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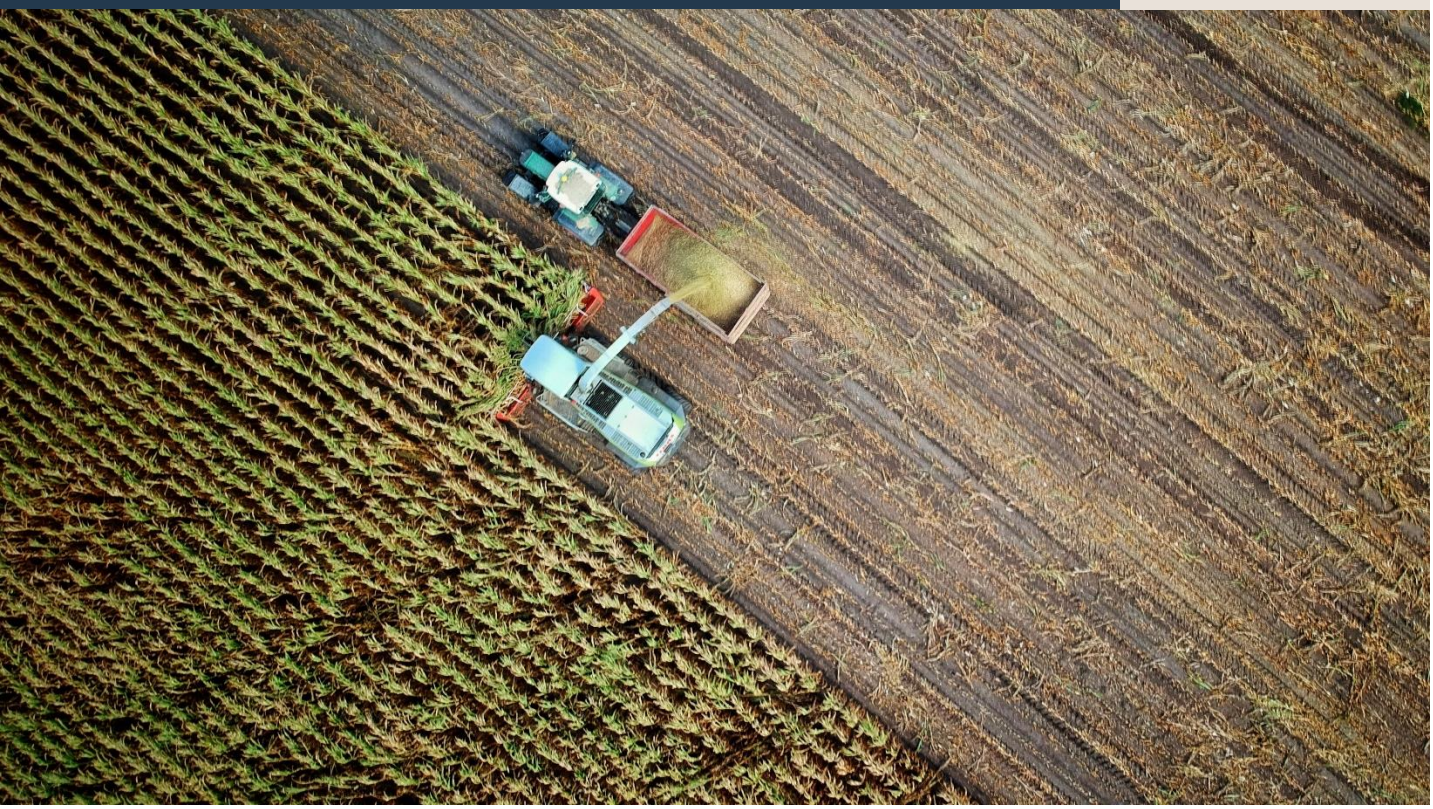
Investing in sustainability

Resources: Agriculture and Forestry

Sustainable Development Sector Analysis Framework

August 2019



This is a methodological document aimed at clarifying how Mirova takes into account sustainable development issues in the framework of the environmental, social and governance analysis of each sub-sector of activity.

An affiliate of: NATIXIS INVESTMENT MANAGERS

Sectors: Agrochemistry, seeds, agricultural machinery and equipment, forestry and paper industry.

