

# Adapting to global challenges

Exploring investors' climate adaptation  
policies and practices



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## Interview List

Joris Laseur	Sustainalytics	Marlies van Loon	PF Schilders
Richenda Connell	Acclimatise	Jan Karstanje	BPL Pensioen
Emilie Mazzacurati	Four Twenty Seven	Dennis Teijsse	Achmea IM
Han van der Hoorn	PGGM	Rob Kragten	Unilever PF
Jacqueline van Voorthuizen	PGB	Paul Möller	Allianz
Wouter Jan Naborn	PF Horeca en Catering		







## Executive summary

The physical consequences resulting from climate change will affect everyone. Extreme weather events, such as cyclones, drought, heat stress and flooding, will increasingly impact human health, financial stability and ecological balance. Dealing with climate change effectively, means taking into account the consequences. Physical climate impacts are occurring now and will continue to increase in the near future. They will disproportionately burden the vulnerable. Investors will have to develop comprehensive adaptation strategies that manage these physical risks and ideally also consider social and environmental factors.

This study gives a brief overview of the current state of affairs regarding the climate adaptation policies and practices of investors. It finds that investors yet have little understanding of how the physical risks affect them and that they lack guidance and tools on how to adapt to these changes.

Disclosure of physical risk information is a first step towards building adaptive strategies. Investors should not only ask for climate risk data from investee companies, but also disclose relevant information themselves. The Taskforce on Climate-related Financial Disclosures (TCFD) is recognised as a game changer with regard to disclosure.

The various characteristics of different climate hazards, with different impact in different geographies and for different counterparts, make it extremely complex to disclose, assess and manage physical climate risks.

Even though the availability of physical climate risk data is increasing, underreporting is a challenge. Investors have the opportunity to engage with portfolio companies to improve data availability. This will enhance the quality of physical climate risk assessments.

The currently evolving approaches to assess and manage physical climate risk are first steps in the direction of guidance and tools for investors to act upon these risks. Frontrunner investors in real estate and infrastructure have begun assessing the physical risks of their direct investments.

Disclosure, management and adaptation efforts mainly take a financial investor perspective and do not necessarily include socio-environmental impact. Data and impact indicators are needed and need to be part of the risk-return-impact analyses of investors to realize real world climate adaptation. Besides the challenge of impact indicators, directly investing in climate adaptation solutions is often already challenging for investors from a risk/return perspective only.

More public private cooperation between investors, companies, civil society, science and governments is needed to develop investable opportunities and indicators, that will be the foundation for comprehensive adaptation strategies taking into account risks of and solutions to climate change and lead to both investor and socio-environmental resilience.

Click [here](#) to be directed to the recommendations chapter.

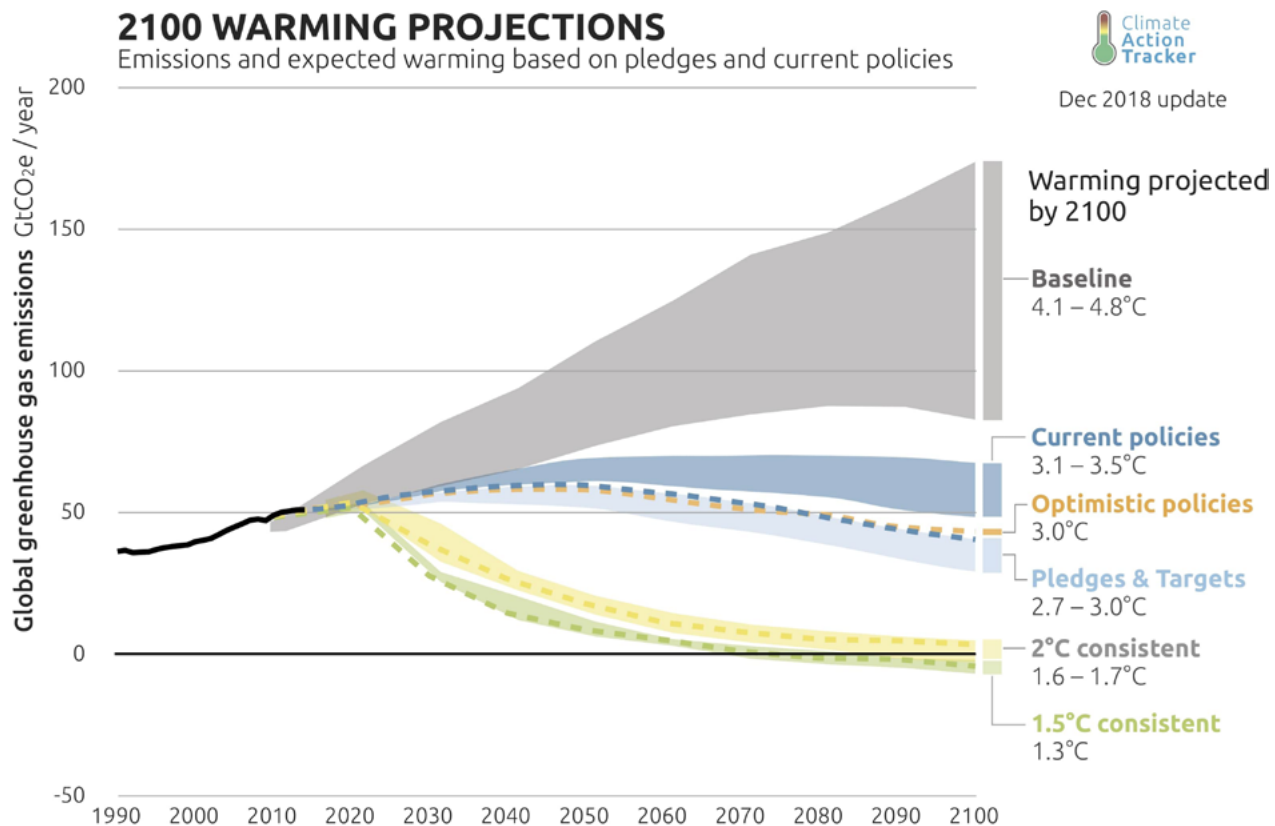


# 1 Climate change and investors

‘Climate change is moving faster than we are.’ On the 10<sup>th</sup> of September 2018, UN secretary-general Antonio Guterres said these words after more than one million Indians had to abandon their homes when the worst floods in 100 years hit Southern India.<sup>1</sup> Some 80 dams protecting the citizens of Kerala collapsed, resulting in more than 370 people being killed from the subsequent floods and landslides. In 2017, the worst hurricane since 2005 hit Houston, Texas. Hurricane Harvey caused the United States’ largest oil refineries to close down.<sup>2</sup> While that hurricane did not cause significant long-term damage, it seems that it is only a matter of time before we experience an extreme weather event that will. Climate change is increasing the occurrence and severity of natural disasters across the globe.<sup>3</sup> The physical risks of climate change are a reality that everyone has to contend with, including businesses and investors.

Climate change increases the likelihood of extreme weather events, floods, droughts and subsequent mass migration. These effects also impact investors, through their investments in companies, real estate, government bonds and so forth. Investors thus have a vested interest in dealing with climate change, both from a risk and opportunity perspective. Taking into account the physical effects of climate change and the possibilities of adapting to climate change makes financial sense. Moreover, it is our understanding that social development and protecting and restoring nature are currently not prevalent in climate adaptation decision-making. For these reasons, VBDO explored current investor practices regarding climate adaptation.

To gain more insight into current investor practices, a number of in-depth interviews have been conducted with representatives from pension funds, an insurance company and asset managers. We also interviewed several climate consultants who work with the financial sector, two of whom have their interviews presented in this report.



**Figure 1:** 2100 warming projections. Source: Climate Tracker<sup>4</sup>

This explorative study focuses on adapting to the physical consequences of climate change. It will describe the causes and consequences of climate change for investors. In chapters 2 & 3, you will find the results of the interviews with investors on the current status of their activities. The expert interviews show the direction in which the financial sector should evolve. Two case studies also give best practice examples demonstrating how adaptation to climate change can benefit both the environment and wider society.

