

Fundamental Material Drivers

Principles for screening and
categorising companies

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1 Introduction

Society is at a crossroad. It is widely acknowledged that current economic behaviour is putting the planet and society in danger. Human activities have driven the world beyond multiple planetary boundaries while short falling social foundations. Bringing our society back into a safe and just space for humanity is our generational challenge and demands a transition to a sustainable world that meets human needs. ACTIAM believes that the financial sector has the fiduciary duty to lead this transition. Moreover, ACTIAM recognises that entities performing well on financially material environmental, social and governance (ESG) issues have a better financial performance than entities performing less good on these issues.¹ For that reason, ACTIAM delivers investment solutions to its clients with the objective to optimise longer-term financial, environmental and social returns. These solutions reduce material ESG risks of the investments and create attractive and enduring financial value to ACTIAM's clients as well as sustained social value to society.

ACTIAM's sustainability policy gives a holistic and forward-thinking view on the roles of investors to guide the transition towards a sustainable society in which companies can prosper while respecting social and environmental limits, now and in the future. The ACTIAM Sustainability Policy is described in detail in a separate document and summarized in the textbox "ACTIAM's Sustainability Policy". An important component of this policy is the categorisation of the companies in the investable universe according to their capacity to prepare for the transition risks they face. The current document describes ACTIAM's approach in assessing how companies manage the environmental, social and governance (ESG) related risks and opportunities to which they are exposed due to this transition. This is done for seven business drivers. These business drivers reflect the extent to which companies change their behaviour towards the sustainability transitions.

Before discussing the approach per driver, chapter 2 describes the basic principles that apply to all drivers. This chapter describes which drivers are evaluated and how ACTIAM categorises the companies in the investable universe. The exact approach for each driver is discussed in chapter 3 and 4. Chapter 3 concentrates on four environmental drivers: fossil fuel use, water use, land use and chemicals use & waste management. Chapter 4 discusses the three social and governance drivers: human capital management, social capital management and organisational behaviour & integrity.

¹ See e.g. Khan, M., G. Serafein and A. Yoon (2018). Corporate sustainability: first evidence on materiality. *The Accounting Review*, 91(6), pp. 1697-1724. Sustainability topics are financially material if they are likely to affect the financial condition of companies.

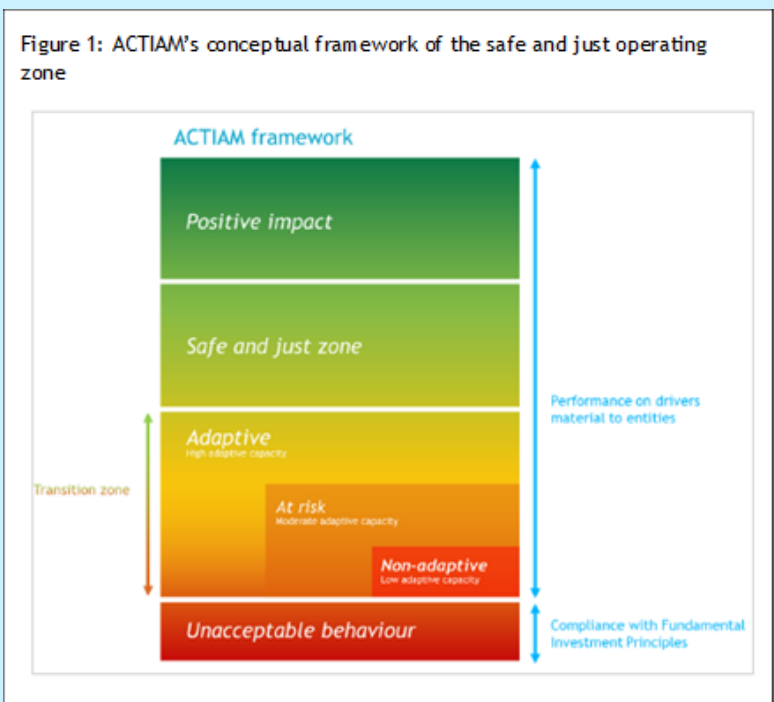
ACTIAM’S SUSTAINABILITY POLICY

The transition towards a sustainable society creates risks and opportunities to companies. ACTIAM considers how the transitions are material to the companies in which it invests and to its clients. It encourages the companies to prepare for the new challenges they are facing. At the same time, ACTIAM contributes to paving the pathway towards a sustainable society while creating added value to its clients.

ACTIAM’s Sustainability Policy aims to bring its investment portfolios in line with the planet’s so-called safe and just operating zone for humanity. The safe and just zone combines the frameworks of the Planetary Boundaries (Rockström et al., 2019) and the doughnut economy (Raworth, 2018). It conceptualises that in a sustainable society environmental pressures do not overshoot planetary boundaries. In addition, it argues that in a sustainable society wellbeing does not fall short on minimum universal social and governance norms. In this zone, companies have passed through a transition and operate within the planetary boundaries and respect the social foundations - see the “ACTIAM Sustainability Policy” document. To give an example, they are on track to become climate neutral as agreed by the Paris agreement, contribute to the elimination of deforestation, provide their employees with a safe working space and do not engage in bribery. Various international agreements and science-based initiatives outline pathways for companies to make the transition towards the safe zone.

ACTIAM evaluates whether companies operate in this safe zone or are far removed from this point - see figure 1. The first step is to evaluate whether a company complies with ACTIAM’s Fundamental Investment Principles or exhibits unacceptable behaviour. In the second step, should they comply, it is evaluated how they manage the financially material ESG related risks and opportunities to which they are exposed and whether this qualifies them from operating in any of the five remaining zones in figure 1.

- **Positive impact:** Entities taking the opportunities to make a positive and intentional contribution to the Sustainable Development Goals while operating within the planetary boundaries. Through their positive contribution, the entities expand the safe and just zone and create positive impact;
- **Safe and just zone:** This category contains entities that properly manage the risks they are exposed to by the ongoing transitions, operate within the boundaries of the safe zone or on the required pathway towards the safe zone, but do not create positive impact;
- **Transition zone - adaptive:** Entities (still) operating outside the boundaries but already close to the required transition pathway, are considered to be adaptive. They have the adaptive capacity to prepare themselves for the material and operational risks that the transitions bring about.
- **Transition zone - at risk:** Entities operating outside the boundaries, not operating on the required transition pathway and having unmanaged risks, are considered at risk. They currently lack the adaptive capacity to prepare themselves for the material risks that the transitions bring about and therefore are vulnerable to operational risks. Yet, with some extra effort, they may develop this capacity and reduce their risks;
- **Transition zone - non-adaptive:** Entities operating outside the boundaries, far removed from the required transition pathways, and lacking the capacity to bring risk management up to standards, are considered non-adaptive. These entities lack sound management strategies on the material topics, are exposed to high risks and therefore run serious operational risks in the short- to medium-term.










2 General approach

ACTIAM assesses for each company whether they operate within the safe and just operating zone or are the pathway towards this zone. To do this, the material ESG behaviour of each company is assessed. This behaviour indicates how they are positioned in relation to the safe and just zone.²

2.1 MATERIAL DRIVERS

From the planetary boundaries and the social themes that jointly define the safe zone, ACTIAM deduces seven behavioural drivers. These drivers reflect how company behaviour puts pressure on the planet and society. Four drivers representing environmental behaviour and three drivers reflecting social and governance behaviour - see Table 1.³ These drivers indicate whether the companies have the adaptive capacity to prepare for the transition risks they face. They also indicate whether they can use the opportunities for creating positive impact. Each of the drivers can have an impact on multiple planetary boundaries and social themes.

Table 1: Behavioural drivers reflecting how companies put pressure on the safe zone.

Drivers		
	Fossil fuel use	Management of fossil fuels use, impacting among other things climate change, air pollution, energy availability and human health.
	Water use	Management of freshwater use in water scarce areas, impacting among other things water availability, water quality, health and food production.
	Land use	Land conversion management especially for agricultural purposes, impacting climate change, biodiversity loss, and water flows but also local communities and inequalities.
	Chemicals and waste management	Management of toxic and long-lived chemical substances and hazardous waste and plastics, impacting the environment and human health.
	Social capital management	Actions to maintain the license to operate on which businesses and sovereigns depend, impacting human rights, community relations, social equity and access and affordability of for instance health care and finance.
	Human capital management	Activities related to labour and union rights, employee health & safety and labour practices, impacting educational opportunities and income and gender inequality.
	Organisational behaviour and integrity	Actions to create an ethical business environment, impacting community networks, justice and work conditions. For companies this refers to their own business model, but also to how they treat companies up- and downstream in their value chain. For sovereigns this refers to how they govern human, civic and political rights.

Not all drivers are equally material to a company; this differs per sector. Following the GICS sector division, table 2 shows per sector which drivers are material.⁴ Therefore, in the evaluation, for each company, emphasis is put on the drivers that are classified as material.

² Note that it is not measured to what extent the planetary boundaries or social foundations are crossed. Focus is on the behaviour that causes companies to cross or operate within the boundaries. This provides the information that is necessary to change the behaviour that causes them to operate outside of the safe zone. This also provides inputs in ACTIAM's active ownership strategy to propose changes to company behaviour.

³ These drivers are specific enough to formulate how entities can reduce the pressures for the challenges that currently receive most attention. They are also broad enough to incorporate newly emerging pressures related to new and currently unknown challenges. If deemed necessary, new drivers can be added without having to change the conceptual framework.

⁴ With respect to their procurement, we expect companies in which we invest to adhere to the criteria in this memorandum. We also expect them to use these criteria in their contracts with subcontractors and suppliers

Table 2: Materiality map showing which drivers are material to the various sectors.

Sectors	Business drivers						
	Fossil Fuel use	Water use	Land use	Chemicals & Waste Man.	Social Capital Man.	Human Capital Man.	Organisational Behaviour & Integrity
Consumer discretionary	●	—	—	—	●	—	●
Materials	●	●	●	●	—	●	●
Financials	—	—	—	—	●	●	●
Consumer staples	●	●	●	—	●	—	●
Health Care	—	—	—	●	●	—	●
Real estate	●	●	—	—	●	—	●
Industrials	●	—	—	●	●	●	●
Communication services	—	—	—	—	●	●	●
Information technology	●	●	—	●	—	●	●
Energy	●	●	●	●	—	●	●
Utilities	●	●	●	●	—	●	●

● = Material for most companies in the sector

— = Not likely to be material for any of the companies in the sector

Note that materiality is not necessarily the same for each of the sub-sectors within a certain sector.

2.2 CATEGORISING COMPANIES

For each driver, ACTIAM measures a) the company’s **risk exposure** of not operating in the safe zone and b) their **adaptive capacity** to manage these risks and make the required transitions.⁵ Highly exposed companies adapting their management to make the necessary changes, may already be closer to the required transition pathway than medium exposed companies that show no intention of moving towards the safe zone. The risk exposure indicates to what extent an entity is vulnerable to the material ESG risks. Examples of criteria assessed include the carbon intensity of the products and services a company provides, location of operations, the nature of those operations and the dependency on the supply chain for (raw) materials. The adaptive capacity is based on strategies, policies, targets, implementation and demonstrated performance of companies and sovereigns to manage the risks from operating outside the safe and just zone. Higher scores on adaptive capacity indicate greater capacity to manage the exposure risk. The exposure scores and adaptive capacity are based on multiple data sources that may vary per subject.⁶ The indicators used for the assessment are discussed in the next sections.

Based on the assessment per driver, each company is categorised into one of the categories described in the previous section - see figure 1.⁷ For each driver, threshold levels define the border between each category. They define the exposure level and the adaptive capacity a company needs to have to be categorised for instance in the safe zone. For example, the thresholds reflect that a utility needs more adaptive capacity to move towards carbon-neutral production than a financial services company as their exposure to the low-carbon transition is different. Low adaptive capacity in a situation with high exposure is a sign that a company is potentially non-adaptive. Threshold levels between the zones are based on the best available (scientific) knowledge about impact to the planetary boundaries or social foundations.⁸

⁵ Two types of risks are considered. First, a declining carrying capacity of the planet and a weak social basis leads to physical risks. Examples include water scarcity due to climate change, loss of soil productivity due to overexploitation and increasing health problems or social unrest due to growing inequality. Second, the call for a more sustainable world leads to changes in government policies and consumer demand that will speed up the transition towards cleaner and more responsible modes of operation. This creates transition risks for those who do not adapt.

⁶ The core data from our main data provider are supplemented with data on carbon intensity exposure, coal expansion plans, land use and deforestation behaviour, value at risk due to expected market and policy changes and contributions to the SDGs from amongst others MSCI, Urgewald, Carbon Delta, SCRIPT, Satelligence and Util. These data sources are used as guideline from which ACTIAM may deviate if deemed pertinent given other qualitative or quantitative information.

⁷ Companies not complying with ACTIAM’s Fundamental Investment Principles fall in the ‘Unacceptable Behaviour’ category.

⁸ The safe zone is made up by the planetary boundaries and sustainable development goals. The planetary boundaries are defined in Steffen et al. (2015) Planetary boundaries: guiding human development on a changing planet. *Science*, 347 (6223). For the targets set by the SDGs, see sustainabledevelopment.un.org.

Not all of the ongoing sustainability transitions are at the same stage. For example, the planetary boundaries ‘climate change’ and ‘loss of biosphere integrity’ have already been crossed and require an immediate transition on the drivers fossil fuels use and land use. As a result, the thresholds for the drivers fossil fuel use and land use are more stringent than for some other drivers. As the transition progresses, the threshold levels may become stricter. Once when new data becomes available, new measurement methods are developed, or innovations allow for new updates, threshold values will be redefined. This way, companies are stimulated to innovate.

To come to a unique categorisation per company, weights are given to each driver depending on the level of materiality. The weights reflect the materiality of the drivers to the entity. From the (maximally) four drivers with the highest weights, the material driver for which the entity scores lowest, in principle, determines the category to which the company will be allocated. For instance, a utility company scoring in the ‘non-adaptive’ zone for their fossil fuel use are categorised as ‘non-adaptive’, irrespective of their scores on water and land use. Based on their category, companies qualify for certain investment products. At least twice per year, ACTIAM evaluates whether entities are to remain in the same category.

2.3 ACTIVE OWNERSHIP

Based on the above-mentioned approach, ACTIAM carefully determines for which investment products companies qualify. Sometimes it is obvious whether a company meets our criteria or is sufficiently adaptive. Sometimes it is not that ‘black and white’. In practice, this means that through active ownership, we regularly encourage companies to move towards the ‘safe and just zone’ or even to the ‘positive impact zone’. The ‘ACTIAM Sustainable Investment Instruments’ report describes how ACTIAM organizes its active ownership.

3 Environmental Drivers

3.1 FOSSIL FUEL USE

3.1.1 Background

Fossil fuels (coal, petroleum and natural gas) have played, and continue to play, a dominant role in global energy systems. Over the past centuries, fossil fuels have been a fundamental driver for social and economic progress. They constitute the overwhelming share - approximately 80% - of energy resources in the world economy. In addition, the by-products of fossil fuels are used for plastics that are used in many business and consumer applications - see the chapter on chemicals and waste management.

However, fossil fuels also have negative impacts, being the dominant source of local air pollution and emitter of carbon dioxide (CO₂) and other greenhouse gases. Fossil fuels contribute to multiple environmental problems. Fossil fuel combustion for electricity production, industrial processes, heating and transport contribute to greenhouse gas emissions that cause climate change. But it also causes nitrogen deposition damaging ecosystems and is one of the causes of high concentrations of NO_x and Particulate Matter (especially PM_{2.5}) that causes local air pollution. In addition, fossil fuel extraction can lead to oil spills, coal mine accidents and even earth quakes. These issues will be addressed in the drivers 'land use' and 'chemical and hazardous waste management'. The current chapter focuses on the effects of fossil fuel use, its impacts on climate change and the challenges and opportunities resulting from the transition to a low carbon economy.