Agriculture in the 21st century faces several interdependent challenges: producing more to meet the food needs of a growing population in a context of changing diets and climate change, while preserving soil fertility, water quality, biodiversity and the climate. As a result of world population growth, going from 7 billion inhabitants in 2010 to 9.8 billion in 2050, and of the rising living standards of developing countries, we are expecting the demand for food to increase by more than 50% by the middle of the century (WRI, 2018). In the agricultural sector, improving yield and exploitation rates through sustainable agricultural practices and reducing post-harvest losses are the main levers for moving towards sustainable agriculture and achieving the “new green revolution”. Other key success factors are linked to the food industry and distribution sector as well as the evolution of consumption patterns. We addressed these aspects in the “Consumption – Food industry” publication. Our forests are also facing major environmental challenges: especially since we have not been able to stop massive deforestation to this day. Forests are home to 80% of the world’s biodiversity and act as carbon sinks, making them an essential climate regulator, which is why they must be protected. The forestry sector is in the front line and must make sure that its operations are not carried out at the expense of the planet.

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Sustainability Opportunities

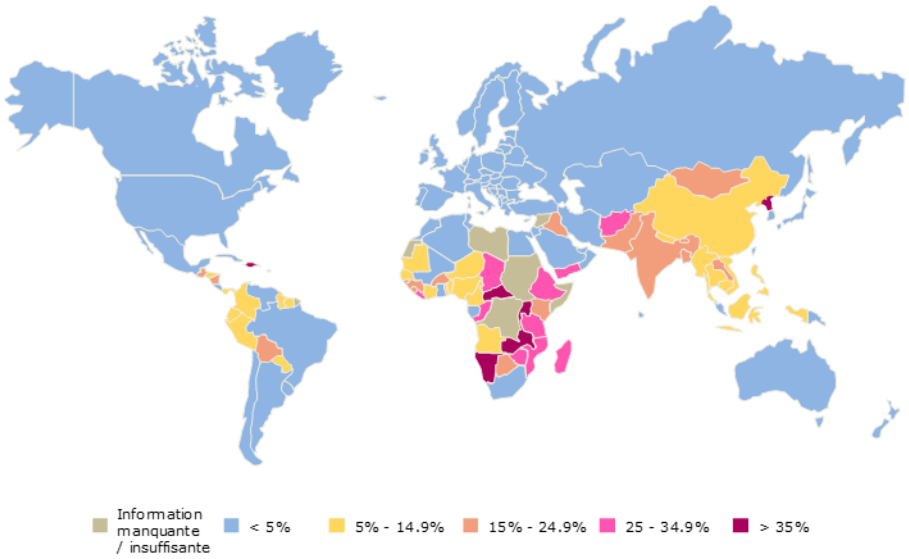
Food Security

In the 20th century, the continuous progress of industrial agriculture allowed developed countries to significantly increase their productivity which resulted for example in a two or three times higher yield on global wheat, maize, rice and milk production. (FAO, 1999).

However, after decades of decline, world hunger has been on the rise in recent years. The situation in 2017 corroborates this trend reversal, with 821 million undernourished people (1 out of 9) vs. 784 million in 2015 (FAO, 2018). This increase goes beyond the population growth alone, and although the evolution of the percentage of the people affected may seem insignificant, it went from 10.6% in 2015 to 10.9% in 2017. This general observation is characterized by significant geographic disparities: 85% of undernourished people are located in Asia and in Sub-Saharan Africa. In Africa alone, 21% of the population suffers from undernourishment.

In a context of high demographic growth, agriculture must provide these populations with solutions in order to meet the major challenge of global food security. Companies have a role to play by directing their activity towards the countries most exposed to undernutrition and malnutrition issues. Consequently, we identify opportunities regarding the development of these activities to integrate into our investment management.

Figure 1: Prevalence of undernutrition in 2014-2016



Source: Mirova / (FAO, 2016)

There are several areas of improvement in terms of productivity: mechanizing the process, optimizing seeds and packaging, "smart agriculture", etc. Anyhow, in the traditional sectors of increase in productivity, we will favor companies with a significant part of their activity or development relying on countries in deficit of equipment or agricultural products.

KEY INDICATORS

- Share of revenue generated in countries (i) in deficit of the product sold by the company when the area can be identified, or (ii) suffering from undernutrition
- CapEx and/or part of the R&D budget dedicated to this opportunity

Irrigation Systems

The challenge of food security can only be overcame by taking the issue of resources management (especially water) into account. Agriculture is the first sector in terms of water withdrawal (70% of global water use). Many geographic areas are suffering from water scarcity, yet the deployment of optimized agricultural irrigation systems remains limited.

Only 20% of agricultural land is irrigated (but provides 40% of the global food production), which makes the potential for a greater deployment of irrigation rather significant.

Global trends such as the increasing agricultural production, growing population and climate change leave no doubt as to the fact that the pressure on the water resource will keep on increasing: the water demand should exceed the supply by 2030.

