



**Master Thesis**

**Circular Economy as a Part of Corporate Social  
Responsibility Policy in Different-sized Companies**

*Study programme:*

N0413A050030 International Management

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Department of Economic Statistics

Liberec 2024



## Master Thesis Assignment Form

# Circular Economy as a Part of Corporate Social Responsibility Policy in Different-sized Companies

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*Assigning department:* Department of Economic Statistics  
*Academic year:* 2023/2024

### Rules for Elaboration:

1. Setting aims and formulating research questions.
2. Definition and conceptualisation of CSR and the term circular economy and its importance.
3. Analysis of the benefits and risks of CSR and the circular economy principles in different-sized companies.
4. Evaluation of the analysis of the impact of circular economy aspects as part of CSR principles as a competitive advantage on the selected companies with suggestions for further recommendations.
5. Formulating conclusions and assessing the research questions.

*Scope of Graphic Work:*

*Scope of Report:* 65 NS

*Thesis Form:* printed/electronic

*Thesis Language:* english

### **List of Specialised Literature:**

- GELLAUD, Delphine and Blandie LAPERCHE, 2016. *Circular Economy, Industrial Ecology and Short Supply Chain*. London: John Wiley & Sons, Inc. ISBN 978-1-84821-879-6.
- IDOWU, Samuel O.; Nicholas CAPALDI; Liangrong ZU and Ananda das GUPTA, 2013. *Encyclopedia of corporate social responsibility*. Berlin: Springer. ISBN 978-3-642-28036-8.
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*Date of Thesis Assignment:* November 1, 2023

*Date of Thesis Submission:* August 31, 2025

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## **Anotace**

Diplomová práce se zabývá integrací cirkulárních principů jako součást společenské odpovědnosti firem (CSR) v nadnárodní společnosti Holcim, se zaměřením na její ekonomické, sociální a environmentální důsledky. Tato práce poskytuje vhled do praktického uplatnění cirkulárních principů v rámci CSR a přispívá k širšímu pochopení CSR v kontextu principů cirkulárního hospodářství. Diplomová práce dále poskytuje koncepční model, který kombinuje společenskou odpovědnost firem s principy cirkulárního hospodářství. Tento model je vytvořen na základě poznatků z analýzy provedené v rámci společnosti Holcim a dalších relevantních studií, které se zaměřují na aplikování těchto principů v různých velkých podnicích.

## **Klíčová slova**

Cirkulární hospodářství, Koncepční model, SMART Sociální odpovědnost firem, Standardy pro vykazování

# **Circular Economy as a Part of Corporate Social Responsibility Policy in Different-sized Companies**

## **Annotation**

The diploma thesis investigates the integration of circular principles as a part of corporate social responsibility (CSR) at Holcim Group, focusing on its economic, social, and environmental implications. This research provides insights into the practical application of circular concepts within CSR, contributing to a broader understanding of CSR in the context of circular economy principles. The diploma thesis provides a conceptual model that combines corporate social responsibility with circular principles. This model is developed based on research conducted within the Holcim firm and other relevant studies conducted across different companies of different sizes.

## **Key Words**

Corporate Social Responsibility, Circular Economy, Holcim, SMART, Reporting standards, Conceptual model,

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## List of Abbreviations

C2C	Cradle to Cradle
CDP	Carbon Discloser Project
CE	Circular Economy
CSR	Corporate Social Responsibility
EFRAG	European Financial Reporting Advisory Group
ESRS	European Sustainability Reporting Standard
EU CSRD	European Union Corporate Sustainability Reporting Directive
FSB	The Financial Stability Board
GDP	Gross domestic product
GRI	Global Reporting Initiative
IFRS	International Financial Reporting Standards
ISSB	International Sustainability Standards Board
LCA	Life Cycle Assessment
NFRD	Non-Financial Reporting Directive
SME	Small-medium sized companies
TCFD	Task Force on Climate-related Financial Disclosures

## Introduction

The question of sustainability or acting sustainable is a big question for every business nowadays. With rising awareness and facing the consequences of climate change, corporate social responsibility and the circular economy principles are rapidly evolving and are integral components of the business's sustainable practices. As a result of rising social expectations and environmental concerns, companies worldwide are realising how critical it is to integrate CSR and CE into their operations to have a positive long-term impact.

The topic for the diploma thesis was chosen because of the current situation, which forces not only businesses but also customers and other stakeholders to change their perception of their needs and how the business can change their activities to be environmentally friendly and have a lower harsh impact on the society and planet.

The goal of the diploma thesis was to investigate the importance and challenges associated with integrating circular principles as a part of corporate social responsibility (CSR) within the economic, social, and environmental domains and deliver a design conceptual model for implementing those principles. The analysis is conducted on the multinational construction company Holcim, a world leader in sustainable development approaches. As an outcome of the study, the conceptual framework is introduced. The framework is designed according to findings and methods from the examined company and various secondary studies focused on different-sized companies. The model can be used as a foundation for setting and implementing sustainable goals in businesses of different sizes.

The diploma thesis is divided into three main parts. The first part describes the concept of Corporate Social Responsibility based on the literature review. The foundation of corporate social responsibility is based on the CSR pyramid developed by Archie B. Carroll in 1991. Furthermore, the chapter describes possible constraints of CSR in SMEs and introduces examples of international reporting standards.

The second part is dedicated to the circular economy. It describes the meaning of the term and the different schools of thought, from cradle to cradle to industrial

ecology. In addition, the barriers to implementing the circular economy principles are described.

Lastly, the practical part introduces the corporation Holcim, including its history and its variety of products. This part involves the assessment of the company's CSR and CE. The assessment is carried out across four key domains the company prioritises Climate and Energy, Circular Economy, Environment, and Community. The assessment is carried out to guarantee time comparison based on the outcomes from 2015 to 2023. Finally, the implementation framework has been developed by incorporating ideas derived from the study's theoretical and practical aspects.

# **Methodology**

## **Research Objectives**

The primary aim of this diploma thesis is to investigate the importance and challenges associated with integrating circular principles as a part of corporate social responsibility (CSR) within the economic, social, and environmental domains and deliver a design conceptual model for implementing those principles. An examination is performed on the multinational construction conglomerate, Holcim Group. The company was chosen because of their active participation in implementing circular principles in every part of the group with in-depth reports on researched topics. The company's strategy and approaches will help achieve a partial objective: to create a conceptual framework for integrating and implementing corporate social responsibility within the context of circular principles. This framework will be adaptable for firms of various sizes.

## **Methods**

A mixed-methods research strategy was used in this diploma thesis to examine corporate social responsibility practices in the context of company reports. The study's approach used qualitative, theoretical, and empirical techniques to examine CSR performance in depth and determine how well it aligns with sustainability objectives. In the study, the SMART approach was used to analyse the CSR, and for the design of the model, the project management tool DMAIC was used. In addition, the study is based on a search of specialist literature from foreign scientific articles from which the deduction method was used to answer the research questions. For the partial goal, the inductive reasoning method was used.

## **Data Collection**

The primary data sources for this study are the Corporate Social Responsibility (CSR) and sustainability reports released by the company from 2015 to 2023. These reports include an in-depth analysis of the company's initiatives, policies, and performance about corporate social responsibility and sustainability practices, including efforts to incorporate circular principles. Through analysing these reports, the goal is to acquire an in-depth understanding of the company's present CSR policies, the degree to which circular principles are fulfilled, and the corresponding

advantages and difficulties. Moreover, these reports provide a clear and organised summary of the company's sustainability initiatives, guaranteeing the dependability and trustworthiness of the data gathered for the study. CSR and sustainability reports are the primary data sources that will help evaluate the practical application of circular concepts within the organisation's broader corporate social responsibility framework. In addition, various studies are used to describe the constraints of implementing CSR and circular in different-sized companies.

### **Data Analysis**

To evaluate the company's performance and progress towards its strategic goal for 2030, a comprehensive analysis is conducted across key areas, including Climate and Energy, Circular Economy, Environment, and Community. The SMART analysis tool is used to evaluate the strategic plan's aims. The research primarily quantifies performance using metrics aligning with the company's objectives. The criteria used to assess the company's environmental effect on Climate and Energy include the measurement of CO<sub>2</sub> emissions per tonne of cementitious material (kgCO<sub>2</sub>/t cementitious). To assess the company's dedication to the circular economy concept, the assessment is evaluated by the volume of waste recycled, measured in millions of tonnes. To assess the environmental area, the used metric is determined by litres of freshwater withdrawal per tonne of cementitious material. Lastly, the annual count of recipients was used to measure the community engagement and contribution area until 2021. Since then, the used metric changed to a monetary unit of millions of Swiss francs (CHF). All the findings are converted to Euro using the annual average exchange rate for 2023 (1.0291 EUR) for better clarity. The table describes the key performance indicators.



*Table 1 Key Performance Indicators*

<b>Sustainability pillars</b>	<b>Lead metric</b>
Climate and energy	CO <sub>2</sub> emitted (kgCO <sub>2</sub> /t cementitious)
Circular Economy	Quantity of waste recycled (million tons)
Environment	Freshwater withdrawn (litter's freshwater/ton of cementitious)
Community	Number of beneficiaries per year (million since 2021)
	Contribution to social initiatives (million EUR)

Source: Own processing according to Sustainability performance report (Holcim, 2020)

# 1 Corporate Social Responsibility

This text provides an in-depth exploration of the concept of Corporate Social Responsibility, its foundations, theories, application in smaller companies, and the measurement and reporting methods associated with it. The text begins by highlighting the complexity of defining CSR due to

Two main CSR theories are explored in detail. The first is Archie B. Carroll's Pyramid of CSR, which emphasises economic, legal, ethical, and philanthropic responsibilities as key components of CSR. The second theory, the Three-Domain Model of CSR by John Elkington, focuses on economic, social, and environmental responsibilities, often referred to as profit, people, and planet. Both theories provide frameworks for understanding and implementing CSR in businesses.

The text also describes specific challenges and considerations related to CSR in smaller companies. Furthermore, the text discusses the main reporting standards and in addition, it states the possible disadvantages of applying reporting standards.

## 1.1 Definition and Foundations

The concept of corporate social responsibility, or CSR, is a very complex one that does not have a universally accepted definition. In the first place, this is a result of the high complexity of the term; in the second place, because of its voluntary aspect; and in the third place, because it involves different approaches from different stakeholders, such as individuals, businesses, and governments (Kašparová and Kunz, 2013).

The first attempts to describe the term were made in 1953 by an American economist and president of Grinnell College, Howard Bowen. He is sometimes called the "father of CSR". He connected the responsibility of companies' acts to society in his book *Social Responsibilities of the Businessmen*. He defined it as *"an obligation of businessmen to pursue those policies, to make those decisions, or to follow those lines of action which are desirable in terms of objectives and values of our society."* (Bowen, 2013).

Alexandr Dashlsrud (2008) focused in his study on analysing 37 definitions of CSR. In his paper, which was called "How Corporate Social Responsibility is Defined: an Analysis of 37 Definitions", he identified five areas or dimensions of CSR by using the frequency count method:

1. environmental dimension
2. social dimension
3. economic dimension
4. stakeholder dimension
5. voluntariness dimension

He discovered that four out of five dimensions occurred in at least 80% of definitions, and at least three dimensions occurred in 97%. The environmental dimension received a significantly lower ratio than the other dimension. The reason might be the absence of environmental aspects in earlier definitions. (Dahlsrud, 2008)

A national and international organisation also provides definitions. For instance, the European Commission define CSR as *"A concept whereby companies integrate social and environmental concerns in their business operations and in their interaction with their stakeholders on a voluntary basis."* (EUR-LEX., 2011).

As mentioned, the definition of CSR has a wide range and complexity, even for different interested groups. Even though there might be stated fundamental principles:

*Table 2 Fundamental Principles of CSR*

Voluntariness	Companies implement CSR activities voluntarily above the legal framework.
Active cooperation between stakeholders	Cooperation between all interested groups.
Transparency	Allowing stakeholders to access information freely.
Complexity and adoption of CSR aspects	Companies focus on economic, social and environmental aspects.
Long-term strategy	CSR is a part of strategic planning at all levels of company management.
Social responsibility	Ethical behaviour of a company to work in favour of society.

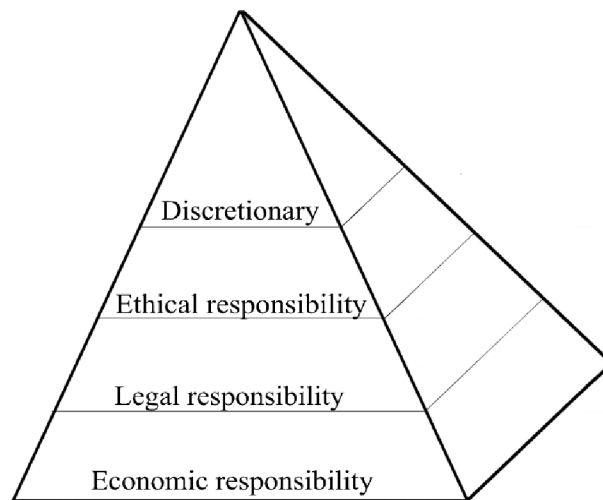
Source: Own processing according to (Kašparová and Kunz, 2013).

## 1.2 Theories of Corporate Social Responsibility

In the theoretical evolution of Corporate Social Responsibility, many authors came up with many typologies of CSR. This chapter will discuss the two leading theories: Archie B. Carroll and his Pyramid of CSR and The Three Domain-Model of CSR by John Elkington.

### 1.2.1 Carroll's Pyramid of CSR

Famous theoretical author in the field of CSR, Archie B. Carroll, published in 1991 a renowned model that creates the foundation of companies' responsibilities. He stated, *"To be socially responsible, a business must meet economic, legal, ethical, and philanthropic expectations given by society at a given point in time."* (Carroll, 1991). Therefore, he designed a model of the CSR Pyramid. A key objective of this model is to help companies adapt their business practices in such a way that they are not only profitable but ethical, legally compliant, and socially responsible as well (Anderson, 2023). The building bricks are shown in the figure below.



*Figure 1 Carroll's Pyramid of CSR*

Source: Own processing according to (Carroll, 1991)

### **Economic Responsibilities**

Historically, the priority of every company was to provide goods and services to society or consumers. The foundation condition of the existence of the business entities is to create a sustainable profit. For instance, the reinvested profits may be

used to decrease company costs by enhancing the manufacturing process. This can only be done thanks to the consumers' willingness to pay for the goods and services in exchange for satisfying their needs and desires. Having the option to create profits is necessary for owners (investors) and business growth when profits are reinvested back into the company. It helps and, most importantly, motivates the business to grow and sustain on the market. This is why economic responsibilities are a vital foundation block of the pyramid. (Colleges and Managers, 2018)

### **Legal Responsibilities**

The second level of the pyramid refers to the obligation of a business to act within the relevant legal framework on a state or international level. These legal regulations define the guidelines for an organisation to conduct its business operations fairly. They encompass various mandates, including employment laws, compliance with tax regulations, ensuring health and safety standards, and adhering to rules that prevent anti-competitive behaviour. (Anderson, 2023)

### **Ethical responsibilities**

The third part of the pyramid embraces both economic and legal activities. Companies are taking action and introducing internal policies that are above the stated legal framework and are essential and expected from society. For example, this could mean a company deciding to pay its fair share of taxes instead of arranging its business in a way that allows it to pay very little or no taxes. Another example may be the company's willingness to adopt environmental policy, which will lead to a decreased carbon footprint of the firm's production. (Blowfield and Murray, 2019)

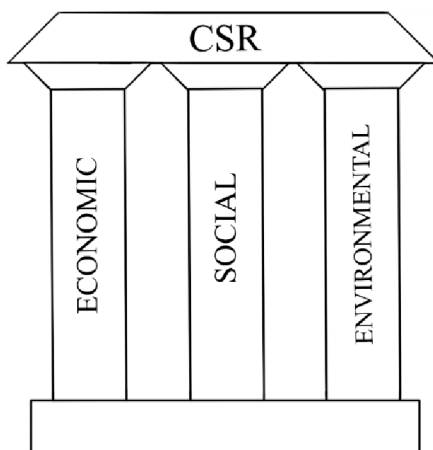
### **Philanthropic Responsibilities**

The top of the pyramid consists of companies' philanthropic actions and willingness to go beyond general expectations. It involves giving back considerable business wealth, creating funds, and donating to society (Blowfield and Murray, 2019). The donation value is often implemented in the state tax system as a tax-deductible item. For instance, the Czech Republic tax law allows companies to donate up to a total value of 10% of the taxable income (EFA, 2018).

### 1.2.2 The Three-Domain Model of CSR

Sometimes also called The three dotted line model, 3P's, Pillars of the CSR or ESG. This model was designed by author and entrepreneur John Elkington in 1994. The main reason was to transform the financial accounting-focused business system into an overall approach measuring impact and success. In addition, it is supposed to provoke deeper thinking about capitalism and its future. (Campus, 2022).

It is composed of three responsibilities or areas: economic, social and environmental. Sporadically, these areas are referred to as profit, people and planet (3P's). This domain model is generally defined in a manner consistent with Carroll's four-part model, except that the philanthropic category is grouped under the ethical and economic domains, reflecting possible differences in motivation for philanthropy. (Schwartz and Carroll, 2003)



*Figure 2 Three Pillars of CSR*

Source: Own processing

#### **Economic (Profit)**

The economic area prioritises long-term financial stability over more volatile, short-term profits. According to the triple-bottom-line model, large corporations are responsible for creating business plans that allow stable, prolonged action. It is the hard ground of the company. For a company to be sustainable, the assumption is to be profitable. (Beattie, 2023)

## Social (People)

Social responsibility considers all stakeholders. The company is changing its perspective and traditional approach, which is mainly favoured by shareholders. The group of stakeholders includes employees, communities, suppliers operating in the supply chain, future generations, and customers. It highlights the firms' societal impact and embraces shifting from making boundaries with profit-gaining activities and partnerships to non-profitable actions. (Miller, 2020)

## Environmental (Planet)

The last pillar is focused on how companies' actions influence the natural environment. This pillar is the most discussed these days due to the increased global warming. Historically, large businesses have been the most significant contributors to carbon, methane, and other greenhouse gas emissions (Miller, 2020). According to a report conducted by the International Energy Agency, the energy industry was responsible for emitting 135 million tons of methane in 2022 (IEA, 2023).

To better understand the scope and depth of corporate social responsibility, the table below shows all three CSR areas mentioned above and activities with distinguished stakeholders who are part of these areas.