It becomes more and more evident that the world climate system is changing. The increase in global average temperature over the last decades is outside the normal variability of temperature changes for the last century. A number of different analyses, including research by the Intergovernmental Panel on Climate Change (IPCC), strongly suggest that this temperature increase is resulting from the increasing atmospheric concentrations of greenhouse gases. This proves the concerns regarding larger changes in climate are credible. More recent findings have further strengthened this conclusion. Computer-based models of the processes affecting the carbon cycle show that burning fossil fuels is among the major causes of the higher concentrations of carbon dioxide. Other factors include methane, nitrous oxide and freon emissions. These models also suggest that, without major policy or technology changes, future concentrations of CO₂ will continue to increase largely because of fossil fuel burning. Global warming is likely to reach 1.5°C compared to pre-industrial levels between 2030 and 2050 if it continues to increase at the current rate.⁹

As a result, we have already crossed the planetary boundary for climate change. A safe level of greenhouse gas concentrations is at or below 350ppm of CO₂. When remaining at that level, average earth temperature will not increase to over 1.5 degrees above pre-industrial levels. If we do not reach these levels, we are approaching several of our planet's thresholds or tipping points. The loss of summer polar sea-ice is almost certainly irreversible, which has tipped the system into a much warmer state with higher sea levels. The continued rate of deforestation of the world's rainforests is weakening and removing our planet's carbon sink. The flow of carbon (and other chemicals) into the atmosphere is accelerating global warming and intensifying climate impacts (extreme weather events such as floods and droughts).

Climate change is a global challenge that does not respect national borders. It is an issue that requires solutions that need to be coordinated at the international level to move toward a low-carbon economy. The required changes are however not only relevant due to climate impacts, it will also lead to changes in the real economy. These changes will likely be associated with both value creation and value destruction, which in turn may create financial risks and opportunities for investors.

3.1.2 Challenges & trends

Historically, global and regional regulations have been the key drivers behind efforts to reduce carbon emissions and combat climate change. However, as the cost of renewable energy and other clean technologies decline, and as major energy importers seek greater energy independence, technological, market and strategic factors may be taking the driver's seat in changing the global energy mix. Even without regulations to address climate change, the convergence of these non-regulatory factors could exert headwinds on carbon-intensive companies - which may in turn adversely affect their financial performance.

⁹ IPCC (2019), Special report: global warming of 1.5 °C. Intergovernmental Panel on Climate Change.

- **Regulation:** Legislators around the world have been introducing more stringent environmental regulations aimed at mitigating climate change, improving air quality and minimising ecosystem damage. Major emitters of GHGs, either through own operations or indirect emissions, are significantly impacted by such regulations. While GHG regulatory schemes to date have had modest direct financial effects, the sectors of these companies remain highly exposed to future regulation, ranging from mandatory climate reporting to carbon taxation.
- **Technology:** Innovation plays a key role in facilitating the low carbon transition to substitute carbon-emitting technologies that have become embedded in our society. Until recently, many clean energy technologies were not mature nor sufficiently cost-competitive enough yet to be deployed on a commercial scale. However, with the rising costs of fossil fuels and accelerated technological progress of renewables and electric-based technologies, the world is moving closer to the point in which renewable energy is more widely accessible and consistently cheaper than traditional fossil fuels.
- **Market:** Driven by a robust global economy and stronger heating and cooling needs, energy demand is growing rapidly. As such, demand for all fuels increases with fossil fuels, mainly natural gas, still facilitating most of the growth. Solar and wind generation however is growing at double-digit pace and demand for renewables is expected to take more share with further reduction in costs and wider accessibility.

3.1.3 Financial materiality

Even without regulations to address climate change, the convergence of these non-regulatory factors drives the transition to a low-carbon economy, affecting the financial performance of carbon-intensive companies as well as companies that through their supply chain are dependent on these companies. Low-carbon transition has often been considered as a long-term issue. This view is misleading, as there is a difference between the timescale within which the low carbon transition is completed and the timescale within which the manifestation of its effects on energy markets are felt. Investors need to perceive the market risk much faster than the time scale required for transition to be completed. The risk of low-carbon transition manifests itself in various forms, including investment and operation decisions by market participants and/or adjustment in the value of companies' asset, amongst others.

The transition to a low-carbon economy has an impact on all industries. Rising energy and electricity prices will lead to higher production costs and more incentives to invest in energy efficiency measures for all companies. The fossil fuel extracting industries, the energy producers and the large energy users, however, will be impacted the most. The first group contains oil, gas and coal mining industries. Even though their businesses are expected to grow for the coming decades, they will experience more headwind and stricter regulations. The second group contains refineries and energy utilities. They will see business change and will eventually lose business if they fail in transforming to a renewable energy company. The third group contains the energy intensive industries such as cement producers, metals producers and the chemical industry, but also sectors such as the transport sector, packaging sector, semiconductor sector, real estate sector and agriculture & food sectors. They will suffer from high costs or liabilities if they fail in making the necessary low-carbon innovations. On the other hand, the renewable resources & alternative energy industries and innovative companies providing for instance energy efficiency solutions or new sources of energy may prosper due to the ongoing low-carbon transition.

3.1.4 Vision & objectives

ACTIAM wants to help build a world that is worth living in, stimulating companies to move towards and operate within the safe and just zone. That is why ACTIAM has signed several climate related investor statements, including the Paris Pledge for Action in December 2015 and the Montreal Carbon Pledge, thereby undertaking to help achieve the objectives of the Paris Agreement. The Paris Agreement sends a clear signal to the business community and the financial world that the process of ending the fossil economy must be speed up. Under the agreement, nearly all countries in the world agreed to limit global temperature increase to well below 2 degrees above pre-industrial levels, and to pursue efforts to limit this increase even further to 1.5 degrees.

Aligning investment and financing flows with this limit requires a shift of capital to climate-friendly investments and a reduction in high-carbon investment. This shift relies to a large extent on financial institutions. These institutions can play a vital role in introducing, incentivizing and catalysing a process of transformation that swiftly and significantly lowers CO₂ levels across all economies.

Given the long lifetime of physical assets, and the urgency of decarbonizing over the next decades, aligning the financing decisions of financial institutions today with long-term climate goals is crucial to limit global warming and avoiding financial risk in portfolios. By 2030, ACTIAM's portfolios should be on the transition pathway towards climate neutrality according to the Paris Agreement to keep global warming to well below 2°C and pursue efforts to limit it further to 1.5 degrees. To achieve this, as an intermediate goal, by 2030, the greenhouse gas emissions intensity of ACTIAM's investments need to be reduced by at least 30% compared to 2010 levels.

3.1.5 Assessing company performance

ACTIAM measures how companies perform on topics related to fossil fuel use. This is done based on information on a) the exposure to carbon transition risks and b) the management capacities to mitigate these risks.

- **Exposure** is measured for 1) operations and for 2) products and services. The first relates to the risk of incurring liabilities resulting from carbon intensive operations. Companies with carbon intensive operations, for example coal-based power generation and cement production, are exposed to additional costs in the form of fines, carbon taxes, required capital investments in new clean technologies, etc. Also, companies with carbon intensive supply chains are exposed to rising raw material costs or disruptions. Secondly, companies with carbon intensive products or companies in carbon dependent industries, face reduced demand for their products and services because of the low carbon transition. On the other side, companies producing low or zero carbon products benefit from the transition to a low carbon scenario;
- ACTIAM assesses how a company’s **manages** risks presented by the low carbon transition for the sectors in which this is financially material. This assessment is based on policies and commitments to mitigate transition risk, governance structures, risk management programs and initiatives, targets and performance. In other words, the company’s preparedness for the transition to a low-carbon economy, supporting efforts to address climate change.

The information for measuring exposure is obtained from our main data provider, supplemented by additional data providing information for example on companies developing new coal-fired power plants. Table 3 concretely describes factors that contribute to the exposure and management scores.

Table 3: Factors considered for determining exposure and management scores on low carbon transition

Factors influencing the exposure score
<ul style="list-style-type: none"> ■ Scope 1+2 carbon emissions for companies with carbon intensive operations; ■ Scope 3 upstream carbon emissions for companies with carbon intensive supply chains; ■ Scope 3 downstream carbon emissions for companies with carbon intensive products and companies in carbon dependent industries; ■ Avoided emissions intensity for companies involved in low or zero carbon products; ■ Percentage of electricity generated from thermal coal.
Factors influencing the management score:
<ul style="list-style-type: none"> ■ Measurement and disclosure of scope 1,2 and 3 carbon emissions in line with international standards (TCFD; Task Force on Climate-related Financial Disclosures); ■ Participation in Carbon Disclosure Project (CDP); ■ Carbon policies and implementation mechanisms, including carbon reduction targets, production process improvements to reduce emissions (such as alternatives for flaring), installation of emissions capture equipment, targets to switch to cleaner energy sources, targets on energy-efficiency improvements, implementation of environmental management system;¹⁰ ■ Participation and disclosure of relevant multi-stakeholder or industry initiatives; ■ Integration of transition risks into regular risk assessments and strategy; ■ Carbon intensity trend and track record of achieving carbon reduction targets; ■ Development of new, or expansion of existing, coal mines and coal-fired power plants; ■ Development of clean tech business segments that are related to company’s core business, such as renewable energy generation (such as hydro, solar, wind, tidal or geothermal power); ■ Development of renewable power through electrical network expansion, equipment commercialization, and ‘green power’ offerings to its customers.

¹⁰ Attempts to influence decisions made by regulators to strengthen climate policies will negatively influence management scores. In addition, these factors especially focus on CO₂ emissions. Yet, they equally apply to the emission of other air pollutants such as nitrogen oxide, ammonia and particulate matter, that are also caused by the combustion of fossil fuels and that cause large scale air pollution in many parts of the world, especially in large cities.

Based on exposure and management, companies are categorised into one of the zones in the ACTIAM sustainability framework. ACTIAM classifies companies in the ‘positive impact zone’ if they take the opportunities offered by clean technologies or adopt a circular business model in which products do not cause additional carbon emissions. These companies turn the risks into opportunities.

Companies in the ‘at-risk’ and ‘non-adaptive’ zones have high exposure and low management scores. They do not comply with international regulations, run high risks of causing pollution, and do not sufficiently prepare for the transitions in the sector. Moreover, they do not disclose their direct and indirect greenhouse gas emissions and lack strategies or targets to prepare for these risks, reduce their emissions, improve energy-efficiency, or make the transition towards low-carbon energy sources. ACTIAM may call these companies to better prepare for the upcoming transitions through engagement and voting at shareholders meetings. Notorious laggards may eventually be excluded from the ACTIAM investment universe.

Thermal Coal

Institutional investors are probing the long-term portfolio implications of carbon stranded assets, primarily driven by changes in regulation and technological innovation. While regulatory changes that limit greenhouse gas emissions would have the most direct role in triggering the stranding of carbon-intensive assets, the rapid development and falling costs of new technology could also trigger largescale substitution of current energy sources with cleaner sources of energy. As these alternative sources of energy gain economies of scale and become less costly, they could challenge the dominance of fossil fuels, even in the absence of stringent regulations on GHG emissions or high carbon prices. Another trend that could dampen future demand for fossil fuels is improvements in energy efficiency. In particular, technologies targeting the residential, transport and industry sectors have the potential to significantly reduce aggregate energy demand.

Companies reliant on burning fossil fuels, especially thermal coal, being the most carbon intensive fuel, are expected to be abandoned if future carbon emissions would exceed the carbon budget or if new energy sources become economically competitive. Therefore, we measure the exposure of our investments to the transition risk based on the energy intensity of both the operations (scope 1 and 2) as well as products (scope 3). Companies with an average carbon intensity of more than 8,000 ton CO2 per million USD revenue, are considered non-adaptive and therefore excluded from our investment universe. For example, a utility company with 75% of its operation comprising of carbon-intensive coal and natural gas activities, has approximately 17,000 tons CO2 per million USD revenue and will therefore be excluded regardless of its management capacity to mitigate these risks. In practice, this implies utility companies with more than 50% of their energy mix coming from coal firing, are either classified as non-adaptive or at risk, depending on their strategy, policy and actions to phase out coal-fired power stations which is reflected in the risk management score. Likewise, companies of which more than 15% of the total revenue comes from thermal coal mining are considered non-adaptive and also excluded from all ACTIAM’s portfolios.

Category	Emission intensity	Description
Impact	<0	Companies involved in low/zero carbon solutions.
Neutral	>=0, <500	Companies with less carbon intensive operations and products.
In transition	>=500, <8,000	Companies with moderately to highly carbon intensive products.
Exclusion*	>=8,000	Outlier transition companies with very high exposure to transition risk.

* Companies with more than 8,000 tons CO2 per million USD revenue are excluded regardless of possible adaptive capacity to reduce the transition risks

ACTIAM actively seeks dialogue with companies that do not pursue sufficient effort to become climate neutral according to the Paris Agreement. Through active ownership, ACTIAM challenges relevant companies to forego investments in new and phase out existing coal mining and coal power generation activities and to switch to renewable energy sources.

Coal-fired power plants

Despite alternative sources of electricity generation, many utilities still have expansion plans for their coal-fired power plants. Urgewald, a German organisation monitoring the use of coal throughout the thermal coal value chain, maintains a list of utilities having expansion plans for coal-fired power plants. Nowadays, there are alternatives for coal-fired power plants, and building them creates risks for stranded assets. For that reason, ACTIAM monitors which companies have expansion plans for coal-fired power plants. Those having expansion plans exceeding 1000 MW, will be excluded from the ACTIAM investment universe. Those having smaller plans will be categorised ‘at-risk’. For these companies, ACTIAM will monitor to what extent they make plan to make a transition towards a low-carbon economy.

3.2 WATER USE

3.2.1 Background

Water is an essential resource. All ecosystems and life on the planet are dependent on water. Water also has immense social and economic value. Access to water and sanitation is a human right. Safe drinking water and sanitary and hygienic conditions are indispensable for healthy communities. Yet, about 2.1 billion people do not have access to safe drinking water and more than twice as many people lack safe sanitation, causing numerous social and gender inequality issues.¹¹ In addition, water is a crucial factor in creating employment and generating economic growth, since it is an essential element in agriculture, energy production and many other economic activities. Globally, over one billion jobs (40% of the world's total active workforce) are strongly dependent on water.¹²

The Stockholm Resilience Centre argues that two driving forces influence the planetary boundary for freshwater: climate change and human pressure. Water is becoming increasingly scarce and estimates show that by 2050 about half a billion people are likely to be subject to water-stress. This further increases the pressure to intervene in water systems, in this way aggravating the problem. Although freshwater use is currently considered to be within the safe operating space of the planetary boundaries on a *global* level, lack of access to water on a local (or basin) level remains an existing and serious problem which is likely to deteriorate over the next decades.

3.2.2 Challenges & trends

Between 2000 and 2050, global demand for water is expected to increase by 55%.¹³ It is anticipated that by 2030 only 60% of the world's population will be able to meet their need for water. As a ranking by the World Resources Institute shows, water will become scarce in more and more places, with 17 countries that together house a quarter of the world's population facing extremely high water stress.¹⁴ In addition, water quality degradation (from agriculture, industry, plastics, and sewage) can constrain GDP growth by up to one-third and is rising as a global risk to economic growth and community wellbeing.¹⁵ Europe, for instance, expects 30% of its surface area to suffer from water shortages by 2030.¹⁶ It is no coincidence water crises have consistently ranked high in World Economic Forum risk reports in recent years.¹⁷

Unequal geographical distribution of (potable) water and its increasing, unequal and irresponsible consumption are often to blame for water scarcity in some parts of the world and among certain populations. A major cause of this is wastage and contamination in production processes. Water is being used faster than it can be replenished by nature due to population growth and economic activity. In many regions, water resources are poorly protected and inadequately managed by local policy makers. Climate change is also responsible for creating temporary and chronic water shortages or surpluses. As a result, climate change is exacerbating and accelerating the existing water challenges.

The challenges can be clustered into three areas: quantity, quality and accessibility of water:

- **Quantity:** Society can be faced with two aspects regarding the quantity of water: too much (floods, extreme weather, rising sea levels), or too little (drought, aquifer depletion). Both can challenge companies in their supply chains and operations and lead to severe interruptions of production and services. They can also put assets and capital expenditure plans at risk. Examples of this include failed harvest due to drought, damaged infrastructure due to floods, or the interruption of tourism due to extreme weather circumstances.
- **Quality:** Quality is a key factor for (fresh) water use. There are many factors at play that determine the quality of water. Pollution issues include, among others, eutrophication and hypoxia, salinization, events such as oil spills, organic matter pollution, and inorganic matter pollution such as marine plastic debris and heavy metals. Temperature can also be an important limiting factor for the use of water, for example when it is needed for cooling purposes. Pollution hurts ecosystems and economic activities such as agriculture and tourism. It can also have detrimental effects on people's health impacting worker productivity or consumer quality of life.