For all these reasons, agriculture must find a way to come up with new solutions in order to optimize water consumption without affecting production levels. These solutions include for example: drip systems, new and more efficient irrigation scheduling technologies, etc.

Nowadays, irrigation optimization solutions are available and their deployment in developed countries as well as in emerging markets should be favored within our investment strategies (smart irrigation, drip systems, water losses reduction, etc.).

KEY INDICATORS

- Share of revenue from irrigation optimization solutions
- CapEx and/or part of the R&D budget dedicated to this opportunity

Sustainable Alternatives to Conventional Agrochemistry

Industrial agriculture and traditional agrochemistry allowed a significant increase in productivity, but at the expense of the environment. Therefore, they cannot be considered as sustainable. To be sustainable, agriculture must be redesigned by systematically integrating respect for the environment into practices, while maintaining sufficient production levels to ensure food security.

Alternatives to intensive agrochemistry have been developed to that end. Sustainable agriculture, agroecology, organic farming and conservation agriculture are all practices aimed at meeting this challenge. These alternatives involve, first and foremost, a commitment from farmers to observe, analyze and understand their parcels; and to a lesser extent, the development of specific products such as bioprotective ones.

Another area that is developing is biochemistry, with the aim of exploiting biological resources in order to optimize processes. A typical example is the use of enzymes which act as biocatalysts by accelerating reactions, thus making them not only faster but more productive and less energy or input intensive.

Biochemistry is entering more and more market segments. In agriculture, biochemistry makes it possible to develop more efficient inputs, particularly by integrating microbial solutions. In practice, this means that bacteria is integrated within the seed in order to improve some of its qualities (better absorption of nutrients, for example).

In the ingredients industry, the development of probiotics has several interests: when it comes to animal feed, probiotics improve nutritional integration, thus increasing food yield (in the avian or porcine sectors in particular). When it comes to humans, integrating probiotics into their food (in dairy products, for example) has several proven health benefits.

GMOs are also part of the field of biotechnologies. As any innovative development, these technologies require an appropriate risk management and transparency from companies regarding the potential impacts of their products. These technologies could potentially bring significant improvements to some crops by increasing the resistance of plants to droughts, for example. However, most GMOs on the market today are tools that support conventional farming practices: plants which are resistant to herbicides and/or capable of producing an insecticidal substance. These products are therefore in line with conventional agrochemistry, which tends to degrade ecosystems and thus does not demonstrate any strong environmental or social interest at this stage.

Overall, biochemistry offers significant innovations with environmental and/or health benefits.

We will favor players strongly positioned on alternatives to traditional agricultural chemicals who take part in the development of production processes that offer environmental benefits. For companies developing biotech solutions, a detailed analysis of each of their offer will determine the share of the portfolio that represents favorable solutions from an environmental or health perspective.

KEY INDICATORS

- Share of revenue from sustainable alternatives to agrochemistry
- Share of revenue from biochemical solutions with environmental or health added value
- CapEx and/or part of the R&D budget dedicated to this opportunity

Are natural products better?

In the ingredients industry, but also in the materials sector such as textile, some players are highlighting the use of natural inputs instead of petrochemicals.

However, ingredients, flavors and perfumes extracted from plants do not always have a positive environmental balance: the amount of natural resources needed for an equivalent intensity is sometimes significant – a typical case is that of rose flavor, which requires a lot of petals. Therefore, products based on natural ingredients must be analyzed on a case-by-case basis, by assessing the footprint over the life cycle of the product and by integrating the issues linked to land use conflict.

Focus Forestry: exploit less and sustainably

The forestry and paper sectors are characterized by their impact on natural resources of ecosystems. Consequently, they are also well positioned to fight deforestation and forest degradation linked to illegal logging. Today, the players of these sectors are able to ensure a good traceability of their wood supply, and a sustainable forest asset management regarding the upstream phase of their operations (through certifications like the ones from the FSC[1] or PEFC[2] on their forest assets).

In parallel, the processes of recycling and integrating recycled fibers into the production chain are now mature, and paper companies are therefore able to contribute to the development of circular economy and reduce the pressure on forest ecosystems by integrating a significant proportion of recycled materials into their processes and products.

We will favor players who demonstrate a clear strategy regarding these solutions, by analyzing the share of their wood inputs from forests with a management certification and/or the share of recycled inputs used in the product manufacturing process.

1 https://www.fsc.org/en/page/forest-management-certification
2 https://www.pefc-france.org/qu-est-ce-que-pefc/

Today, the sector has proven its ability to operate while ensuring a certification of the upstream operations. The proportion of recycled inputs is also significant for many players. For companies in the wood sector, the key indicators taken into account will be the share of wood from forests with a sustainable management certification, as well as the share of recycled inputs in the manufacturing process.