*Table 3 Activates of Corporate Social Responsibilities*

<b>CSR Pillars</b>	<b>Activities</b>	<b>Associated Stakeholders</b>
<b>Economic</b>	Responsible Profit generation	Shareholders, Investors, Management
	Ethical Business Practises	Customers, Suppliers, Regulators
	Financial Transparency	Investors, Regulators, Shareholders
<b>Social</b>	Employee Well-being and Diversity	Employees, Unions, Management
	Philanthropic Donations	Non-profits, Charites, Local communities
	Community Development,	Local Communities, Government
	Human Rights Compliance	Suppliers, Employees
<b>Environmental</b>	Sustainable Resource Management	Environmental NGOs, Regulators
	Carbon Emissions Reduction	Customers, Environmental NGOs
	Biodiversity Conservation	Conservation Organisations
	Waste Reduction and Recycling	Communities, Suppliers, Customers

Source: Own processing

### 1.3 Corporate Social Responsibility in Smaller Companies

The vast majority of businesses in the world belong to the group called Small and medium-sized companies (SMEs). Those companies represent about 90% of business and more than 50% of employment worldwide (The World Bank, 2023). An example of a definition of SME in the European Union is provided by the EU recommendation 2003/361, which determines two main factors: staff headcount and either turnover or balance sheet total. The figures are shown in the table below.

*Table 4 Definition of SMEs*

Company Category	Staff headcount	Turnover	Balance sheet total
Medium-sized	< 250	≤ € 50 m	≤ € 43 m
Small	< 50	≤ € 10 m	≤ € 10 m
Micro	< 10	≤ € 2 m	≤ € 2 m

Source: Own processing according to (EUR-Lex, 2003)

For a long time, SMEs were considered irrelevant or problematic in the CSR literature. Despite the normative CSR theory, principles were understood to be applicable to all kinds of businesses, irrespective of their size. In recent times, when CSR started to be part of the management of every large corporation, attention was attracted to the smaller companies. Those companies were considered to be irresponsible due to the high standards that the SMEs could not comply with. In addition, SMEs represent many different types of entrepreneurships and company structures. These differences play a role in applying CSR principles. (Blowfield and Murray, 2019)

#### 1.3.1 Specifics of SMEs

SMEs' willingness to accept and incorporate CSR can vary in terms of size, location, sector and other various factors. Labelle and Saint Pierre (2010) identified three categories that may be influential in implementing responsible policy. These factors are institutional, organisational and personnel.

##### **Institutional**

Labelle and Saint Pierre (2010) distinguish three institutional determinants. The first determinant is the location of SMEs. Due to the particular culture, political or legal



system, certain regions can encourage constraints in applying social responsibility. These constraints may occur not only in different countries but even within one country (Perrini et al., 1970). For instance, a company located in a remote area (region) with a lack of labour force will show more significant concern for social responsibility to retain its employees.

The second determinant relates to the ownership structure of the particular business. Most SMEs are run by one owner with unlimited decision-making rights. Due to this reason, the owner can invest or redistribute the company's surplus profit without having permission from other co-owners. (Spence, 2007)

The last determinant is the level of internationalisation. Exposure to cultural differences, different regulations, or working conditions may affect respect for human rights and the environment. (Blombäck and Wigren, 2009)

### **Organisational**

One of the main organisational factors is the size of the company. The main reason could be the more significant resources that may be dedicated to CSR, and in addition, the company might try to be more attractive to potential employees and its influence in the local community. (Labelle and St-Pierre, 2010)

Another factor is the company's age, which reflects the mental representations and practises shared within the company. According to Cabagnols and Le Bas (2008, cited by (Labelle and St-Pierre, 2010), younger businesses should be more open to CSR issues since these issues are current.

Lastly, the overall economic performance plays a role in applying CSR principles. The primary constraint in implementing those principles is the lack of financial resources in the company.

### **Personnel**

The behaviour of SMEs is often interpreted in terms of the entrepreneur's or owner-managers psychological characteristics. It is common for them to have a personalised style of management and lack formal management structures with specialised staff. The company's approach to CSR will be influenced by these

characteristics, which vary widely based on individual personalities and ownership structures. (Jenkins, 2006)

In this category, the gender and age of the manager or the owner could be included. According to Reig-Aleixandre et al. (2023), incorporating women into the workplace, particularly in executive roles, has contributed to many benefits for companies and society, including promoting and implementing social responsibility initiatives. Compared to their male counterparts, women have greater Professional Social Responsibility.

## **1.4 Measuring and Reporting Methods**

This chapter will discuss the meaning, reasons, various reporting methods, and a brief overview of global standards used in reporting Corporate Social Responsibility, which the companies or investors may use as a decision-making tool.

### **1.4.1 Definition of CSR Reporting**

The CSR reporting practice involves reporting on non-financial metrics of an organisation in order to provide transparency regarding their impact on society and the environment (Envizi, 2021). The report is an internal and external-facing document used as a communication tool to present CSR efforts and company impact. The organisation's efforts can be shown in all three main pillars of CSR, which consist of economic, social and environmental. Those reports are typically released on an annual basis. The main feature is the voluntariness of sharing and creating those reports for the vast majority of companies (Cote, 2021).

### **1.4.2 Reporting Standards**

Unlike traditional financial reporting, corporate social responsibility reporting does not operate with the same transparency and consistency. Nowadays, there are more than 600 different sustainability reporting standards, frameworks and guidelines. Therefore, the inconsistency leads to inaccuracy and biased reporting of company activities. In recent years, governments and standards organisations have

pushed for standardisation. The primary sustainability standards are closely discussed below. (Brightest, 2021)

### **EU CSRD (European Union Corporate Sustainability Reporting Directive)**

The new European Union Corporate Sustainability Reporting Directive (CSRD) entered into force on 5 January 2023. This directive is a part of the European Green Deal. It modernises and strengthens the rules of what and which companies have to report. Sustainability reports will now be required for a broader range of large and listed small companies. (European Commission, 2023)

In the figure below are listed companies which will be directly impacted by the new requirements:



*Figure 3 Scope of affected companies*

Source: pwc.cz (2023)

As a result of the new rules, investors and other stakeholders will be able to access the information necessary to assess the impact of companies on people and the environment, as well as to evaluate financial risks and opportunities associated with climate change and other sustainability issues. Companies will apply those rules in the 2024 financial year for reports published in 2025. (European Commission, 2023)

The reporting companies have to follow European Sustainability Reporting Standards (ESRS), which were developed by the European Financial Reporting Advisory Group (EFRAG). (European Commission, 2023)

Before the new rules of the CSRD are applied, public-interest companies with more than 500 employees must follow the regulations introduced by the Non-Financial

Reporting Directive (NFRD). Those companies have to publish information regarding the following:

- Environmental matters
- Social matters and treatment of employees
- Respect for human rights
- Anti-corruption and bribery
- Diversity on company boards (in terms of age, gender, educational and professional background)

### **TCFD (Task Force on Climate-related Financial Disclosures)**

An essential function of financial markets is to price risk so that informed, efficient capital allocation decisions can be made. As a result, The Financial Stability Board (FSB) created The Task Force on Climate-related Financial Disclosures (TCFD). They are sometimes called Task Force, which guides companies in disclosing climate-related financial risks to investors, lenders and other stakeholders. The Task Force consists of 31 members, which the Financial Stability Board selected, and comes from various organisations, such as large banks, insurance companies, pension funds, etc. They developed a widely adaptable framework. (FSB, 2017)

The framework of recommendations consists of four thematic areas, representing the foundations of how firms operate: governance, strategy, risk management, and metrics and targets. As a result of the framework, investors and others should be able to understand better how reporting organisations perceive and assess climate-related risks and opportunities through four interrelated recommendations and 11 recommended disclosures. (FSB, 2017)

### **ISSB (part of IFRS)**

The International Sustainability Standards Board (ISSB) was announced by the International Financial Reporting Standards (IFRS) Foundation Trustees on 3 November 2021 at COP26 in Glasgow. Thanks to sustainability factors, which are nowadays widely used as a part of decision-making and the public interest and demand, the ISSB is developing a comprehensive baseline of sustainability disclosures that focus on investor and financial market needs.

It has set out four main objectives:

1. to develop standards for a global baseline of sustainability disclosures;
2. to satisfy the information needs of investors;
3. to provide global capital markets with comprehensive sustainability information and
4. to facilitate interoperability with disclosures directed at wider stakeholder groups or jurisdictions.

The commitment of the ISSB is to deliver cost-effective, decision-useful, and market-informed reporting standards. The reported information should be understood as needed by investors across different markets globally, and it should be provided in the proper form, which helps to support investors' decision-making. (IFRS, 2023)

### **CDP (Carbon Disclosure Project)**

The non-profit charity was established in 2000 and initially demanded to share data about companies' environmental impact. Since then, not only companies have been incorporated, but cities have also been incorporated. The scope of ecological disclosure consists of three areas: climate change, deforestation and water security. In addition, since 2021, the CDP's ambition has been to broaden the scope of areas to include biodiversity, plastics, and oceans and recognise the interconnection between nature and earth's systems. (CDP, 2023)

### **GRI (Global Reporting Initiative)**

Global Reporting Initiative (GRI) was the first third party to create global sustainability measurement standards in 1997. It represents international best practices for public reporting in three main areas. The focused reporting areas are economic, environmental, and social. The GRI introduced three series of standards which support the reporting process. Firstly, the GRI Universal Standards can be applied to every company. Secondly, the GRI Sector Standards, which may apply to specific economic sectors and thirdly, the GRI Topic Standards, which are specified to a particular topic. (GRI, 2023)

## **B Corp**

The B Corp movement started in 2006 with the conviction that the change to a different kind of economy is necessary. The new business model should lean towards a new stakeholder-driven model. Therefore, they came up with a B Corporation certificate, which is granted only to companies that meet high standards of social and environmental performance, accountability, and transparency. (B Corporation, 2023)

The process of receiving the B Corp certifications starts with the company's willingness to incorporate the new sustainability vision in the firm's strategic planning, which will contribute to the public good. Non-profit organisations and organisations from specific industries, such as oil, gas or mining, are not eligible to be certified. (BDC, 2023)

The next step is the evaluation of the company's impact in all three mentioned areas. The B Impact Assessment does the evaluation, and it consists of roughly 200 questions, which are tailored to company size, sector and location. Companies can complete a free self-assessment. After the assessment, the B Lab will verify the results. To be certified, the company needs to achieve a score of at least 80 points. During the verification process, the company is provided with explanations of the result and an overview of certification fees. The application fee consists of 150\$. On the other hand, large companies may incur extra costs. (BDC, 2023)

Lastly, when the application phase is done, the company needs to incorporate beliefs and change the company's articles and pay annual fees depending on the firm's yearly revenue, ranging from 2 000\$ to 50 000\$ a year. (BDC, 2023)

The table below briefly summarises the similarities and differences between sustainability reporting standards, which were mentioned earlier.

Table 5 Top Reporting Standards

	EU CSRD	TCFD	ISSB	CDP	GRI	B Corp
Type	Sustainability	Sustainability	Sustainability	Sustainability	Sustainability	Sustainability
Themes	Sustainability and Environmental Reporting	ESG & Climate Financial Risk	General Sustainability Accounting, Risks & Opportunities	Climate, Supply Chain, Forest, Water	General	Social Impact, ESG
Number of participants	50 000+	~2 600+	To be determined	23 000+	~10 000	6 000+
Best for	Required for EU companies	Large companies	Medium to large companies	Medium to large companies	Any type of organisation	Small-to-Medium Companies
Stakeholder audience	Regulators and EU stakeholders	Investors	Investors, CFOs and Finance	Investors, Supply Chain	All	All

Source: Own processing according to (Brightest, 2022)

## 1.5 Reasons for Standard Implementation and Its Critique

Standards as voluntary initiatives show companies how to behave according to sustainable or socially responsible manners. These standards indirectly influence firms' activities, and therefore, they limit the business's economic activity. For companies to accept the limitation, the implementation of the standards must lead to either acquire market advantage or the companies must have a different reason. (Kašparová and Kunz, 2013)

Some of the reasons and benefits for the adoption of the standards are:

- differentiation from the competitors (Koerber, 2009),
- increasing the good name of the company (Koerber, 2009),
- stakeholder demand for specific standards (Koerber, 2009),
- the effort to prove responsibility (Matten, 2012),
- innovations and technology development (Zhang et al., 2019),
- enhance organisational performance (Egbu and Lou, 2011),
- conservation of energy, resources and emissions (Zhang et al., 2019),
- use tax credits and other government programs (Sprinkle and Maines, 2010).

According to Leipziger (cited by Kašparová), the benefits from the adoption of corporate social responsibility standards cannot be achieved in the same period. In the short-term period, the standards can help in risk management. During the medium-term period, they can decrease or even be prevented from crisis developing. In the long-term, the benefits of the mentioned can be fully utilised.

As the topic of Corporate Social Responsibility in companies' culture rises, at the same the critiques are becoming more common. There are many CSR standards, including national standards, international standards, and regulatory bodies, all of which have a common objective despite being different in their nature, focus, monitoring mechanisms, and governance structures. The aim is to codify aspects of organisational behaviour to improve social, ethical, and environmental performance. Due to the high amount of standards, their application can be complex or even confusing for entrepreneurs. (De Colle et al., 2014)

The main possible disadvantages, according to De Colle et al. (2014), are as follows:

### **Conceptual Inadequacy**

Standardising complex social and ethical issues is challenging because of several methodological issues. While standards have traditionally dealt with technical problems, defining and codifying such cases show various methodological challenges. In addition, due to the high number of standards, confusion over the terminology may increase. (Henriques, 2015)

### **Introducing Extra Costs**

All businesses, but especially small or medium-sized businesses, may encounter considerable costs due to adopting CSR standards and, when necessary, obtaining external certifications. As mentioned, the cost of B Corp certification can be up to 50 000 \$ to maintain the certification. (BDC, 2023)

### **Lack of Enforcement**

CSR standards, unlike laws, are voluntary and, as such, do not have the legitimacy, compliance mechanisms, or accountability mechanisms that laws have. It is usually



intrinsic to CSR standards to rely on endogenous motivations instead of external sanctions (De Colle et al., 2014).

### **Obsession with Compliance**

There is a tendency for organisations that adopt CSR standards to focus on conformity or compliance (since the standards usually define outcomes and processes that can be tracked). The emphasis on following rules and procedures can become an organisational focus if it becomes excessive, at the expense of value-based decision-making among corporate members and stakeholders. (De Colle et al., 2014)

### **Over/miscommunication of Data**

This disadvantage is linked to obsession and too formalistic compliance when companies share a vast amount of unnecessary data, which is the core information and does not allow stakeholders to make judgments and use the information as a tool for decision-making. This phenomenon is called "The Carpet-Bombing Syndrome", described by John Elkington in the Trust Us: The 2002 Global Reporters Survey of Corporate Sustainability Reporting. According to the report, the size of reports has increased by 45% compared to the year 2000 (Dudok van Heel and Robinson, 2002).

### **Stifling Innovation**

Standards for CSR, which codify 'best practice' outcomes, may stifle innovative and creative approaches to dealing with new issues. (De Colle et al., 2014)

### **Failure to Drive Systematic Change**

While corporate social responsibility (CSR) standards can be beneficial in enhancing the social, ethical, and environmental performance of individual organisations, some argue that it is necessary to shift the focus from the corporate level to the realm of public policy to effectively tackle the widespread societal issues at a larger scale. CSR standards on their own appear insufficient to facilitate the systemic changes

required to address the problems on a national or global scale. (De Colle et al., 2014)

## 2 Circular Economy

The concept of a circular economy has arisen as a crucial framework in tackling current global issues such as climate change, biodiversity loss, waste disposal, and pollution. The circular economy has gained considerable attention from researchers, governments, and corporations in recent years, thanks to early opposition to the linear take-make-waste paradigm in the 19th century. This chapter explores the fundamental ideas, several schools of thinking, and the transition from a linear to a circular economic model.

This chapter offers a thorough overview of the theoretical foundations and practical implementations of circular economy concepts. It explores core principles such as the 3Rs and the 9Rs framework, as well as important approaches like Cradle to Cradle, Performance Economy, Biomimicry, and Industrial Ecology. In addition, the chapter examines the barriers that hinder the widespread implementation of circular economy methods in various businesses and areas. Gaining insight into these obstacles is crucial for formulating efficient tactics to overcome them and speed up the shift towards a more sustainable and resilient economic model.

### 2.1 Definition of Circular Economy

The term circular economy has a relatively new origin. Nevertheless, the idea has its roots in the 19<sup>th</sup> century. A group of British textile manufacturers called the Luddites protested against the introduction of new machines, which they believed would destroy their jobs. Materials were either used up or burned at the time; there was no recycling nor further use. As opposed to creating new materials from scratch, the Luddites argued that recycling old materials would be more efficient. (The Arrival Platform, 2023)

In modern days, there is no clear evidence of a single origin or originator of the circular economy concept. In the literature, the main contributors, also called “fathers of circular economy”, are U.S. professor John Lyle, his student William McDonough, the German chemist Michael Braungart, and architect and economist Walter Stahel. (Winans et al., 2017)

The definition may vary in different areas. The Ellen MacArthur Foundation (2023) provides the most employed definition. The circular economy is *“A systems solution framework that tackles global challenges like climate change, biodiversity loss, waste, and pollution. It is based on three principles, driven by design: eliminate waste and pollution, circulate products and materials (at their highest value), and regenerate nature.”*

In the policy-making context, the definitions have been adapted to suit political realities. For example, the European Parliament (2023) defines the circular economy as *“a model of production and consumption, which involves sharing, leasing, reusing, repairing, refurbishing and recycling existing materials and products as long as possible.”* Another definition provided by the European Commission (2023) is *“A circular economy is a system which maintains the value of products, materials and resources in the economy for as long as possible, and minimises the generation of waste. This means a system where products are reused, repaired, remanufactured or recycled.”*

To summarise mentioned above, circular economy refers to a model of economics that optimises resource use through waste minimisation, long-term value retention, reduced primary resource usage, and closed-loop recycling of goods, parts, and materials while also preserving the environment and benefiting society.