¹¹ WHO and UNICEF (2017). Progress on drinking water, sanitation and hygiene: 2017 update and SDG baselines. Geneva: World Health Organization and the United Nations Children's Fund.

¹² UNESCO (2016), The United Nations World Water Development Report 2016: water & jobs. UNESCO, Paris.

¹³ OECD (2012), OECD Environmental Outlook to 2050: The Consequences of Inaction, OECD Publishing, Paris.

¹⁴ [WRI Aqueduct Water Risk Atlas, www.wri.org/aqueduct.](http://www.wri.org/aqueduct)

¹⁵ Damania, R., Desbureaux, S. et al. (2019). Quality Unknown: the invisible water crisis. Washington D.C. The World Bank.

¹⁶ The European Water Platform (2016). The Value of Water, Multiple Waters for Multiple Purposes and Users: Towards a future-proof model for a European water-smart society. June 2016.

¹⁷ <https://www.weforum.org/reports/the-global-risks-report-2019>

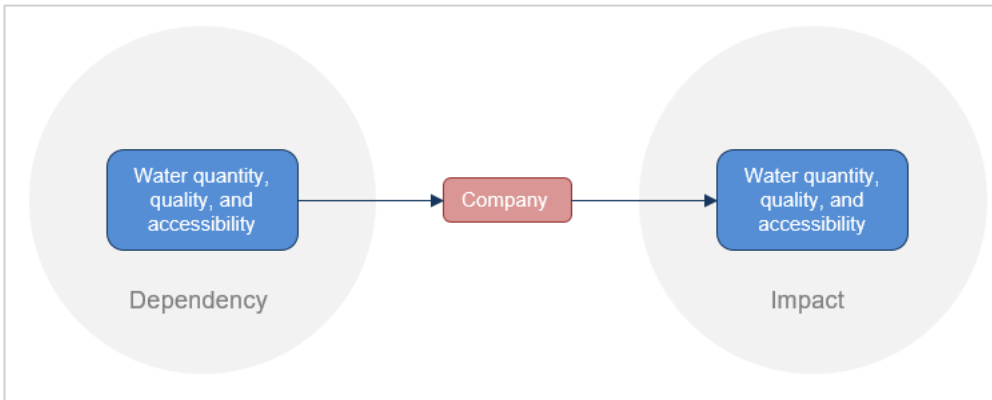
- **Accessibility:** With increasing competition for water resources, access to water can come under pressure. Factors at play include (geo)politics, population growth, increasing food production, competing claims to ownership, infrastructure quality and availability, inequality and poverty, and failed protection of human rights. Accessibility issues can hurt companies directly, if they lose their access to water, or indirectly, if a company’s water use limits people’s access to water with legal, reputational or operational consequences.

3.2.3 Financial materiality

Materiality of the water challenges differs per company, depending on the specific nature of their operations and the regions in which they are active. In fact, companies have a two-way relation to water: they have a dependency and an impact - see figure 2. 18 On the one hand, given the trends described above, water-related operational (physical) risks are likely to increase for many companies as water becomes scarcer, potentially leading to production losses or production interruptions. Moreover, rising water prices and increasing costs to safeguard water supplies could lead to increasing and occasionally unexpected costs and a need for greater investment, both in water saving technologies and in improved water infrastructure.

At the same time, companies are potential causes of water issues. Many companies withdraw, consume, or pollute water in their production processes. Other activities, such as (energy) infrastructure activities, can irreversibly influence water flows and quality of water. As consumers become more critical about companies’ negative impacts on the water system and legislation becomes stricter, companies run reputational, operational, market and regulatory/litigation risks that are relevant to investors.

Figure 2: The two-way relation of companies to water



All companies have some relation to water, but the risks are greater in certain sectors, where dependency on water is large, the impact on water is large, or in case of physical assets at risk of floods and drought. Several organizations have mapped materiality of water issues to specific sectors. Using different sector classification systems, MSCI, CDP and Ceres analysed the materiality of water issues, resulting in a list of sectors for which water issues could have large (financial) consequences.¹⁹ Examples include:

- The **mining sector**, where water is needed for mineral processing, cooling, dust control, workers’ needs and other activities. Often large volumes of waste water are produced because of dewatering mines and as a by-product of the mining process, and is either stored in tailings dams or released to the environment. This flow of water can be highly toxic and acidic and is therefore often not fit for other use. A lack of water in these industries can severely interrupt production, and public and investor scrutiny of effects on water quality has increased after tailings dam collapses in Canada and Brazil which both resulted in massive environmental damage and for the latter in a large loss of life.
- **Energy production**, which often requires large amounts of freshwater (e.g. hydraulic fracturing for oil and natural gas, coal production, electricity utilities for cooling). Energy production can often produce large amounts of wastewater that must be managed and disposed of properly.

¹⁸ <https://www.ceres.org/resources/toolkits/investor-water-toolkit/details#water-risk-drivers> and industry water risk table and database: <https://www.ceres.org/resources/toolkits/investor-water-toolkit/details#sector-analysis>

¹⁹ Based on classifications from MSCI, the CDP 2018 Global Water Report and the CERES Water Toolkit for Investors, water is judged to be highly material for several the sub-industries. The list of GICS 4 sub-industries for which water is highly financially material can be obtained from ACTIAM at request.

- The **agricultural sector**, which globally accounts for 70% of fresh water use.²⁰ Fertilizer, pesticide and herbicide over-application, soil erosion, run-off from livestock farms and meat production are the largest contributors to degraded water quality globally. Without access to enough and clean water, crops fail and commodity prices spike, with economic but more importantly human health consequences.
- **Textiles, apparel and luxury brands**, which often also require large amounts of water especially in growing cotton or sourcing leather for clothes - a typical pair of jeans requires over 5,000 litres of water - in the dying process, which can have large impacts on water quality and in the product-life cycle itself (washing).²¹
- The **real estate sector**, which is sensitive to floods in certain areas. For example, 59% of the Netherlands is at risk of flooding.²² Floods can significantly reduce the value of real estate portfolios.
- The **technology** sector also requires vast amounts of water in two key areas: 1) producing semi-conductors requires over 1,000 litres or more of ultra-pure water for each chip and 2) cooling its data-centres.

3.2.4 Vision & objectives

An increasing amount of companies are aware of the potential risks and opportunities related to water and act to prevent risks, or capitalize on opportunities. Society needs to work towards a water basin security approach, where companies, local populations and governments collaborate to safeguard the long-term supply of high-quality water and protect critical natural water resources. ACTIAM believes that for this, businesses need to transform from being water managers to water stewards, meaning they take responsibility beyond the gates or their sites to ensure social, environmental and economic benefits - see textbox “The ‘CEO Water Mandate’ Platform”.²³

The ‘CEO Water Mandate’ platform

“Water stewardship is a set of practices - to be used by businesses, utilities, communities, and others - that promotes and fosters the sustainable and equitable management of freshwater resources. Water stewardship practices range from water use efficiency at an organization’s own operations, to engagement with suppliers, to long-term multi-stakeholder river basin projects, and beyond. Water stewardship helps ensure that water users not only manage their own risks and seize opportunities related to water (e.g., ensuring businesses have the water they need to continue production processes), but also promote long-term water security for all.”

Source: CEOWaterMandate.org

ACTIAM committed to contribute to the Sustainable Development Goals (SDGs). SDG 6 details that we need to “Ensure availability and sustainable management of water and sanitation for all” by 2030. ACTIAM translated this goal for its investment activities and set the target to have a water-neutral investment portfolio in 2030. This means that businesses consume no more water than nature can replenish, and cause no more pollution or impacts than is acceptable for the health of humans and natural ecosystems.²⁴

Achieving this goal requires companies to:

- Respect the human right to water and understand their responsibilities;
- Be transparent about their water dependency and use (quantity and quality) including where water risks lie in the value chain, the potential materiality of those risks and mitigation strategies;
- Protect water resources (surface and groundwater) and future water supplies to ensure water security;
- Avoid operations in areas with high water stress if possible;
- Avoid use or (re)use water as efficiently as possible;
- Strive to have zero impact on water quality (avoid pollution in any way or purify water after use);
- Engage and consider water needs of stakeholders especially those most vulnerable;

²⁰ <https://www.oecd.org/agriculture/topics/water-and-agriculture/>

²¹ <https://www.watercalculator.org/water-use/the-hidden-water-in-everyday-products/>

²² <https://themasites.pbl.nl/risico-overstromingen/>

²³ This is in line with the key principles of the Valuing Water Initiative, that argues that investors should protect water sources and recognize water’s multiple values; see <https://www.government.nl/topics/water-management/valuing-water-initiative>.

²⁴ The 2018 CDP Global Water Report argued that “unlike carbon, we are not in a race to zero when it comes to water withdrawals - companies and people alike will always need a certain amount of water to survive and thrive. But as water availability and quality decreases around the world, a failure by business to deliver even a modest reduction on this indicator is concerning”.

- Seek to phase out or find alternatives for products lines that are water polluting;
- Set contextual and science-based targets to ensure continuous improvement and accountability.

ACTIAM expects companies and countries to be good water stewards and to integrate these measures into their strategy and processes.

3.2.5 Assessing company performance

Company’ performance on water related topics is measured based on information on the exposure to water related risks and the management capacities to mitigate these risks. Especially for the sectors for which water is material because of their impact or dependency on water, ACTIAM monitors to what extent they are exposed to any of the water quality, quantity or accessibility issues. Next to that, ACTIAM monitors whether these companies have the adaptive capacity to manage these risks and make the required transitions. Table 4 indicates which factors influence the exposure and management scores. For all companies, this is supplemented with information about the severity of water related controversies.²⁵

Table 4: Factors considered for determining exposure and management scores on water use.

Factors influencing the exposure score for water use
<p>Companies are more exposed if they</p> <ul style="list-style-type: none"> ■ Have a high share of operations in geographies projected to experience water stress and water scarcity; ■ Have a high share of operations classified as water intensive (based on estimated water use relative to sales).
Factors influencing the management score for water use
<p>Companies receive a higher management score if they</p> <ul style="list-style-type: none"> ■ are transparent about (trends in) their water dependency, withdrawals and consumption (quantity and quality), their performance compared to other companies, and their policies to manage these; ■ successfully implement processes to reduce water intensity; ■ set targets and implementation plans to improve their future water consumption performance and ensure continuous improvement and accountability; ■ use water from alternative sources (i.e. grey-, recycled or rainwater) and recycle water when possible; ■ avoid water pollution in any way or purify water after use; ■ manage competing claims over water with communities in which they operate.

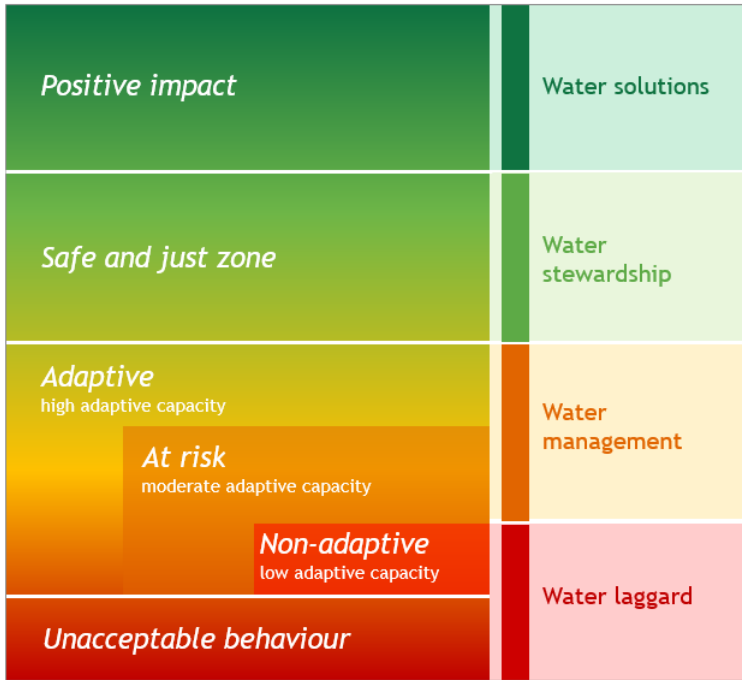
The exposure and management scores for water issues allow for a division of companies into the categories of the ACTIAM Sustainability Framework - see figure 3.

- **Water laggards** are the companies in the ‘unacceptable behaviour’ or ‘non-adaptive’ zones. Regardless of materiality, companies need to respect (local) laws and regulations relating to water as well as international standards. ACTIAM therefore monitors controversies relating to water and integrates this into the framework. In addition, companies that consciously are putting water resources at risk, such as companies involved in riverine tailings disposal (the dumping of mining waste in rivers), may be excluded from investment.
- **Water managers** are in the ‘at risk’ or ‘adaptive’ zones. A combination of high-risk exposure and low-quality managements indicates that a company is at risk. These companies will be flagged because they insufficiently acknowledge their exposure to water related risks. They do not proactively manage their water impact and dependency but react to incidents. Those in the ‘adaptive’ zone acknowledge their water risks. If they take enough actions to mitigate the risks, they eventually become water stewards.

²⁵ The base data for this assessment originates from our main data provider, supplemented with additional information, for instance from FAIRR and 427, about the risks related to the global water challenges.

- **Water stewards** are in the safe and just zone. As noted above, water stewards look beyond their own gates to ensure water security for all. This includes providing water, sanitation and hygiene for employees; using water efficiently and not consuming water in places of scarcity; not degrading the quality of water; supporting greater access to clean water for regional stakeholders; and setting context-based water targets. Using sustainable investment instruments, it is ACTIAM’s goal to move companies towards being water stewards.
- **Water solution providers** are in the positive impact zone. They develop and produce products or services that improve the availability and quality of, or access to, water. To be granted this status, the companies themselves will need to be water stewards or be on a trajectory towards becoming water stewards.

Figure 3: The ACTIAM Sustainability Framework applied to water use



Next to integration of these factors into investment decisions and dedicating sustainable investment instruments to encourage companies to become water stewards, ACTIAM recognizes that water is a common resource and that it will take a collective effort to protect and value water more highly by all. As such we actively participate in collaborations to (1) improve awareness of water issues and SDG 6, (2) improve data coverage and data quality relating to water issues, (3) share (investor) experiences and insights to improve understanding of water issues, and (4) collaborate in engagement initiatives. Examples are PRI working groups on water risks and the Ceres Water Hub. In addition, ACTIAM contributes to thought leadership by presenting at investor and water forums and contributing case studies and articles on the importance of water integration by investors.

3.3 LAND USE

3.3.1 Background

Land is recognised as a crucial - albeit finite - resource, necessary to produce food, fibre, fuel and energy, the provision of shelter to the population and for protecting biodiversity and ecosystems. Many companies are directly dependent on land resources. But through their land use, they contribute to several global environmental and social problems and are among the major reasons why several of the planetary boundaries are crossed²⁶

²⁶ Stockholm Resilience Centre (2015). The nine planetary boundaries. Stockholm Resilience Centre, Stockholm. While specific issues under the Land Use driver are herein described, this is not an exhaustive list and cross-cutting thematic issues are also discussed under other drivers. Examples are: indigenous people rights, land rights, land grabbing (discussed in the Social Capital chapter); Water use and pollution (discussed in the Water Use chapter); chemicals use and discharge (discussed in the Chemicals and Waste Management chapter), among others.