## Causes and consequences of climate change

This chapter briefly outlines the causes and consequences of climate change and moves on to how climate change impacts the financial system. In this report, we are focusing on adapting to the physical effects of climate change. These physical effects bring several risks for investors but also present opportunities for investment.

The earth's climate is changing and crucially it is changing out of its normal bandwidths. For hundreds of thousands of years, CO<sub>2</sub> concentrations in the earth's atmosphere were never higher than 300 parts per million (ppm); in 2018, concentrations peaked at 410 ppm.<sup>5</sup> Coinciding with this rise, global temperature anomalies have increased. In 2015, the global temperature reached 1.0°C above pre-industrial levels.<sup>6</sup> As presented in the recent IPCC 1.5°C report<sup>7</sup>, some physical impacts of climate change are already being felt across the globe. Entire ecosystems are degrading, communities are migrating, Antarctica is losing land ice mass at an alarming rate and coral reefs are dying from ocean acidification. With the current global warming trajectory of ~3°C by 2100, effects will only intensify and climate related risks to health, livelihoods, food security, water supply, human security and economic growth are projected to increase even further.





**Figure 2:** Climate Change mitigation and adaptation. Source: VBDO

### Climate mitigation

“A human intervention to reduce emissions or enhance the sinks of greenhouse gasses.”

(IPCC, 2014)

Examples of mitigation measures, to combat climate change measures are technologies, processes or practices that contribute to mitigation, for example, renewable energy technologies, circular and waste less business models and mobility strategies.

(IPCC, 2014)

### Climate adaptation

“The process of adjustments in human and natural systems, in response to actual or expected climate stimuli or their effects, that moderate harm or exploit beneficial opportunities. In some natural systems, human intervention may facilitate adjustments to expected climate and its effects. Whereas mitigation deals with the causes of climate change, adaptation tackles the consequences.” (IPCC, 2014)

Examples of adaptation mechanisms include large-scale public-private risk reduction initiatives and economic diversification government insurance, but also managed retreat. (IPCC, 2014)

## Mitigation and adaptation

Dealing with climate change can be delineated into two approaches – those that address the causes of climate change (mitigation) and those that address the consequences (adaptation).

Much attention has been and still is given to the mitigation of the effects of climate change.

Investors increasingly assess transition risks (as e.g. stranded assets) for different transition paths (to a climate neutral economy) and focus on Greenhouse

gas reduction, e.g. by measuring the CO<sub>2</sub> footprint of investment portfolios. Regulatory and supervisory authorities are beginning to impose requirements related to transition risk.

Adaptation to (the consequences of) climate change is receiving far less attention from the financial sector. Yet, the financial sector is already exposed to an area of physical climate hazards that result in physical climate risks.



## Physical climate risks and financial institutions

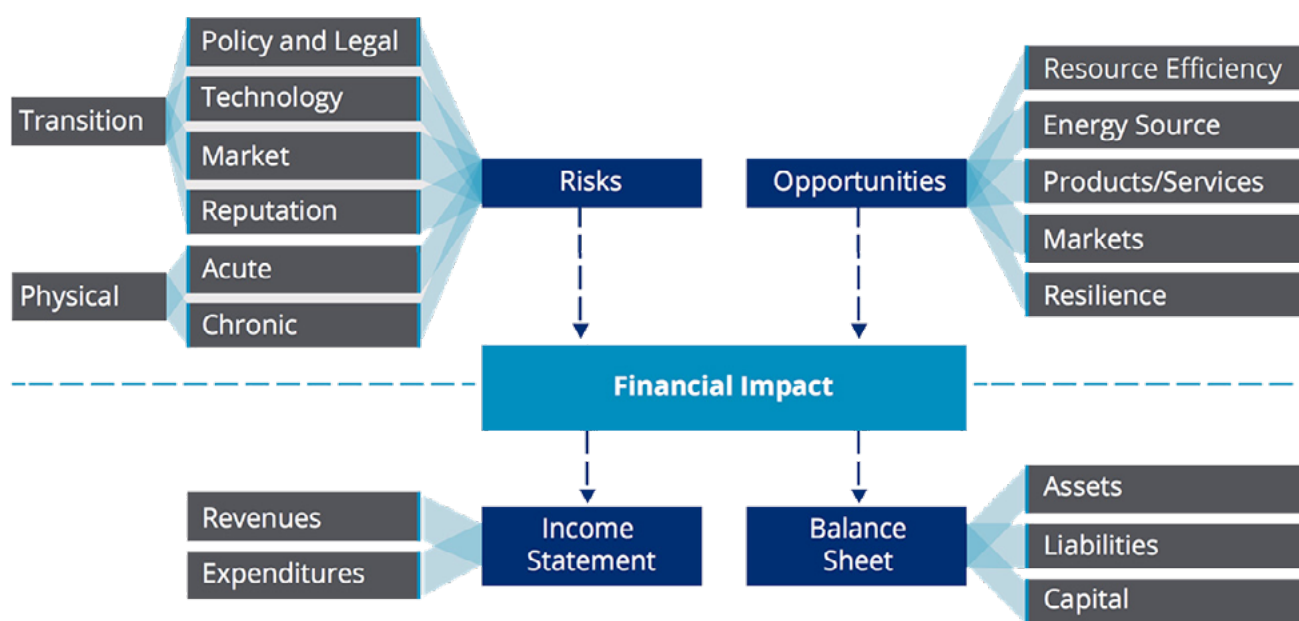
Physical risks are the potential impacts of (positive or negative) of climate hazards on a financial institution or their counterparts (companies, projects or governments). These can be both direct impacts from hazards on assets (destroyed) or indirect effects of hazards through the value chain or the macro environment. These physical risks are already occurring and will continue to increase in the near future, regardless of GHG emission scenarios.

One study estimated the cost of inaction to the physical effects of climate change could add up to \$43 trillion.<sup>8</sup> Mark Carney, Governor of the Bank of England, famously coined this situation as the “tragedy of the horizons”.<sup>9</sup> Various other central banks, including the Dutch<sup>10</sup> have warned of the destabilising effects of climate change for the financial sector.

Yet comprehensive adaptation strategies are often hampered by the short-term focus of the financial sector. While climate change impacts are spread out over decades to come, investors’ horizons are often only a few years. This, in turn, leads to instability of the global financial system. If investors do not make decisions with future effects in mind, they are at risk of being locked-in to substantial climate impacts. But where to begin?

## A Disclosing physical climate risks

Because of the growing fear for climate-induced financial instability, the Taskforce on Climate-related Financial Disclosures (TCFD) has been commissioned to provide guidance to companies and financial institutions on disclosing climate-related financial information. The final report<sup>11</sup> published in June 2017, sets out clear climate-related disclosure recommendations for financial