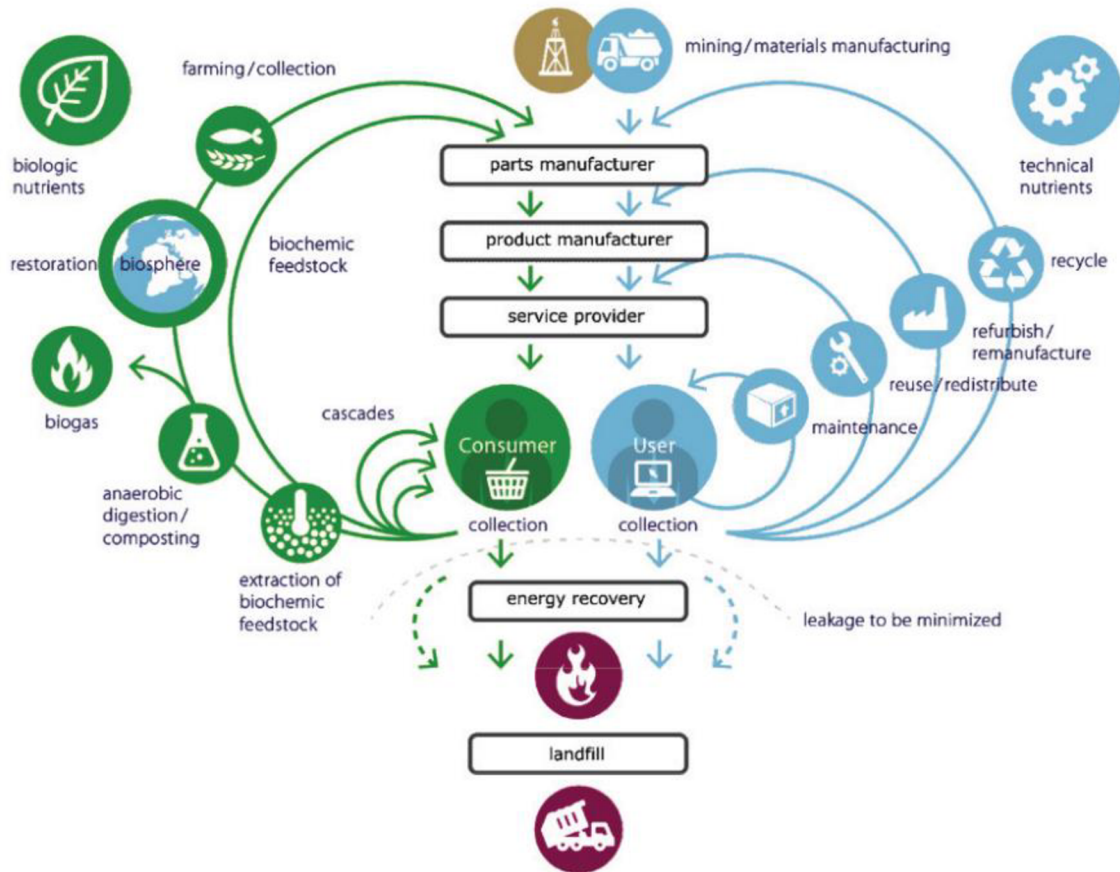


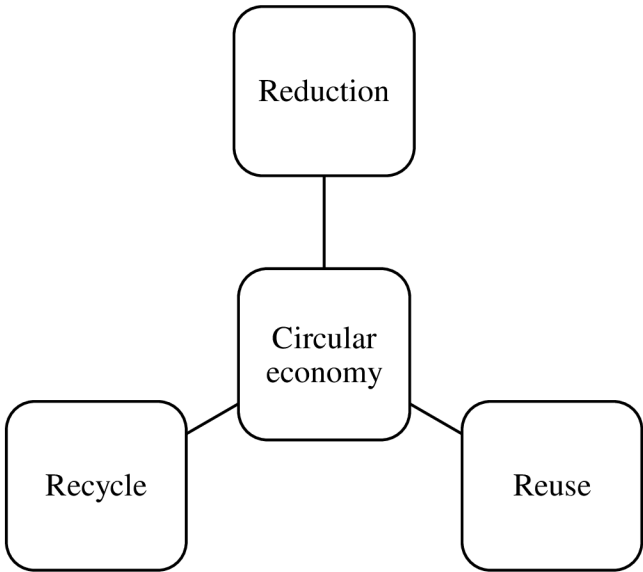
Figure 4 Circular Economy  
 Source: Gallaud and Laperche (2016, p. 3)

## 2.2 Principles of Circular Economy

The fundamental idea behind the circular economy is to promote sustainable development and environmental protection by using waste as a primary resource for production and minimising the need for energy and new natural resources. Considering the circular economy's main objective, the concept "3R", which stands for reduction, recycling, and reuse, was created. These are the fundamental ideas upon which the circular economy is built. (Yuan et al., 2006)

One of the first "R" principles included in circular economy models is the reduction of natural resources by using fewer of them and extracting less of them. As for the second "R" principle, recycling involves the reuse of materials and energy that were previously considered waste to make new products by repurposing them in other ways. Reuse is the third and final concept in the "R" concept, underpinning the

circular economy, which promotes the reuse of waste as an input. (Popović and Radivojević, 2022)



*Figure 5 3R Principles of Circular Economy*  
Source: Own processing according to (Popović and Radivojević, 2022)

With the growing awareness of the limitations of the environmental destruction caused by a linear economy due to climate change, an increasing number of businesses and customers are adopting circular concepts in their daily operations and production. Therefore, the basic concept of “3R” was expanded to the 9R’s circular economic framework.

The “9Rs” is a framework for circular economics, shown in Figure 5, that looks at how to use resources as efficiently as possible while reducing waste and harm to the environment. It is a preferred hierarchical approach for closing material loops in different stages of a product life cycle. The lower the R, the fewer external inputs, such as energy or natural resources, are needed to close the loop and the more circular the strategy is. In contrast, the higher the R, the more inputs are necessary to create a new value (Gupta, 2021). The framework consists of nine strategies: Refuse, Rethink, Reduce, Reuse, Repair, Refurbish, Remanufacture, Repurpose, Recycle, and Recover (Potting et al., 2017).

Those strategies are defined and grouped based on the three criteria:

- Smarter product use and manufacture
- Extend the lifespan of the product and its parts
- Useful application of materials

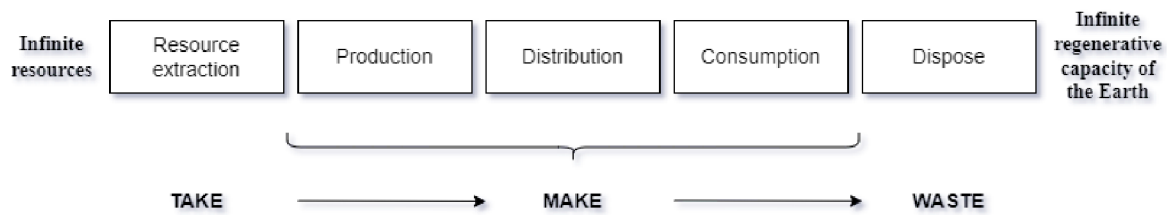
Strategies	Substrategies	Goals
Smarter product use and manufacture	R0 Refuse	Make product redundant by abandoning its function or by offering the same function with a radically different product.
	R1 Rethink	Make product use more intensive with less negative effects on the environment (sharing products, reduce toxicity).
	R2 Reduce	Use less material per unit of product (through design). Less use of new resources and energy in nature.
Extend lifespan of product and its parts	R3 Reuse	Reuse the product by another consumer.
	R4 Repair	Repair and maintenance of defective product, so it can be used with its original function.
	R5 Refurbish	Restore an old product and bring it up to date (furniture restoration).
	R6 Remanufacture	Use parts of discarded product in a new product with the same function.
	R7 Repurpose	Use discarded product or its parts in a new product with a different function.
Useful application of materials	R8 Recycle	Process materials to obtain the same or lower quality. Also, the product concept should be designed in a way that will ensure simple and easy recycling.
	R9 Recovery	Reduction of waste incineration. The waste is turned into energy.

*Figure 6 Objectives of 9R*

Source: Own processing according to (Morseletto, 2020; Potting et al., 2017)

## 2.3 Development from Linear to Circular Economy

The linear economy, commonly referred to as the take-make-waste model, functions by extracting resources for the purpose of manufacturing things that eventually become waste and are subsequently disposed of. Within this system, products and materials are regularly underutilised as they follow a linear path from raw materials to disposal. This method has a detrimental impact on the environment, leading to the deterioration of natural ecosystems and exacerbating global problems such as climate change and biodiversity decline. (Ellen McArthur Foundation, 2024)



*Figure 7 Linear Economy Model*

Source: Own processing according to (Wautelet, 2018, p. 18)

The foundation of the linear economy framework was established during the Industrial Revolution. At that time, the linear economy offered numerous advantages. Goods were created on a large scale for the first time. Raw materials and energy appeared to be limitless, leading to an economic transformation that resulted in industrialised nations becoming societies of plentiful resources. As a result, the global population increased significantly, and millions of people were lifted out of poverty. (Sariatli, 2017)

The economic model that has been followed globally over the past century has led to growing living standards and reduced poverty rates. However, this model has also resulted in a significant environmental impact, which has made it unsustainable (UNEP, 2021). To demonstrate the environmental impact of the linear economy and the current system, the Nine planetary boundaries were first proposed by Johan Rockström and a group of 28 renowned scientists in 2009 (Stockholm Resilience Centre, 2012). The framework defines nine processes that are crucial for preserving the stability and resilience of the Earth system as a whole. The boundaries are as follows:

- climate change
- novel entities
- stratospheric ozone depletion
- atmospheric aerosol loading
- ocean acidification
- biogeochemical flows
- freshwater change
- land system change
- biosphere integrity



According to Richardson et al. (2023), six of the nine boundaries transgressed in 2023. Figure 8 shows the development of those boundaries over a period of time.

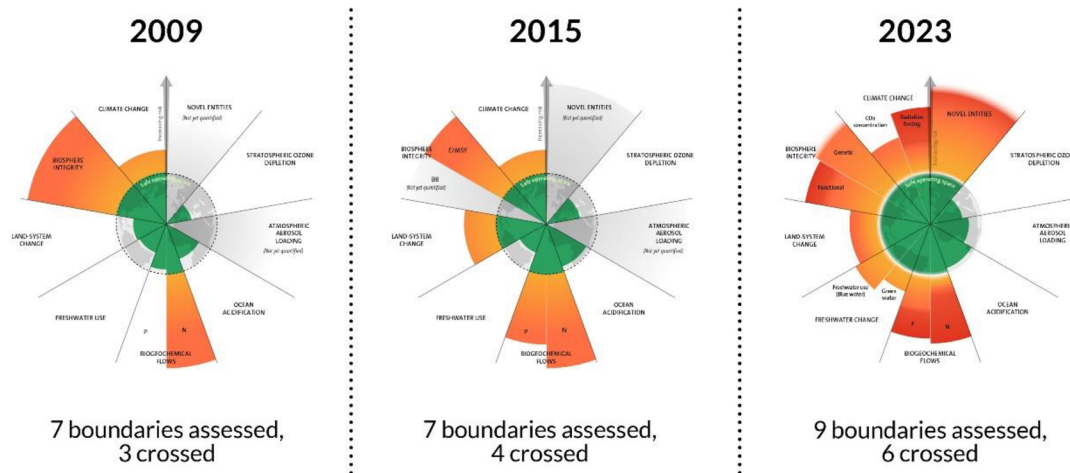


Figure 8 Planetary Boundaries Over time

Source: Richardson et al. (2023) adopted by Stockholm Resilience Centre

## 2.4 School of Thoughts

This chapter explores and describes the main schools and approaches to the topic of the circular economy.

### 2.4.1 Cradle to Cradle

The cradle-to-cradle approach is one of the various lifecycle models that introduces a scope and technique of life cycle assessments. The Life Cycle Assessment (LCA) is the method used to measure all environmental impacts that a product or service has (Ecochain, 2023). The term "cradle to cradle" (C2C) was introduced by Walter R. Stahel, a Swiss architect and industrial analyst, in 1976 as a critique of the prevailing linear economic structure (Mohajan, 2021).

The C2C idea advocates for the elimination of waste, contaminants, and resource consumption in products. In other words, a product should not generate any waste or release any harmful substances into the environment. The objective of the C2C design is to establish circular cycles for nutrients rather than reducing linear

material flows and production. This design ensures that the value created remains constant. (Baumgartner and Zielowski, 2007)

According to McDonough and Braungar (2002), who presented today's model, the cradle-to-cradle concept is based on three principles:

### **Waste Equals Food**

This principle introduces a system design in which waste is considered a nutrient. This nutrient can be divided according to its nature and use into biological nutrient, considered as a nutrient for nature, and technical nutrient used for other industrial processes. Materials that fall into the categories of technological or biological nutrients are referred to as upcycling materials. They aim to close cycles and retain their status as a source. On the contrary, waste that is not repurposed or cannot be used as a source is called downcycling material. The Cradle-to-Cradle approach focuses on avoiding downcycling materials and promoting upcycling to achieve closed cycles. (Llorach-Massana et al., 2015)

### **Use Current Solar Income.**

The second C2C principle deals with using existing solar and gravitational energy as well as other renewable energy sources, including wind, geothermal, hydro, and bioenergy, that are essentially powered by solar radiation. The ideal state is to design a mechanism in production or add new features to the product or services so it can be considered energy-producing rather than only energy-consuming. (Ankrah et al., 2015).

### **Celebrate Diversity**

The last principle includes, along with diversity in design, conception, and administration, ecosystems and values related to the economy, society, and culture. The goal is to bring to life designs that resemble complex, well-functioning natural ecosystems where various plants and animals cooperate for the benefit of the ecosystem as a whole. Designs would need to foster and generate sociocultural variation, biodiversity, and conceptual variety to do this. (Ankrah et al., 2015)

### **2.4.2 Performance Economy**

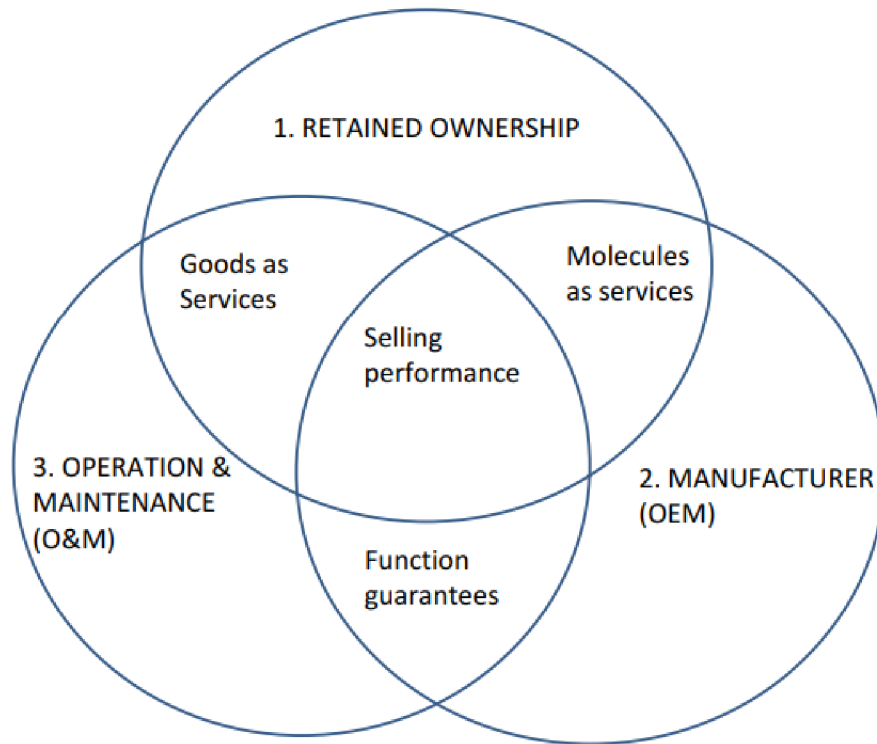
Walter R. Stahel introduced the concept of performance economy around the 1970s. Beyond most principles of a circular economy, the performance economy places more emphasis on the upkeep and utilisation of stock or produced capital than it does on the linear or circular flows of energy or materials (Stahel and Clift, 2016).

Compared to the Cradle-to-Cradle principle, which focuses more on closing the loops of material, waste and energy consumption, the performance economy focuses on the final manufactured product and its maintenance to prolong its lifespan.

The recent performance and wealth of societies or economies are based on the flow of capital rather than capital stock. The modern performance of the economy, on the macroeconomic level, is measured by the total flows in the given economy, which is represented by the growth domestic product (GDP). On the micro-economic level, it is measured by the value added to the flows. In the performance economy model, the essence is on expanding the life cycle of a product and maintaining the quality over time. (Stahel and Clift, 2016)

Stahl (2010) stated three main components and roles of manufacturing actors in the performance economy:

1. Retained ownership by a manufacturer
2. The power of an original equipment manufacturer (OEM)
3. The power of an economic actor responsible for the operation and maintenance (O&M)



*Figure 9 The Business Models of the Performance Economy*  
 Source: Stahel and Clift, (2016, p. 149)

The successful business model in a performance economy involves all three components. Various methods have been developed to integrate the functions of the three distinct categories of actors in order to enhance the longevity, quality, and efficiency of stocks while minimising transaction expenses. The specific examples are shown in the table below for better understanding.

*Table 6 Performance Economy Examples*

	Examples
Selling performance	Tyre use by the mile
	Power by the hour (Rolls- Royce aircraft turbines)
Molecules as Services	Chemical leasing
	Carpenters (cleaning solvents)
Function Guarantee	Commercial and service equipment (elevators, cars)
	Integrated crop management
Goods as Services	Vehicle leasing
	Office computers and furniture
	Wet leasing (aircraft with complete crew)

Source: Own processing, according to Stahel and Clift (2016, p. 150)

### **2.4.3 Biomimicry**

A new concept developed by American science writer and innovator Janine Benyus. In her book *Innovation Inspired by Nature*, she defines the approach as *“a new science that studies nature’s models and then imitates or takes inspiration from these designs and processes to solve human problems, e.g. a solar cell inspired by a leaf.”* (Benyus, 2009, p. 7).

According to Benyus (2009), the concept consists of three main principles:

1. Nature as a model: shows how people should take an example or inspiration from the nature.
2. Nature as a measure: to evaluate the appropriateness, biomimicry employs an ecological standard. Nature knows what is appropriate.
3. Nature as a mentor: biomimicry introduces an approach not based on what can be extracted from nature but on what can be learned.