KEY INDICATORS

- Share of wood from forests with a sustainable management certification
- Share of recycled inputs

Focus Forestry: high-performance and biosourced packaging

Packaging represents a significant and growing source of waste due to changes in consumption and purchasing patterns. In addition, plastic waste, mainly from packaging, has recently been brought into the spotlight due to its volume, poor management and impacts on ecosystems (plastics and microplastics winding up in seas and oceans). Overall, 40% of plastic packaging still ends up in landfills and 32% is scattered in the wild (Ellen MacArthur Foundation, 2016).

The forestry and paper sectors have demonstrated their ability to integrate innovative development of high-performance products that meet the strict specifications of clients in a variety of industries. These sectors are offering more and more alternative solutions to the use of plastic packaging, including for food packaging. If the raw materials come from sustainably managed forests or recycled fibers, and since the cardboard recycling process is now relatively mature, these alternatives represent an environmental opportunity.

The companies' product portfolio will be analyzed to assess the proportion of innovative developments with environmental benefits, such as reducing the amount of packaging required or the use of plastic packaging. Environmental benefits can also result from developments such as smart packaging. Therefore, all interesting solutions will be valued.

KEY INDICATORS

- Share of revenue from biosourced or recycled packaging which allow to reduce the use of plastic packaging
- Share of revenue from innovative products with environmental benefits

Exposure to Opportunities

	Indicators considered: % of revenue generated in countries (i) in deficit of the product sold by the company when the area can be identified, or (ii) suffering from undernutrition, or + % of revenue from irrigation optimization solutions + % of revenue from sustainable alternatives to agrochemistry or sustainable biochemical solutions + % of revenue from products with wood from forests with a sustainable management certification, of from recycled products	
High exposure	>50%	The analysis of the CapEx and the R&D budget dedicated to activities with opportunities allows us to qualitatively nuance the analysis based on revenue
Significant exposure	Between 10% and 50%	
Low or no exposure	<10%	
Negative exposure	No activity in the Agriculture sector is currently evaluated at this level	

Environmental and Social Risk

Environmental Impact of Processes

The energy-intensive processes of agrochemical inputs production consume fossil resources, in significant amounts for some. The production of ammonia, for example, a large part of which is used to produce nitrogen fertilizers, represents about 6% of total natural gas consumption. Therefore, these activities are directly concerned by the impacts of greenhouse gases on climate change.

Other agricultural products, such as phosphate fertilizers, are affected by resource depletion issues. Indeed, mineral deposits rich in phosphate are limited, and while the most optimistic scenarios predict 300 years of available resources, the associated geopolitical issues must also be taken into account, since these resources are highly concentrated in few countries.

The paper sector is also known for its significant environmental footprint. It is linked to highly energy-intensive but also water-intensive processes, to the use of toxic chemicals at various stages of production, to the risks of wastewater pollution by toxic chlorinated substances, organic matter, sulfur dioxide (acidifying water), nitrated substances or phosphates, and finally, to significant air pollution risks as well.

We expect companies in this sector, as well as in any other industrial sector with a significant direct environmental impact, to actively work to control and reduce the production footprint through the optimization of the energy efficiency of processes; of water and non-renewable inputs consumption, etc.

KEY INDICATORS

- Presence of a policy, monitoring indicators, quantified targets on key environmental issues (energy, greenhouse gases, water, etc.)
- Evolution of impacts over the last years

Product Impacts

In developed countries, decades of intensification of agricultural practices and the increasing use of chemical inputs have shown the harmful short and long-term consequences of unsustainable agriculture.

The environmental impacts of conventional agricultural practices are numerous (biodiversity loss, soil depletion, water pollution) and threaten sustainable yield and ecosystem health.

Consequently, intensive agriculture is recognized as the main cause of the biodiversity loss that we are observing. The massive decline in insect populations, the extent of which we are just starting to grasp, is for example directly linked to the increase in agricultural plots leading to the destruction of wildlife habitat areas, and to the systematic use of insecticides, particularly those from generations which have emerged since the 1990s[3]. The decline in bird populations in France and England, the extent of which is in line with European estimations, has led to sound the alarm bell. The decline in bee populations is also linked to the use of chemical inputs – neonicotinoids more specifically.