For instance, agricultural expansion - especially for commodities such as cattle, soy, palm oil and timber - is responsible for circa two thirds of deforestation in the tropics.²⁷ Between 2000 and 2012, 2.3 million km² of forest (about the size of Algeria) were lost.²⁸ Moreover, 23% of the terrestrial area worldwide suffers from land degradation, caused among others by intensive land use, unsustainable irrigation of croplands and wrongful use of fertilizers and pesticides. Next to land degradation, this also results in pollution of water bodies and increasing water stress.²⁹

These impacts have negative feedback effects for the agricultural sector as land degradation may result in declining agricultural yields and loss of ecosystem services such as pollination and natural pest control. Although land activities are performed locally, these consequences are global and not restricted to the primary sector. Through supply chains, these issues impact companies up until the final goods provision, and therefore also investors worldwide.

Also, the mining sector negatively impacts the quality and availability of land. Traditional mining activities, but also unconventional oil and gas exploration, such as shale oil and gas, tar sands and arctic oil drilling, may have irreversible degrading effects to land, forests, local species and water stocks, as well as indigenous communities, besides being highly emissions-intensive.³⁰ Next to that, land conversion for agriculture and urbanisation and marine overexploitation changes ecosystem functions of large areas of land or ocean.

These activities have a large impact on several of the planetary boundaries. Due to land conversion, deforestation, degradation and overexploitation, land systems change and biodiversity declines. These activities reduce or deplete the habitats of several species. Recent estimates show that over one million species are threatened with extinction.²⁹ The Convention on Biological Diversity (CBD), through the Aichi targets, aims to protect ecosystems and biodiversity, allowing those to provide goods and services valuable to humans.³¹ Promoting sustainable land use is one of the key strategic goals of the CBD.

Moreover, climate change is impacted by land use change. According to IPCC, almost a quarter of all human induced greenhouse gas emissions originate from deforestation, livestock raising, land clearing (burning), and soil and nutrient management.³² Proper land use management can also help to reduce climate change. Land and oceans have the capacity to serve as a carbon sink, storing greenhouse gasses in the vegetation, soil or oceans. Transforming land management practices is essential to meet the emissions reduction targets, by encompassing activities with great mitigation potential.

Improper land use also impacts the planetary boundaries related to water and the of nitrogen and phosphorus cycles. Due to deforestation, land degradation and agricultural practices, water cycles change, the water storage capacity of the soil reduces and nitrogen and phosphorous leach to groundwater and surface water sources, causing water quality problems in large areas.

Next to the environmental problems, land use activities have direct impact on poverty alleviation. Every year 12 million hectares of productive land are lost due to desertification and drought, whereas food production must increase by 70% in 2050 to feed the growing world population.³³ This has, ultimately, consequences not only on long-term human health and nutrition, but also direct economic consequences for many sectors using the outputs from the primary sector.

3.3.2 Challenges & trends

The world is continuously changing and social developments - such as a growing world population, increasing demand for food, energy and shelter, and technological developments - have an impact on future land use and biodiversity. Whether biodiversity may further decline or not depends both on the pace of innovation, regulatory changes and economic growth. The textbox '*scenarios for future land use*' presents the impacts of two potential future scenarios on land use, water use and biodiversity.

²⁷ Trase (2018). Trase Yearbook 2018 - Sustainability in forest-risk supply chains: Spotlight on Brazilian Soy. Transparency for Sustainable Economies, Stockholm Environment Institute and Global Canopy.

²⁸ UNCCD (2017). Global Land Outlook: Convergence of evidence. UNCCD, Bonn.

²⁹ IPBES (2019). Global Assessment Summary for Policymakers. Intergovernmental Platform on Biodiversity and Ecosystem Services. Bonn.

³⁰ Friends of the Earth Europe (N/A). Tar Sands - in depth.

³¹ CBD (2010). Strategic Plan for Biodiversity 2011-2020, including Aichi Biodiversity Targets. Montreal.

³² IPCC (2014). IPCC Fifth Assessment Report. Chapter 11. Intergovernmental Panel on Climate Change.

³³ UNCCD (2017). The Global Land Outlook. UN Convention to Combat Desertification. UNCCD, Bonn.

Scenarios for future land use

Future scenarios developed for the Global Land Outlook demonstrate possible development pathways, their potential consequences on land use activities and biodiversity and their resulting impacts on society and economy.

A worst-case scenario is characterised by high population growth, low economic development and limited environmental concern. In this scenario, pasture and croplands will expand, increasing pressure on forests, savannas and grasslands. Considering the growing unavailability of suitable land for agriculture, more than 50% of this expansion could happen towards low to moderately productive lands. This scenario shows a large increase in food prices across almost all regions of the world, but especially in areas of low food security such as sub-Saharan Africa and South Asia. Irrigated areas may be further expanded due to the population growth and food demand. This may aggravate water scarcity across the world. Biodiversity loss is also expected because of expansion of croplands, as well as climate change effects and infrastructure growth, potentially leading to more than 40% global biodiversity loss relative to the situation in 2010, by the year 2050.

A more positive scenario assumes good progress towards sustainability, low population growth and high economic growth. Stricter land use regulation, less growth of food demand and higher technological development can increase crop yields, while halting expansion over natural vegetation in most parts of the world. Improved irrigation efficiency through technology enhancement combined with concerns over sustainable energy and water use can result in reduced expansion of irrigated areas, thus diminishing both the risk of water and food scarcity and a considerably lower loss of biodiversity.

In the worst-case scenario described above, with declining land productivity and rising food prices, companies and investors will suffer. Only those who can adapt to the underlying changes - who succeed in preventing productivity declines, invent technical solutions for the declining land productivity or adapt their supply chains to the higher prices - can still thrive. In the more positive scenario, if sustainability-driven actions are followed by more favourable environmental developments, the companies that adapt to prevent biodiversity loss, while creating opportunities to profit from it, will benefit the most. For both scenarios, companies will have to make a transition. Those that do not adapt will eventually lag behind. In the worst-case scenario all companies are impacted, due to higher prices and lower agricultural production. In the positive scenario, especially the primary sector will have to adapt to be able to maintain production levels and adapt to more stringent regulations and increasing consumer concern.

3.3.3 Financial materiality

The above shows that land is a highly material input for many companies. Globally, companies and governments have become more aware of their responsibilities towards biodiversity loss and unsustainable land use but also of the consequences suffered from this for their own production processes. The expected developments in soil productivity, water availability and pollution will result in a greater need for capital investment to guarantee the productivity of the land or secure continued sourcing. Moreover, even though some sectors may not see direct impact from environmental losses on its operations, legal and reputational risks may be equally significant, as governments and consumers respond to the impact generated by companies' activities.

The impact is clearest for the primary sector - agriculture, fisheries, forest & paper products - who not only see their responsibility towards the land use problems, but who also suffer most from the consequences. Even though individuals, governments and companies still only do little to halt unsustainable land use, a growing number of initiatives attempts to take responsibility and alter this situation. Many companies already support initiatives such as the Forest Stewardship Council (FSC), Marine Stewardship Council (MSC), Round Table on Sustainable Palm Oil (RSPO) or the Round Table on Responsible Soy (RTRS). Depletion of land and ecosystems threaten the very own input which these companies rely on. Fishery industries are a clear example of this, in which unsustainable fisheries can deplete marine resources and drive fish stocks towards extinction.

Land use practices are also highly material for the animal husbandry sector. Either because of declining land productivity or because increased consumer concern, stricter government regulation or stricter demands from clients. The mining sector and unconventional oil and gas exploration companies are less dependent on land productivity. Yet, the increasing regulatory uptake by several governments³⁴ and the increasing consumer concern over biodiversity loss, may cause loss of permits, as well as severe fines in case of mismanagement of protected areas. Reputational damage stemming from such processes may result in market loss for companies unable to abide by accepted practices.

³⁴ An example is the recent court ruling in Australia refusing the permit to a new coal mine, where the increase in GHG emissions was considered. See: Reuters (2019, Feb 8th) Australian court bars new coal mine project in landmark win for green lobby.

Moreover, many sectors indirectly depend on land use developments through their supply chains. Shortages in supply and rising prices due to unsustainable land use will impact these sectors. These include paper packaging and products, forest products, apparel, accessories, luxury goods, footwear and textiles; restaurants, department stores, general merchandise stores and apparel retail; home improvement retail and home furnishings; food distributors retailers and supermarkets; packaged foods and meats; household and personal products; and construction materials.

3.3.4 Vision & objectives

ACTIAM believes that companies have a responsibility to contribute to a world where everyone has access to the basic needs and where natural resources are protected to assure future consumption. For that reason, ACTIAM aims to reach a situation of zero net biodiversity loss and zero net deforestation in its portfolios by 2030. Measuring the long-term impacts of unsustainable land use or deforestation on biodiversity loss, however, is often not possible yet. Moreover, clearly indicating how biodiversity loss impacts companies and for which sectors it is most material is still work in progress.

To reach the objective, ACTIAM commits to a responsible investment approach for land-based activities. Fundamental principles guiding selection of investees, engagements, as well as development of innovative tools are key elements in the pursuit of a positive influence over companies' land-use practices. To develop knowledge in this field, ACTIAM contributes to working groups and initiates new strategic alliances to improve measurement methods.³⁵

Many companies have already committed with ending deforestation. So far, companies involved in palm oil and timber have been more committed with this goal than the paper and cattle sectors who are still lagging far behind.³⁶ Moreover, many oil and gas companies are still expanding their activities in unconventional exploration such as shale oil and gas, tar sands and arctic drilling, despite the clear call for a halt of these practices.

For this reason, ACTIAM dedicates extra attention to sectors that are less committed to sustainable land use, through evaluation of impact, engagement and development of indicators to push companies towards a concrete commitment and the achievement of the end of deforestation, biodiversity depletion and unsustainable land use.

3.3.5 Assessing company performance

While ACTIAM aims to support companies with the most positive impact in the field, also the transition of those companies that currently do not present enough practices to mitigate their risks from land-based activities is supported. Such a transition depends on companies' adaptive capacity to shift their processes according to the best practices in their field.

As a starting point, ACTIAM evaluates if companies' activities are in violation of its Fundamental Investment Principles.³⁷ In the field of land use, several activities constitute reason for exclusion, as they may carry irreversible impacts to the environment and high risks for companies. Examples include, but are not limited to:

- Extractive activities in protected areas, such as mining and forestry;
- Illegal logging;
- Mountaintop removal mining;
- Riverine tailings disposal;
- Excessive water use
- Waste dump into rivers.

If companies comply with these principles, their risk exposure and management capacity towards land related issues are considered. Companies are screened on their:

- **Direct land uses:** Activities that directly depend on land (and ocean), for instance those in forestry, agriculture and fisheries sectors and those in the coal, oil & gas and metals & mining sectors;
- **Indirect land-related uses:** Activities that depend on land indirectly, through the supply chain, such as for food products and construction materials industries whose operations rely on raw material sourcing;
- **Unconventional exploration practices:** Also, dependent directly on land, these activities have a considerable negative impact on land and biodiversity. These include shale oil and gas, tar sands and arctic oil drilling.

³⁵ For instance, ACTIAM is an advisory board member at the EU Business@Biodiversity Platform, forum for dialogue and policy interface to discuss the links between business and biodiversity at EU level. ACTIAM also contributes with Satelligence to use satellite images to track land cover changes and deforestation at a company basis. Moreover, ACTIAM is part of the Platform Biodiversity Accounting for Financials to develop measurement approaches to measure the impact of investments portfolios on biodiversity.

³⁶ Rogerson, S. (2017). Achieving 2020: how can the private sector meet global goals of eliminating commodity-driven deforestation? Forest 500 Annual Report 2017. Global Canopy: Oxford, UK.

³⁷ These principles are described in the 'ACTIAM Fundamental Investment Principles' report.

Exposure on direct land use is higher if activities take place, for instance, in fragile environmental conditions, in protected areas or in areas classified as hot spot biodiversity areas. High land use management scores reflect essentially the degree of efforts to prevent and/or minimize disturbances to land and marine systems, increase protection of ecosystems and their biodiversity, as well as engage properly with local communities. Table 5 concretely gives a (non-exhaustive) list of factors that contribute to the exposure and management scores.

Table 5: Factors considered for determining exposure and management scores on chemical and waste management.

Factors influencing exposure scores	Factors influencing management scores
1. Direct land uses	
<ul style="list-style-type: none"> - the extent of company operations in regions with fragile ecosystems, protected areas or in areas classified as hot spot biodiversity areas, including high conservation value forests, protected nature areas, peatlands, marine protected areas and no-take zones; - the extent to which the company operations involve significant disturbances on land and marine areas. 	<ul style="list-style-type: none"> - having and disclosing the relevant policies and strategies to reduce land or marine disturbances; - adopting programs to rehabilitate disturbed areas; - having a demonstrated performance track record of minimising disturbances from operations; - performing community and biodiversity impact assessments prior to new operations; - comply with EU regulations on the use and disclosure about GMOs in agricultural processes.
2. Indirect land-related uses - raw material sourcing	
<ul style="list-style-type: none"> - dependency on raw materials of high land impact. 	<ul style="list-style-type: none"> - presence of sound policies and targets related to the raw materials sourced; - percentages of products traceable to the origin and externally certified by the most stringent standards; - number of severe controversies in raw material sourcing.
3. Unconventional exploration practices	
<ul style="list-style-type: none"> - Percentage of revenues obtained from unconventional exploration methods such as shale oil & gas, oil sands and arctic oil drilling. 	<ul style="list-style-type: none"> - See factors mentioned under 'direct land uses'

ACTIAM understands such scores have limitations in terms of grasping the entire reality of a company’s management efforts and results towards deforestation and biodiversity targets. For this reason, we make use of additional sources to complement insights into companies’ performance and contribute with working groups dedicated to further measuring company’s land use practices³⁸. For instance, ACTIAM uses data from the Soft Commodity Risk Platform (SCRIPT) to gather more in-depth information for the soft commodities sectors (paper, timber, soy, palm oil, cattle) on their land-use management policies, from producers to retailers. It provides insights in the adaptive capacity of companies that currently do not present enough management abilities to tackle the risks to which they are exposed, informing on potential engagement objectives. Additionally, through its partnership with Satelligence, ACTIAM invests in data development for deforestation monitoring. For this, satellite images are used to trace land cover changes and deforestation, and link this to the companies responsible for this.

³⁸ For instance, ACTIAM is part of the Platform Biodiversity Accounting for Financials to develop measurement approaches to the impact of investments portfolios on biodiversity. ACTIAM also embraces other initiatives that promote transparency, such as the CDP Forests Program. The goal of these initiatives is to help investors identify the effects (operational, supplier-related, reputational and legislative) and exposure to deforestation within their investment portfolio."

Based on the exposure and management scores for the direct and indirect land use and on the percentage of revenues from unconventional oil and gas, companies are categorized in any of the zones of the ACTIAM Sustainability Framework:

- **Non-adaptive:** Companies lacking essential land management strategies such as environmental impact assessments, fair and voluntary resettlement policies, oversight of biodiversity loss, among others. Additionally, companies with a share of revenues from unconventional oil and gas above 25% which also demonstrate a low management score are considered non-adaptive. These companies run operational and legal risks in the short- to medium-term and may therefore be excluded from investments.
- **At risk:** Companies with unmanaged risks who are currently developing the necessary instruments to improve their oversight and practices towards a neutral impact from land-based activities. These companies generally run medium risks but have the adequate adaptive capacity to reduce vulnerability. Those companies which present severe controversies on raw material sourcing are also automatically considered 'at risk'. If they do not have adequate policies in place to resolve these controversies, they may be considered 'non-adaptive'.
- **Transition zone or Safe and just zone:** Companies with substantially responsible land management practices and clear land use policies, such as programmes to minimise disturbance from operations on biodiversity and communities, targets related to land use, adequate environmental and social impact assessments. Such companies may face moderate to low exposure to operational and legal risks that could undermine their activities.
- **Positive impact:** Companies making positive contributions to the preservation, recovery or restoration of land, through mitigation practices such as sustainable land management, agroforestry, or restoration of eco-systems such as forests and peatlands. These companies contribute to the SDGs, while benefiting from a frontrunner position in a future scenario of stricter regulations and increasing land and resources competition. Companies in this category operate at least in the transition zone or the safe and just zone, and in addition develop solutions having a positive impact to land-use or biodiversity.