This concept also connects research-based practice with a philosophy of understanding how nature's laws work. In addition, it forces people to reconnect with nature and the interconnection, therefore leading to scientific development. Biomimicry enables the development of new goods, processes, and systems, as well as the enhancement of existing innovations. (Biomimicry Institute, 2024)

### **2.4.4 Industrial Ecology**

As another concept of circular economy, industrial ecology has a broad range of definitions. Initially, the definitions were primarily concerned with the repurposing of remaining resources (such as water and energy waste) from one industrial process to another, with the goal of minimising or completely eliminating harmful waste. Modern definitions of industrial ecology encompass efforts to establish mutualised flows of resources and waste between firms, particularly in terms of supply and recycling. (Gallaud and Laperche, 2016)

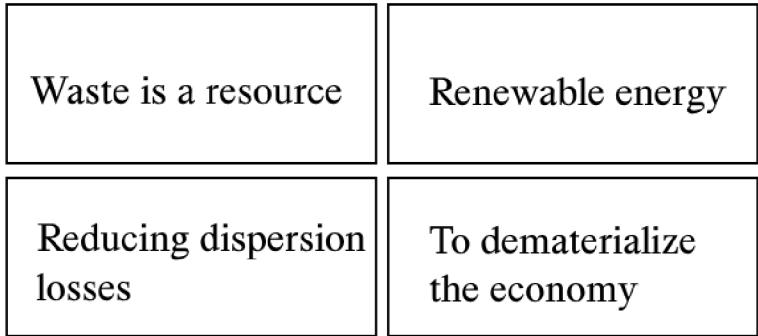
According to Erkman (2001), there are at least three key concepts of industrial ecology on which most authors agree:

a) The industrial ecology entails a holistic and interconnected understanding of all elements within the industrial economy and their interactions with the biosphere.

b) This approach highlights the biophysical foundation of human activity, specifically the intricate patterns of material movement both within and outside the industrial system, in contrast to traditional methods that primarily focus on the economy using abstract monetary units or energy flows.

c) Technological dynamics, including the long-term evolution of important technologies, are considered essential for transitioning from an unsustainable industrial system to a sustainable future ecosystem.

Industrial ecology can be founded upon four fundamental principles from a practical perspective. The principles are shown in Figure 10.



*Figure 10 Fundamental Principles of Industrial Ecology*  
Source: Own processing, according to Gallaud and Laperche (2016, p. 25)

The first principle, Waste is a resource, is based on the systematic utilisation of waste and by-products involving their deliberate repurposing, thereby acknowledging their inherent value as resources and potential reserves of raw materials that can be effectively used for various applications and industrial processes.

The Reducing dispersion losses principle refers to the spreading or leakage of energy, water or pollution on emission. For instance, energy dispersion is due to an ineffective machinery system in the industrial process.

The third principle regards dematerialising the economy by reducing overall material flows while ensuring at least the same quality of services in the economy. Lastly, energy consumption must not rely only on fossil fuels, and the economy should be facing renewable energy sources. (Gallaud and Laperche, 2016)

## 2.5 Barriers to the Implementation of Circular Economy

Various barriers hinder the adoption of a circular economy (CE) in different industries and areas. Kirchherr et al. (2018) identified those barriers to the circular economy in the European Union, highlighting the importance of product design as a significant hindrance to effective innovation in circular economy business models. Furthermore, they code barriers to implementation as cultural (e.g. lack of consumer enthusiasm), regulatory (e.g. laws and regulations), market (e.g. deficiency of resources), and technological (e.g. limited circular designs). Rizos et al. (2016) emphasised that the environmental culture within a company can hinder the adoption of circular economy business models by small and medium-sized enterprises.

Ritzén and Sandström (2017) presented a categorisation of the most frequently occurring barriers in the literature.

*Table 7 Barriers to Implementing Circular Principles*

Financial	Measuring the financial benefits of circular economy
	Financial stability
Structural	Missing exchange of information
	Unclear responsibility distribution
Operational	Infrastructure or supply chain management
Attitudinal	Perception of sustainability
	Risk aversion
Technological	Product design
	Integration into the production process

Source: own processing according to (Ritzén and Sandström, 2017)

In conclusion, the challenges to establishing a circular economy are complex and involve multiple factors, including product design, corporate environmental culture, economic motivations, regulatory structures, and organisational mindsets. To

overcome these obstacles, a comprehensive strategy that tackles cultural, social, economic, and technological factors is needed to facilitate the shift towards a circular economy.



### **3 Introduction of the Holcim Group**

This chapter presents a comprehensive historical overview of Holcim Ltd, a leading producer of construction materials, emphasising its transformation from a small cement mill in Switzerland to a worldwide conglomerate with a wide-ranging assortment of products.

The chapter provides an overview of the company's innovative products and technological innovations designed to advance sustainability, including new initiatives like ECOPact and ECOCycle. Furthermore, it delves into Holcim's dedication to innovation through research and development activities and its aspiration to establish itself as a worldwide leader in sustainable construction solutions. Ultimately, the chapter defines the organisation's core values, vision, and mission, in addition to its goals for achieving sustainable construction.

#### **3.1 History**

Holcim Ltd (Holcim Group) is a producer of construction materials. The company manufactures cement, handles and delivers aggregates, and provides ready-mix concrete and asphalt to residential, commercial, and infrastructure clients. The corporation possesses and oversees cement and grinding plants, aggregates plants, and ready-mix concrete plants globally. Holcim provides its products for a wide range of building projects, such as residential and commercial constructions, onshore and offshore well development, and infrastructure projects. (GlobalData, 2024). The number of employees worldwide reached 60,422 in 2022 (Statista, 2023).

The company was founded by Adolf Gygi, who opened the first cement plant in Holderbank, Switzerland, in 1912. After two years, an industrial visionary, Ernst Schmidheiny, joined the founder. During the first half of the 20th century, the company expanded its activities and started investing in the cement business in other European countries, Egypt, Lebanon, and South Africa. Their research activity began in 1942 with a foundation of research and testing facility called Technische Stelle Holderbank (Technical Centre Holderbank). In the second half of the 20th

century, their expansion increased. 1960, the company entered the Canadian market, and a large production facility was opened in Michigan in the United States of America. Simultaneously, Ernst Schidheiny invested in a small plant near Sao Paulo in Brazil. Thanks to this, the company began its expansion phase in Latin America and Eastern Europe, China, India, and Southeast Asia in the early 1990s under the Holderbank name. The name was changed to Holcim by a vote at the annual general meeting 2001. (Holcim, 2024)

One of the main achievements of the company's history was the acquisition in 2014 of a French company, Lafarge, which specialised in limestone mining and cement research. Lafarge won the contract to deliver 200,000 tons of hydraulic lime to build the piers of the Suez Canal in 1864. In 1887, they established the first cement-focused laboratory in the world. The projected merger was closed in 2015, and the new leader in the building material industry, LafargeHolcim, was born. (Holcim, 2024)

### **3.2 Product Portfolio and Group Members**

The Holcim group has a global portfolio in innovative and sustainable building solutions; Holcim is empowering circular cities and intelligent design while improving living standards and stands behind some of the most trusted brands:

#### **ECOPact**

ECOPact is a type of concrete with reduced carbon emissions, providing the same performance as regular concrete but with at least 30% lower CO<sub>2</sub> emissions, without the need for offsets. It is accessible in over 30 markets. ECOPact's diverse selection of mixes enables its use in various building applications and strength specifications, facilitating the expansion of sustainable construction on a global scale. (Holcim, 2024)

#### **ECOPlanet**

ECOPlanet is a cement type derived from ECOPact. Formulated from low-emission raw ingredients such as calcined clay and recycled construction demolition

materials, ECOPlanet is aiding in the decarbonisation of cities globally and promoting circular construction practices. (Holcim, 2024)

### **ECOCycle**

ECOCycle is the company's exclusive circular technology platform that allows for recycling construction demolition waste into new building solutions. It encompasses not just the technological process but also digital programs that map and manage material flow. (Holcim, 2024)

### **Airium**

Arium is a very innovative mineral-based insulating foam developed by the company. It is exceptionally lightweight, entirely recyclable, and enhances the energy efficiency of buildings. (Holcim, 2024)

### **DYNAMax**

This is a unique, high-strength concrete. It is known for its tremendous strength, longevity, and exceptional rigidity. (Holcim, 2024)

### **Aggneo**

It is made of recycled aggregates produced from recycled concrete. Aggneo products are versatile and suitable for various civil engineering and construction purposes, such as highways and foundations. (Holcim, 2024)

### **Ductal**

Another type of concrete is known for its ultra-high performance, providing exceptional durability, strength, and ductility. (Holcim, 2024)

### **Hydromedia**

Hydromedia is a water management technology designed to quickly absorb rainwater from streets, parking areas, driveways, and pathways to minimise the chances of flooding. (Holcim, 2024)

## **TectorPrint**

TectorPrint is a unique 3D concrete printing ink included in the company's advanced mortar selection. TectorPrint enhances intelligent design by maximising material efficiency to achieve optimal strength. (Holcim, 2024)

In the Holcim group, there are also significant members:

## **Aggregate Industries**

Aggregate Industries is a leading producer and supplier of building materials in the UK, specialising in the construction and infrastructure sectors. The company engages in the production, import, and export of cement supply materials. Additionally, it provides services such as national road surfacing and contracting. (Holcim, 2024)

## **Disensa**

Disensa is the leading retail franchise in Latin America, operating building material outlets throughout the area. It provides self-builders and smaller contractors with easy access to a range of building solutions, along with a variety of other construction supplies and services. (Holcim, 2024)

## **Duro-Last**

Duro-Last is an important player in the US commercial roofing sector, known for its focus on circularity and energy efficiency. They provide exclusive technology and tailor-made solutions to achieve top-notch performance. (Holcim, 2024)

## **Elevate**

Specialising in roofing, insulation, wall, and lining systems. Elevate offers a wide range of architectural solutions that facilitate the implementation of solar and excellent roofing systems while enhancing energy efficiency. (Holcim, 2024)

## **Geocycle**

Geocycle is a significant global provider of waste management services for industrial, agricultural, and municipal sectors. (Holcim, 2024)

## **Malarkey Roofing Products**

It is a prominent residential roofing firm in the United States. The business offers comprehensive solutions for residential roofing, including roofing shingles and ice and water barriers. (Holcim, 2024)

## **PRB Group**

PRB Group is the largest independent producer of specialised construction solutions in France. PRB's range comprises coatings, insulations, adhesives, and flooring systems designed for advanced energy efficiency, refurbishment, and rehabilitation solutions. (Holcim, 2024)

### **3.3 Innovation Programs**

Holcim is consistently pushing the limits of the industrial and construction sector. They create innovative solutions to reduce carbon emissions in buildings through Research and Development (R&D) and cultivate a distinctive open innovation ecosystem with numerous companies globally. (Holcim, 2024)

The company has the industry's largest research and development organisation of all the firms in the sector. Their researchers collaborate closely with their global network of regional innovation hubs, from Mexico to Montreal, to disseminate innovation across markets. The researchers collaborate with the commercial teams to assist customers with their building requirements from inception to completion. The Holcim Innovation Centre accounts for over 200 researchers and innovators, and it's located in Lyone, France. (Holcim, 2024)

*"At Holcim, we know that innovation is permanent and fast-moving. To stay at the leading edge of our industry, we track the latest trends and innovations while*

*continuously growing our capabilities. Our next-generation technologies and solutions are helping decarbonise building.” (Edelio Bermejo, 2024)*

Those programmes focus mainly on decarbonising buildings in all stages, from construction to demolition, using special types of concrete and technologies, such as 3D printing.

To enhance and promote the technology made by the company, the Holcim Innovation Hub was set up in 2023. In this hub, the key stakeholders from all construction industry sectors can come together to promote the development of net-zero buildings. The establishment also provides workspaces for entrepreneurs and think tanks to collaborate and speed up innovation. Furthermore, the hub also serves as a place where people can learn about the future of sustainable cities and construction through various exhibits and events.

To demonstrate the innovation in action, a few examples are described below:

### **Phoenix Bridge**

Phoenix is the next evolution of Striatus bridge, the 3D concrete printed bridge, a unique and award-winning creation, which was unveiled at the 2021 Venice Biennale of Architecture in collaboration with partners: Block Research Group at ETH Zurich, Zaha Hadid Architects Computation and Design Group, and incremental3D. The Phoenix bridge was built in 2023 in collaboration with the same previous member and new AMODIS design and control; DEKRA testing, inspection and certification; Groupe Noel - metal manufacturing; and Bürgin Creations, who made the final assembly. The bridge is made with 10 tons of recycled materials. The Holcim company developed a special concrete ink made of 100% recycled ECOPlanet cement developed by the company. (Archello, 2024)



*Figure 11 Phoenix Bridge*  
Source: Archello.com (2024)

### **Advanced Crushing System in France**

Thanks to the new advanced crushing unit in Saint-Laurent-de-Mûre facility, France, and the ECOCycle technology platform, the Holcim can recycle and upcycle all construction demolition materials (CDM) into new building solutions, such as aggregates, sand and decarbonised cement paste via advanced machinery system with several stages of separations. The separated material can be used as a primary resource in the new construction material. The company seeks to expand the ECOCycle solutions using an advanced circular system to reduce the CO<sub>2</sub> footprint of new building solutions and close the material loop to conserve virgin resources. (Holcim, 2024)



*Figure 12 Crushing Unit in Saint-Laurent-de-Mûre*  
Source: Holcim (2024)

### **An Essential Home**

The Essential Homes Research Project was showcased in Venice at the 2023 Architecture Biennale, initiating a discussion on making sustainable construction accessible to everyone. The project was initiated following the Shelters Workshop, which the Norman Foster Foundation held in June 2022 with the help of Holcim. The main vision was to provide displaced people who suffered from disasters of all kinds a safe temporary shelter (Holcim, 2024). According to Norman Foster, the estimated cost of the building would be 20,000 euros. The structure can be built within four days without special skilled workers (Desginboom, 2023).





*Figure 13 Essential Home*  
Source: Norman Foster Foundation (2023)

### **3.4 Vision**

According to Hofstrand (2016), the vision statement is an idea or achievement the company wants to reach in the future. Bowen (2018) adds that vision as well as mission are often created by defining the core values. Those values define the most important principles that help on the way to the company's vision.

The Holcim vision statement is formulated as follows:

*"Our vision is to become the global leader in innovative and sustainable building solutions. Through three strategic levers – Accelerating Growth, Expanding Solutions & Products, and Leading in Sustainability – we are transforming and Delivering Superior Performance."* (Holcim, 2024)

The core principles that lead the company transformation and fulfilment of the vision are defined as:

- Holistic: the organisation adheres to a systems approach that acknowledges the interconnectedness of location, individuals, environment, and economic objectives, treating them all with equal importance.
- Transformational: the organisation is committed to pursuing innovative ideas and solutions to move the construction sector rapidly and significantly towards sustainability.
- Transferable: the organisation asserts that advancing thought leadership and innovative ideas to the whole construction sector is crucial for achieving tangible results.



*Figure 14 Sustainable Construction*  
Source: Holcim Foundation (2024)

### 3.5 Mission

According to Sengupta and Sahay (2017), mission statements are crucial statements that explain the organisation's purpose, place in the industry, and governance. They are essential for companies' long-term viability and expansion, offering a guide for turning strategic objectives into practical measures. The mission focuses more on the present or a very near future. Therefore, it indicates who the company wants to be now.

Holcim does not have a clearly stated mission statement. There are a few statements that are used:

*"We have made it our mission to democratise and accelerate the global movement for sustainable design and construction by making knowledge accessible to all."*  
(Holcim Foundation, 2024)

*"Our mission is to be the world's most respected and attractive company in our industry – creating value for all our stakeholders."* (Zippia, 2024)

To fulfil the vision and mission while incorporating the four principles, which were mentioned above, the company introduced several goals to reach the vision of sustainable construction:

- Uplifting places: to harmonise the buildings with the local environment and cultural aspects.
- Healthy planet: to reduce resource use, prevent emissions and incorporate solutions for ecosystem restoration,
- Viable economics: to ensure economic feasibility and enable long-term value creation through circular design and resource management,
- Thriving communities: to ensure an affordable living environment. (Holcim Foundation, 2024)

## **4 Analysis of Corporate Social Responsibility**

This chapter explores the economic, social, and environmental aspects of Corporate Social Responsibility (CSR) using the examples from Holcim company.

### **4.1 Economic Area**

The economic dimension serves as a main building stone, reflecting a company's commitment to fostering sustainable economic development and societal well-being. Holcim and similar entities strive not only to achieve financial success but also to uplift and empower the communities in which they operate. In this part, the analysis of the economic area of CSR will be discussed.

#### **Profit**

The economic dimension of CSR pertains to a company's dedication to operating responsibly, making profits, and supporting economic growth (Fares et al., 2024). The dimension can be measured with various metrics. For instance, investing in alternative energy sources, allocating funds to education programmes, or supporting local charities.

Holcim company shows in their sustainability reports contributions to social initiatives in many areas, from contributions to housing and infrastructure to social investment and inclusive business projects.

The following graphic displays the EAT (earnings after taxes) for the years 2015 to 2023. The company consistently runs with positive financial results. During the specified period, the organisation had two significant financial setbacks. In 2015, the loss reached 2 billion euros. The cause behind this was the intended consolidation with the French corporation Lafarge. The second loss occurred in 2017 due to an impairment of 3,940 million EUR. The impairment mostly affected the goodwill and assets that were revalued in the context of firm mergers. However, Holcim possesses a robust economic foundation that serves as a solid foundation for investing in several areas of corporate social responsibility (CSR).



*Figure 15 Holcim Earnings after Taxes 2015 – 2023 (in million EUR)*

Source: Own processing according to Holcim reports and Statista (2024)

The corporation, with a robust economic foundation, discloses its entire corporate social responsibility (CSR) expenditure in its sustainability reports in accordance with the Global Reporting Initiative (GRI). The expenditures are categorised into four distinct groups: Overhead, Social investment initiatives, Donations, and Inclusive business projects. During the specified time frame, the greatest expenditures occurred in 2015, amounting to 61.4 million EUR. The majority (70%) of the funding came from financing investment projects. In addition, 13% of the overall expenditures were derived via donations. Between 2016 and 2019, the expenditures remained relatively constant. Corporate social responsibility (CSR) expenditures experienced a significant decline in 2022. The standard variation of spending throughout the time was  $\pm 11.84$  million EUR.



Figure 16 Total CSR Spend 2015 – 2023 (in million EUR)

Source: Holcim reports (2024)

## Supply Chain

The company has high sustainability standards in every part of the corporate social responsibility. Those high standards are also sought in their supply chain. Holcim's sustainable procurement is guided by the UN Global Compact Ten Principles, the OECD Guidelines for Multinational Enterprises, the UN Guiding Principles on Business and Human Rights, and the International Labour Organization's Declaration on Fundamental Principles and Rights at Work. All company's suppliers are required to meet the standards described in the **Sustainable Procurement Directive**. The suppliers need to comply with local and national laws and regulations. In addition, they are expected to adhere to environmental, social and other regulatory requirements on all levels. Furthermore, they must follow Holcim's standards. (Holcim, 2021)

In the directive, there are thirteen different standards, which include, for instance, Working for conditions and welfare at work, Health and safety, Child labour, Environmental regulatory compliance and Bribery and corruption. (Holcim, 2021)

Holcim Suppliers must show compliance with the standards outlined in the document, including their operations and supply chain, by participating in the supplier qualification process. Suppliers are ranked based on the potential ESG/H&S

impact of their goods and services. The impact is based on the risk-based screening methodology on three levels:

1. ESG/H&S risks related to the product/services provided.
2. Risk exposure related to business relationships (volumes and spending)
3. Country risk level, according to the UN Human Development Index and Freedom House Index (Holcim, 2021)

The company's due diligence approach for the potential suppliers consists of three main steps, which can be seen in Figure 17. During the process, Holcim actively communicates with suppliers to ensure they comprehend our objectives and the criteria by which they will be assessed. In the case when the supplier fails to meet the specified criteria, appropriate measures are implemented, and instructions are given by Holcim. Holcim oversees the advancement and, when suitable, assists providers in enhancing their abilities to enhance ESG performance.