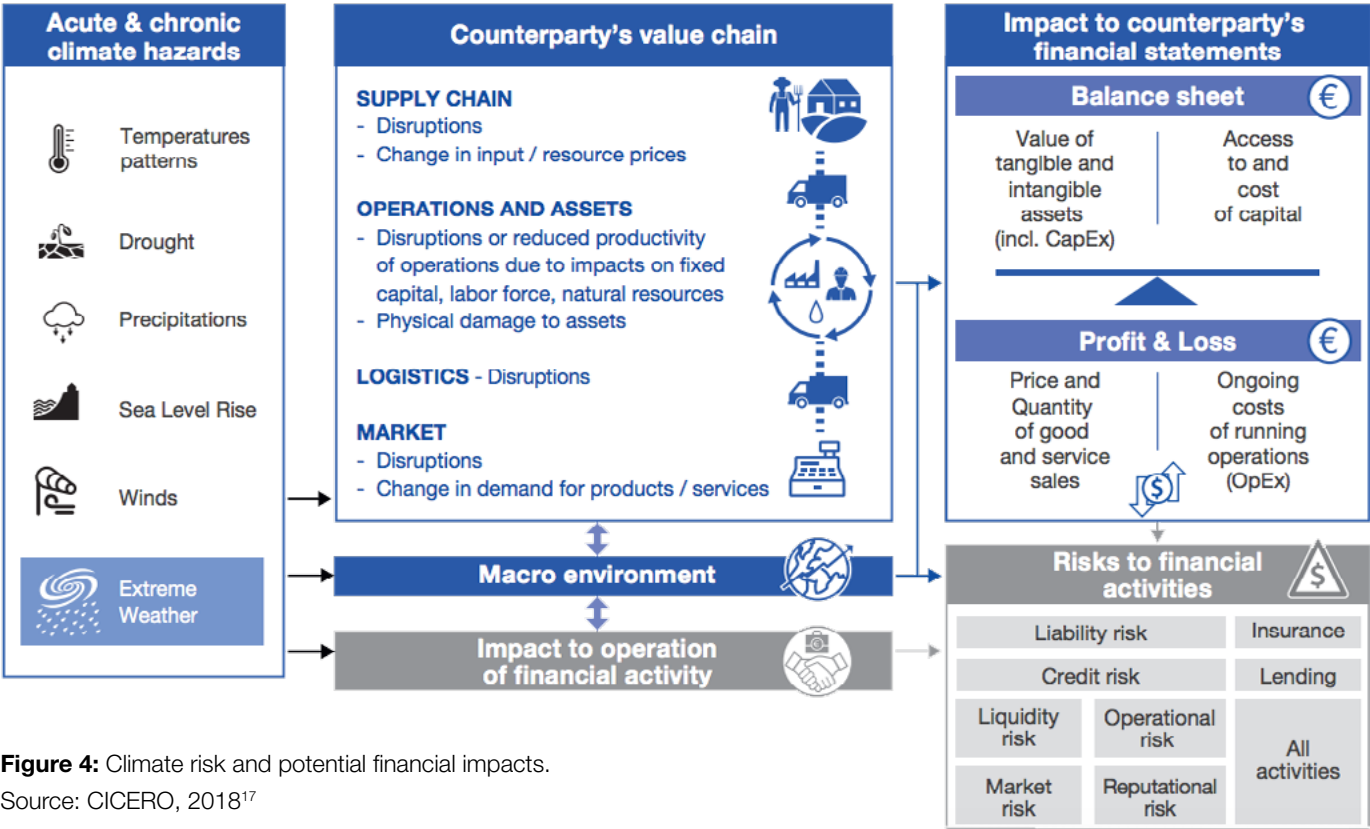
**Figure 3:** Climate-related risks, opportunities and financial impact. Source: TCFD report 2017<sup>12</sup>



institutions and provides guidance on implementing them. Currently, almost 300 institutions have started to implement these recommendations and also disclosure systems such as the Carbon Disclosure Project (CDP), with over 7000 companies responding, have picked it up and are including it in their questionnaires. TCFD identifies both climate-related risks and opportunities, and links them to financial impacts. Physical climate risks are divided by the TCFD report into two categories, including both acute (event-driven) and chronic risks (those due to longer-term shifts in climate patterns). To identify financial risks, investors can conduct physical climate-risk assessments. Assessments can show short-term physical climate risks that require immediate action. Specific scenario analyses can also identify long-term physical climate change risk hotspots, and robust policies can then alleviate those risks which could have a substantial impact. Currently however,

according to a recent study published in ‘Nature Climate Change’, companies and investors have large ‘blind spots’ regarding physical climate risks.<sup>13</sup> 69% of the 1,630 companies studied underreport risks to investors, resulting in an adaptation ‘reporting gap’. Investors run substantial risks when physical effects of climate change are not properly identified.

The Dutch Central Bank recently (2018) advised investors to conduct physical climate risk assessments and report their findings to stakeholders.<sup>14</sup> In Norway, actors such as Finance Norway and the Norwegian government are assessing the risks from physical impacts of climate change on the Norwegian economy and expect from the companies in which it owns shares to understand the risk posed to their activities by climate change, in order to be able to correctly measure and effectively manage them.<sup>15</sup>



**Figure 4:** Climate risk and potential financial impacts.

Source: CICERO, 2018<sup>17</sup>



## B Managing physical climate risks

For investors, physical climate risks can unfold in many different places of the value chain and sometimes far away from their direct influence.<sup>16</sup> Impacts may occur in supply chains of counterparts, in direct operations or disrupt their markets. Also, they can entail first-order impacts, e.g. extreme weather events, heat stress and water stress, and, second-order impacts, such as ecosystem-collapse, migration and impacts on human health. All these risks can influence the financial results of companies and governments and thereby create risks for the financial institutions that have vested interests in those companies, regions or governments.

The variety of different characteristics of physical climate risks make it particularly challenging to analyse and manage these risks. Figure 4 shows an overview of how different types of physical risks relate to the real economy and to the financial sector.

Comprehensive management of the physical consequences of climate change ultimately limits long-term financial risks for investors. This can be illustrated by the Global Vulnerability Index<sup>18</sup> (as displayed in figure 5) which gives a per country overview of vulnerability regarding climate change. It is clear that lower income countries on or below the equator bear the greatest risks. Investments there can mean greater susceptibility to physical climate risks for companies and investors. While divesting from vulnerable regions may limit first-order climate risk (e.g. water or heat stress), it does not address second-order risks (e.g. ecosystem degradation, social instability or migration), which may result in bigger impacts to political and financial stability. This is also emphasised by the Dutch Central Bank in a recent report: “Managing physical climate risks, rather than avoiding them, is expected to limit financial risks in the long-run.”<sup>19</sup>

Few investors and investor service providers are developing approaches on how to analyse and manage physical climate risks. Examples as PGGM, Acclimatise

and 427 have also been interviewed for this study. They all focus on how climate change may have an impact on investments. But as the risks from physical impacts can be very different, depending on a.o. the type of hazard, the location, the asset class, the value chain and the time horizon, these approaches still greatly vary. They do however all take an investor perspective on adaptation.

## C Adapting to physical climate risks

Climate adaptation can be defined as a response strategy to the physical impacts of climate change. Effective climate adaptation strategies will reduce the investor portfolio risk to the physical impacts of climate change and can create opportunities for investments in climate resilience.

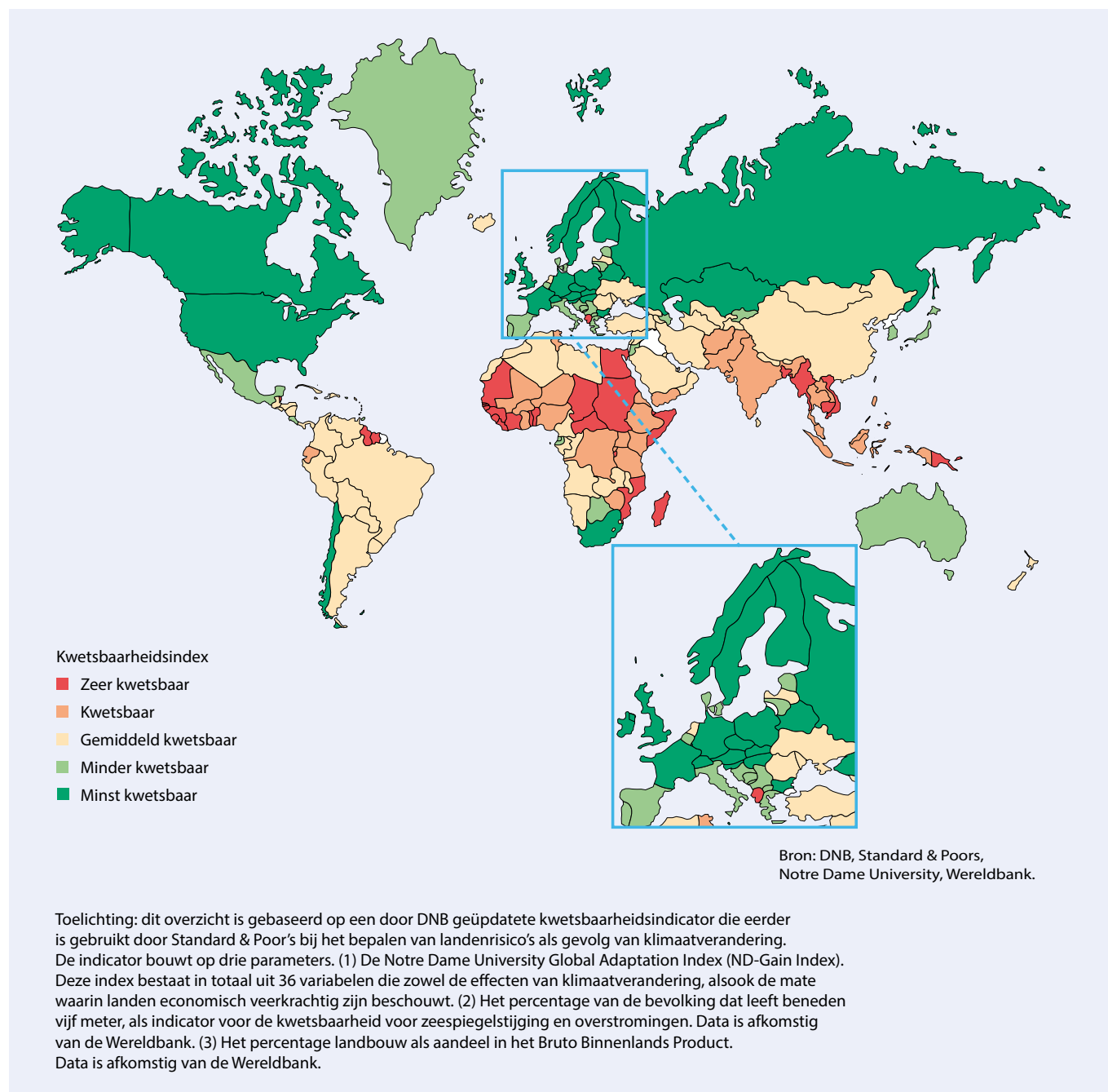
Ideally the investment decisions will also lead to improved (socio-environmental) resilience of the area that is exposed to these risks.