Companies that through active ownership are stimulated to move towards the safe and just zone are expected to put processes in place to promote transparency, such as by adhering to relevant initiatives such as the CDP Forests Program³⁹ or by adopting the GRI guidelines and related supplements for disclosure of information. Depending on the type of company, they are expected to follow sector-specific guidelines or obtain eco label certification for their products and their suppliers, such as those from the Forest Stewardship Council (FSC and FSC Chain-of-Custody certification), FAO Code of Conduct for Responsible Fisheries, Aquaculture Stewardship Council (ASC), Marine Stewardship Council (MSC), the Roundtable on Sustainable Biomaterials (RSB), the Certified Sustainable Palm Oil (CSPO), Roundtable on Sustainable Palm Oil (RSPO) or UTZ Certified Products. These companies are called to present environmental management plans with clear time lines, to improve their land use management. In addition, companies using unconventional exploration methods are challenged to prepare plans to phase out the use of these exploration methods.

Companies that qualify for engagement include those in the 'at-risk' zone that for their operations in high conservation value (HCV) forests⁴⁰ do not use certified instruments to identify, manage and monitor their impacts or for which an environmental audit shows they are involved in activities that pose heightened environmental risks, such as:

- logging on steep slopes, riverbanks, wetlands or primary forest;
- large scale monoculture plantations in detriment of original vegetation;
- illicit activities, such as poaching and dumping waste;
- use of genetically modified organisms to cultivate trees;
- use of elemental chlorine to bleach paper.

A related problem is the use of genetically modified organisms (GMOs) in food. The European Union has introduced strict regulations on the use of GMOs in food and animal feed. In the EU, companies are required by law to state on the label whether their products consist of or contain GMOs, or DNA or protein resulting from genetic modification. Companies are expected to comply fully with these EU regulations to assure global food safety. ACTIAM considers it to be best practice if companies have also implemented policies to ensure that countries, if they trade in products containing GMOs, are provided with the necessary information to make well-informed decisions before agreeing to the import of such organisms into their territory.⁴¹

³⁹ The CDP Forests Program was launched to improve the lack of information about deforestation in different sectors, including the paper and forest products sector. It is an important and widely-supported initiative. The goal is to help investors identify the effects (operational, supplier-related, reputational and legislative) and exposure to deforestation within their investment portfolio.

⁴⁰ High conservation value forests include for instance mangroves, rainforests, bogs and primeval forests.

⁴¹ For this, see the Cartagena Protocol on biosafety, a supplement to the Convention on Biological Diversity (CBD), which has the objective to protect the potential risks of genetically modified organisms resulting from modern biotechnology.

Land grabbing

Land grabbing refers to dubious industrial and commercial land acquisitions. These deals are usually driven by international investors looking to buy up land, often for agricultural purposes but also for other purposes. Land grabbing is frequently accompanied by gross human rights violations and has a major impact on the local environment. Large areas of land are sold as ‘uninhabited land’, while entire communities that depend on small-scale agriculture live on this land. ACTIAM is not involved in the direct purchase of agricultural land, but could become indirectly involved through investments in international companies. As a responsible investor, we therefore find it important that companies involved in land acquisitions have a sound policy, conduct due diligence, and report on these matters in a transparent way. In this respect, we believe it is important to pay special attention to vulnerable groups such as indigenous peoples, women and children, and to support relevant sector initiatives such as the Farmland Principles, FSC, the Roundtable on Sustainable Palm Oil, the seven priorities as laid out by the World Commission on Dams and EITI.

Extractives, Minerals and Mining Industries

The extractives, minerals and mining industries comprise companies that are engaged in the oil and gas sector, and metals and mining sector, including gold and other minerals. These companies typically play an important role in society, especially in countries that depend on their natural resources wealth. These companies may stimulate the local and national economy, reduce poverty and strengthen the host country’s position in the global economy. At the same time, this is the sector with relatively high risks in relation to human rights violation, the impact of the environment and corruption. ACTIAM therefore attaches great importance to a strict selection strategy in this sector. The ACTIAM Sustainability Policy encourages companies in these industries to deal with the environment, human rights, working and living conditions and transparency more responsibly. After all, their activities often have a direct impact on these factors.

The ACTIAM Fundamental Investment Principles describe for which controversial environmental activities or corporate behaviour companies in the extractives, minerals and mining industries may be considered for exclusion. In addition, for these industries, all seven business drivers are material. Therefore, for each of them, companies in these industries may be qualified as non-adaptive or at-risk. Relevant environmental topics relate for instance to their objectives to reduce energy consumption and greenhouse gas emission, their plans to reduce water use and manage tailings dams, and the responsibility they have for managing ecosystems and restoring them during and after closing and dismantling mines, production facilities or exploration sites. ACTIAM encourages industries in these sectors to use the best available technologies to minimize the change of accidents and to manage waste responsibly, beginning with a sound environmental policy and an operational environmental management system. In some cases, too high risks may even lead companies to abandon their mine or extractive operation plans.

Social and governance topics relate to preventing human and labour rights violations of employees, the presence of sound health and safety measures, the presence of contingency plans for crisis situations, guaranteeing indigenous rights and preventing as much as possible (forced) relocation of local communities. ACTIAM expects these companies to report according to GRI guidelines (including the sector-specific substitutes), to embrace the Extractive Industries Transparency Initiative (EITI) and be transparent about their policies to mitigate the environmental and governance risks. For the various minerals, we always observe the specific certification guidelines for each mineral where available, such as the Kimberly Process Certification Scheme for diamonds. We also expect companies to pay the taxes that are due in each country in which they operate. If the public administration of a country is weak, we recommend that companies use the Extractive Industries Review guidelines of the World Bank. The EITI is a multi-stakeholder initiative to increase transparency of the payments extractive companies, such as those in the oil and gas, mining and forestry sectors, make to the governments where the resources are extracted. They are also encouraged to use ICMM’s Sustainable Development Framework to develop a sound system of good governance.

Real Estate

For real estate activities, it depends on the type of activity which of the seven business drivers are relevant. For real estate construction, the materials used and the quality of the buildings constructed result in a large environmental footprint. But their human and social capital policies also have an impact on their employees and the communities in which they operate. Real estate is one of the large energy users and therefore responsible for a substantial part of the global greenhouse gas footprint. Moreover, the quality and design of offices and houses impacts health and well-being of its users. In addition, real estate rental agencies, through their policies, have an impact on the (urban) living environment and on social cohesion.

Real estate industries are expected to comply with the ACTIAM Fundamental Investment Principles. For companies that qualify for active ownership policies, ACTIAM concentrates on the following topics. Real estate construction companies are expected to act responsibly. Stricter real estate construction norms, new techniques and new materials allow for more sustainable production methods and the use of more sustainable materials. ACTIAM expects that the real estate construction companies in which it invests apply the best available technologies and materials for their activities and are transparent about their sustainability policy, for instance through a sustainability report according to the GRI guidelines and the relevant supplements. In line with this, ACTIAM expects these companies, for instance, to use recycled and recyclable materials, use FSC certified wood, and operate according to the principles of the Cement Action plan of the Cement Sustainability Initiative. The ACTIAM land grabbing policy also applies to the real estate sector - see the textbox on 'land grabbing' above - implying that real estate developers and owners respect the rights of local communities and tenants.

Newly constructed buildings - especially in the EU, but gradually also in other countries - should be energy neutral and maintenance of existing buildings should improve their energy efficiency. New, redeveloped and renovated buildings are expected to score as high as is feasible for the type of building on real estate sustainability certification schemes such as BREEAM and on the EPC energy efficiency labels. When designing buildings, companies are expected to allow for flexibility in the tenants that can make use of a building and allow for the possibility that the functional use of a building changes over time when societal demands change.

3.4 CHEMICALS AND WASTE MANAGEMENT

3.4.1 Background

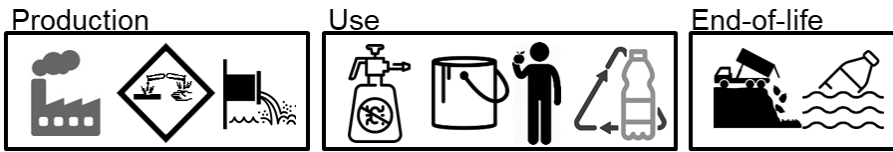
Chemicals play a vital role in society and in our daily lives. Chemicals are used in the production of many products, such as clothing, electronic products, toys, agricultural inputs, pharmaceuticals, paints and packaging. They have enhanced the quality of life and economies but have, without a doubt, also caused serious environmental and health problems. Annually, large quantities of toxic emissions, chemical substances and hazardous waste are released into the environment. In addition, the products for which chemicals are used, eventually are disposed as waste. Especially plastic products have created an immense waste problem, but also e-waste and other waste streams contribute to a broad range of environmental and social problems. Only a fraction of the harmful effects of chemicals and waste are known. The 2019 Global Chemicals Outlook of UN Environment underlines the urgency to reduce chemical pollution and damage to human health and economies.⁴²

Chemicals may cause environmental and health problems in all stages of the life-cycle of the product or substance - in the production, use and end-of-life (waste) stage, see Figure 4. Producing chemicals may cause emissions of hazardous and toxic substances to air, land and water or cause safety concerns for employees. Using chemical pesticides and fertilizers by farmers, consuming fruits and vegetables treated with pesticides, using paints in domestic and industrial applications, using plastic products containing hazardous additives or using consumer products containing microbeads may cause hazardous substances to enter the ecological system or human body. Finally, improper landfilling of waste contributes to methane emissions and groundwater pollution and improper plastics waste management may pollute the earth's rivers and oceans.

Chemical pollution and improper waste management negatively contributes to several of the planetary boundaries and social foundations of the safe and just operating zone. They directly impact the planetary boundaries on chemical pollution, air pollution, ocean acidification and nitrogen and phosphorous loading in soil and water. Moreover, the chemicals sector, being a large fossil fuel and energy consumer, contributes significantly to climate change. Next to that, they have an impact on the social foundations, especially related to health, but also to access to water and food.

⁴² UN Environment (2019). Global Chemicals Outlook II From Legacies to Innovative Solutions: Implementing the 2030 Agenda for Sustainable Development - Synthesis Report. Geyer, R., Jambeck, J. R., & Law, K. L. (2017). Production, use, and fate of all plastics ever made. *Science Advances*, 3(7).

Figure 4: Potential causes of environmental and health problems due to chemicals and waste management during different stages of the life cycle.



3.4.2 Challenges & trends

A growing population and economy cause a continuously growing demand for chemical-based products. Between 1970 and 2010, global chemical output increased from US\$ 171 billion to US\$ 4.12 trillion and plastics production increased from 35 million tonnes to 313 million tonnes.⁴³ MSCI expects that until 2025, the market for chemicals and plastics will continue to grow with on average 3% per year. Yet, a number of developments are expected to change the growth prospects of the entire chemical value chain in the years to come.

- **Chemicals regulations:** An existing array of chemicals and hazardous waste regulations already leads to changes in the industry and to the phase-out of controversial chemicals. Two influential regulations are the European directive on Registration, Evaluation, Authorisation and Restriction of Chemical substances (REACH) and the US Toxic Chemicals Act of 2011. The impact of these legislations on various industries (such as solvents and petrochemicals, fertilisers, cosmetics, soap, polymers, metals, flavour) and consumer products (such as electrical and electronics, textile and leather, toys, tyres and rubbers) is large.⁴⁴ More countries are currently tightening their chemical safety regulations, such as China, South Korea and Turkey. They realise that the benefits of pollution control far outweigh the costs.⁴⁵
- **Plastic pollution:** The current public attention to the plastic waste problems is expected to impact the plastics sector. Over 60 countries have passed regulations to reduce plastic waste and several cities and states already banned single-use plastics.⁴⁶ As a response, a growing number of companies - especially related to food, beverages, office supplies, consumer goods and packaging - try to reduce their plastics use or search for alternatives. This is likely to have repercussions throughout the global chemical value chain. But it also leads to new opportunities to the industry, especially for plastics recycling and for biodegradable and bio-based plastics.
- **Climate change:** The chemical sector is among the top contributors to greenhouse gas emissions. The Paris agreement and continuous efforts to reduce greenhouse gas emissions, also impact the chemical sector. With more countries expected to introduce carbon pricing mechanisms or other climate policies, also the chemicals sector will be impacted.
- **Consumer concerns:** Consumers become more concerned about the health and environmental effects of hazardous waste, plastic beads, carcinogenic or toxic additives in plastics or carcinogenicity of pesticides, to name a few concerns. In addition, they not necessarily trust company and government health claims. These concerns are likely to affect chemicals demand.
- **Circular economy:** All this also creates opportunities for the chemicals and the waste management sector. Growing awareness of the magnitude of the waste problem, stricter regulations and new market demands create a shift from seeing waste as a burden to seeing waste as an economically valuable resource. Especially for electronic waste, expected scarcity of raw materials creates new incentives to recycle and redesign products. It also creates opportunities for innovations in green technologies and circular business models. The chemicals sector comes with innovations in coatings and (bio-based) materials to improve efficiency, material durability and recyclability. Moreover, the European Commission' Circular Economy Action Plan promotes for instance recycling, refurbishment, re-use, resource use reduction or product redesign.

⁴³ UNEP (2013). Global Chemicals Outlook - Towards sound management of chemicals.

⁴⁴ http://www.cirs-reach.com/REACH/REACH_Industries.html

⁴⁵ <https://www.thelancet.com/commissions/pollution-and-health>

⁴⁶ Meidl, R. (2018). Ban plastic straws and bags? Then what? *Houston Chronicle*, December 13, 2018. And UN Environment (2018). Single-use plastics: a roadmap for sustainability. UN Environment, Nairobi.

3.4.3 Financial materiality of chemicals and waste management

The above outlook shows that the market for chemical substances and for waste management is changing fast. This is expected to push the transition of the chemicals industry towards more sustainable solutions and better management of toxic emissions and hazardous waste. The introduction of measures for re-using, recycling or properly disposing (hazardous) waste also creates new opportunities for the chemicals and waste management sector to deliver solutions that reduce the sector risks. This will reduce the industry’s negative environmental impact and mitigate the transition risks of more stringent regulation, liability for (waste) pollution, health issues, and increasing mitigation costs (i.e. installing systems and equipment to minimise pollution). Those embracing the transitions can profit, those that do not adapt to the transitions increasingly run risks.

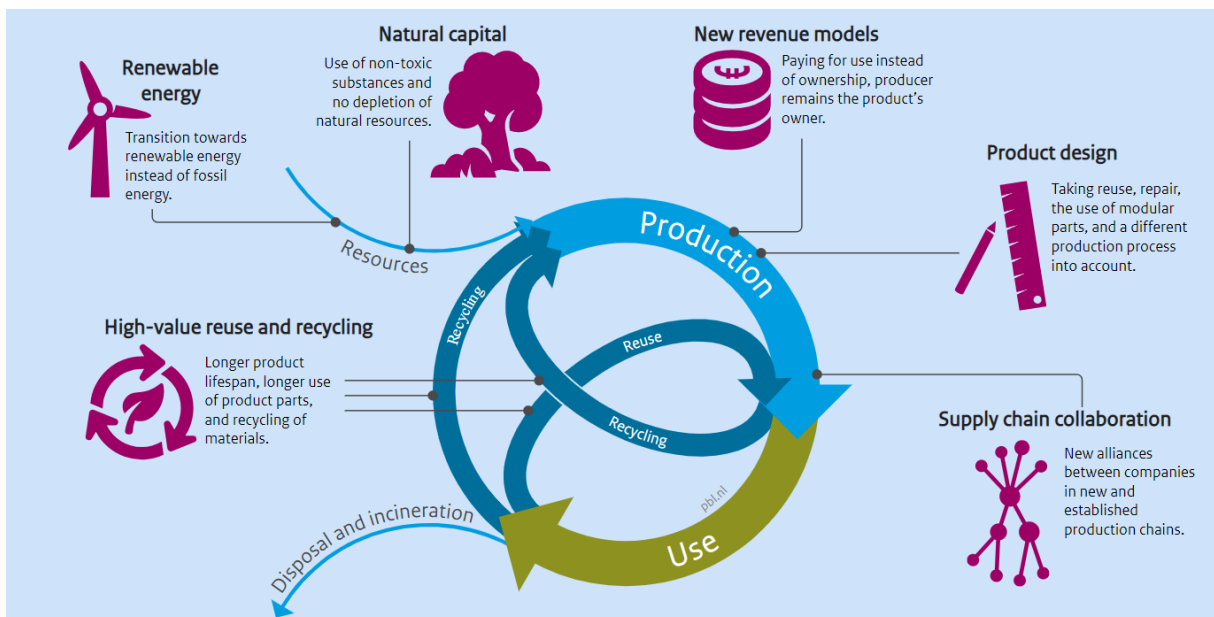
These changes to the market for chemicals and waste management are financially material for many sectors. Of course, the chemicals sector directly feels regulatory and market changes. But chemical safety and (hazardous) waste concerns are relevant for many more sectors; those involved in the production of chemicals, but also those applying the chemical substances and materials in their production processes. This includes for instance the extractives and mining companies, paper and pulp companies, utilities, resource transformation and construction companies, technology and telecommunications producers, and food and beverage companies. Changes in plastics and packaging demands, will also impact the packaging industry, food retailers, office suppliers and consumer products industries. New opportunities will especially impact the waste management sector but also the development of resource saving and energy efficiency technologies in the other sectors.