In soils and water, the extent of the damage does not stop at the field barrier. Agriculture is the main cause of nitrate pollution that affects the soil — as well as the surrounding

3 -76% of flying insects in German protected areas in less than 30 years (Hallmann et al., 2017)

watercourses —, spreads, and persists. Toxic products spreading contaminates not only the targeted field but also its surroundings, impoverishing soils far beyond the agricultural plots.

Because of these significant environmental impacts, companies in the sector must demonstrate a particularly innovative and advanced strategy to show that their project is part of a sustainable agriculture approach.

We expect companies operating in traditional agrochemial products to develop complementary offers and services aimed at optimizing the use of products (quantities consumed and environmental impact). This requires initiatives to support and train farmers, or the development of optimized crop management tools (equipment for measuring soil parameters to ensure a precise input dosage). These practices attest to the commitment of the players to reduce the enviromental damage of their activity, and to develop a sustainable agriculture, capable of preserving ecosystems and optimizing present and future yield.

KEY INDICATORS

- Share of revenue from products (i) incorporating technological innovation that significantly reduces the environmental impact per functional unit, or (ii) completing the basic product and reducing its environmental impact without reducing its effectiveness
- Presence of a formal policy to reduce the environmental impact of use: formalization of the training process, support for farmers, means deployed and monitoring of the deployment, monitoring indicators for expected benefits
- Controversies on the subject and company reactions

Worker Health and Safety

The agricultural sector is largely industrial which makes it highly exposed to worker health and safety issues. Policies and performance in terms of employee health and safety must therefore be carefully analyzed, particularly in chemical industrial companies (production of pesticides, herbicides, etc.), or in companies integrating extractive activities into their value chain (production of mineral fertilizers, for example).

The forestry and paper sectors also include activities with high accident frequency and severity rates, throughout the production chain, from forestry operations to heavy industrial paper production processes.

Companies must implement occupational health and safety policies along with management systems and concrete actions and processes. An increasing performance must reflect the importance attached to this subject.

KEY INDICATORS

- Presence of a policy, monitoring indicators, quantified targets on key environmental issues
- Evolution of performance over the last years

Product Health and Safety

The health and safety of agricultural products users is a key issue for the sector, from farmers to end consumers of agri-food products and populations located near crops. We are witnessing a multiplication of local bans on certain agrochemical products as well as lawsuits by sick farmers blaming the products they use in their trade. The major agrochemical groups are therefore at the heart of increasing scandals and controversies, with scientific studies and lawsuits bringing significant risks for farmers to light.

Works and studies with regard to the safety of final products, i.e. the ones that end up in the consumer's plate, seem to be multiplying to establish a link between organic food and reducing the risk of developing certain cancers. While these studies are starting to reach interesting critical sizes (sample of 70,000 people, for example), it remains difficult to establish a causal link between dietary differences and identified diseases.

Companies must take all measures to ensure the health and safety of users from the earliest stage of the product development process; they must also implement appropriate precautionary principles and their level of transparency on the subject has to be exemplary. In addition, companies must take responsibility for raising awareness and training users in order to ensure safe conditions of use for all the products in the portfolio.

KEY INDICATORS

- Company's exposure level to active substances identified as toxic by reference bodies (WHO[4], EFSA[5]) and to products banned for sale in at least two countries; response to this exposure (targets to reduce it, etc.)
- Presence of a formal risk management policy for use
- Controversies on the subject and company reactions

Social Impact

Child labor

The forestry sector is highly exposed to the risk of child labor in its supply chain. Indeed, forestry work is often not only dangerous and grueling but also carried out in remote areas, in temporary locations. Child labor is frequent, and often takes place under dangerous conditions. These children are also frequently cut off from school life. Comprehensive studies on this subject are lacking, but rising controversies are tarnishing the reputation of major forestry groups.

It should be noted that this issue is critical on a broader level for the entire agricultural sector (70% of working children aged 5 to 17 are employed in the agricultural sector, which amounts to more than 100 million children (FAO, 2017)). However, this issue affects listed companies in our agricultural investment universe less directly than those in our forest investment universe, since large companies listed in agriculture are more likely to be producers of seeds, fertilizers or other agrochemical inputs than players in land use.

Indigenous peoples

The second particularly material social issue for the forestry sector is that of indigenous peoples living in or making use of forests. As is the case for child labor, data and studies on this subject have difficulty quantifying the extent of the problem since it is closely linked to local contexts in remote areas.

In addition to the organization of the company to meet these challenges, the analysis of potential controversies is what will make it possible to identify the players exposed to these risks who have not developed an adequate response.

We encourage companies to be highly transparent about the social risks identified both in their direct operations and in the supply chain, as well as regarding the processes in place to manage these risks appropriately. Our analysis will take into account the frequency of controversies affecting the company and its ability to respond responsibly.