A comprehensive study published in ‘Nature Climate Change’ points out that companies often hold a limited view of climate risk and therefore lack comprehensive adaptation strategies<sup>21</sup>. The article states: “58 companies chose to shift production location due to climate change. While this may be an effective short-term risk management strategy, it abandons producers in the affected location, and it works for the company only as long as there is a new location to move to. Many companies’ myopic perspectives make it difficult for investors to assess when companies may be

### Climate resilience

“The capacity of social, economic, and environmental systems to cope with a hazardous event or trend or disturbance, responding or reorganising in ways that maintain their essential function, identity, and structure, while also maintaining the capacity for adaptation, learning, and transformation.”<sup>20</sup> (IPCC, 2014)





**Figure 5:** Global Vulnerability Index. Source: DNB, 2017

undermining wider socio-environmental adaptation”. To foster climate adaptation efforts by counterparts as companies and governments, investors can use responsible investment instruments for indirectly managing climate impact and for projects in which they directly invest, climate adaption criteria could be part of the investment criteria. Investment opportunities may very well arise from transforming fixed assets, green infrastructure projects, new products and new production processes.<sup>22</sup>

Examples on how investors can push companies and governments to make certain areas or industries more resilient, are engagement and impact investing. For instance, The Dutch Government, after calls from investors<sup>23</sup>, announced that it will issue a Green Bond that, among other projects, will be used to invest in flood protection.<sup>24</sup> For investors, this presents an opportunity and alleviates physical climate risks alike. Another example is the recently kicked-off consortium by the Dutch development bank FMO, SNV Netherlands Development Organisation (SNV), World Wide Fund for Nature (WWF-NL) and Climate Fund Managers (CFM) will manage the €160 million Dutch Fund for Climate and Development (DFCD), provided by the Dutch Government. This pioneering partnership of NGOs and financiers aims to help developing countries build climate resilient economies<sup>25</sup>.

These initiatives illustrate how investors can work together with governments, development agencies, companies and Civil Society Organisations to jointly address the physical impacts of climate change.<sup>25</sup> Investors need the expertise of CSO's and science to learn about the impact side and CSO's and governments need investors to direct finance in the interest of climate resilience. Not only of their investment portfolio, but also in terms of real-world socio-environmental resilience. For example, ecosystem-based adaptation, could become part of an overall adaptation strategy. It has been proven that ecosystem-based adaptation, such as mangrove ecosystems, can autonomously adapt to changing weather patterns better than any 'hard' or 'grey' infrastructure can. In addition, it often provides co-benefits, such as carbon sequestration, biodiversity conservation, enhanced water quality and recreational benefits. Currently, the private sector rarely considers all-encompassing adaptation strategies.<sup>26</sup>

### Ecosystem-based adaptation

**“The use of biodiversity and ecosystems as part of an overall adaptation strategy to help people to adapt to the adverse effects of climate change.”<sup>27</sup>**

(Convention on Biological Diversity)



## 2 Climate adaptation: Current state of investor practice

This chapter presents an overview of developments and challenges that can be gathered from the interviews conducted for this report. While it is mainly challenges that can be identified with regard to the climate adaptation policies and practices of investors, there are some developments, which shows that the topic is evolving.

### Challenges

#### *Investors focus mainly on climate mitigation over adaptation*

Investors are just catching up to climate change mitigation and transition risks. They see adaptation as a - necessary but extremely complex - next step.

#### *Climate adaptation is a complex and new topic for investors*

Many investors have only recently started to gain some understanding of climate adaptation. The physical impacts of climate change are a new and complex topic for investors to consider. One reason investors find it difficult to address physical climate risks in their equity portfolio is that they have less direct influence than a company. They are often removed several steps away from the actual assets.

Besides that, there are many types of physical risks with different impacts in different sectors in different industries and they may require different actions in different places and for different counterparts (companies, governments, projects).

#### *Physical climate-risk data is often unavailable and difficult to assess*

Investors and experts are often unable to access relevant physical climate-risk data. Proper disclosure from companies and investors is a first step. Assessing the data, building methodologies and providing tools to investors can then follow.

#### *Investors have not developed comprehensive adaptation strategies*

Investors mainly focus on mitigating short-term physical climate risks for their investments. Frontrunners assess extreme weather impact for their real estate and infrastructure assets. Soundly dealing with the consequences of climate change requires investors to also take into account longer-term socio-economic effects. Impacts on communities, such as ecological viability, human health and human resettlement, can lead to substantial financial risks.

#### *Most investors do not consider physical climate risks in their engagement activities*

Only two investors interviewed for this study indicated that they consider physical climate risks in their engagement activities. Investors mainly engage on mitigation. Investors would like to have more climate-related data. Leading investors who do engage on physical climate risks are better able to make sound decisions.

#### *Direct investments in climate adaptation miss evident financial returns*

Investors indicate that direct investments in climate adaptation are primarily a public responsibility because they don't see evidence of financial returns.

However, the two case studies in this report show there is a huge opportunity to transform current business practices and to invest in adaptation solutions together with governments. Garanti Bank shows that including extensive environmental indicators in financial decision-making can be successful from both financial and environmental perspectives.

#### *Investable opportunities with environmental impact are difficult to find*

Investment opportunities such as green bonds tend to favour mitigation over adaptation. In spite of high governmental and EU ambitions, investors struggle to identify direct investable opportunities that fit their financial and impact criteria. As one interviewee (page 19 of this report) indicated, green bonds often favour mitigation over adaptation because the former is easier to quantify.

### ***Climate adaptation strategies are understudied***

Information is lacking on what adaptation solutions work best. More research is needed to understand what adaptation strategies should be applied where. Currently, this increases the risk for investors and halts investments.

## **Going forward**

### ***The sense of urgency is growing***

Climate change impacts are becoming a reality for everyone to deal with, growing in both number and severity every year. Investors are beginning to realise that climate change is a risk for the present not just the future.