3.4.4 Vision & objectives

So far, there is insufficient knowledge about the impact of toxic chemical and hazardous waste pollution to the planetary boundaries and social foundations. They can have immediate impact on ecosystems and health, but may also become visible only after a long period of time or in geographical areas that surpass the original polluted site. As a result, at present, it is not possible to quantify a single chemical pollution target.⁴⁷

ACTIAM, however, believes that it is essential for companies to improve their performance regarding chemical pollution and (hazardous) waste management. ACTIAM, therefore, aims to move towards a situation with zero waste generation in its investment portfolio by 2050. As an intermediate step, ACTIAM aims to reduce waste generation by the companies in portfolio with 50% by 2030. To reach this point, ACTIAM expects the companies in which it invests to adapt themselves towards a circular business model, i.e. a business model that prevents - if technically feasible - chemicals and (hazardous) waste problems. ACTIAM monitors whether companies make the necessary adaptations to their business model. Figure 5 provides evidence of the possible adaptations companies can make to become more circular.

Figure 5: Elements of a circular economy.



Source: <https://themasites.pbl.nl/circular-economy/>

⁴⁷ See e.g. Steffen, W., K. Richardson, J. Rockström, S.E. Cornell, et.al. (2015). Planetary boundaries: Guiding human development on a changing planet. *Science* 347: 736, 1259855.

3.4.5 Assessing company performance

ACTIAM measures how companies perform on topics related to chemicals use and waste management. This is subdivided in three topics: 1) chemical emissions and hazardous waste, 2) waste management, including plastic and electronic waste, 3) chemical safety. Performance on each of the topics is measured based on information about a) the exposure to chemicals use and waste management related risks and b) the management capacities to mitigate these risks.

- **Exposure** to risk on these three topics differs per sector. First, chemical emissions and hazardous waste related risks refer to the risk of incurring liabilities associated with pollution, contamination, and the emission of toxic and carcinogenic substances and hazardous waste during the life-cycle of the product. Secondly, waste management risks refer to (micro) plastics, packaging materials, and (electronic and plastic) waste that may impact ecosystems and human health, if not managed properly. Third, chemical safety related risks are more related to health risks incurred by producing and using chemicals products and substances. Companies more exposed use more chemicals, generate more waste or do not use the best available technologies for reducing these risks.
- **Management capacities** to mitigate risks and adapt to changes in exposure relate to the presence of targets, strategies or programs and track records of reducing emissions and waste. It also relates to progress in making the transition towards a circular business model, that is characterised by policies to reduce or reuse waste and resources. Companies scoring high on management have made commitments to mitigate environmental pollution risk and have governance structures in place to reduce risk. Companies lacking programs or policies to reduce or control these substances and have experienced substantial incidents of contamination have a lower adaptive capacity and therefore a lower management score. Companies taking the opportunities offered by clean technologies, using alternatives for plastics and managing their waste, usually receive a higher management capacities score.

The information for measuring exposure is obtained from our main data provider, complemented with information from for instance studies on compliance with international chemical regulations, companies' efforts to reduce their chemical footprint, and company commitments to reduce plastic pollution and waste generation.⁴⁸ Table 6 concretely describes factors that contribute to the exposure and management scores.

Table 6: Factors considered for determining exposure and management scores on chemical and waste management.

Factors influencing the exposure score for Chemicals & Waste Management
<p>Companies are more exposed if they</p> <ul style="list-style-type: none"> ■ have a high share of production or use of potentially toxic or carcinogenic chemicals or (by)products that are harmful to the environment and human health; ■ have a high share of activities or products causing air, water or soil pollution and generate (hazardous) waste; ■ use many single-use plastics; ■ have a low share of operations and sales in regions with stringent or evolving chemicals, waste management and safety regulations.
Factors influencing the management score for Chemicals & Waste Management
<p>Companies receive a higher management score if they</p> <ul style="list-style-type: none"> ■ comply to international agreements, including <ul style="list-style-type: none"> - the Stockholm Convention on the production and the use of hazardous or toxic substances (POPs), - the Montreal Protocol on the production and the use of hazardous or toxic substances that deplete the ozone layer, - the Rotterdam Convention on trade in chemicals and chemical waste, - the Basel Convention on trade in chemicals and chemical waste,

⁴⁸ This information is obtained, for instance, from the Basel Action Network, the Chemical Footprint Project, the Plastic Pollution Coalition and As You Sow. If new information comes available or if new approaches come available to measure exposure to and management of chemicals and waste management, these will be included in the screening approach. ACTIAM also participates in the PRI Plastic Investor Working Group in order to build knowledge and better understand how plastics fit within the circular economy developments.

- the European REACH Directive and the US Toxic Chemicals Act of 2011 on the use of chemicals suspected to be harmful to the environment and to health;
- disclose information about trends in environmental impacts and chemical footprints of themselves and their role in the supply chain;
- employ the best available technologies (BAT) or process improvements according to the precautionary principle to reduce the emission of toxic substances to soil, water, and air or to improve waste management (e.g. of plastics and electronic waste);
- formulate, disclose and demonstrate performance in implementing chemical safety, environmental management and waste management related programmes, certification schemes, policies, protocols and standards, for all stages of the life cycle of chemical substances;
- adopt a business model that is based on circular economy principles, considering for instance packaging and waste minimization, recovery, recycling, re-use and redesign of products and processes;
- invest in R&D activities in clean technologies and green chemistry.

Based on exposure and management, companies are categorised into one of the zones in the ACTIAM sustainability framework. ACTIAM classifies companies in the ‘positive impact zone’ if they take the opportunities offered by clean technologies or adopt a circular business model in which products do not cause pollution and are recyclable or re-usable, and in which best available production processes are employed that minimize risks of pollution and chemical safety. These companies have turned the risks into opportunities.

Companies in the ‘at-risk’ and ‘non-adaptive’ zones have high exposure and low management scores. They do not comply with international regulations, run high risks of causing pollution or contamination, and do not sufficiently prepare for the transitions in the sector. Moreover, they lack strategies or targets to prepare for these risks. ACTIAM may call these companies to better prepare for the upcoming transitions through engagement and voting at shareholders meetings. Notorious laggards may eventually be excluded from the ACTIAM investment universe.

4 Social & governance drivers

4.1 ORGANISATIONAL BEHAVIOUR & INTEGRITY

4.1.1 Background

Organisational behaviour contains many dimensions. It includes people's behaviour in organisational settings, interactions between human behaviour and organisational culture, and organisations' responses to developments in the outside world. Companies have the responsibility to create a sound business environment and conduct proper governance that stimulates responsible corporate behaviour and considers impacts on the community. Companies are increasingly aware of the fact that they should not only increase shareholder value but that they also play a role in society. Good governance and business integrity function as the internal compass for the corporate behaviour of a company. By giving the example of good behaviour, the company also creates its internal culture, attracting employees with similar behaviour and wishes. Sound governance and business integrity have also become a topic of discussion for governments and associations, which have increased norms and regulation with regards to transparency, responsibility and business behaviour.

Corporate behaviour and integrity relate to topics such as board composition, remuneration, anticompetitive behaviour tax avoidance, corruption, fraud and cyber security. All these matters can influence public opinion. Public opinion is essential to the success of a company. Mismanagement of these issues can create potential liabilities, or the loss of the license to operate.

4.1.2 Challenges and trends

In the coming years, the scenery for organisational behaviour and governance aspects will continue to change. The following trends are relevant for corporate behaviour and integrity.

- **Technological developments:** To adapt to the latest technological developments - such as automation, cloud technologies, artificial intelligence, and blockchain technologies - skills and governance systems of companies will change. This not only affects modes of production, but also ways of communicating, requirements to employees and company culture.
- **Globalisation:** In an increasingly international and connected world, proper business conduct, policies and company culture are important for avoiding reputational damage, attracting employees and remaining ahead of competition. A proper governance and integrity structure are essential for addressing these challenges.
- **Transparency regulations:** Worldwide, regulations regarding governance are becoming stricter, more aligned and more transparent (see for instance the EU Action Plan on Sustainable Finance). Reporting requirements are also becoming more stringent, incorporating subjects such as climate change risk and structure and set-up of boards are subject to more requirements. In many jurisdictions new regulations have been introduced with binding reporting requirements on sustainability (e.g. the EU Directive 2014/95/EU on disclosure of non-financial information; the UK new Modern Slavery Act and in the Indian new Companies' Act of 2013).

Companies can positively affect global challenges, depending on how they manage their governance, behave as a firm and show their level of integrity.

4.1.3 Financial materiality

As the trends indicate, corporate behaviour and integrity is financially material for many companies and is expected to become more important in the future.

A company's governance is critical in determining organisational behaviour and integrity. Companies that do not have sound governance, proper corporate behaviour and integrity in place, are not transparent about their taxes and do not comply with (inter)national laws and regulations regarding competition, corruption, fraud and bankruptcy are likely to be negatively impacted by strikes, production disruptions, additional costs in the form of fees, loss of sales/services and fines and the loss of a license to operate. According to OECD, for a credible culture of integrity and for effective direction, processes, control and reporting, it is vital to "set the tone from the top".⁴⁹ Integrity has become more important to corporate leadership since the financial crisis. Misbehaviour by companies immediately causes costs, reputational damage and loss of customers. Penalties can be measured whereas the exact effect of the indirect losses are more complicated to measure and point out.

⁴⁹ OECD, Corporate Governance Business Integrity 2015, p.16

Sanctions due to misconduct have an immediate effect on a company's share value. Managers and Board members are held accountable for misbehaviour by the company, sometimes via personal liability. Lost trust reduces investor and consumer loyalty, impacting the company's performance. For instance, Rachel and Franks (2014) reported that one large mining company had experienced a value erosion of more than US\$6 billion over a two-year period, related to non-technical risks connected to community relations and social performance.⁵⁰

Positive effects can stem from companies that have the necessary governing and behavioural systems in place (i.e. independent board, fair and just pay, transparent accounting, operate according to laws and regulations), and that are transparent about their operations and results. These companies will position themselves as exemplary companies, increasing their sales/services, attracting good staff and having the goodwill of society. Cooperation with regulatory bodies might provide more room to create the business environment. Companies with sound corporate governance and sound corporate behaviour will provide a fair, sustainable and financial return to their shareholders, and to other stakeholders, such as the government and society as a whole.

Corporate behaviour and integrity are regarded essential for companies in all sectors. However, due to the nature of some sectors or business models and due to regulatory differences and differences in ethical norms between regions, some topics are more relevant for specific sectors. For instance, the topic 'business ethics & fraud' - dealing with regulatory risks associated with fraud, insider trading or executive conduct - is financially material for companies in the pharmaceuticals or health care, extractives & minerals processing, financials, infrastructure, resource transformation, services and transportation sectors. The risks related to 'anti-competitive practises' - including price fixing or unjust manipulation - is more material for the extractives and minerals processing, services, technology & communications and transportation sectors. And risks or losses related to market access restrictions due to corruption scandals and bribery, or due to political and/or social instability such as civil unrest or poor human right practises, is financially material to all companies operating in countries susceptible to corruption or where regulatory systems are weak.

4.1.4 Vision & objectives

ACTIAM believes that sound corporate behaviour and high integrity levels contribute to the long-term financial performance of companies, the stability of communities and to the Sustainable Development Goals. It is, however, still not feasible to formulate internationally agreed targets on corporate behaviour that are more ambitious than the minima as formulated by for instance UN Global Compact or the OECD Guidelines for Multinational Enterprises. For that reason, ACTIAM contributes to working groups and initiatives to raise the bar for corporate behaviour and integrity. In the meantime, and in line with the Sustainable Development Goals, ACTIAM aims to invest in companies that are transparent about their contributions to sound corporate behaviour & integrity, such as those given in the GRI guidelines and its supplements. More transparency is expected to improve company behaviour and prevent integrity issues from happening.

4.1.5 Assessing company performance

We analyse corporate behaviour and integrity on 5 dimensions.

- **Corporate governance:** related to board composition, pay practices, ownership, voting & shareholder structure and accounting practices & corporate transparency.
- **Business ethics:** extent to which companies are involved in ethics issues such as fraud, executive misconduct, money laundering or insider trading.
- **Anticompetitive practises:** extent to which companies are involved in practices such as price fixing, abuse of market power to limit competition, cartel agreements, collusion or price discrimination.
- **Corruption and instability:** extent to which companies are involved in bribery and corruption scandals or run risks due to political or social instability.
- **Tax transparency:** extent to which companies provide clarity about their corporate income taxes.

⁵⁰ Davis, Rachel and Daniel M. Franks, "Costs of Company-Community Conflict in the Extractive Sector". Corporate Social Responsibility Initiative Report No. 66., 2014, Cambridge, MA: Harvard Kennedy School, available at www.hks.harvard.edu/mrcbg/CSRI/research/Costs%20of%20Conflict_Davis%20%20Franks.pdf.

For each company, ACTIAM assesses how companies manage these topics.⁵¹ Most of these issues are not quantifiable, as they concern ‘soft’ indicators, but their assessment is based on qualitative information. A high management score implies that companies are managing the risks related to corporate behaviour & integrity issues well. They can adapt to the changing requirements to corporate behaviour and are transparent about this, e.g. by reporting according to the GRI guidelines (including their sector-specific supplements) or other sector-specific transparency initiatives. For an overview of materiality indicators, please see Table 7.

Table 7: Factors considered for determining management scores of corporate behaviour and integrity.

Corporate governance
<ul style="list-style-type: none"> ■ Independence of the board from management, directors qualifications, measures undertaken by the board, threats and concerns; ■ Board: Conflict of interest, no skills diversity, audit oversight, etc.; ■ Pay: Remuneration fair, transparent; ■ Shareholder structure: Controlling shareholders, voting process, limits; ■ Accounting practices: Revenue and expenses, auditor reports, internal controls, late filings.
Business ethics
<ul style="list-style-type: none"> ■ Business ethics policy, including policies on oversight, whistle blower protection, independent monitoring of ethics policies, and employee training; ■ Business ethics policies for suppliers and contractors;
Anticompetitive practises
<ul style="list-style-type: none"> - Controversies on anti-competitive practises, price fixing, cartel agreements or collusion;
Corruption and instability
<ul style="list-style-type: none"> ■ Controversies on bribery & corruption, human rights & human liberties issues and community impacts; ■ Association with corrupt practises (based on Transparency International and World Bank data); ■ Policy on fraud, money laundering, misleading claims or insider trading; ■ Commitments to international ethics and anti-corruption standards.
Tax transparency
<ul style="list-style-type: none"> ■ Controversies related to tax rates and tax gaps; ■ Extent to which companies are transparent and pay taxes that are due in the countries in which they operate.

⁵¹ Note that for the other six drivers, exposure and management are measured. As all companies are equally exposed to the risks of corporate misconduct, for this driver only management is measured. Note, moreover, that the corporate behavior dimensions are not only assessed for the own operations, but also for procurement and contracts with subcontractors and suppliers.

Based on the management scores, companies are categorised into one of the zones of the ACTIAM Sustainability Framework.