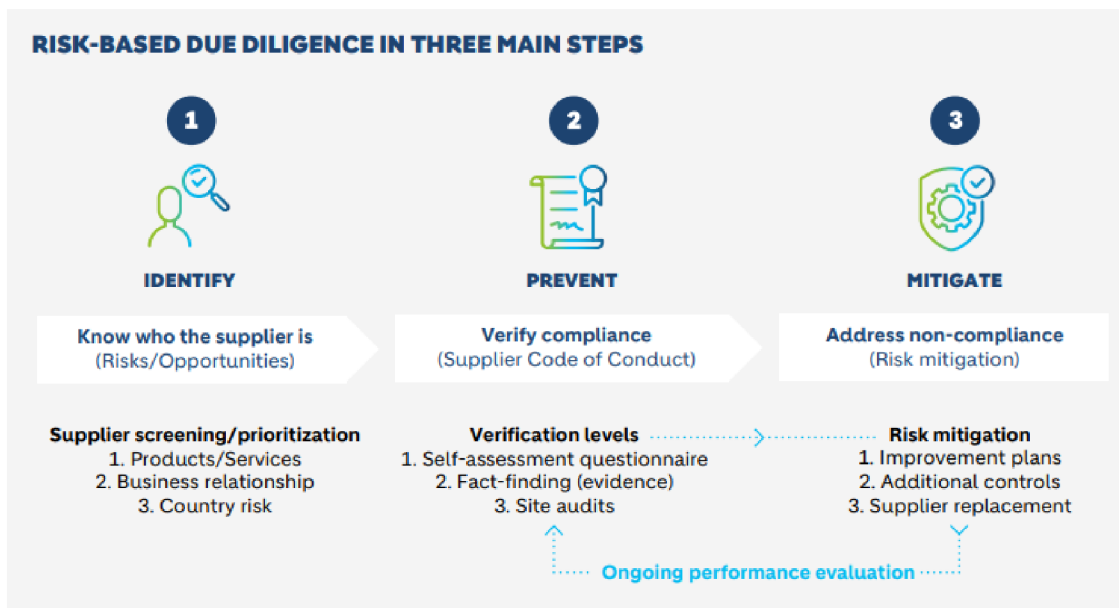


Figure 17 Three Main Steps in Choosing the Supplier

Source: Holcim annual report (2023, p. 147)

## 4.2 Social Area

The Holcim company places a strong emphasis on the significance of the influence that their operations have on the communities that are impacted by the mining activities, as well as on the employees of the company. Because of this, Holcim has policies that are highly detailed.

### Human Rights and Social Policy

Holcim is dedicated to upholding and advancing human and labour rights in its operations, business activities, business connections, and the communities it operates in. Upholding human rights is essential for their commercial operations and functioning. The company actively communicates its human rights expectations in various documents such as the Code of Business Conduct and Code of Business Conduct for Suppliers. (Holcim, 2021)

In addition, the company possess ISO 14001:2015 and ISO 45001:2018, which are related to environmental management and safety and requirements for an occupational health and safety management system (OH&S).

In the internal policy (2021), the company identifies seven significant human rights hazards associated with its business activities that it aims to proactively identify, stop, prevent, or reduce. Those are:

- health and safety
- working conditions in their operations and in the supply chain
- discrimination and harassment
- security-related abuses and violations
- child labour in high-risk supply chains
- dust and other emissions
- and climate change and its impacts

Furthermore, the policy (2021) incorporates initiatives for citizens and the economic development of the communities in which they operate. Those are:

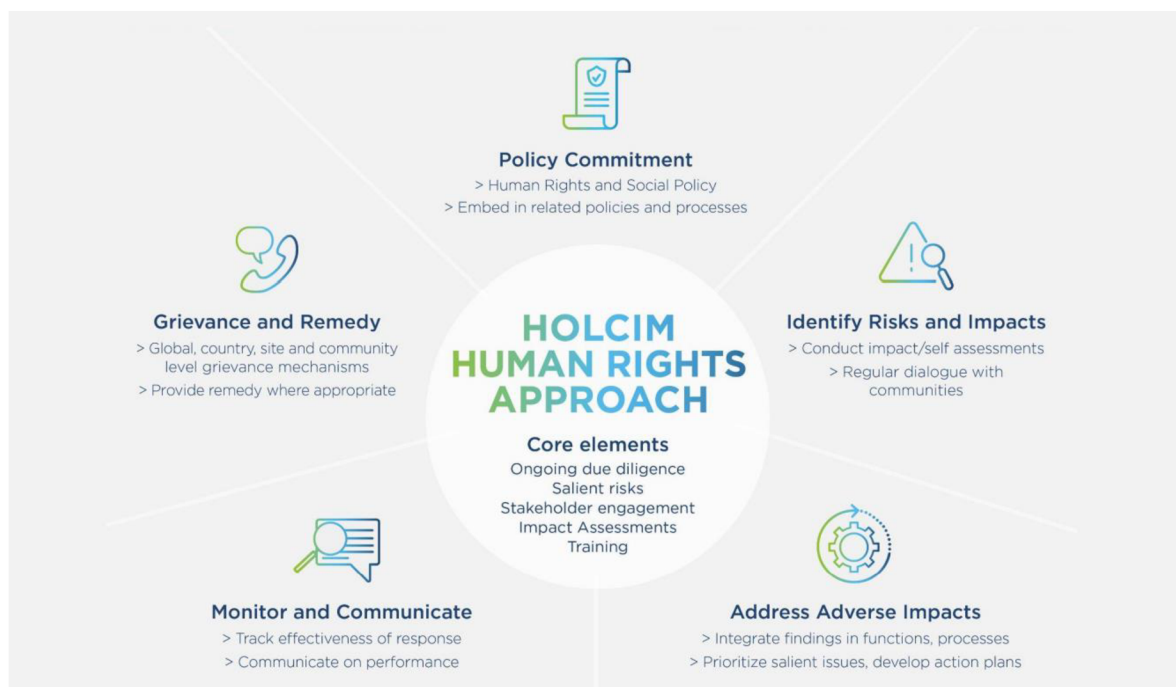
- affordable housing and infrastructure



- education and skills
- and health

## Holcim Approach

Holcim is dedicated to enforcing human and labour rights by incorporating this dedication into its main company policies and procedures, which align with international standards. Their Human Rights Approach, outlined in the Holcim Human Rights Directive, focuses on systematically recognising, preventing, lessening, monitoring, and addressing possible or actual risks and effects on individuals caused by company operations. Holcim's approach provides a thorough and proactive commitment to upholding and advocating for human and labour rights throughout all its operations. (Holcim, 2022)



*Figure 18 Holcim Human Rights Approach*  
Source: Holcim (2021)

## Charges in Syria

In 2010, the company Lafarge 2015, the subsidiary of Holcim, opened a cement plant in the city of Jalabiya, which is located near the borders with Turkey. The company invested 680 million dollars (Vojáček, 2022). From 2012 to 2014, when the

Civil war in Syria escalated, Lafarge reportedly provided as much as 13 million euros to various armed organisations in Syria, such as the Islamic State, to ensure the operation of its cement factory during the Syrian civil war and its associated violence. Lafarge required Syrian employees to remain on the grounds despite the hazardous conditions, frequent kidnappings, and life-threatening threats (Sherpa, 2024).

The Lafarge executives acted willingly, but the headquarters were not aware of the manager's activity in Syria. Their goals were essentially economic, as indicated in contemporaneous emails. The main reason was to ensure the operation of the cement plant and to protect the safe passage for the customers, suppliers and employees. In 2022, Lafarge pleaded guilty to providing material support to foreign terrorist organisations, and the court of United States of America and Holcim agreed to pay 778 million US Dollars in fines and forfeiture. (Office of Public Affairs, 2022)

The Holcim company stated on their website stated Holcim was not involved in any of the behaviour as it has never operated in Syria or the United States. Holcim conducted a thorough investigation upon hearing the allegations in 2016, made the findings public in 2017, and terminated the employment of former executives implicated in the case. (Holcim, 2022)

### **4.3 Projects**

The company is actively involved in many social projects, mainly in the Middle East and Africa. By 2030, the company wants to help 75 million people live better lives through its business model. There are two examples of their social activities:

#### **Outdoor School for a Brighter Future in Indonesia**

Holcim has a clay quarry in Central Java, which is situated in a suburb of Cilacap City. The majority of the population in the area are farmers and independent workers. Despite the free public primary education, enrolling children in after-school tutoring is a significant financial load for these families. Therefore, the company 2013 launched an outdoor school program for elementary and high school students to help them in further and deeper education. (Holcim, 2017)

## **Providing Housing in a Safer Place**

Holcim Philippines assisted more than 200 households living in flood-prone areas along the Ilang River in Davao City by providing land and organising the migration of the at-risk community to a safer place. These families used to live in informal settlements and encountered difficulties during the rainy season since their homes and possessions were often destroyed by regular flooding. (Holcim, 2017)

## **4.4 Environmental Area**

The environmental factor is of high significance to the Holcim company, as it displays a dedication to environmentally responsible activities and the conservation of natural resources. Within the framework of this discussion, Holcim exemplifies a commitment to environmental stewardship by including policies and activities.

### **Climate Policy**

The Holcim Climate Policy outlines the company's commitment to addressing climate change through decarbonisation efforts and sustainable practices. It aligns with the goal of achieving a near net-zero economy by 2050 and is guided by science-based targets validated by the Science Based Targets initiative. (Holcim, 2023)

The policy focuses on four key areas:

- decarbonising operations,
- building better with less
- circular construction
- and making buildings sustainable.

The company's climate commitments are aligned with the United Nations Sustainable Development Goals and are implemented through rigorous emissions accounting, target setting, and transparency in disclosures. The policy also emphasises just transition principles, including commitments to employees, communities, suppliers, and customers. (Holcim, 2023)

Minimum operational requirements and monitoring and reporting mechanisms are established to ensure compliance with the policy. The responsibility for implementing the policy lies with the Chief Executive Officer, Chief Sustainability and Innovation Officer, and relevant executive committees. (Holcim, 2023)

To monitor and report the results, the company outline three scopes of emissions:

**Scope 1** (direct emissions), which are connected with process-related or any emissions that result from the consumption of fuels in the operations. Specifically for cement, production units must monitor and report CO<sub>2</sub> emissions, according to the Global Cement and Concrete Association.

**Scope 2** emissions are associated with the overall amount of electricity purchased, market-based emission factors of purchased electricity, and the fraction of renewable energy used in the company. The reporting follows the Greenhouse Gas Protocol.

The last is **Scope 3** emissions, which are linked with indirect emissions from the supply chain. Emissions data is quantified or approximated on a national scale for all scope three categories in accordance with the Greenhouse Gas Protocol Corporate Value Chain Accounting and Reporting Standard. (Holcim, 2023)



Figure 19 Total Emissions 2015 - 2023 (in Mt)  
Source: Own processing according to Holcim reports (2024)

The figure illustrates the total emissions that were produced in accordance with all of the scopes that were discussed earlier. One of Holcim's strategic goals is to constantly reduce the amount of carbon dioxide emissions, and the company is dedicated to achieving this goal. A clear pattern of decreasing emissions may also be shown.

### **Nature and Water Policy**

The Holcim Nature Policy underscores the company's commitment to a nature-positive future by focusing on the efficient use of natural resources and biodiversity conservation. It applies to Holcim Ltd. and its affiliates, setting objectives for water management and biodiversity preservation. The company aims to reverse nature loss, protect natural ecosystems, and enhance the livelihoods of neighbouring communities. By assessing the importance of biodiversity at each extraction site and applying mitigation strategies, Holcim prioritises tailored solutions to local challenges. Furthermore, the company aims to replenish freshwater in high-risk areas and restore biodiversity in active and non-active quarries. (Holcim, 2022)

Key commitments include reducing freshwater use, maintaining high water quality standards, and implementing progressive rehabilitation practices. The Holcim actions can be seen in Figure 20.

## HOLCIM WATER STEWARDSHIP ACTIONS

### OWN OPERATIONS



#### Improve water use efficiency and reduce pollution

Optimize water use and implement strict standards to ensure discharge of high-quality treated water



#### Shift to non-freshwater withdrawal

Replace freshwater with sea or treated wastewater



#### Maximize rainwater harvesting

Use harvested rainwater to meet site water requirements



#### Access to WASH

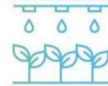
Provide water, sanitation and hygiene for all employees and contractors (WASH pledge)

### BEYOND SITE BOUNDARIES\*



#### Watershed protection and restoration

Revitalize degraded wetlands, recharge of groundwater and promote reforestation to improve water flow back to basins



#### Water for productive use

Promote water-efficient irrigation and agriculture practices to help relieve water stress in watersheds



#### Water access and sanitation

Support communities with supply of potable water and installation of sanitation facilities to improve well-being of people and communities (WASH pledge)

\* Projects are implemented within a local context and in consultation with relevant stakeholders, including communities and public institutions

Figure 20 Holcim Water Stewardship Actions

Source: Holcim (2022)

To monitor and report, each production site must track and disclose the amounts of water taken, released, and used, the quality of discharged water, and the activities related to replenishing freshwater. Each quarry is required to record the number of areas that have been affected, restored, and left undisturbed. (Holcim, 2022)

### Circular Economy Policy

The Holcim Circular Economy Policy details the company's dedication to effectively utilising materials and minimising waste throughout its activities. The purpose is to promote circular construction practices that are environmentally benign, climate-conscious, and socially inclusive, in line with the objectives of achieving net zero and Nature-Positive status. Holcim aims to transition from a linear economy to a circular one by emphasising material recycling, minimising building material use, and encouraging repair and renovation. (Holcim, 2022)

The circular construction model employs three key elements:

- Recycling materials through urban mining,

- Reducing material use through smart design and technologies (for example, 3D printing),
- Repairing/renovating buildings for longevity.

The Company highlights the endless recyclability of concrete and is actively working on technologies such as ECOCycle, collaborating with authorities, and promoting recycling in construction standards. (Holcim, 2022)

Holcim prioritises transparency in interactions with stakeholders, freely talks about performance and projects, and engages with authorities. The policy establishes basic operating standards, with a focus on waste management programmes and minimising the use of landfills. Quality management systems are utilised to monitor trash levels, recycled content, and progress towards circular economy goals, which are reported at least once a year. (Holcim, 2022)

To oversee the generated waste, it is necessary for each unit to establish and implement a Waste Management Programme that adheres to the waste hierarchy. The hierarchy depicted in Figure 20 comprises seven levels categorised based on their level of favourability.

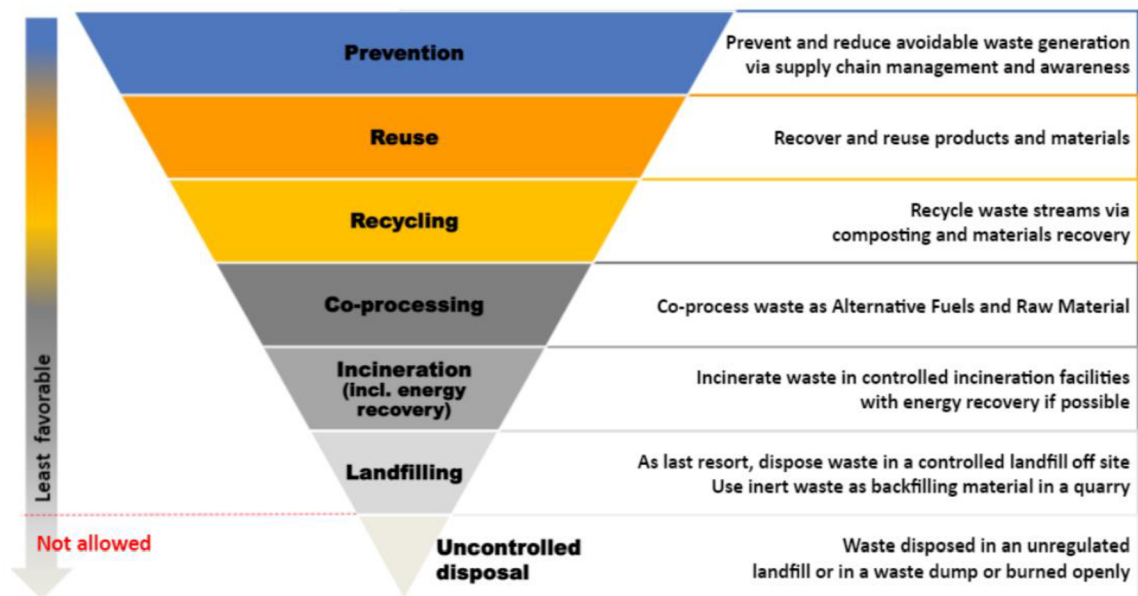


Figure 21 Hierarchy of Waste Management

Source: Holcim Circular Economy Policy (2022)

## 4.5 Projects

Two examples of Holcim's initiatives are described in detail here in order to highlight the environmental actions that the company engages in.