### ***The availability of data is increasing***

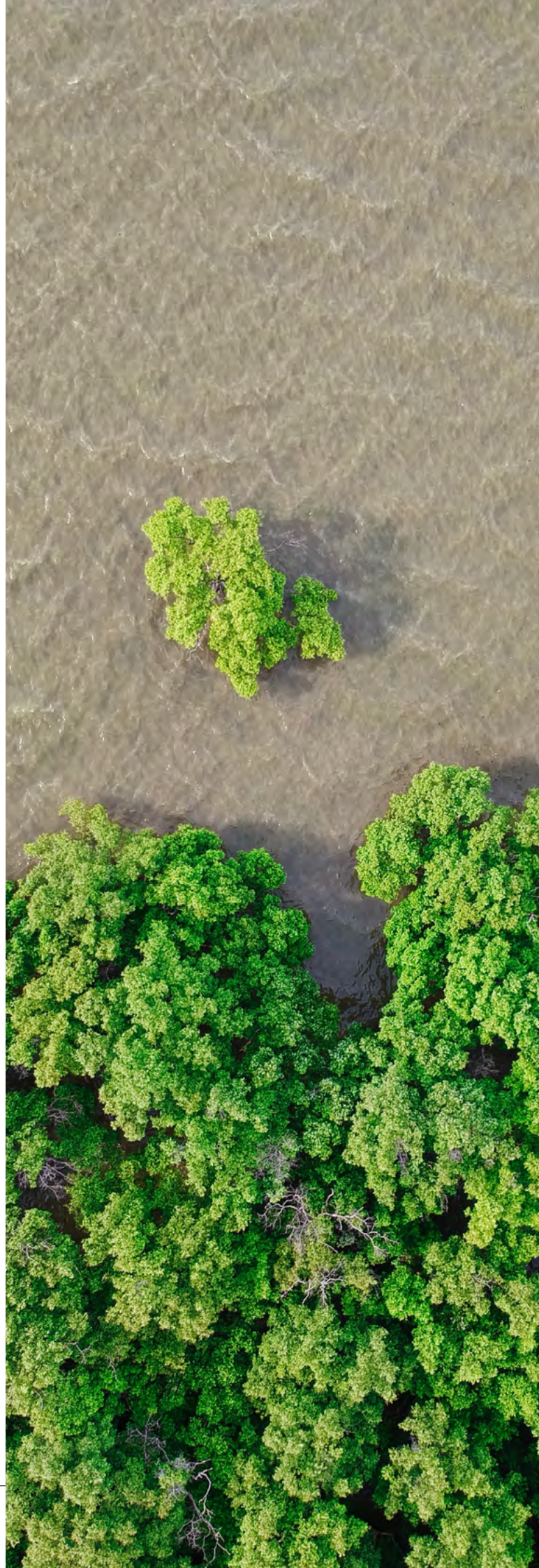
Lack of data is a problem for every investor. Nevertheless, technological developments are increasingly enabling specialised parties to collect and analyse specific physical climate risks for equity portfolios of investors. Amongst other issues, they can assess flood risk, heat stress and migration risk scores.

### ***TCFD can be a game changer***

The recommendation from the Taskforce on Climate-related Financial Disclosures reached the board members of asset owners. Asset managers are starting to gain an understanding of how to implement the recommendations. In addition, many companies have accepted that they need to implement them. Because data disclosure and scenario analysis are an important aspect of the recommendation, it can pave the way for comprehensive climate adaptation decision-making.

### ***We will see more public private cooperation***

Investors and experts indicate that CSOs and academic research are needed to further data and knowledge building on climate adaptation metrics and tools in which socio- environmental impacts and a public benefit perspective hopefully are well embedded. An interesting development to follow in the coming years is the consortium of FMO, WWF, SNV and CFM, who have formed a partnership to fund climate resilience.





### 3 Investor interviews

**Our assessment of the current situation of investor practices regarding climate adaptation is based on interviews with leading investors and experts. In total, three experts and eight investors were interviewed for this report. Two expert interviews, five investor interviews and two case studies are presented. The interviews mainly focused on three questions:**

- What is the current investor practice regarding climate change and climate adaptation in particular?
- What do investors need to do to become more active and effective in climate adaptation?
- What role can civil society organisations play for investors?

pensioenfonds



#### Investor interview: PGB Pensioendiensten

**Jacqueline van Voorthuizen** |  
*Portfolio Manager Balance Sheet Management*

##### *Can you explain your (pension fund's) vision on climate change?*

In line with the advice from the Task Force for Climate-related Financial Disclosures (TCFD), we instructed Mercer to conduct a scenario analysis. Mercer has assessed the complete portfolio and presented policy advice. It concluded that, on a sector basis, coal will lose six percent return in the worst-case scenario. Oil and gas will lose four to six percent of their return in 15 years. This was enough for us to start reducing thermic coal in our investments.

However, physical climate risks are really a step further away for us. The general opinion is that transition risks come first and the physical effects of climate change and insufficient climate policies will be felt later on. Yet, the problem is that the effects seem to be here already.

For our pension fund, we are developing a transition risk policy, but we actually see the physical risks of a 4°C scenario emerging. Therefore, we won't wait too long for the development of a physical risk approach.



#### Investor interview: Unilever Pensioenfonds (Progress)

**Rob Kragten** | *Executive director*

##### *Can you explain your organisation's vision on climate change?*

We are an investor with a long-term vision, which is why we look at long-term trends. In particular, with climate there are risks we have to manage and a responsibility as an asset manager to mitigate the effects. Our other two focal points are health and hygiene and sustainable agriculture.

##### *Does Unilever PF invest in climate adaptation?*

We would very much like to. We have a limited impact portfolio where we want to focus on physical risks, but it is extremely difficult to find investable opportunities. In addition, we do not have an organisation that can facilitate risk management and reporting for projects that we are speaking of. We have to manage the risks involved with investments and often the investment opportunities do not meet the risk profiles we would like. Currently, this is mainly what is holding it back.

##### *What is needed to make climate adaptation investable?*

It could be an option to work together with the government. It would be helpful if we could create a roadmap for climate adaptation projects. Maybe the covenant that will hopefully be signed in December can provide that.

### Has Unilever Pension Fund conducted an assessment of physical climate risks?

We have analysed the footprint of our portfolio twice, which was positive for us. We are not a top performer yet, but we are working on that. We are not there yet for physical risks. It is still a new topic for me, but it is important to get this moving. We have signed up with the TCFD.

### How can CSOs help to further climate adaptation?

We have a small portion (2 percent) of our portfolio dedicated to impact. However, we find it very difficult to fill this fund. I think we need to work together on this with NGOs. Trust in CSOs is low in the sector, but we need each other to further this.



### Investor interview: Allianz

**Paul Möller** | Head of Communications, Benelux

### Can you explain your organisation's vision on climate change?

Allianz is globally leading in the challenge of climate change. Climate change is first and foremost a risk that is going to change the world. Second, we want to provide solutions and provide opportunities. We are committed to the Paris Agreement and a transition to a low-carbon economy.

When it comes to physical climate risks, we focus on

### How Allianz deals with climate-related risks

Allianz determined the sensitivity to climate change for every asset class, and uses this to guide investment decision-making. The driver is to avoid assets with high exposure to climate change risk and to re-direct investment to assets with low exposure to climate change risks (green opportunities). At present, the local environmental impact of the investments is not considered.

Asset class	Equity Corporate Bonds				Sovereign bonds			Alternatives					Opportunity filter			
	Equities Emerging Markets	Equities Developed Markets	Corporate Bonds Emerging Markets	Corporate Bonds Developed Markets	Sovereign Bonds Developed Markets	Sovereign Bonds Emerging Markets	Cash	Commodities	Real Estate	Infrastructure	Private Equity	Hedge Funds	Renewables (Equity Bonds)	Green Bonds	Weather Derivatives	Catastrophe Bonds
Risk factor																
Sensitivity towards climate risk	↓	↓	↓	↓	↓			↕	↕	↕	↕	↕	↑	↑	↓	↓
Legend	<div> <div>high</div> <div>medium</div> <div>low</div> <div>none</div> </div> <div> Form of impact <div>↑ Opportunity</div> <div>↓ Risk</div> </div>															

**Figure 6:** shows the sensitivity of various investor asset classes to physical climate risks. Source: Allianz



two aspects. First, as an investor, we involve climate risk assessments in our investment decision-making. Second, we want to care for our customers and offer protection against physical climate risks, such as natural catastrophes and vector-borne diseases.