- **Unacceptable behaviour / Non-adaptive:** The companies not complying with corporate behaviour and integrity related laws and regulations do not comply with the ACTIAM Fundamental Investment Principles. Companies are excluded from investment if they are involved in corruption as defined by the UN Convention Against Corruption (2003), the OECD Convention on Combating Bribery of Foreign Public Officials in International Business Transactions (1997), the OECD Guidelines for Multinational Enterprises (2011) or the Principle 10 of the UN Global Compact. Also, companies that face numerous controversies on essential corporate behaviour and integrity topics are considered for exclusion.
- **At-risk:** Companies that just comply with ACTIAM’s Fundamental Investment Principles but do not exhibit extra effort are labelled as being “at risk” since they operate in line with laws and regulations but do run the risk of missing out on requirements if they do not keep up with developments in organisational behaviour and ethical norms.
- **Adaptive / Safe and just zone:** Companies practising responsible corporate behaviour and integrity management are companies that move beyond complying with (inter)national laws and regulations towards managing risks (transparent, high level of disclosure, policies and systems). These companies develop higher standards on corporate behaviour and integrity management in response to societal trends and challenges they face in the short term. Moreover, board members are evaluated not only on their financial results, but also on their sustainability achievements.
- **Positive impact:** Companies practising sustainable corporate behaviour and integrity management, ensure long-term productivity, strengthen and monitor the production and distribution lines, improve the business environment and strive for enhancing rules, develop new services and products to improve are categorised in the positive impact zone.

Financial Sector

Due to recent controversies and scandals, the financial sector is under scrutiny. For that reason, ACTIAM carefully assesses behaviour of the financial institutions in which it invests. This not only refers to their corporate behaviour, but also to the environmental impacts of their investments and their dependency on human and social capital management. The financial sector is sensitive to regulatory changes and consumer concern. They increasingly have to monitor the origins of financial flows, face data privacy and data security risks, and are expected to hold high ethical norms, considering for instance financial crime risks, anti-money laundering and counter terrorist financing. In addition, they are called to provide transparency about the impacts of their investments on society and the environment, such as their investments in high-carbon or deforestation activities. Next to that, their human capital management requirements are changing. Due to technological advancements, such as blockchain technologies, that are increasingly being used in financial exchanges or automation of processes, the type of skills and knowledge required are changing. This may cause a shortage of talent. Those that are proactively investing in their human capital management are expected to be better positioned in terms of long-term financial performance, than those that have low human capital management development.

Next to the Fundamental Investment Principles, ACTIAM carefully considers how financial institutions prepare for the changing risks they face for each of the seven drivers discussed in this memorandum. If necessary ACTIAM excludes financial institutions or engages with them to initiate improvements. In addition to the principles adopted for screening companies on their business drivers, ACTIAM expects financial institutions to at least:

- Comply with the Wolfsberg Principles;
- Provide transparency about their tax payments in each country in which they are active;
- Have an investment policy regarding sensitive sectors and crucial themes, based on international treaties and conventions;
- Adhere to the recommendations of the Task Force on Climate-Related Disclosures (FSB TCFD).

Pharmaceuticals

The pharmaceutical sector plays an important role in society for improving life expectancies and quality of life. Given population growth worldwide, there is a strong market growth for medicines. Yet, a large part of the population lacks access to affordable health care. The Universal Declaration of Human Rights and the International Covenant on Economic, Social and Cultural Rights have defined a standard as to what the right to health means. In addition, the United Nations Sustainable Development Goal 3 refers to ensuring healthy lives for all. Pharmaceutical companies, governments and healthcare organisations all play an important role in realising this. But the pharmaceutical industry is also the cause of many scandals. Tax evasion, neglected side effects of medicines with large social impacts, bribery, excessive price setting, anti-competitive behaviour and misconduct regarding animal testing are some of the scandals that recently made the news. Moreover, the sector is energy and water intensive and has to manage its hazardous waste properly.

For that reason, ACTIAM carefully assess behaviour of the pharmaceutical companies in which it invests. The ACTIAM Fundamental Investment Principles already describe minimum criteria to which pharmaceutical companies have to comply. Next to that, ACTIAM expects pharmaceutical companies to have effective policies and processes in place to contribute to accessible and affordable health care for all. They are expected to act according to the Principles for Responsible Supply Chain Management as formulated by the Pharmaceutical Supply Chain Initiative (PSCI). Pharmaceutical companies shall conduct their businesses in an ethical manner, uphold the human rights of their employees, provide a healthy and safe working environment, operate in an environmentally responsible manner and facilitate continuous improvement to their operations and products. If necessary, through active ownership, ACTIAM stimulates pharmaceutical companies in which it invests to improve their policies and processes.

4.2 HUMAN CAPITAL MANAGEMENT

4.2.1 Background

Companies have an impact and are dependent on human capital for their performance. Human capital can be defined as “the value embedded in individual people, which concerns their knowledge, skills, competencies and attributes. It facilitates the creation of personal, social and economic well-being”.⁵² In a business context, human capital concerns issues related to labour and union rights, employee health & safety, working conditions, career development opportunities, and inclusive and diverse employer practices, including gender equality. These issues are relevant in both the direct operations and supply chains of companies, especially for those operating in sectors with large workforces.

4.2.2 Challenges & trends

Human capital is key for social and economic development. It is relevant for achieving several of the Sustainable Development Goals, including those relating to poverty, health and well-being, education, equality, decent work and responsible consumption and production. There are numerous socio-economic developments that lead to various transition pathways which affect the future of human capital up to 2030. Below a summary of some of these effects, inspired by WEF Future of Jobs 2018:⁵³

- **Changing geography of operations and sourcing:** job location decisions are increasingly driven by the availability of skilled local talent and labour costs. Companies are often dependent on a working rule of law in the countries in which they operate or from which they source to ensure effective enforcement of human capital-related policies. Currently, various international initiatives are working on new, increased standards on labour laws and working conditions such as minimum wages, health and safety, equality and diversity. This is expected to create a more equal level playing field for companies operating in the respective countries.
- **Flexible and global workforce mobility:** workforces increasingly consist of foreign workers that are employed through a variety of contracts. This requires rethinking and managing their rights, taxation and social security issues over time and in different contexts. This may make it challenging for companies to implement human capital policies in line with changing stakeholder expectations.

⁵² Keeley, B. (2007). Human Capital, How What You Know Shapes Your Life. OECD Publishing.

⁵³ World Economic Forum (2018). The Future of Jobs Report 2018.

- **Transparency:** there is a trend towards more transparency in reporting and scrutiny by stakeholders on human and labour conditions of companies, (e.g. Behind the Brands campaign by Oxfam, Access to Medicine Index, Access to Nutrition Indices, KnowTheChain Benchmark, and Corporate Human Rights Benchmark). Challenging in this regard is the size and global presence of companies. This makes it difficult to manage and monitor codes of conduct, HR policies and other policies promoting human capital development across borders and value chain activities. Also, supply chain transparency is still limited, where many companies cannot yet map nor disclose their supply chains, let alone adjust their purchasing decisions to align with human and labour rights.
- **Technological developments:** due to Artificial Intelligence (AI), robotics and other human-machine interaction technologies, existing tasks currently done by humans will be increasingly taken over by machines. This can lead to a large-scale decline in some roles, which in turn causes trade-offs in investing in automation, re- or up-skilling of current employees or hiring new employees with skills in new technologies. At the same time, this development can lead to a large-scale growth in new products and services due to the adoption of new technologies, especially in geographies with a rising middle-class in emerging economies. This development makes sustainable talent development challenging.
- **Engaging workforce:** employees have higher expectations regarding lifelong learning, which requires companies to go beyond mere financial compensation. It requires them to invest in career development opportunities that benefit employees in terms of diversity, agility and value for society.

4.2.3 Financial materiality

These trends in combination with companies' dependence and impact on human capital, indicate that human capital can be financially material. It can negatively affect companies that do not operate in line with (inter)national laws and regulations on labour rights and union rights (e.g. minimum pay, discrimination etc.), provide a safe and healthy work environment or treat employees in a fair and equal manner. This can increase costs in various ways. Firstly, it can lead to less productivity and quality, due to production disruptions instigated by strikes. Secondly, due to penalties, fees and compensation that need to be paid e.g. in the case of accidents or mistreatment of employees. Thirdly, it can result in higher recruitment and training costs as there is a risk of higher turnover due to low job satisfaction. Plus, it can negatively affect companies' sales, as they may lose their license to operate or growth opportunities due to brand value damage, as consumers increasingly ban products that are not produced under humane conditions.

The trends can positively affect companies that position themselves as attractive employer and provide working conditions in line with decent work, diversity and inclusiveness principles, as well as training and development opportunities that benefit the long-term employability of employees. In turn, this heightens the wellbeing and welfare of employees and their communities. This can increase productivity and reduce costs, as employees work in pleasant and healthy conditions and receive a decent living wage that provides for their basic needs and financial stability. Also, it is expected that a company's ability to attract skilled employees and employee loyalty will increase, which can reduce costs of recruitment and training. Finally, it can enhance profitability and companies' license to operate, as consumers may perceive higher brand value and are willing to pay more for products or services that are made under humane conditions.

Human capital is regarded an essential input for companies in all sectors. However, due to the nature of some sectors, business models and the regions in which companies operate, as well as the diversity in human capital topics there are varying degrees to which human capital is material. Sectors for which human capital is highly material include consumer staples, consumer discretionary, ICT manufacturing, extractives, financials, food and agriculture and building & construction. In other sectors or types of business segments only certain human capital dimensions are financially material, for example in manufacturing sectors like extractives the issue of health & safety is more material than in services sectors. Also, in technology-heavy sectors topics related to employee engagement and career development are more important given the scarcity of highly skilled people in the labour market. Plus, for sectors with low-skilled workforces, issues related to standard working conditions are more important than for sectors with high-skilled workforces, where employee engagement is expected to be more financially material.

4.2.4 Vision & objectives

It is ACTIAM's belief that sound human capital management contributes to the quality of life of employees and the wellbeing of society, and in that way supports the long-term financial performance of companies. So far, there is no internationally agreed target on human capital management. Yet, an important component of human capital management relates to income. Quality of life for employees and society is largely determined by an income that provides decent living. Therefore, and in line with the Sustainable Development Goals, ACTIAM aims to invest especially in companies that pay a living wage to employees. Indirectly, this also contributes to improvements in human rights, labour rights and poverty alleviation. To focus attention, ACTIAM's investment strategy concentrates on supporting companies especially in the manufacturing industry to implement the processes necessary to realise a living wage.

4.2.5 Assessing company performance

We analyse human capital management on the following four dimensions.

- **Labour practices**, such as working conditions related to labour and union rights, remuneration, working hours, and employee treatment. Issues on this dimension can lead to workforce strikes or low job satisfaction and therewith production disruptions or poor quality, which comes with associated costs.
- **Employee health & safety**, which concerns managing accidents, implementing health & safety (H&S) programs and monitoring contractors performance on H&S.⁵⁴ Poor performance on this dimension can lead to production disruptions and litigation or compensation costs.
- **Employee training and development**, including training and development programs, employee engagement programs and anti-discrimination and diversity policies. Poor management can lead to higher turnover rates, which in turn can increase recruitment and training costs. Also, it can lead to lower productivity as employee skills may no longer match with what is required given new technologies.
- **Supply chain labour standards**, which concerns integration of ILO standards in procurement policies, as well as treatment of employees in the supply chain, monitoring and engagement of suppliers on working conditions, and labour rights and H&S policies of subcontractors. Issues on this dimension can result in production disruptions or consumer bans with associated reputational risks, which can increase costs.

The extent to which companies report on or measure human capital differs highly. Many human capital dimensions are not quantifiable, as they concern ‘soft’ indicators like employee satisfaction or wellbeing. Currently, ACTIAM uses ESG rating data as a proxy to assess human capital materiality and human capital management performance. Other sources that we consult or are involved in are the Corporate Human Rights Benchmark, Workforce Disclosure Initiative Survey, Access to Medicine, Access to Nutrition Indices, Platform Living Wage Financials, and Equileap. Over time, ACTIAM evaluates whether developments in human capital management give reason to cover other topics or to redefine the human capital management zones.

Based on this information, and especially for the dimensions that are material to a company, we assess for each human capital dimension the extent to which the company is exposed to the risks that result from the current trends and challenges as well as how well they mitigate these risks. An assessment resulting in a high exposure and low management score means companies are more likely to fall in the at risk category, while an assessment resulting in a low exposure and high management score means companies are more likely to fall in the safe and just zone. The dimension with the lowest score determines the category in which the company falls. Table 8 describes a selection of the factors that contribute to the exposure and management scores.

Table 8: Selection of factors considered for exposure and management scores on human capital management.

Factors influencing exposure scores	Factors influencing management scores
1. Labour practices	
<ul style="list-style-type: none"> ■ Size and location of workforce; ■ Degree of labour intensity; ■ Corporate restructuring or layoffs. 	<ul style="list-style-type: none"> ■ Remuneration and provision of benefits; ■ Access to collective bargaining and associations; ■ Employee engagement programs; ■ Employee training & development programs; ■ Restructuring policies; ■ Labour-related controversies, e.g. reductions in benefits, mistreatment of employees, controversies over wages and hours, wrongful termination.

⁵⁴ This includes compliance to the Fundamental Principles on Nuclear Safety of the International Atomic Energy Agency. IAEA (2006). Fundamental Safety Principles - Safety Fundamentals No. SF-1. International Atomic Energy Agency, Vienna.

2. Employee health & safety	
<ul style="list-style-type: none"> Operations in locations with high accident rates; Operations in sectors with high injury or accident rates. 	<ul style="list-style-type: none"> Quality of H&S policies and targets; H&S risk management; H&S training; H&S supply chain management; H&S controversies, e.g. workplace accidents in direct operations.
3. Employee training & development	
<ul style="list-style-type: none"> Dependence on high-skilled workforce; Involvement in restructuring with negative consequences for employee turnover. 	<ul style="list-style-type: none"> Talent development policies; Training & development programs; Non-financial incentives; Grievance procedures; Employee satisfaction; Discrimination and diversity policies; Labour management controversies; Collective bargaining and union controversies, e.g. anti-union activities, strikes, lock-outs and breaches of union contracts; Discrimination and workforce diversity controversies, e.g. instances of discrimination based on gender, race or ethnicity, gender pay differences, or instances of verbal, physical or sexual harassment.
4. Supply chain labour standards	
<ul style="list-style-type: none"> Supply chain in locations with poor labour standards; Brand exposure to public scrutiny. 	<ul style="list-style-type: none"> Supplier code of conduct requirements and training; Supplier compliance audits; Actions for non-compliance of suppliers with code of conduct; Supply chain labour standards controversies, e.g. supply chain issues related to overtime, inadequate pay, union and discrimination on gender, race or ethnicity.

The elements of human capital management that are of importance for the financial sector are discussed in the textbox below.

Based on the exposure and management scores, companies are categorized into one of the zones of the ACTIAM Sustainability Framework.

- Inactive** companies are those that are in the ‘unacceptable zone’ because they do not comply with the ACTIAM Fundamental Investment Principles for at least one of the human capital dimensions. These principles prescribe the minimum thresholds below which companies will automatically be excluded from investment. In relation to human capital, companies are required to operate in line with among others the UN Global Compact principles, UN Guiding Principles for Business and Human Rights, and the International Labour Organization’s fundamental principles related to child labour, forced labour, union and collective bargaining and discrimination. These minimum requirements apply to companies’ direct operations and supply chains.