### Circular Explorer

The Circular Explorer is a recycling catamaran powered entirely by solar energy, created to collect marine plastic garbage from oceans and rivers worldwide. It now operates in Manila Bay, Philippines. It also functions as an ambassador and a marine laboratory. (Holcim, 2022)

It has been fighting plastic pollution in the Philippines since June and has reported substantial success in cleaning up Manila Bay. The catamaran cleaned an area of more than three million square meters and removed 17,000 kg of marine litter. (Maholick, 2023)

It is dedicated, together with its crew and stakeholders, to cleaning up and developing sustainable solutions. Collaborative endeavours among authorities, corporations, educational institutions, and NGOs are initiating actual transformations. Collaborations with the Philippine Coast Guard and UP MSI include gathering samples, evaluating water quality, and using scientific methodologies. (Maholick, 2023)



*Figure 22 Circular Explorer*  
Source: Holcim (2021)



## Preserving Wetlands

Ripon City Wetlands, formerly an operational quarry, has been converted into a flourishing nature reserve in the UK by Holcim UK. The quarrying operation started in 1964. After being acquired by Holcim in 2003, rehabilitation work was finished by 2018, and the reserve was opened to the public in 2019. The site currently features a wide range of wetland habitats that serve as a refuge for different bird species and other organisms while also providing a peaceful environment for visitors seeking peace. Restoration activities involved distributing green hay to establish a diverse fenland, planting 3,000 reed plugs in the area to improve the reedbed habitat, and installing 280 metres of hedges next to the canal reedbed. The reserve is now an oasis for birdwatchers. The presence of a large reedbed, fen meadow strip, and wildflower-rich areas serves as a magnet for bees and butterflies. Visitors can see the plentiful wildlife through signposted pathways and viewing areas. The property, under the management of Yorkshire Wildlife Trust, has documented 187 bird species, emphasising its significance as a flourishing wildlife habitat. (Holcim, 2024)



*Figure 23 Ripon City Wetlands*  
Source: Yorkshirewalks (2019)

## 4.6 Communication of CSR

Companies can efficiently communicate their Corporate Social Responsibility (CSR) activities through various channels such as corporate websites, online social

networks, and CSR reports. In one study, 46 companies out of 141 did not state their corporate culture philanthropy; interestingly, the study found that 93 % of studied companies mentioned other areas of CSR and philanthropy (Chalmeta and Viinikka, 2017). Lee-Wong and More (2016) highlight the importance of CSR communication in CSR management in small and medium-sized companies, as it enables organisations to express their CSR beliefs, vision, and strategy clearly to various stakeholders. This can result in advantages such as improved company reputation and competitiveness.

Companies must not only adopt CSR practices but also properly communicate them to stakeholders (Fifka et al., 2018). According to a study by Du et al. (2010), the level of understanding and opinions held by stakeholders on a company's corporate social responsibility activities have a substantial impact on maximising the business advantages gained from CSR projects. Corporate social responsibility communication might backfire if stakeholders suspect extrinsic intentions in firms' social efforts.

In the case of Holcim, the company primarily communicates its corporate social responsibility efforts through its website and social media platforms.

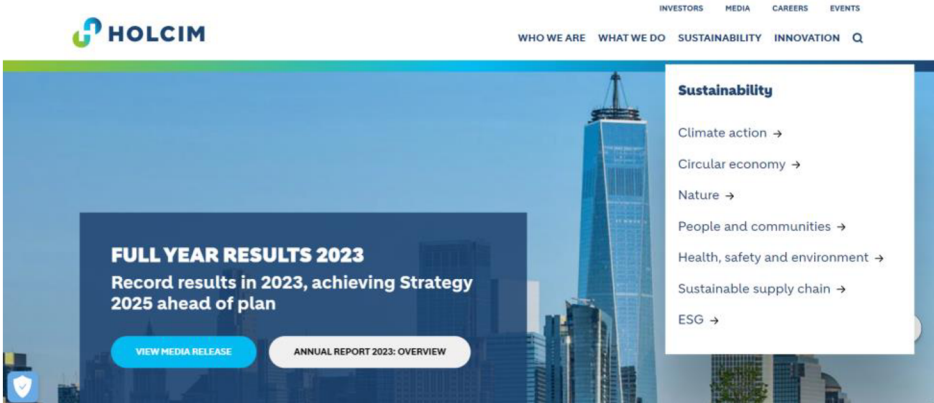


Figure 24 Holcim webpage  
Source: Holcim (2024)

Their websites possess a straightforward yet coherent structure. On the primary website, the corporation showcases its accomplishments and tells stories not only about its financial performance but, more significantly, its environmental initiatives.

In the right corner, visitors may find the sustainability link where the company shares their sustainable actions. Sustainability is a big topic for the company, and sustainable activities, as was explained before, play a big role in the company's communication.

## OUR ESG RATINGS, POLICIES AND DIRECTIVES

### ESG ratings and disclosures

	+
<b>Environmental</b>	
	+
<b>Social</b>	
	+
<b>Governance</b>	
GENERAL	+
INTEGRITY	+
COMPLIANCE	+
PUBLIC AFFAIRS	+
SUSTAINABLE PROCUREMENT	+
SECURITY	+
TAX	+

### SUSTAINABILITY REPORTS

2023	+
2022	+
2021	+
2020	+
2019	+

Figure 25 Holcim reports

Source: Holcim (2024)

The company annually releases a range of reports specifically dedicated to the environmental, social, and governance (ESG) domain. These reports provide comprehensive information and statistics regarding the company's influence on the environment, as well as detailing the activities undertaken by the company throughout the year. Sustainability reports are comprehensive and extensive documents in which the company provides an in-depth description of their

methods, initiatives, and strategic objectives<sup>1</sup>. The reports are created in accordance with multiple global standards.

## **Reporting Standards**

The most renowned standard is the GRI standard, overseen by the Global Sustainability Standard Board (GSSB), which assists corporations in publicly reporting their economic, environmental, and social impacts. The content indexed by the Holcim corporation aligns with the GRI standard disclosure<sup>2</sup>. The materiality matrix provides an indication of the material features, and the company's most significant topics are identified within it. (Holcim, 2016)

- business ethics and compliance
- greenhouse gas emissions
- health and safety
- corporate governance
- sustainable products, innovation and technology (Holcim, 2016)

The second reporting standard is based on the guidelines set by The Sustainability Accounting Standard Board (SASB), which operates under the umbrella of the International Financial Reporting Standards<sup>3</sup> (Holcim, 2021). SASB identifies financial material concerns, which are the issues that have a high likelihood of impacting a company's financial condition or operating performance and are, therefore, of the utmost importance to investors. The organisation prioritises the significant concerns related to the Construction Materials sector. Those are:

- GHG emissions
- air quality
- energy management
- water management
- waste and hazardous materials management
- biodiversity impacts

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<sup>1</sup> See the Appendix A

<sup>2</sup> See the Appendix B

<sup>3</sup> See the Appendix C

- workforce health and safety
- product design and lifecycle management
- competitive behaviour (Holcim, 2021)

Holcim is a leader in ESG reporting, demonstrating a strong dedication to being transparent and environmentally responsible. The company has also been at the forefront of implementing the Taskforce on Climate-Related Financial Disclosures (TCFD) standards<sup>4</sup>, continuously providing transparent information about its risks and possibilities. Over the past three years, Holcim has consistently released detailed climate reports. (Holcim 2023)

The TCFD framework is based on four areas. In those areas, the Holcim company discloses relevant information in its annual reports.

- governance
- strategy
- risk management
- metrics and targets (Holcim, 2023)

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<sup>4</sup> See the Appendix E

## 5 Results

This chapter provides an overview and analysis of Holcim's sustainability efforts as outlined in their "2030 Plan." In all the mentioned areas.

### 5.1 Action plan

The company introduced in early 2016 "The 2030 Plan", which is a sustainability initiative to decarbonise the construction sector by embracing the circular economy. It complies with the sector's new 1.5°C science-based framework. Furthermore, it offers a distinct plan of action for the company to tackle their primary effects, establish new standards, and take the lead in the sector in addressing the most urgent environmental challenges facing the planet. (Holcim, 2015)

The strategic plan focuses on four areas: Climate, Circular economy, Water and nature People and communities. In addition, the company has set economic goals for each part of the world. For the Europe area, the goal is to reach 10.2 billion EUR in net sales and in earnings before interest and taxes (EBIT) in the amount of 1.65 billion EUR while decreasing the CO<sub>2</sub> emission. (Kurzy.cz, 2023)

Thanks to the increasing demand for sustainable products, the company plans to raise the proportion of its low-carbon cement, ECOPlanet, to more than 50% of its net cement sales by 2030. This includes a target of 8 million tonnes of fully decarbonised cement, known as ECOPlanet Zero. In addition, the company plans to raise the sales of ECOPact, a low-carbon concrete, to account for over 55% of its total sales of ready-mix concrete. Holcim is to enhance its ECOCycle technical platform by extending its presence to 150 sites across Europe. The objective is to recycle a total of 20 million tonnes of construction demolition materials each year. By pursuing both environmental and economic objectives, the company aims to make significant progress towards a sustainable and profitable future. (Kurzy.cz, 2023)

The following diagram illustrates the four key areas that "The 2030 Plan" is focused on. The year 2030 has been stated as the target year, and the year 2015 has been

chosen as the base year, if not stated differently. The exemption is The Climate area criteria for which the base year was initially 1990.

	Climate	Circular economy	Water and nature	People and communities
<b>In-house</b>	We will reduce net specific CO <sub>2</sub> emissions by 40% per tonne of cement (vs 1990)	We will use 80 million tonnes of waste-derived resources per year	We will reduce specific freshwater withdrawal in cement operations by 30% We will implement The WASH Pledge on all sites	We want zero fatalities We will reduce LTIFR to <0.20 We will reduce TIFR by 50% We will reduce our disease rate to < 0.1 We will have 30% minimum gender diversity at all management levels
<b>Beyond our fence</b>	We will help our customers avoid 10 million tonnes of CO <sub>2</sub> being released from buildings each year through our innovative solutions	We will provide end-of-life solutions for our products and will supply four times more recycled aggregates from CDW/RAP	We will make a positive impact on water in water-scarce areas We will show a positive change for biodiversity	We will develop initiatives to benefit 75 million people We will engage in collective action to combat bribery and corruption in high-risk countries
<b>Innovative solutions</b>	<ul style="list-style-type: none"> <li>- Low-carbon cement and concrete</li> <li>- Insulating concrete</li> <li>- Thermal-mass solutions</li> </ul>	<ul style="list-style-type: none"> <li>- Recycled aggregates</li> <li>- Urban mining solutions</li> <li>- Waste management services</li> </ul>	<ul style="list-style-type: none"> <li>- Rainwater harvesting</li> <li>- Pervious concrete</li> <li>- Stormwater protection</li> <li>- Vertical green solutions</li> </ul>	<ul style="list-style-type: none"> <li>- Affordable housing materials and solutions</li> <li>- Affordable sanitation solutions</li> </ul>

Figure 26 The 2030 Plan - Building for Tomorrow

Source: Holcim (2015)

The specific summary of the metrics utilised to monitor the strategic objectives may be seen in the diagram below. The analysis will primarily focus on the four strategic pillars utilising the provided metrics<sup>5</sup>.

<sup>5</sup> The lead metric in the Community pillar was changed in 2021 to Contribution to social initiatives.





Sustainability pillars	CLIMATE AND ENERGY 	CIRCULAR ECONOMY 	ENVIRONMENT 	COMMUNITY 
Objective	Reduction of CO <sub>2</sub> emissions	Increased reuse of waste-derived resources	Reduction of freshwater withdrawal	Creation of shared value
Lead metric	CO <sub>2</sub> emitted (kgCO <sub>2</sub> /t cementitious)	Quantity of waste recycled (million tons)	Freshwater withdrawn (liters freshwater/ton cementitious)	Number of beneficiaries per year (million)

Figure 27 Strategic Metrics

Source: Holcim report (2018)

The strategic plan has specified more partial goals in each of the four sustainability pillars. For the purpose of our study, the focus will only be on the objectives listed in Figure 26. The complete strategic plan can be seen in Appendix F.

## 5.2 SMART

According to Huikkola et al. (2022), the SMART rule is used in management as an acronym that represents the following criteria: Specific, Measurable, Achievable, Relevant, and Time-bound. This framework is frequently used in goal setting and project management to guarantee that objectives are unambiguous, measurable, achievable, relevant, and have a specified timeframe for accomplishment. The SMART rule improves the efficiency of planning and execution by offering a systematic approach to formulating goals.

For the study the SMART rule will be used to evaluate the set strategic goals of the company.

### Specific

The company provides comprehensive descriptions of all four measurable criteria in both its sustainability reports and yearly reports. The specification of the results is outlined in their strategic plan, encompassing both internal operations and the



external environment, as well as stakeholders. In addition, the Holcim company presents a specific example of solutions for achieving their strategic goal.

The responsibility for strategy and overall governance of the company is delegated to The Board of Directors. The advisory body is The Health, Safety and Sustainability Committee (HSSC), which consists of four members of the Board of Directors, the chairperson of the board of directors, the group of CEO, the CSO, the head of Legal and Compliance, Head of Security and the Head of Health, Safety and Environment participate as standing guests. They advise the Board of Directors on all sustainable-related matters. In addition, it reviews and approves the company's climate-related plans and targets.

The Executive Committee bears the ultimate responsibility for carrying out the sustainability strategy, which encompasses climate and nature. The Chief Sustainability Officer (CSO), who holds a post at the Executive Committee level, is responsible for managing climate-related concerns at an operational level. The CSO is supported by the sustainability core team, which consists of individuals from several related areas and oversees creating and supervising the implementation of Holcim's sustainability strategy. The R&D team also has a significant impact since over 50% of their researchers' time at the Innovation Centres in Holderbank, Switzerland and Lyon, France, is devoted to developing low-carbon goods (Holcim, 2024).

Figure 27 shows the structure of the Holcim company, which is responsible for sustainable development.



*Figure 28 The Responsibility Hierarchy*  
 Source: Holcim (2024)

**Measurable**

The Holcim Corporation establishes clear and quantifiable objectives. The used metrics are clearly stated. However, the baselines used to calculate progress were modified between the years 2015 and 2023. The adjustments occurred as a result of differences in the consolidation of scope. Except for the Climate and Energy section, the base year for the strategic plan was established as 2015. The modifications were implemented under the Environmental, Community, and Climate categories.

The new base year for the Environmental area is the year 2018. The freshwater withdrawal is designated to be 377 litres per tonne of cementitious. Prior to the restatement in 2015, the initial base quantity was 315 litres per tonne of cementitious material. However, in 2017, with the consolidation, the figure increased to 361 litres per tonne. Following the most recent consolidation, the measure for 2022 has been established at 377 litres per metric tonne of cementitious material. Due to the modifications, the strategic objective had a 3% rise in the decrease compared to the year 2018, reaching a total of 33%.

In 2021, the metric for assessing the impact in the Community area underwent a change from measuring the number of beneficiaries per year to evaluating the contribution made to social initiatives. The adoption of the new metric is preferable

since it encompasses all social efforts and improves reporting due to the use of monetary units for measurements, resulting in improved clarity and comparability.

For the Climate area, the base year was set to 1990 which, according to Heede (2022) were the carbon emission estimated to be 755 kgCO<sub>2</sub>/t for the Holcim and 767 kgCO<sub>2</sub>/t. The objective till 2019 was to reduce carbon emissions to 520 kgCO<sub>2</sub>/t. In 2022, the company made the decision to restate the value due to mergers and acquisitions and changes in the scope and methodology that happened in the history of the company. The new base year chosen was 2018, with the baseline after consolidation being 590 kgCO<sub>2</sub>/t and the latest target being 420 kgCO<sub>2</sub>/t.

### **Achievable**

The company has been monitoring the outcomes annually since 2015 through their sustainability reports. Additionally, it establishes the specific objectives that must be achieved by 2025. The reports clearly indicate progress made towards the strategy plan. Furthermore, to provide reassurance and engage in dialogue, the Health, Safety and Sustainability Committee meets at least four times a year to assess the progress and feasibility of the goals. (Holcim, 2024)

### **Relevant**

The company is at the forefront of sustainable solutions and recognises the critical importance of the environment to the globe. The strategic plans align with the company's mission and vision. Klaric et al. (2019) claim that the construction sector exerts a significant influence on the environment, as it stands as a prominent contributor to both environmental pollution and energy consumption. The buildings and construction sector has been identified by the United Nations Environment Programme (2023) as a significant contributor to greenhouse gas emissions, representing around 37% of global emissions.

## **Time-bound**

The designated timeframe for attaining the strategic objective is established as the year 2030. By setting specific goals for 2025 and generating comprehensive reports, the organisation can effectively monitor its progress. In addition, the regular Board meetings allow for constant adjustments to the design and the expansion of limits.

## **Evaluation**

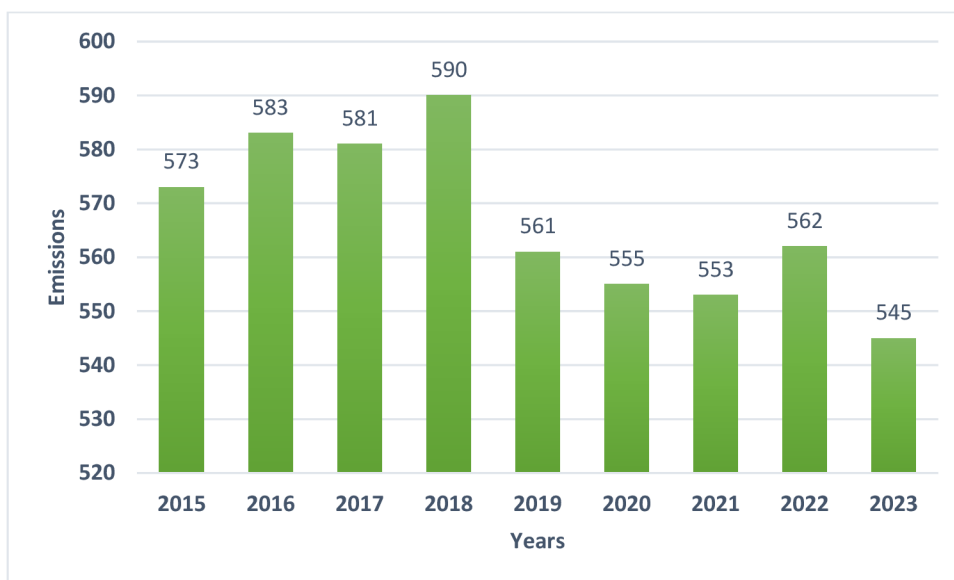
Based on the SMART rule, the strategic aims that have been planned align with the underlying assumption. The only area of concern relates to the modifications in the metrics and the methodology employed for assessing the process of gathering the data. The reports should provide comprehensive and clear explanations of the modifications to avoid any potential misinterpretation and confusion among shareholders and interested individuals.

## **5.3 Climate and Energy**

The assessment of the climate impact of Holcim manufacturing has undergone multiple changes over time. In the context of this analysis, the most recent objective of achieving a reduction in carbon dioxide (CO<sub>2</sub>) emissions to 420 kgCO<sub>2</sub>/t will be employed. The corporation has changed its base year from 1990 to 2018, with the objective of reducing emissions by about 28.81% by the year 2030.

Initially, it is necessary to clarify the precise definition of cementitious material. According to the GCCA definition, it refers to the combined amount of clinker produced and mineral components used for blending and producing cement substitutes. This includes clinker that has been sold but does not include clinker that has been purchased.

The implemented measures align with Holcim's Climate policy and are derived from their Scope 1 definition, which encompasses 75% of their footprint. The definition of Scope 1 was previously outlined.