#### ***How do you involve physical climate risks in your investment instruments?***

Climate is an integrated part of our risk framework. Our strategy as an investor involves screening investments as well as getting into a dialogue with companies. In these conversations, we look for clarification on certain topics. The content of these conversations is confidential.

#### ***Do you ask for climate risk data from companies you engage with?***

Engagement is an important vehicle to understand what a company actually does. We can then stimulate and encourage them to take the next step. However, currently the biggest challenge is getting sufficient data. Not all companies sufficiently report on long-term trends. We work with external data providers and scenarios to gain an understanding. It helps us to make better investment decisions.

Since 2017, we have been involved in the Climate Action 100+ initiative. Through this initiative, we speak with the giants of industry on climate adaptation and physical climate risks. These companies often have the knowledge on how to do it differently. They have to make the choices for green investment instead of the grey alternatives.

#### ***Are there opportunities in climate adaptation?***

As an insurer, there are opportunities. For example, we provide insurance against weather damages and volatility in production for renewable energy facilities. There are more and different risks that have to be covered. As an investor, opportunities continue to emerge. We do have investments supporting mitigation, e.g. in renewable energy, green bonds and green buildings. We are looking for opportunities in the field of low-carbon investments.

#### ***What do you need from civil society organisations?***

The most important thing is to be in dialogue. As a company, we regularly speak with WWF. WWF has research power to exchange information on prevalent Environmental Social and Governance (ESG) issues and to help other organisations with environmental risks.



#### **Investor interview: PGGM**

**Han van der Hoorn |**

*Senior Advisor Responsible Investment*

#### ***Can you explain PGGM's vision on climate change?***

The following quote stuck with me: "Transition risks are risks that can go either way. But physical risks are more predictable, they are a consequence of what we have put into the atmosphere already". Our largest client, PFZW, has the ambition to halve its CO<sub>2</sub> footprint by 2020. To support this ambition, we have asked an external consultant to conduct a risk assessment of our portfolio because we want to understand what climate change really means for our investments from a risk-based perspective.

#### ***What is PGGM currently doing to assess physical climate risks?***

While transition risks have been longer on our radar, investors in general have only recently started to consider physical risks of climate change. Currently, we are assessing our global real estate portfolio on the risk of sea level rise, droughts and extreme weather events. We have started with real estate, but this can evolve to physical locations of companies and other investments. We realise that we are dependent on corporate disclosure for such an analysis. At the moment, we do not ask such specific information from companies. But I suspect we will in the future.

***Does PGGM invest in climate adaptation?***

Indirectly, we invest a lot in adaptation, in particular through our investments in government bonds. From my perspective, direct investment in adaptation seems really difficult. For example, strengthening a dyke is a typical public sector responsibility, done for society at large. It is difficult to think of a business model for that. This makes it very difficult for private investors to step in. At the moment, investment in climate adaptation does not have an evident return rate.

***Do you involve local civil society organisations (CSOs) in your decision-making process?***

When we analyse projects, we often involve local legal expertise into our decision-making process. There is no reason why we cannot involve local CSOs in investment decision-making, especially, when there are environmental concerns.


**Investor interview:**  
**BPL Pensioen and Achmea**  
**Investment Management**

**Jan Karstanje (JK)** | *Board advisor of BPL Pensioen*

**Dennis Teijssse (DT)** | *Responsible investment advisor, Achmea Investment Management*

***Can you explain your organisation's vision on climate change?***

JK: BPL Pensioen wants to pay out a good pension to the beneficiaries. Thereby we have the conviction that responsible investment leads to a better liveable world for the beneficiaries and offers a better risk-adjusted return in the long run. That is why we pursue goals related to, amongst other issues, climate change. For example, we set a carbon reduction target of 50 percent for our equities portfolio by 2020. This target was achieved in 2017. We did it by making use of a

best-in-class policy, where we divested from the 30 percent least performing companies on ESG, and by applying carbon optimisation on the remaining part of the index to reduce the footprint below the desired level.

***Why is climate adaption often not included in the climate policy and practice of investors?***

DT: BPL Pensioen has had a specific climate policy since 2015 as part of its overarching responsible investment policy. In general, I see the awareness about climate risks increasing among investors. In my experience, the attention is often still focused on mitigation and transition risks, although adaptation is gaining some attention. The TCFD recommendations are also beginning to gain traction and are discussed more frequently by pension fund boards. This can be a catalyst for further action; however, developments can take time, particularly when the financial risks of climate change are not determined for the short-term and are accompanied by a lot of uncertainty.

***Do you already report in line with the TCFD recommendations?***

DT: Yes, BPL Pensioen gives substance to the majority of the TCFD recommendations on governance, strategy and risk management. Undertaking climate scenario analysis to better understand the resilience of the investment strategy remains challenging. A pilot for the credit and equity portfolios has been conducted, in which the scenario model of the 2°C investment initiative has been used. The results give preliminary insights into how the portfolio is positioned in relation to climate scenarios. While there are many uncertainties about the quality of analysis, we see the results as valuable input for the engagement programme.

***Have you conducted assessments of physical climate risks?***

DT: Yes, for the equity and credits portfolios all kinds of ESG risks are assessed on security level. These include physical climate risks; however, the extent to which the theme is found to be relevant differs per sector.



The insights gained from these analyses form the starting point for further dialogue in the engagement programme.

***On what physical climate risks do you engage currently?***

JK: We focus on two themes for engagement that resonate with the agricultural sector: climate and water. Given the availability of information and data, the emphasis of the engagement programme is currently on climate. At the moment, sufficient data on water is missing. But, we have asked our fiduciary manager Achmea Investment Management to work on the topic and to engage with companies to better understand water-related risks and increase access to quantified data.

***How does Achmea IM structure engagement on this topic?***

DT: Thematic engagement always starts with a preliminary study, in which the importance of a theme is explored and the possibilities to generate change are analysed. We use different sources for this process; however, research from MSCI ESG is an important source to assess the performance of companies. Regarding physical climate risks, we have seen the interdependencies between water and the supply of energy and thus the need to organise water management properly. At the core of the engagement with the energy sector, is our expectation for companies to have a water risk management system, to minimise their water footprint and to be transparent about the

existing water risks. This is in order to understand the risks and the ways in which companies approach these risks.

***Do you see opportunities in climate adaptation?***

JK: Yes, making the living environment more resilient to climate change and the energy transition itself both require large investments and this brings opportunities. In 2019, we will start an investigation into whether a larger allocation to impact investment in real assets can be realised for BPL Pensioen. However, finding suitable investments that fit the risk profile is very difficult. We are mainly looking for professionally run investments that are scalable and for investments that have a clear relationship with our spearheads on water and climate. A link to the agricultural sector is not a requirement in itself, but it would be a positive extra.

DT: BPL Pensioen has given its fixed income managers a very clear mandate to increase green bond investments. However, when we take a closer look at the use of proceeds we see that green bonds are mainly focused on projects related to mitigation. There are, of course, positive exceptions, such as the green bonds of NWB Bank, but in general climate adaptation projects seem to be funded less often with this instrument. Perhaps such projects are simply less present on the balance sheet of issuers or maybe issuers are somewhat reluctant to add these projects to the eligibility criteria because it is more difficult to quantify the impact of such a project.

## 4 Expert interviews

The interviews with investors give an indication of what they're currently doing with regard to climate adaptation. To identify what investors can do and should be doing, we spoke to experts who assess physical climate risk data for investors and highlight gaps in investors' analyses. For now, focus is on the risk perspective of the investors, not society as a whole. While experts try to influence investor decision-making as a broader social development issue, investors use their data to improve the risk analysis of investments. Broader environmental issues and climate resilience is currently not taken into account.



### Expert Interview: Acclimatise

**Dr. Richenda Connell** | *Founder and COO*

**Robin Hamaker-Taylor** | *Policy Analyst*

**Laura Canevari** | *Business Development Associate*

#### ***Why should investors gain an understanding of physical risks from climate change?***

There is an 'old school' view that adaptation is really an issue for the public sector. The adaptation sector was all about flood defence etc. But actually, we are very clear and our clients are very clear that there are also a lot of actions that the private sector needs to take, in order to make itself more resilient and to protect its investors. In fact, we are increasingly working with the private sector. It is quite interesting that we are servicing the oil and gas and mining sector to adapt to climate change.