4 https://www.who.int/home
5 http://www.efsa.europa.eu/

KEY INDICATORS

- Transparency level on operations or upstream risks and on management processes
- Controversies and company responses

Human Resources

Human resources management is an important subject for all sectors. A company's ability to attract and retain talent, provide a professional development framework and a balanced work environment are all aspects to consider.

In the agricultural and forestry companies from Mirova's investment universe, the most difficult jobs for employees are external to the company. Indeed, forestry operations are mainly upstream of listed paper companies, and field operations are not integrated into listed agricultural groups either. On the other hand, the downstream sectors of forestry — i.e. wood processing — are highly industrialized and the risks of jobs involving exposure to difficult working conditions are therefore significant and must be taken into account. An objective assessment of the existence of such jobs and appropriate management of these employees is expected from the companies concerned.

The success of companies in agriculture, and more specifically for activities related to biotechnology, depends largely on their ability to innovate and develop new products. It is therefore essential for these companies to ensure the attractiveness of R&D profiles and to be able to retain talent.

When analyzing the human resources practices of a company in the sector, we will be particularly vigilant about the risks of jobs involving difficult working conditions and, where applicable, the company's policies regarding this area. In addition, we will analyze the ability to attract and retain quality R&D profiles for companies with a strong need for innovation.

KEY INDICATORS

- Presence of a management policy for jobs involving difficult working conditions
- Mechanisms to attract and retain talent

Business Ethics

The entire agricultural sector is concerned by many ethical controversies which are only partially addressed by regulations, many of which are subject to debate and vary from one country to another. It therefore falls to each company to adopt responsible practices, especially regarding the following thematics: marketing (transparency on products: content, risks, price policy, customer relations, etc.), respect of local communities, lobbying practices.

The companies operating in highly controversial markets (GMOs, herbicides, pesticides, etc.) have a duty to be transparent about both the positive and negative impacts of their products, and to contribute in a clear and ethical manner to the improvement of public knowledge on these subjects.

We encourage companies to demonstrate high transparency, above regulatory requirements, regarding their products and services, their risk management process (procedures for applying the precautionary principle, studies on the negative and positive impacts of products), their marketing practices (customer relations, price policy). When the law leaves the company room for maneuver on a given subject, we will favor practices that leave the most sovereignty to the farmer regarding his farm. As with other topics, in cases of controversy, we will closely analyze their severity, frequency, and the responses from the companies involved.

KEY INDICATORS

- Ongoing antitrust litigation and fines paid
- Presence of a voluntary transparency policy (e.g. on the content of products, associated risks, procedures for applying the precautionary principle, studies on the negative and positive impacts of products)
- Presence of a responsible marketing policy
- Severe controversies relating to business ethics and company responses

Sustainable Development Governance

The integration of sustainable development into corporate governance is a vector for a deep transformation of the organization and guarantees the robustness of the overall extra-financial strategy. An advanced sustainable development governance, integrating all stakeholders and mobilizing them as part of a long-term vision of the company's mission also helps generate more sustainable structural growth.

We encourage companies to set up governance bodies dedicated to corporate responsibility. We also support the establishment of mechanisms for the integration of all stakeholders, as well as the alignment of executive interests with the long-term development of the company.

We are also attentive to the company's effort in order to ensure an equitable distribution of value among all the stakeholders.

KEY INDICATORS

- Quality of the sustainable development approach
- Presence of a director or a committee within the Board specifically in charge of CSR issues
- Integration of measurable extra-financial criteria in variable remuneration schemes
- Equitable distribution of value and tax rate

Risk Assessment

	Criteria
Positive	Does not meet "risk" criteria AND - Absence of exposure to active substances identified as toxic by reference bodies (WHO, EFSA) and to products banned for sale in at least two countries - AND satisfactory management of employee health and safety issues - AND satisfactory risk management for use - OR more than 15% of revenue from (i) products incorporating technological innovation (<5 years) that significantly reduces the environmental impact per functional unit, (ii) products / services / equipment completing the basic product and reducing its environmental impact without reducing its effectiveness (example: equipment for measuring soil parameters to ensure a precise input dosage) - OR comprehensive policy to reduce the environmental impact of use: formalization of the training process, support for farmers, means deployed and monitoring of the deployment, monitoring indicators for expected benefits
Neutral	All other cases
Risk	Repeated controversies with insufficient or inadequate company response OR - Activities with significant health/safety risks for employees and lack of management of the issue (monitoring of accident indicators) OR - Sale of chemicals banned in certain countries without a 3-year target for phase-out (limit: 2% of sales) OR - Sale of chemicals identified as significantly harmful by reference bodies (WHO, EFSA, etc.) (limit: 2% of sales) Industrial activities with significant direct environmental impact and lack of management of the issue (monitoring of environmental indicators)