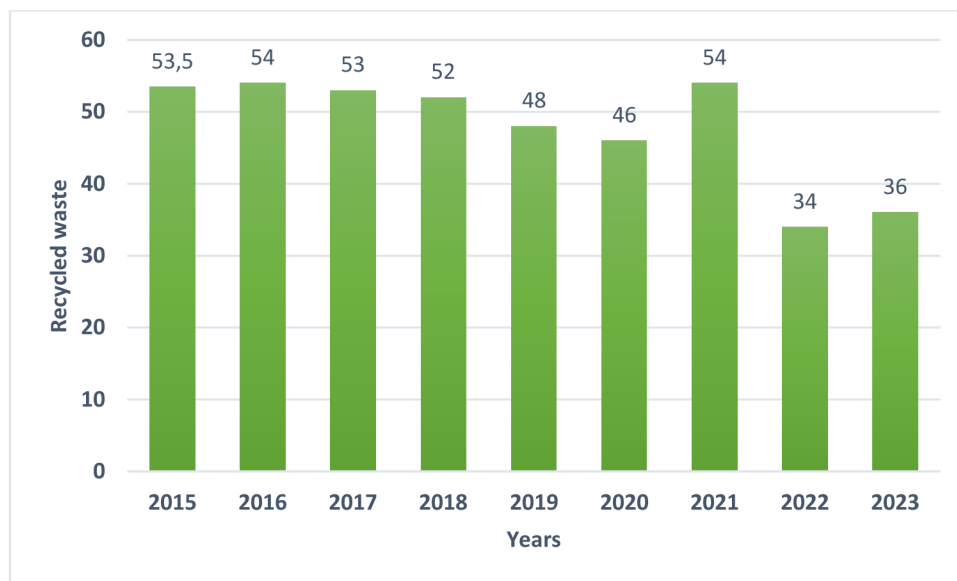
*Figure 29 Specific CO<sub>2</sub> Emissions – Cement Only 2015 – 2023 (kgCO<sub>2</sub>/t)*  
Source: Own processing according to Holcim reports (2024)

The graph illustrates a notable decline in carbon emissions. The first climate report was initially introduced by Holcim in 2021, and it provides the solutions and initiatives led by the company. The report presented an update on the revised net-zero targets, which have been adjusted to line with the 1.5°C scenario of global warming. In the year 2023, there was a decrease of 6.6 percentage points in carbon dioxide (CO<sub>2</sub>) emissions compared to the reference year. Throughout the examined timeframe, the average decrease in CO<sub>2</sub> is 3.5 kgCO<sub>2</sub>/t.

Holcim is decreasing its impact on the climate thanks to the technologies they are developing. One of them is the reusing of cement and aggregate material in the production (ECOCycle) and Carbon capture, utilisation, and storage (CCUS), which is a technology project that captures the CO<sub>2</sub> from the manufacturing process. This technology may help achieve a net-zero future. (Holcim, 2024)

## 5.4 Circular Economy

In the company, the metric used to measure the circular economy is waste-derived resources. The definition of waste-derived resources includes all waste materials and fuels used in production, including recycled materials sold outside. Included are also alternative raw resources, fuels, industrial minerals, recycled concrete, aggregates, and asphalt. Construction demolition materials are as well considered as waste-derived resources. (Holcim, 2024)



*Figure 30 Quantity of Waste Recycled 2015 – 2023 (in Mt)*

Source: Own processing according to Holcim reports (2024)

The initial ambitious plan, established in 2015, aimed to achieve a waste reuse target of 80 million by the year 2030. With the presence of two milestones. The first milestone was to use more than 60 million tonnes per annum in 2020; however, this aim was not effectively attained. The use of recycled waste in 2020 amounted to 46 Mt or 76.7% of the total. The second objective was established to achieve a total of 65 Mt of recycled waste by 2025. Based on the provided data, it is unlikely that the initial objective will be achieved. The new target, established in 2022, set the goal to achieve a waste use of 100 Mt by 2030.

In 2022, there was a significant decline in the quantity of recycled waste, with a decrease from 54 Mt to 34 Mt. There was a reduction of 37%. The decline can be attributed to the reduced manufacturing activity of cement and aggregates, as

stated in the reports from 2022. In the year 2021, the aggregate production of cementitious material and aggregates amounted to 454 Mt. The production in 2022 amounted to 380 Mt. Table 8 provides the individual production figures. A significant decline was observed in the cementitious material.

*Table 8 Change in the Production Between 2021 and 2022*

Type	2021	2022
Cementitious material produced	197	128
Aggregates produced	257	252

Source: Own processing according to the Holcim reports (2024)

Therefore, the company from 2021 started to incorporate into the reports "Circularity ratio" for the cement production and "Recycling ratio" for all segments of the production. The Holcim's goal is to reach 30% of waste recycled on cement by 2030, which is measured by the circularity ratio. The ratios are computed as follows:

$$Circularity\ ratio_{cement} = \frac{Waste\ used}{Production\ volumes}$$

$$Recycling\ ratio_{all\ segments} = \frac{Waste\ used}{Sales\ volumes}$$

In 2021, the circularity ratio was 24%, and the recycling ratio was 9%. Compared to 2022, where the circularity ratio was only 20%,<sup>6</sup> and the recycling ratio accounted for 7%.

## 5.5 Environment

In the initial plan, the target for the year 2030 was to decrease the freshwater withdrawal by 30% compared to 2015 (315 l/tonne cementitious). Due to the changes in the measuring system and consolidations the calculations will use the

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<sup>6</sup> The results are based on reported numbers from 2021 and 2022 without consolidation changes.

newest base year, which is 2018 (377 l/t of cementitious material), and the new goal is to decrease the withdrawal by 33%. The absolute target for 2030 is 253 l/t of cementitious material.

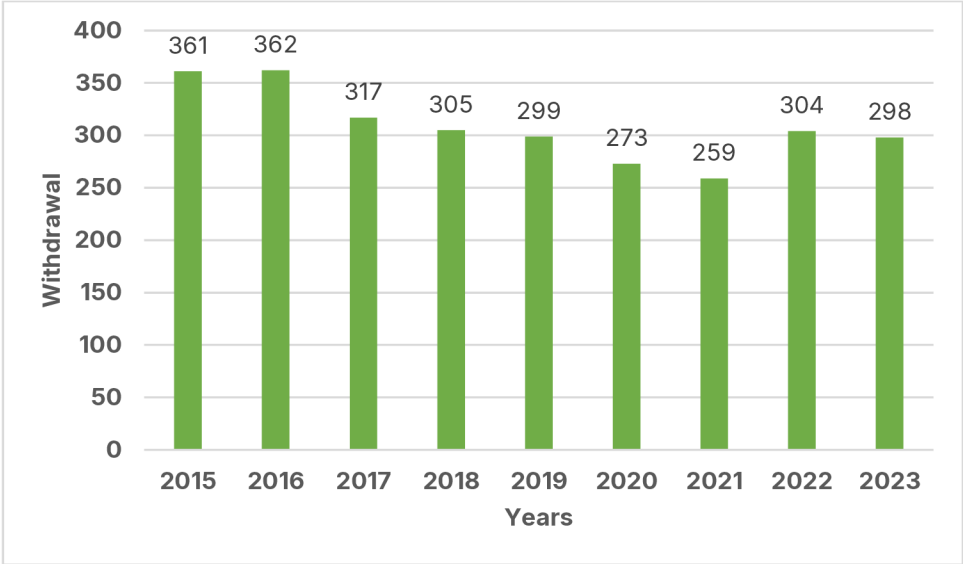


Figure 31 Freshwater Withdrawal 2015 – 2023 (l/t of cementitious material)  
Source: Own processing according to Holcim reports (2024)

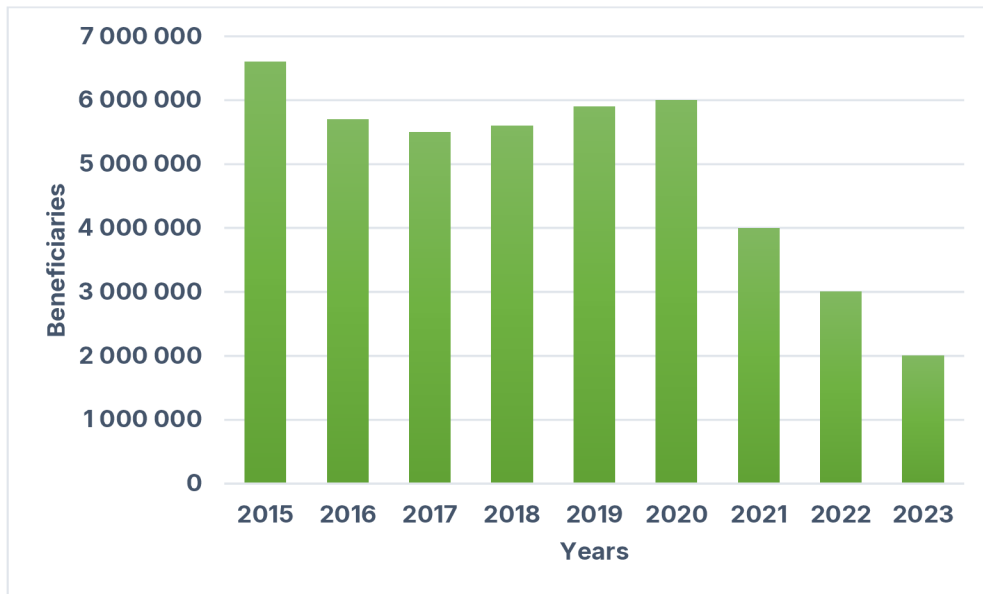
Since 2015, there has been a considerable decline in the withdrawal of freshwater until 2022. Based on the 2015 stated plan, which outlined specific targets for the years 2020 and 2025, the company failed to meet the 2020 target of reducing cementitious by 20%, relative to the initial target of 317 l/tonne. The observed decline accounted for 13.9 percentage points. The revised objective, as indicated by the most recent findings, demonstrates a reduction of 21%.

### 5.6 Community

According to the initial plan from 2015, the lead metric was number of direct beneficiaries. The term "direct beneficiary" refers to an individual who was actively engaged in the project or derived advantages from its execution. The company consistently calculates the precise number of beneficiaries, which refers to the number of community members who have received training. In situations where accurate measurement is unattainable, such as in the case of beneficiaries of



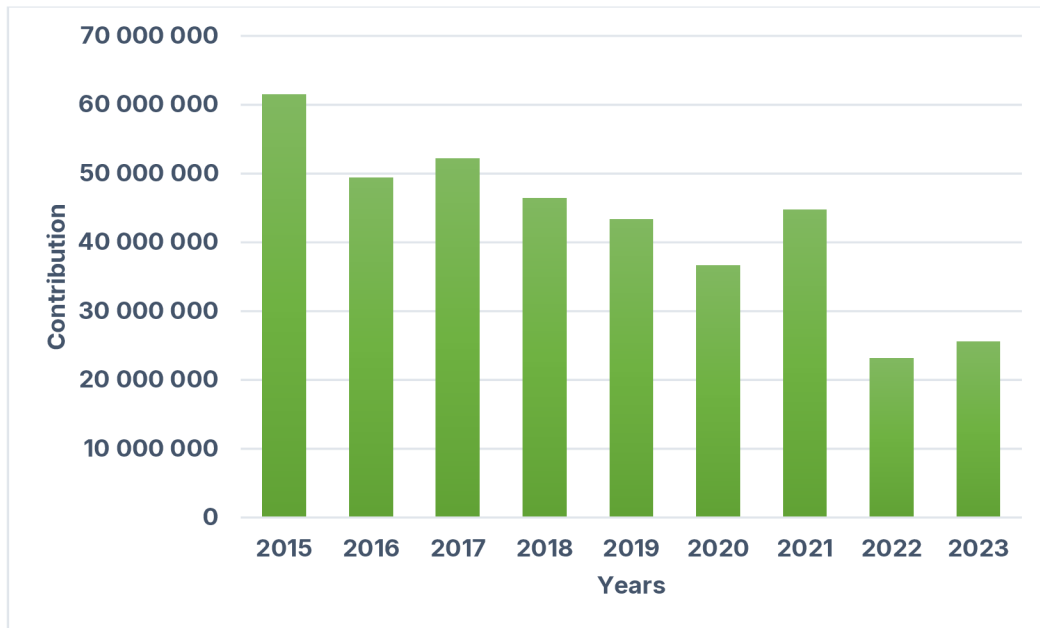
a newly constructed hospital or bridge by Holcim, estimations are derived by scientific methodologies, including social research and expert interviews.



*Figure 32 Number of Beneficiaries 2015 – 2023 (number of people)*

Source: Own processing according to Holcim reports (2024)

The initial objective was to achieve a total of 75 million beneficiaries by the year 2030. Between 2015 and 2023, the total number of beneficiaries amounted to 44.3 million. This indicates that the 2023 plan has achieved 59% of the strategic objective. The 2015 sustainability report outlined two specific objectives: to achieve a target of 25 million beneficiaries by 2015 and to reach 50 million beneficiaries by 2025. The 2020 aim was successfully achieved, surpassing the planned target by 41.2 percentage points. The current objective for 2025 has been achieved at a rate of 88.6%. Despite a decline in the initial aim of 75 million beneficiaries since 2021, it is expected that the target will still be achieved.



*Figure 33 Contribution to Social Initiatives 2015 – 2023 (in EUR)*

Source: Own processing according to Holcim reports (2024)

The metric that was implemented in 2021, along with the revised 2030 people strategy, resulted in a modification to the original strategic plan that was introduced in 2015. In 2021, the corporation made a commitment to make a total contribution of 500 CHF (514.55 EUR) towards social activities by the year 2030. The KPI for generating positive social impact is computed for the period from 2021 to 2030. The computation for 2021 incorporates the total expenditure on Holcim's social initiatives, which encompass the implementation of projects, donations, and contributions from third parties. Therefore, in order to monitor the historical progression of the objective, the new total CSR expenditure metric was employed, spanning the years 2015 to 2021. In 2023, the total sum of donations to social initiatives amounted to 382.83 million EUR, representing 74.4% of the planned amount. As to the 2023 sustainability report, the objective is to achieve a value of 350 CHF (360.19 EUR) by 2030, using 2021 as the reference year. The plan has been reached for 26%.

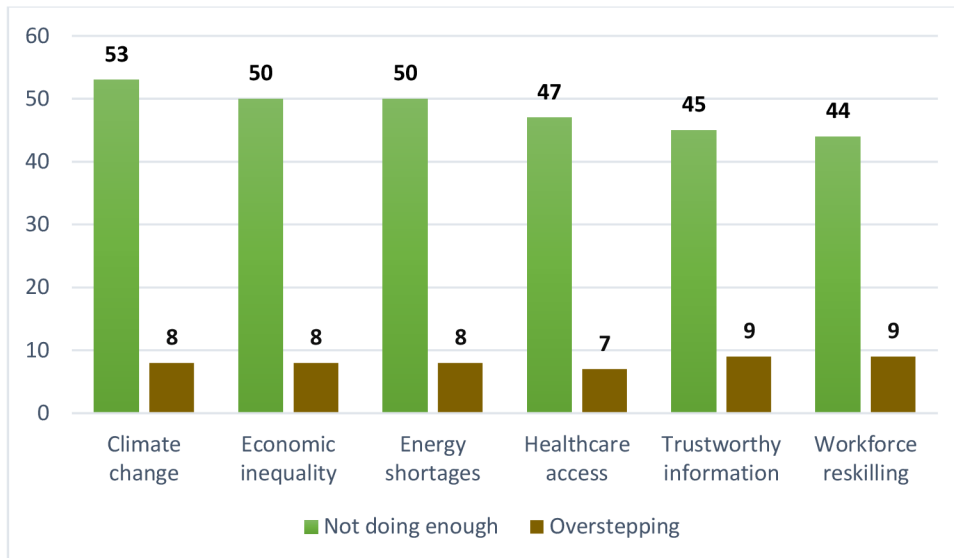
## **6 Implementation Framework**

This chapter will discuss the significance and limitations of implementing Corporate Social Responsibility and circular economy principles, drawing upon the findings from various research. In addition, it will present the overarching guidelines for the use of circular concepts within the framework of corporate social responsibility (CSR). The findings will be related to the methodology employed by the multinational corporation Holcim and its applicability across enterprises of varying sizes. The final structure has the potential to be adaptable to enterprises of varying sizes.

### **6.1 Importance of CSR and Circular Principles**

The study conducted by Rochayatun et al. (2023) revealed a direct correlation between corporate social responsibility (CSR) initiatives and the competitiveness of small and medium-sized enterprises (SMEs), underscoring the significance of CSR programmes in ensuring the long-term viability of SMEs. Niehm et al. (2008) underscore the significance of socially responsible behaviour in family businesses, emphasising the distinctive view of corporate social responsibility (CSR) that may be observed in family-centred enterprises due to their strong community ties. One of the findings from the study was that size appears to be a significant factor in the provision and reception of support from CSR programmes. There seems to be a size barrier at which family firms can provide support and receive reciprocal benefits that have an impact on their financial performance. This finding implies that as family-owned businesses expand in terms of size, resources, and commercial competencies, there is an increased likelihood of them providing support, receiving support in return, and achieving financial success.

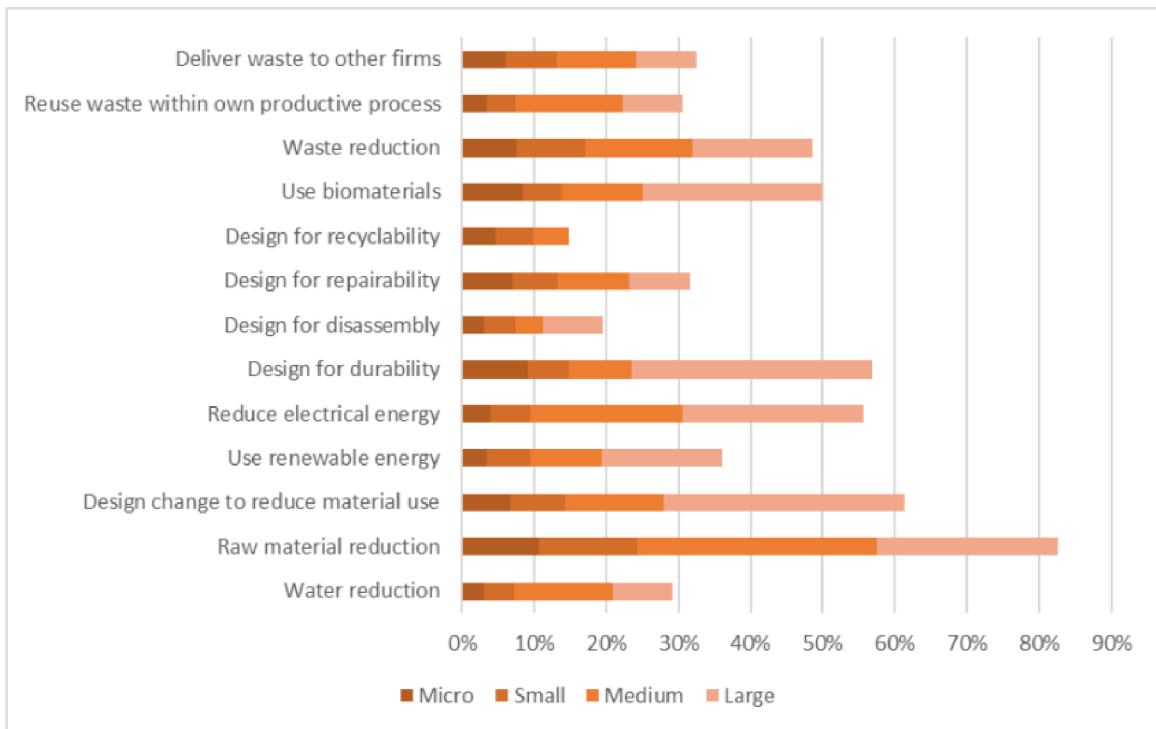
Consumers' attitudes and behaviours towards corporations are substantially influenced by Corporate Social Responsibility. Öberseder et al. (2013) showed that customers have a more favourable perception of corporations when they have a sense of connection with the company's corporate social responsibility (CSR) efforts. This highlights the significant influence of consumer-company identification on how consumers perceive CSR.