#### ***What role can investors play to foster the understanding of physical climate risks?***

Asset owners have been instrumental in some jurisdictions in beginning to raise the issue of climate risk, though much of the action has been around transition risks. Asset owners, as they sit at the top of the investment

chain, have an important role to play in engaging with their asset managers and their investees on physical climate risks as well as transition risks. Investors should engage with companies they invest in, to request disclosure of relevant information. TCFD has already and will continue to have an influential role regarding disclosure on this topic. In the meantime, investors should start to analyse physical risks in their portfolios as it will take some time to have widespread corporate disclosure.

The information that investors and financial institutions need in order to understand physical climate risks is often not published by companies. Therefore, when we were recently developing a methodology for banks to use to analyse physical climate risks and opportunities, we had to go back to basic information. We asked: "Where do companies that banks lend to have their physical assets, and which locations are most at risk from climate change, such as incremental changes in climate variables or extreme events?" This should be the starting point for investors too, as they look to understand and analyse physical climate risks and associated opportunities in their portfolios.

#### ***What if investors, from a risk-based perspective, pull away their investments from certain regions?***

When financial service providers evaluate physical risks, and determine that developing countries are more at risk, it could have the effect that capital is diverted away from these regions. This is something we think is not going to be helpful and should not be encouraged. At Acclimatise, we seek to put climate resilience in a context of our clients' wider ESG motivations. We point out the need to think of climate resilience as a human rights and social development issue. This is the underpinning of TCFD as well. The backdrop to all of this is that we need to work towards building climate resilience in a macro-economic context.

#### ***What is needed to foster nature-based adaptation solutions?***

CSOs have an important role to play in coordinating nature-based solutions projects, which larger investors





are often not involved in. For example, a lot of the projects around nature-based solutions in Latin America are funded by the public sector. There is a very strong opportunity, however, for the private sector to engage, e.g. through Public Private Partnerships. In addition, alternative financing products could be developed to further these projects.

***What questions should asset owners ask their asset manager in order to become climate resilient?***

- Has the asset manager assessed if physical risks and resilience are going to be relevant for the performance of their investments?
- Has the asset manager identified concentration of risks?
- Has the asset manager identified if there are hotspots of risks?
- Has the asset manager identified opportunities in climate resilience?

What is the asset manager's strategy for evaluating physical climate risks?



Four Twenty Seven

**Expert Interview:  
Four Twenty Seven**

**Emilie Mazzacurati** | *Founder and CEO*

**Nathalie Borgeaud** | *Director Europe*

***How do you assess the physical climate risks of investors?***

It is not easy to assess and process climate data. Mainly our work is to make the data relevant and comprehensible for investors. We use various scientific databases to score and analyse financial portfolios. For equities, we have scored one million asset locations of companies on their physical climate risks: heat stress, extreme precipitation, hurricanes & typhoons, water stress, sea level rise and socio-economic risk. Investors can use this analysis to improve their investment decision-making.

### ***What is needed to improve climate risk assessments?***

At the moment, it is difficult to get appropriate data from companies. This is even more difficult for financial institutions. Unfortunately, their portfolio data is not publicly available. To better assess physical climate risks, we need banks and investors to disclose what they hold in their portfolio. TCFD can be a game changer in that. If companies and financials disclose a sufficient level of data, we would be better able to assess their risks.

### ***What are investors doing with regard to climate adaptation?***

We see our client base growing, out of regulatory motivations mainly. Frontrunners in the financial sector are currently focusing on the real estate and infrastructure portfolios and on which assets are most exposed. In addition, some are creating investable products around climate adaptation. But investors are not there yet; apart from decision-making around infrastructure projects, they do not use climate risk data. A reason for this is, when you look at their assets, investors are often four to six steps away from the real asset. They have to go through companies and other entities or financing vehicles. Investors need to understand the risks they are facing, before they can assess the risks and act on them. This is easier for companies, as they directly own the assets and also their reputation is involved.

### ***What should investors do?***

Assessments of physical climate risks is a first step. Once investors understand the risks, they can act: reallocate their portfolios, engage with companies and invest in resiliency projects or companies that are more resilient to climate change.

### ***Do you see different perceptions of climate risks for investors, companies, government and CSOs?***

Different organisations have different motivations to come to the table. They can be risk, opportunity or regulation-driven and focus on micro and macro-

economic risks. We disagree with the notion that macro-economic risks are not that high for investors. We see a lot of questions coming our way about macro-economic issues. For us, it is very much a priority to understand this area. Crucially, businesses, investors and governments need to engage with each other to overcome multi-governance problems such as social development.

### ***Are there opportunities for investors?***

Corporations and investors are increasingly realising that they depend on local governments for adaptation support. For example, we work with a global shipping corporation. For them, we did an assessment of which ports are at risk from climate change. The conclusion is that for adaptation solutions, corporations are very dependent on local governments. Companies and investors need to understand that they can play a role in assisting (local) governments. That support can be technical, scientific or financial.

### ***What is the biggest challenge?***

Currently, we do not understand what type of adaptation works best and what to do when risks have been identified. We see a large role for CSOs and science in finding the answers. For example, the lack of comparable data about nature-based solutions at the moment is a problem. There is not a manual that investors can rely on when it comes to investing in nature-based infrastructure, which makes it actually riskier for investors. We need a lot more research to find out how assets will perform under certain conditions. CSOs have specific and local expertise that can be of great value here.



## 5 Case studies

**While it is still difficult to identify opportunities for involving climate adaptation in investment decisions, they do exist. In this chapter, two case studies are presented: a Turkish bank that uses an extensive environmental risk assessment process looking at physical climate risks, and a nature-based adaptation investment by the World Bank that cost-effectively protects citizens in Sri Lanka.**



### Case study 1: Garanti Bank

Taken from 'The business case for responsible corporate adaptation: Strengthening private sector and community resilience: A Caring for Climate report' (2015).<sup>29</sup>

Garanti Bank (a subsidiary of Spanish bank BBVA) uses an extensive environmental and social risk assessment process to enhance financial, ecological and social decision-making. This case study shows how two projects run by clients of the bank were altered according to the outcomes of the assessment process. The following line of text is retrieved from the The business case for responsible corporate adaptation: Strengthening private sector and community resilience: A Caring for Climate report' and is slightly redacted for the purpose of this report.

Climate change impacts create new concerns for lenders and financial institutions. Extreme weather events, such as severe storms or floods, can not only damage retail banking facilities, but also impact vulnerable sectors dependent on stable weather patterns, such as agriculture. This can potentially lead to income loss and affect the ability of customers

to repay loans. Garanti Bank believes that the main water-related risks their company is exposed to lie in downstream impacts arising from financing activities. To help minimise and manage water, climate, environmental and social risks that may affect potential customers, as well as to reduce the water footprint of projects that it finances, Garanti Bank established its Environmental Impact Assessment Process (the Process) which encompasses both their Environmental and Social Loan Policies (the Policies) and the Environmental and Social Impact Assessment Model (the Model). The Policies guide the extension of all loans at Garanti Bank, from consumer loans to project finance activities, without exception. In addition, the bank applies the Model to large-scale projects that are defined as greenfield or brownfield investments with an investment value of more than \$20 million. Putting the Process into place has positioned Garanti Bank as the first commercial bank in Turkey to implement a thorough approach to managing climate and environmental risks and to advancing climate adaptation for the financial sector. It ensures that projects are assessed and graded according to their sensitivity to climate change, risks due to location and their potential social and environmental impacts.

Funding criteria for the Policies focus on avoiding negative impacts on water quality or quantity at the location where the project is to take place. As a result of the Policies, the bank does not finance any projects or activities in wetlands zones as defined by the RAMSAR convention.

Furthermore, if the project location is found to be in close proximity to sensitive wetlands or protected areas, relocation of the project may be requested prior to financing. Any project may be rejected for failing to meet the criteria outlined in the Policies.

