-2.6°C.
42. Allen, M.R. et al. (2009) The Exit Strategy, Nature Reports Climate Change, 3:56-58, which provides a commentary on the implications of the above papers for non-specialists.