Conclusion

The agricultural sector provides opportunities: solutions must be found to the issue of widespread undernutrition in some countries, and to the challenge of water resource management, which has not been optimized to date. Players operating in these markets are therefore favored within the framework of a responsible investment policy. More generally, given the major environmental damage linked to the development of current intensive agriculture, companies working towards a transition to more sustainable agriculture — i.e. offering alternatives to traditional agrochemical inputs and practices — will also be encouraged. Some segments of biochemistry can also bring interesting benefits from an environmental and/or social perspective when applied to agriculture or food, whether animal or human (microbial, enzymatic, probiotic solutions).

The players in the wood industry, whether directly managing forest assets or producing paper or cardboard products, are responsible for ensuring sustainable upstream operations (sustainable forest management), which is measured through certifications. This sector also has a role to play in the development of circular economy by integrating more recycled material into its processes, thus reducing the pressure on forest resources. Finally, the development of high-performance biosourced packaging can help reduce the use of plastic packaging and optimize the environmental balance of the product. It also has the advantage of being made from renewable and recyclable sources.

Companies are also assessed on their management of the risks inherent in their activities. Typically, for agriculture, depending on the sub-sectors: health and safety of employees, users and/or consumers; reduction of the environmental impacts of production and/or use of products. For activities known as “business as usual”, i.e. not positioned on predefined key opportunities, good risk management guaranteeing the sustainability of the activity may be a favorable differentiating criteria.

Conversely, a company presenting opportunities in its business portfolio but also deficiencies in its management of material risks may be excluded from our investments. Finally, a lack of public information on risk management will call for us to contact the company. In this way, by being actively committed, we will be able to obtain the information we need for our analysis and encourage the company to be more transparent.

Our Approach to sustainability assessment

Acting as a responsible investor requires interpreting the economic world within its social and environmental context. This approach calls for understanding the interactions between different private-public players, small-medium-large companies, developed and developing economies to ensure that each player's growth is consistent with the balance of the rest of the system. It is a long-term approach that guarantees that today's choices will not lead to negative consequences for future generations. Understanding these complex relationships demands:

- Clear understanding of sustainable development issues facing our societies,
- Assessing the possible interactions between the assets of our investment strategies and these sustainability issues.

The SDGs as a Guide

Following the Millennium Development Goals created in 2000, the United Nations set out a new framework for sustainable development in 2015. It contains 17 Sustainable Development Goals (SDGs), broken down into 169 specific targets designed to address the main social and environmental issues between 2015 and 2030. In addition to having been adopted by all members of the United Nations, the SGDs offer several advantages.

First, they establish a comprehensive framework concerning environmental and social issues, applicable to all economies regardless of their level of development. Thus, while some issues such as ending hunger or ensuring access to water for all are often more relevant for low- and middle-income countries, other objectives such as fighting climate change or making cities safe, resilient and sustainable, are applicable at all levels of development.

Moreover, the SDGs can be considered as a frame of reference for sustainable development issues for a variety of actors, from governments to companies and investors. The private sphere is increasingly considering environmental and social issues, illustrating new forms of governance where subjects of general interest are no longer solely the prerogative of the public sphere. Considering the SDGs can help companies to think on how they create environmental, economic, and social value.

Finally, the SDGs help investors to question the long-term resilience of their assets and portfolios to the ongoing transformations. Then, investors can go even further by looking at their exposure to new solutions and economic models that will respond to long-term economic transformations. For example, the targets associated with the SDGs to significantly increase the share of renewable energy and to double energy efficiency by 2030 imply a profound transformation within the energy sector.

We consider the SDGs squarely in line with our mission. As a result, in 2016, Mirova decided to use this framework to define its responsible investment approach.