Garanti Bank sees the occasional rejection of loan requests as a normal corollary of the Policies, and believes that avoiding these high-risk projects will

improve its long-term business performance. Projects that do not comply with the requirements set out in the Policies run the risk of not being financially sustainable and could lead to a default. Therefore, the bank not only assesses and evaluates projects prior to granting loans, it also closely monitors, together with partners, the project's adherence to the Policies throughout the repayment period of the loan. In 2014, all loan requests were assessed against the Policies, regardless of the loan type and size. As a result, six loan requests were directly rejected due to non-compliance, without further assessment. Furthermore, 29 project site visits were conducted to monitor ongoing compliance and corrective actions were requested from the borrowers where necessary.

Garanti Bank's Policies have provided a useful framework to help customers integrate climate considerations into their own decision-making process. For example, as a result of the Policies, one of the bank's borrowers was able to identify the expected climate change-related impacts on the internal rate of return for a proposed hydropower plant project. Given these results, Garanti Bank advised the borrower to conduct further assessments to better understand potential risks to the project. The borrower worked with two universities to conduct additional assessments and found that the water flow in the river basin would likely fall 15 percent by 2030 due to reduced precipitation, resulting in a 14.5 percent reduction in electricity production. Accordingly, the borrower ultimately decided to move forward with a geothermal plant rather than the hydropower plant project in order to increase the financial return on their investment.

For another project, in order to protect the continuity of a riverbed ecosystem within a project site, an additional investment was made to collect cooling water from the sea rather than the riverbed, following Garanti Bank's environmental assessment. A desalination plant, which was not originally planned by the borrower, was built upon Garanti Bank's request. Consequently,

the riverbed ecosystem was protected and the local community continued to have access to sufficient water for irrigation purposes.

The primary challenges that Garanti Bank faced when implementing the Policies were its clients' initial negative reactions due to new and more rigorous processes being put in place, as well as a lack of awareness about the near and long-term benefits of such policies. These reactions also fuelled competition concerns due to the fact that other similarly situated banks do not have similar policies in place. To raise awareness and understanding about the business case of the Policies and the resilience benefits they provide, Garanti Bank delivers annual trainings to its clients, other financial institutions, employees and top management. Following its pilot completion in Turkey, the bank now plans to replicate the Process and the implementation of the Policies and the Model in its subsidiaries in Romania, Russia and the Netherlands.



## THE WORLD BANK

### Case study 2: Ecosystem-based adaptation solution for Sri Lankan flood protection

Adapted from 'Urban Wetlands Management in Colombo: A new model for urban resilience', World Bank (2018).<sup>31</sup>

The World Bank recently funded a project in Sri Lanka to prevent flooding through comprehensive urban wetlands management. Increasing events of heavy rainfall and disregard for its unique natural position have caused devastating flooding of the country's capital city. In recent years, several heavy floods have displaced millions of people and halted economic activity. The World Bank noted that in the worst-case scenario, climate change could result in a decline in the

Gross Domestic Product (GDP) of Sri Lanka by more than 7 percent by 2050. Without sound adaptation, the country will face severe social development issues.

Colombo is built in a low-lying coastal area that always relied on the surrounding wetlands for flood protection against the monsoons coming in from the Indian Ocean. However, since the economy boomed and the capital rapidly invested in development, not much attention has been given to its natural surroundings. The city's natural flood protection system has been largely built over. In addition, due to the warming-up of the ocean, heavy rainfall has intensified, increasing the severity of flood risk dramatically. It is not surprising that a comprehensive analysis of rainfall and flood patterns stressed the criticality of wetlands for flood regulation.

The study resulted in a strategy to provide urban resilience to climate change. A combination of natural and man-made wetlands were proposed, that now perform as a basin to absorb 39 percent of the flood waters during extreme weather. The wetlands also provide co-benefits for Colombo. For instance, the wetlands cool surrounding areas, bring fresh water and food to local communities, store carbon, regulate erosion and have recreational benefits. It has been estimated that the wetlands in Colombo could generate \$13 million in yearly revenues. The World Bank, in cooperation with the Sri Lankan government, has provided for a cost-effective ecosystem-based solution for flood risk management, hereby protecting 232,000 residents from flooding.







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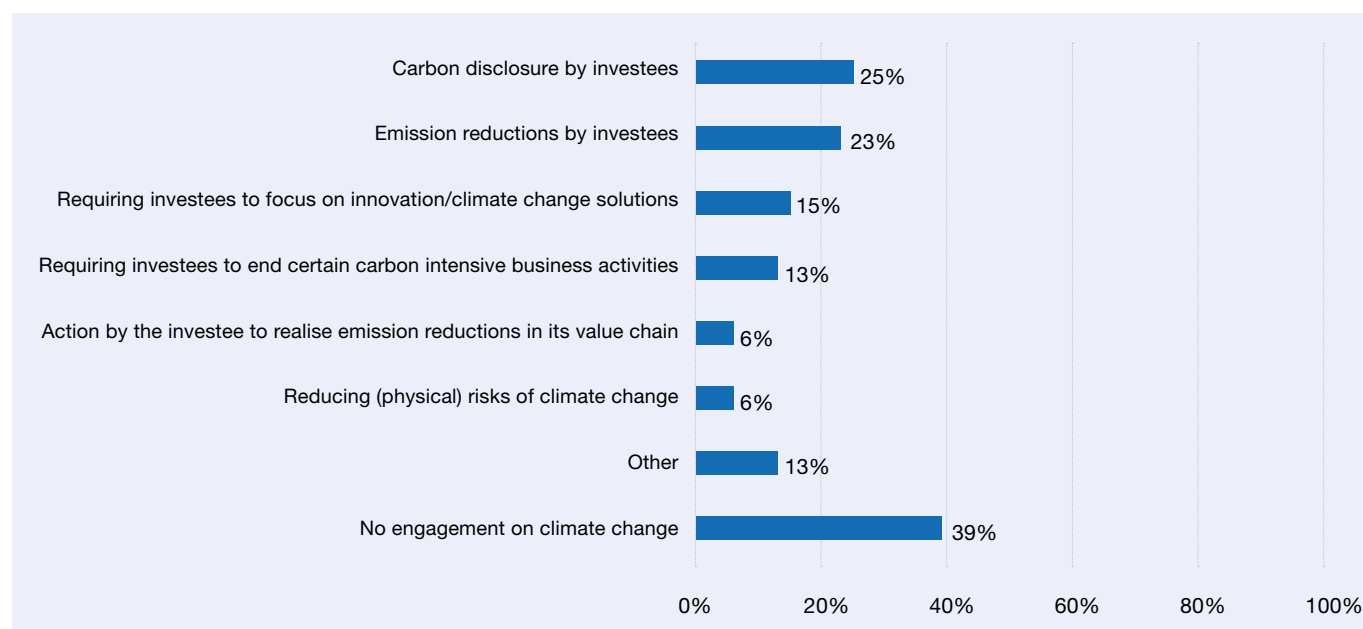


## Appendix 1: Climate change and pension funds in the Netherlands

As a preamble to this report, in 2017, VBDO published a study entitled ‘Dutch pension funds and climate change’.<sup>32</sup> 63 percent of the funds surveyed do not regularly discuss climate change with their asset manager and only 24 percent have a climate specific policy. Those pension funds who do consider climate change focus on mitigating the causes, rather than adapting to the consequences. Neither physical climate risks nor climate adaptation investments are usually taken into account by pension funds in the Netherlands. The 50 largest pension funds were asked if they assess climate-related risks, earmark funds for climate change adaptation and/or include physical climate risks in engagement. Some of the results are:

- Almost half (42%) of the largest pension funds in The Netherlands have started to assess their climate-related risks. However, a large part of these funds (34% of the total funds) do not take actions yet to mitigate climate risks. It should be noted that climate-related risks relate to transition risks, more so than physical climate risks.
- At present, investing in climate adaptation is not common practice among investors. Only very few pension funds (5%) in The Netherlands have invested in climate adaptation specifically.

Few pension funds involve physical climate risks in their engagement activities (see below).



**Figure 9:** Distribution of engagement themes – Dutch Pension Funds and Climate Change: Now is the Time (VBDO, 2017).







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