- **Reactive** companies are categorized as ‘at risk’, because they operate just above the minimum ACTIAM expects from companies. They wait for stakeholder expectations to develop before they take more action. They operate in line with laws and regulations, however run the risk of missing out on requirements should they not keep up with ethical norms developments. For example, they may be providing minimum wages in line with current laws, however, not prepared in case governments are increasing these in the short run. Or companies may have just the right measures in place to pass health & safety standards, however, still many accidents take place. Companies that are doing so in a structural and systematic manner, whereby they face numerous controversies on essential human capital topics are considered non-adaptive and can be excluded for that reason.
- **Responsible** companies, practicing human capital management that moves beyond complying with (inter)national laws and regulations but managing risks before they mature, are labelled as ‘adaptive’ and/or operating in the ‘safe and just zone’. They develop higher standards on human capital management in response to the societal trends and challenges they face. They aim to reduce costs and enhance profitability, by building a decent work environment with a healthy, safe and satisfied workforce. For example, by providing living wages, safe working environments, basic training and development programs and basic anti-discrimination policies.
- **Sustainable** companies, practicing human capital management that aims to improve society and long-term performance, operate in the ‘positive impact zone’. They focus on enhancing their attractiveness as an employer and therefore the long-term productivity, employability and wellbeing of their workforce. This strategy can consist of for example talent programs, employee engagement programs, re-/upskilling opportunities and healthy work-life balance incentives. This will result in a healthy, diverse and skilled workforce adaptable to technological advancements in the long run. This is required of companies that operate in an innovative way and seek new business models for sustainability in partnership with other stakeholders as they indirectly shape the human capital trends.

4.3 SOCIAL CAPITAL MANAGEMENT

4.3.1 Background

Globalization has brought many positive aspects, but also brings about challenges for companies to continue to thrive. Companies need to understand what value they create, not only for their shareholders but also for society and stakeholders. They need to be aware how they manage their social capital. Broadly speaking, social capital can be defined as the stock of community’s goodwill and trust acquired by an organisation over the years, through its understanding and addressing of the concerns and priorities of the citizens.⁵⁵ In a business context, social capital issues relate to controversial sourcing, human rights and community relations, privacy and data security, access and affordability to products and services, product quality and safety amongst others. Companies both impact social capital and depend on social capital for their performance. Social capital management practices influence people and society through companies’ operations and supply chains and through the products and services they provide. And social capital aspects are also essential for the well-functioning of companies operations and their reputation.

Having a proper understanding of the social capital risks in the portfolio enables investors to identify material investment risks. According to the UN Working Group on business and human rights, many companies do not demonstrate practices that meet the requirements set by the UN Guiding Principles on Business and Human Rights. They call on investors to systematically require effective due diligence by the companies they invest in.⁵⁶ Yet, an overall framework for guiding efforts whereby companies have societal issues at the core of their business and create shared value is still missing, i.e. a framework that shows how to create economic value in a way that also creates value for society, reconnecting company success with social progress.⁵⁷

⁵⁵ The definition is adapted from <http://www.businessdictionary.com/> and the Social & Human Capital Protocol. The last defines social capital as societies’ relationships, shared values and institutions.

⁵⁶ Investor alliance for Human Rights, The Universal Declaration of Human Rights 70th Anniversary: What it means for Investors, 10 December 2018. See: investorsforhumanrights.org.

⁵⁷ Porter, M. and M.R. Kramer (2011). The Big Idea: Creating Shared Value. *Harvard Business Review*, 89 (1-2): 62-77.

4.3.2 Challenges and trends

Social capital is key for social and economic development. It is relevant for achieving several of the Sustainable Development Goals, including those relating to poverty, health and well-being, education, equality, access to services and products and responsible selling and production. Several socio-economic developments lead to various transition pathways which affect the importance of social capital for companies. Below some expected developments are mentioned.

- **Technological developments:** artificial intelligence (AI), robotics and other human-machine interaction technologies will strongly influence the future workforce and relations to society. Investing in automation will have its trade-offs on current businesses given the enhancement of digital security and privacy aspects. Furthermore, a range of new products and services will emerge based upon the new technologies and possibilities which will change the way people interact, live, work and do business.
- **Globalisation:** urbanisation, growing migration and rising educational levels influence the growth in inequality, especially in emerging markets. This can partially be explained by changes in skills needed due to technological change and changes in goods and labour markets and due to demographic changes in countries. This in turn influences affordability and accessibility of services and goods. An active role of governments and companies will increasingly be needed to provide services and goods and address these issues.
- **Dependency on outsourcing:** vulnerability in the supply chain risks bring about potential human rights abuses, reputational loss as well as high financial costs due to legal actions. Increasing legal and regulatory requirements, as well as consumer awareness on product quality and safety are becoming more important for companies and their operations.
- **Changing geography of operations and sourcing:** company decisions are driven by the availability of favourable country rules and norms, local and international requirements, labour requirements, infrastructure and land opportunities. Companies are dependent on the rule of law in the countries they operate in and from which they source. Issues that impact the importance of social capital for companies include aspects such as respecting human rights, respecting the rights of indigenous people, managing cultural heritage and local rights, contributing to local economy and consumer wellbeing, health and safety of communities, supply chain loyalty and product quality.
- **Transparency:** there is a trend towards more transparency in reporting and scrutiny by stakeholders on human and labour conditions. It is expected that companies will increasingly seek transparency and address negative effects of economic activities, underlining the current trend of enhancing e.g. human rights standards, respecting land rights, gender equality reporting. The size and global presence of companies presents an extra challenge, making it difficult to manage and monitor codes of conduct, policies and other policies promoting social capital management across borders and value chain activities. Also, supply chain transparency is still limited, where many companies do not yet map or disclose their supply chains. In addition, the growing number and scope of laws and regulations and ethical norms come with associated costs and makes it more difficult to remain competitive as frontrunner, especially, since good practice on these topics is often not (yet) explicitly valued by stakeholders.

These developments will influence companies' behaviour and financial results, depending on how well the companies manage their social capital and are thus exposed to or protected against these trends.

4.3.3 Financial materiality

Given the above developments, it is expected that ignoring social capital issues will increasingly have negative consequences for a company's performance. For example, insufficiently protecting or even violating human rights, can directly lead to reputational damage and decreasing sales; providing unsafe products may lead to decreasing sales, liability risks and costs related to product recalls and fines; not complying to the laws regarding data privacy can lead to sanctions. In the long term, however, mere compliance with existing standards and rules may be insufficient to tackle material risks related to social capital issues. Companies will need to proactively engage these issues to mitigate future risks. For example, practices which deepen the social divide, such as inequitable access to products and services, though not necessarily illegal, may result in future social instability or government intervention.

There is also a positive side to engaging on social capital issues. Companies that focus on operating according to inter(national) laws and regulations, optimise cyber and data security, deliver quality and safe products for consumers and provide culturally appropriate investment, locally generate productivity and earnings over time. This benefits employees, government and society as a whole, and it increases trust, community loyalty and social stability.

Social capital concerns countries, people and their livelihood and therefore social capital is essential to the financial performance of companies in all sectors. There are however varying degrees to which social capital is material to different sectors given their business model and the regions in which companies operate. Based on the GICS sector division, table 9 shows the most financially material topics per sector. Note that this does not imply that the social capital topics not mentioned are not relevant or material for the sectors. Yet, they are (at present) less material. ACTIAM also assesses social capital for a company if it is regarded as less financially material.

Table 9: Sectors for which social capital issues are material

	Product safety & quality	Privacy & data security	Controversial sourcing	Access & affordability
Consumer discretionary	●	●	—	—
Materials	—	—	●	—
Financials	—	●	—	●
Consumer staples	●	●	—	—
Health care	●	●	●	●
Real estate	●	—	●	●
Energy	—	—	●	—
Industrials	●	●	●	—
Communication Services	●	●	—	●
Information technology	—	●	●	—
Utilities	●	—	—	—

- Material for most companies in the sector
- Not likely to be material for any of the companies in the sector

4.3.4 Vision & Objectives

Companies must manage social capital aspects in a sound and proper manner for their long-term financial performance and for the well-being of the communities they operate in. In absence of internationally agreed targets on social capital management, ACTIAM contributes to working groups and initiatives to further develop targets and measures related to social capital management. For that reason, and in line with the Sustainable Development Goals, ACTIAM aims to invest in companies that provide transparency about how they address human and community concerns in their policies, processes and procurement. More transparency is expected to prevent issues related to product quality & safety or data & privacy security from happening.

4.3.5 Assessing company performance

ACTIAM clusters social capital management issues in 4 dimensions:

- **product safety & quality:** related to concerns about product quality and risks of unsafe products leading to recalls, warranty payments and controversies.
- **data & privacy security:** related to controversial use of personal data, practices to control data collection and use, and strength of data security management.
- **access to and affordability of communication, health care, nutrition and finance:** related to practices, products and distribution channels that either restrict or improve access to and affordability of basic services such as health care, food and financial services.
- **controversial material sourcing and procurement:** related to factors such as failure to respect the human and land rights of the communities in which the companies operate or indigenous or minority groups affected by the operations.

For each dimension, ACTIAM identifies how exposed companies are to social capital aspects and how well they manage these. An assessment resulting in a high exposure and low management score for one of the dimensions means companies are more likely to fall in the at risk category, while an assessment resulting in a low exposure and high management score means companies are more likely to fall in the safe and just zone. Table 10 concretely describes factors that contribute to the exposure and management scores.

The methodology for measuring social capital targets is yet in its infancy and relatively few measurement tools are available. ACTIAM therefore uses a combination of sources and qualitative scores to gain insight into risk exposure and management.

Table 10: Factors considered for determining exposure and management scores on human capital management.

Factors influencing exposure scores	Factors influencing management scores
1. Product safety and quality	
<ul style="list-style-type: none"> ■ Extent to which companies produce products that experience higher rates of product safety and quality incidents or have higher associated liabilities. 	<ul style="list-style-type: none"> ■ Training, certification or policies on supply chain and sourcing risks; ■ Presence of policies and procedures related to internationally accepted quality control, product testing, mitigation control, product and process certification (such as the latest ISO certification guidelines); ■ Transparency about incidents, quality performance, recalls & warnings, and codes of conduct on product safety & quality; ■ Number of controversies related to product safety & quality.
2. Privacy and data security	
<ul style="list-style-type: none"> ■ Extent of operations in countries with stringent or evolving regulations on data security and privacy; ■ Extent of operations involved in collecting and handling personal data and with high risk of experiencing data security problems. 	<ul style="list-style-type: none"> ■ Presence of policies restricting the collection and use of sensitive personal data; ■ Transparency about incidents of breaches leading to high costs; ■ Transparency about data protection & privacy policies and systems, employee training, use of widely recognized certificates or standards, technologies used, and allocation of responsibilities; ■ Number of controversies related to privacy and data security.
3. Access and affordability to communication, health care, nutrition and finance	
<ul style="list-style-type: none"> ■ Extent of operations in markets that are underserved or that are characterised by imperfect competition; ■ Extent to which lack of skilled staff or lack of proper infrastructure create risks of creating hurdles to access to services. 	<ul style="list-style-type: none"> ■ Controversies related to restricting access to basic services, to providing basic services that are unaffordable to underserved groups or minorities or to discriminating in providing access; ■ Presence of policies and targets to serve underserved groups such as children, elderly, women, low-income, remote areas, and SMEs; ■ Performance on the access to medicine index; ■ Disclosure of activities related to access and affordability of basic services among underserved groups. ■ Investments in capacities to advance access and affordability of basic services.

4. Controversial sourcing and procurement

- | | |
|--|--|
| <ul style="list-style-type: none"> ■ Dependency of the operations on raw materials of concern, that originate from areas with concern of violations of human, community, indigenous or minority rights; ■ Extent to which materials are sourced or procured from suppliers or subcontractors operating in controversial areas, with concerns of violations of human, community, indigenous or minority rights. | <ul style="list-style-type: none"> ■ Policies, certifications and standards that address concerns on sourcing and procurement of controversial raw materials, including issues related to conflict minerals, ethical business conduct, gender equality, civil liberties and freedom of speech, respecting indigenous peoples and land rights; ■ Code of conduct addressing forced labour, child labour, hours, minimum wage, anti-discrimination, use of security forces, and health & safety issues related to sourcing and procurement of controversial raw materials; ■ Number of controversies with regards to human and labour rights violations related to material sourcing. |
|--|--|

Based on the exposure and management scores, companies are categorized into one of the zones of the ACTIAM Sustainability Framework.

- Companies not complying with the social capital topics of the ACTIAM Fundamental Investment Principles are excluded from investment. These include human rights violations, fundamental labour rights violations, and violations of fundamental client and product integrity, for instance as laid down in the ‘UN Guiding Principles for Business and Human Rights’ and the ‘OECD Guidelines for Multinational Enterprise’.⁵⁸ Also companies that face numerous controversies on essential social capital topics are considered non-adaptive and can be excluded for that reason.
- Companies that just comply with social capital-related laws and regulations but do not exhibit additional effort to surpass the minimum ACTIAM expects from companies as required by ACTIAM’s Fundamental Investment Principles, are labelled as being ‘at risk’. These minimum requirements apply to companies’ direct operations and supply chains. They operate in line with laws and regulations, however run the risk of missing out on requirements if they do not keep up with ethical norms developments.
- Companies practicing responsible social capital management are companies that move beyond complying with (inter)national laws and regulations towards managing risks (transparent, high level of disclosure, proper stakeholder consultations). These companies develop higher standards on social capital management in response to the societal trends and challenges they face in the short-term. Companies in this category are labelled as adaptive and/or operating in the safe and just zone.
- Finally, companies practicing sustainable social capital management, ensure long-term productivity, strengthen and monitor the value chain, improve the business environment and strive for corporate shared value through engagement, advancing rules, develop new services and models to improve are categorised in the positive impact zone. These are the innovative companies, seeking new business models for sustainability in partnership with other stakeholders as they indirectly shape the social capital trends, resulting in an adaptable business staying ahead of the curve.

⁵⁸ See the ACTIAM Fundamental Investment Principles.

Companies that through active ownership are stimulated to move towards the safe and just zone are expected to put processes in place to enable the remediation of adverse human rights impacts which they caused or contributed to and to prevent further incidents related to product quality & safety, to breaches of privacy or data security or to accessibility of basic services to underserved groups. Especially related to sourcing and procurement issues, this includes the respect for indigenous people and land rights and the formulation of policies to consult with local communities and to obtain Free, Prior and Informed Consent (FPIC) of land users before the use or exploit the land - see textbox 'Rights of indigenous people'. For this, companies are also expected to improve equality among, independent of gender, and prevent (modern) slavery in all its forms. Moreover, this topic also includes animal welfare principles - see textbox 'Animal welfare'.

Rights of Indigenous People

The United Nations estimates there are over 370 million indigenous people living in some 90 countries around the world. In many cases, indigenous peoples have been subjected to violence, discrimination and the loss of their land. They often live in poverty, have health problems, and their culture, languages and way of life are threatened. As the lives of indigenous peoples are in many cases very closely tied to their lands, both physically and culturally, they are even more vulnerable to the activities of resource extraction companies. The international rights of indigenous peoples are included in several conventions and treaties. The UN Declaration on the Rights of Indigenous Peoples (UNDRIP) was adopted most recently, in 2007 by 146 countries. A major change with respect to the former conventions is that companies need to seek Free, Prior, and Informed Consent throughout the entire process of opening, maintaining and closing a mine, oil field, factory, etc. This is to ensure that indigenous peoples have the chance to voluntarily authorise the company's activities based on full information. Companies thus earn their 'social license to operate'. ACTIAM calls on companies to seek this FPIC prior to, during and after their activities where relevant..

Animal Welfare

ACTIAM's vision is that human interaction with animals should occur in a responsible and prudent manner. Thus, in cases where animal-friendly alternatives are possible, these should always be given preference. If no suitable alternatives exist, this should become an objective to strive for. The ACTIAM Fundamental Investment Principles contain ethical principles related to animal testing, livestock farming and fisheries. Besides, as an active shareholder, ACTIAM engages with the companies in which it invests. This means ACTIAM actively seeks dialogues to promote behavioural change (engagement) and votes at the general meetings of shareholders. By adopting such an active ownership, ACTIAM challenges relevant companies to:

- respect the five freedoms of animals as much as possible;
- comply with animal welfare requirements through certificate schemes;
- use more plant-based proteins in products;
- curb excessive use of antibiotics;
- use the international Business Benchmark criteria for farm animal welfare (BBFAW) to improve animal welfare by, for example, replacing confined housing systems with cleaner, safer and more spacious alternatives, or restricting animal transport times limits;

In addition, ACTIAM expects companies that are still involved in the production and trade of fur and exotic leather to switch to non-animal products or to by-products of the meat and dairy industry. The above requirements do not only apply to the company itself, but also to subcontractors and suppliers throughout the supply chain.

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