Figure 2: The 17 Sustainable Development Goals

	End poverty in all its forms everywhere		Reduce inequalities within and among countries
	End hunger, achieve food security and improved nutrition and promote sustainable agriculture		Make cities and human settlements inclusive, safe, resilient and sustainable
	Ensure healthy lives and promote well-being for all at all ages		Ensure sustainable consumption and production patterns
	Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all		Take urgent measures to combat climate change and its impacts
	Achieve gender equality and empower all women and girls		Conserve and sustainably use the oceans, seas and marine resources for sustainable development
	Ensure availability and sustainable management of water and sanitation for all		Protect, restore and promote sustainable use of territorial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss
	Ensure access to affordable, reliable, sustainable and modern energy for all		Promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable and inclusive institutions at all levels
	Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all		Strengthen the means of implementation and revitalize the global partnership for sustainable development
	Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation		

Source: United Nations

Assessing Environmental and Social Quality by the SDGs

We believe that the SDGs will transform the economy as we know it. Acting as a responsible investor starts with taking a broader view of the way investors think about the environmental and social profile of the assets they finance. These interactions can be grouped into two categories:

- **Materiality**: how the current transitions are likely to affect the economic models of the assets financed either positively or negatively.
- **Impact:** how investors can play a role in the emergence of a more sustainable economy

We believe that these two approaches are closely linked. Our evaluation methodology thus seeks to capture the extent to which each asset contributes to the SDGs. From our perspective, this approach provides a relevant vision on both the “Materiality” and “Impact” aspects.

A Five-level Qualitative Analysis

Mirova has based its environmental and social evaluation method on four principles:

A RISK/OPPORTUNITY APPROACH

Achieving the SDGs requires taking two different dimensions into account that often go together.

- Capturing opportunities: when companies center their strategies on innovative business models and technologies focused on technological and societal transformation, they can often capture opportunities related to the SDGs.
- Managing risks: by proactively managing risks related to these transitions, companies can reduce and re-internalize their social and environmental externalities, which often takes the form of general management of sustainability issues.

This analysis structure gives equal importance to opportunities and risks. It is the first prism through which we analyze sustainable development issues.

A LIFE-CYCLE VISION

To identify the issues that could impact an asset, the analysis of environmental and social issues must consider the entire life cycle of products and services, from raw material extraction to end-of-life phase.

TARGETED AND DIFFERENTIATED ISSUES

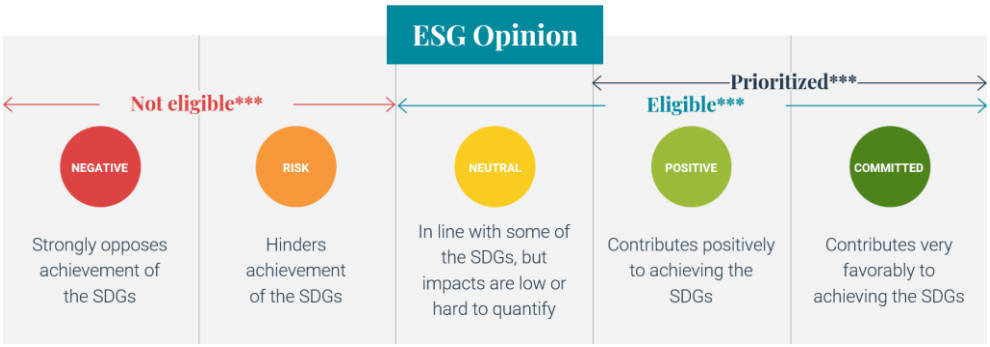
Our risk/opportunity analysis focuses on the elements most likely to have a real impact on the assets studied and on society in general. Additionally, the issues that economic players face

are very different depending on the sector, and can even vary within the same sector[6]. For example, it is important for us to focus on work conditions for suppliers in the textile industry, while for automobile manufacturers, the focus will be more on energy consumption during product use.

So, our analysis focuses on a limited number of issues adapted to the specificities of each asset.

A QUALITATIVE RATING SCALE

Our analyses are summarized through an overall qualitative opinion on five levels. This opinion assesses to what extent an asset contributes to the SDGs.



***[7]

This rating scale is based on the SDGs and their achievement. As a result, opinions are not assigned based on a distribution set in advance: we are not grading on a curve overall or by sector. Mirova does not exclude any industry on principle, and carries out a thorough analysis of the environmental and social impacts of any asset. For some sectors, this analysis may lead to the exclusion of all or some of its actors. For example, companies involved in fossil fuel extraction are considered “Risk” at best, while renewable energy companies are generally well rated.

An indicative grid provides some overall guidelines regarding the links between opportunities, risks and the overall sustainability opinion.

Sustainability Risks Review					
	Positive	Risk	Positive	Positive / Committed	Committed
	Neutral	Negative / Risk	Neutral	Neutral / Positive	Positive / Committed
	Risk	Negative	Negative / Risk	Risk	Risk
		Negative	Low or no	Significant	High
		Sustainability Opportunities Exposure			

6 For every sector, defining key issues is the subject of a specific study. This document is available on Mirova *website.* https://www.mirova.com/fr/recherche/comprendre#vision

7 *** For Mirova’s investments

Sources

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