*Figure 34 Consumer Attitudes Towards Corporate Social Responsibility (in %)*  
 Source: Own processing according to (Lupis, 2023)

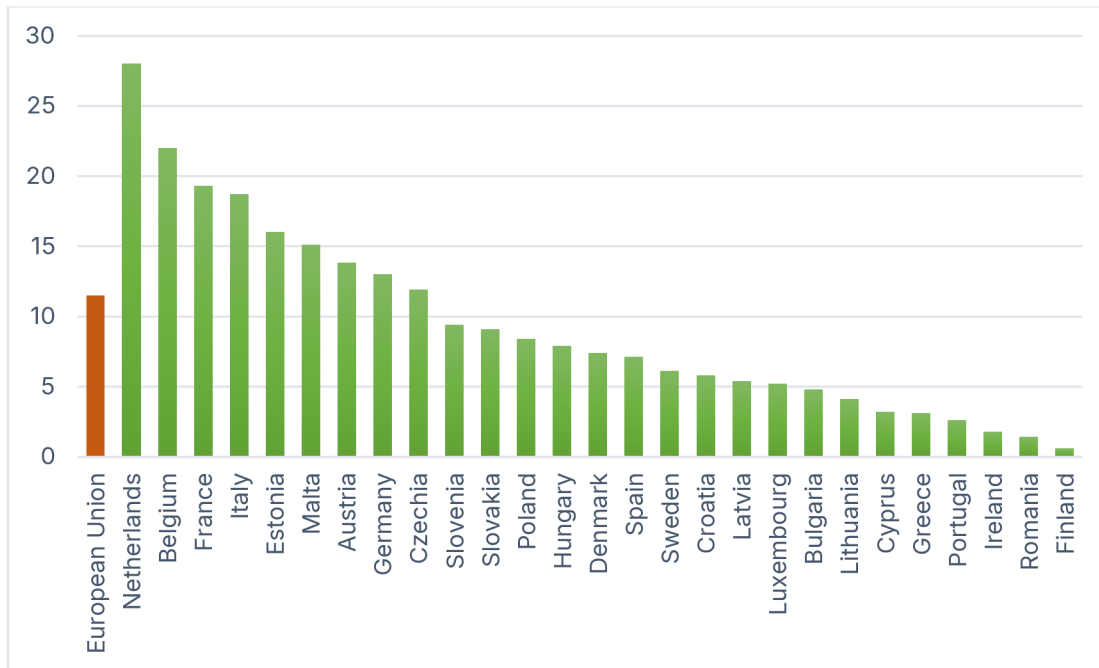
In November 2022, a worldwide study revealed that 53% of participants expressed dissatisfaction with the level of efforts made by multinational enterprises to address climate change in 2022. Simultaneously, a majority of 50% of participants expressed the view that corporations had not adequately addressed the issues of economic inequality and energy constraints. On the other hand, only 9% of customers worldwide expressed that businesses are beyond their boundaries when it comes to providing reliable information. (Lupis, 2023)

The implementation of circular economy strategies is a topic of interest for all types of organisations, including small and medium-sized enterprises (SMEs) as well as huge multinational corporations, as indicated by a study conducted by Velenturf et al. (2019). The study undertaken by Antonioli et al. (2022) surveyed 4,565 companies of varying sizes from different industries in Italy regarding their circular innovations. The findings indicate that approximately 43% of the national-level companies adhere to at least one circular principle. According to Figure 34, the primary circular principle or innovation among companies is associated with the utilisation of raw materials (13%), the reduction of waste generated per unit of output produced (9%), and adjustments in product design (8%).



*Figure 35 Distribution of the Different Types of Circular Principles by Company Size*  
 Source: (Antonioli et al., 2022)

In the European Union, the circular economy is measured by the circularity ratio. The metric quantifies the proportion of material that is recycled and returned to the economy, hence reducing the need to extract primary raw materials in relation to the total material consumption. The circular material use, sometimes referred to as the circularity rate, is the proportion of materials that are used in a circular manner compared to the total amount of materials used (Eurostat, 2023). The circularity ratio can be seen in Figure 36.



*Figure 36 Circular material ratio in EU 2022 (in %)*

Source: Own processing according to INTRASTAT (2023)

In the year 2022, the Netherlands had the greatest circularity rate at 27.5%, with Belgium and France following closely behind at 22.2% and 19.3%. Finland, Romania, and Ireland exhibited the lowest recorded rates, with values of 0.6%, 1.4%, and 1.8%. The variations in the circularity rate among European Union (EU) member states can be attributed to both the level of recycling practices within each country and the underlying structural variables present in their respective national economies. (Eurostat, 2023)

## 6.2 Constraints

The company may face many obstacles while applying CSR and circular principles to its business model. Some of those constraints were described previously in the diploma thesis.

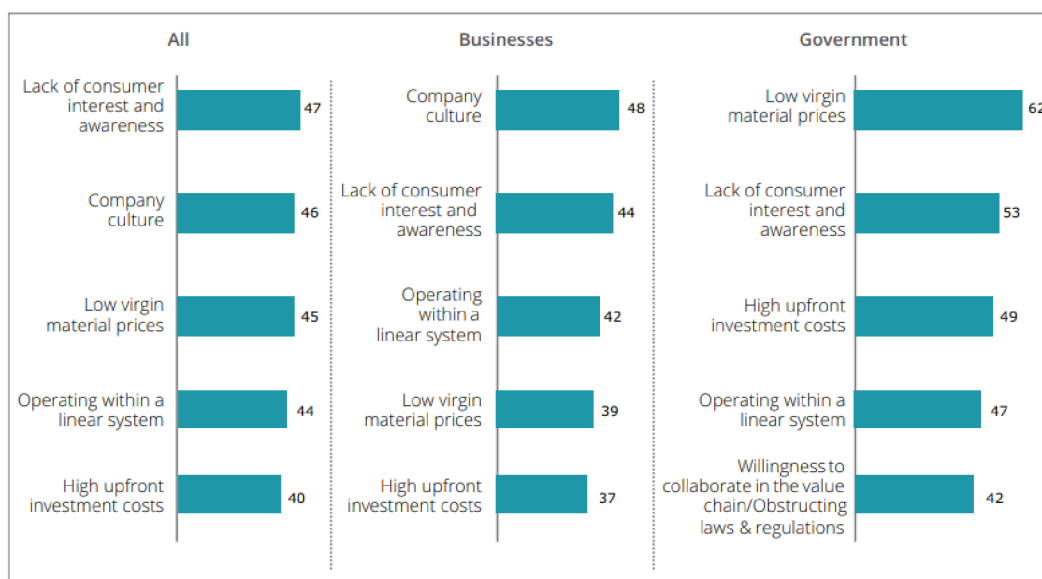
Hina et al. (2022) divided the barriers and drivers into internal and external from the business point of view. From the literature, in general, the main constraints can be divided into economic, cultural (psychological) and technological. A short overview with some specific examples can be seen in Figure 37.

	Internal	External
Economic	<ul style="list-style-type: none"> <li>• Financial barriers</li> <li>• Product design</li> <li>• Weak marketing</li> </ul>	<ul style="list-style-type: none"> <li>• Legislative and political barriers</li> <li>• Consumers related barriers</li> </ul>
Cultural	<ul style="list-style-type: none"> <li>• Corporate culture barriers</li> <li>• Only profit-focused owners</li> <li>• Company policy</li> </ul>	<ul style="list-style-type: none"> <li>• Lack of interest from consumers</li> <li>• Lack of awareness</li> </ul>
Technological	<ul style="list-style-type: none"> <li>• Lack of circular technologies</li> <li>• Lack of data</li> </ul>	<ul style="list-style-type: none"> <li>• Lack of scientific framework</li> <li>• Lack of qualified employees</li> </ul>

**Figure 37 Barriers to Implementing CSR and Circular Principles**

Source: Own processing according to (Alizadeh, 2022; Kirchherr et al., 2018; Uvarova et al., 2020; Ritzén and Sandström, 2017; Hina et al., 2022)

According to the research by Kirchherr et al. (2018), in which 153 businesses, 55 government officials, and 47 experts were asked about the barriers to a circular economy, the main two barriers emerged. Firstly, the cultural barrier of lacking consumer interest and awareness as well as a hesitant company culture. Secondly, market barriers emerged as one of the core categories.



**Figure 38 Barriers to the Circular Economy from a Stakeholder Perspective**

Source: (Kirchherr et al., 2018)

From the survey, 47% of all interviewees called out the lack of consumer interest as a main barrier. Interviewees agreed that consumer demand has the potential to significantly accelerate the adoption of CE. However, one respondent pointed out that there is now a scarcity of such demand. The company culture is mainly connected with the corporate policy and lack of interest from other companies' departments. Circular economy discussions are often limited only to CSR/environmental departments, with more significant departments like operations or finance showing less interest. This result may be connected with the low virgin material prices, as it was the third most common barrier (Kirchherr et al., 2018). According to Raz and Souza (2018), if the unit cost of the virgin material increases, a producer may reduce recycling efforts, particularly when recycling rates are high. In the survey, one of the interviewees stated that "*fossil-fuel-based plastics are much less expensive than our bio-based plastics.*" (Kirchherr et al., 2018, p. 7).

### **6.3 Prerequisites**

There are several essential criteria for the implementation of Corporate Social Responsibility and circular principles within a corporation. The successful implementation of corporate social responsibility programmes is, according to Roza (2014), heavily influenced by internal dynamics within the organisation. Companies typically face different problems related to budgeting and maximising profits. Therefore, it is expected that activities related to corporate social responsibility will be conducted within specific limitations and scopes in accordance with the objectives and business philosophies of the organisations in every pillar of CSR (Arato et al., 2016).

From the literature, before the company applies the corporate social responsibility initiatives, which also incorporate the circular principles, it should rethink its business activities and consider the following prerequisites:



## **Economic**

According to Shiri and Jafari-Sadeghi (2023), the profitability and productivity factor is the main aspect of corporate social responsibility, as it is essential for a company's survival in the market and its contribution to society. In this situation, firms have a responsibility to not only satisfy the economic requirements of society and offer the necessary goods and services but also to generate benefits for various groups of individuals through their work processes (Simon et al., 2022).

## **Philosophy**

The incorporation of Corporate Social Responsibility (CSR) within a company is significantly influenced by the organisation's philosophy. The management strategy and decision-making processes of an organisation can be influenced by its underlying philosophy (Vitolla et al., 2016). According to Yolanda et al. (2018), Organisations that incorporate corporate social responsibility into their strategic framework are inclined to prioritise community reciprocity and sustainability in their decision-making processes.

## **Social demand**

The integration of Corporate Social Responsibility policies within companies is influenced by social demand. The growing need for sustainable management practices requires that companies participate in corporate social responsibility initiatives in order to align with public expectations (Yoo, 2023). The social demand from different stakeholders forces managers to increase their commitment to CSR. The social demand for sustainability is also connected with the economic prerequisite (McWilliams and Siegel, 2001).

### 6.4 Conceptual Model Design

The framework design is based on the strategic management method called DMAIC. The DMAIC approach, an acronym for Define, Measure, Analyse, Improve, and Control, is a widely employed strategy for problem-solving and process enhancement within the framework of Six Sigma. (GLSS, 2024)

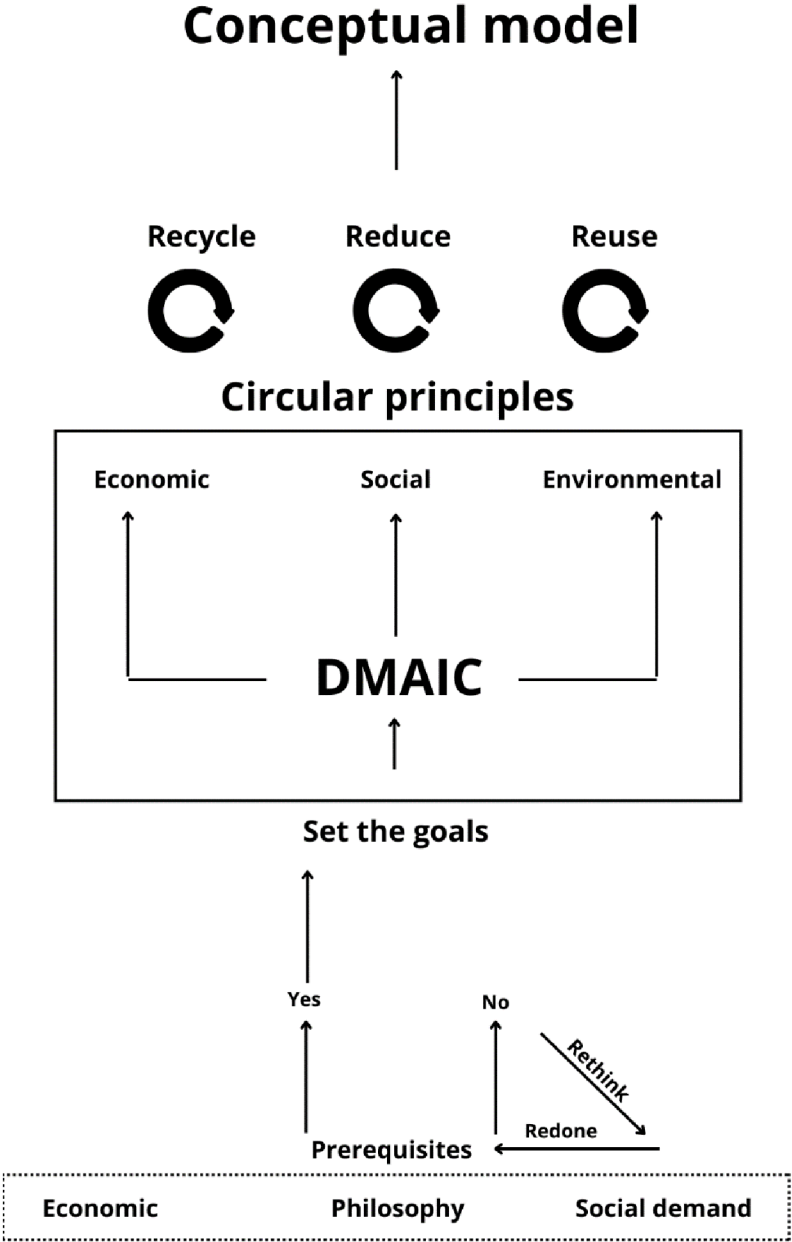


Figure 39 Conceptual Model of CSR  
Source: Own processing

The conceptual model requires the fulfilment of three primary prerequisites. If those requirements are not met, it is advisable for the company to reconsider its business model and assess the appropriateness of integrating corporate social responsibility programmes into its strategic plan. Following that, the organisation ought to establish its CSR objectives. The goals can be defined using the SMART rule, as explained in the Holcim example.

The DMAIC technique can be employed to assess and improve the progress of the goals established for each component of the CSR. It can function as a control mechanism within the firm. The company should also provide internal updates on the progress of completing goals. The extent of reporting may differ based on the company's size and the industry in which it operates. The company's objectives should align with the main circular principles of 3R (Recycle, Reduce, and Reuse), which are applicable to all three primary CRS parts.

Companies can implement various types of policies and international sustainable standards, as seen by the Holcim company. These policies may have the potential to improve the control system and establish a foundation for monitoring and supporting the corporate social responsibility initiative in the eyes of stakeholders.

Throughout the conceptual model, one of the most important aspects is communication. Communication should be performed in all parts of the company. Internal communication, such as communication with management or with employees, may play a big role in building strong relationships and dedication to sustainable initiatives performed by the company. Depending on the size and available workforce, a clear hierarchy of responsibilities should be established. A RACI matrix may be a suitable tool to use. The RACI matrix is a project management tool which defines the responsibilities and roles of individuals or groups in order to successfully complete the defined goals. The RACI is an acronym that represents the several forms of responsibilities: Responsible, Accountable, Consulted, and Informed (Good, 2023). External communication can be done via social media or the company website and may be used as a competitive advantage.

## Discussion

This thesis contributes to the understanding of the significance and obstacles associated with the implementation of corporate social responsibility (CSR) and circular principles in organisations of various sizes. In addition, it introduces a conceptual model based on findings from an analysis of a big international company. Even though, for the analysis, the international construction company Holcim was used, the approaches and management decisions of the international company can be modified and used in different-sized companies.

Corporate social responsibility and circular principles are, in the modern world, undoubtedly part of managing business and have also gained strategic importance (Homburg et al., 2013). Sustainable initiatives can be performed in companies of various sizes across the business sector in which they operate. The study introduces three main areas of Corporate social responsibility and circular principles, which are, in the modern world, undoubtedly part of managing business and have also gained a strategic advantage. Roza (2014) and Arato et al. (2016) stated that incorporating sustainable initiatives is heavily influenced by internal dynamics within the organisation. This aligns with the findings in the thesis. Critics frequently express concerns regarding the connection between Corporate Social Responsibility (CSR) initiatives and the fundamental goal of enterprises, which is maximising profits (Carroll and Shabana, 2010). A Nobel winner, Milton Friedman (2007), argues that the primary responsibility of businesses is to generate profits for their owners or shareholders. Any actions taken by businesses that deviate from this objective are essentially forms of socialism. Another issue is the term Greenwashing. According to Gatti et al. (2019), there is a contention among critics that the voluntary nature of corporate social responsibility (CSR) policies can potentially enable greenwashing, whereby businesses may employ superficial sustainability initiatives to cover up their actual environmental footprint. This problem not only confuses consumers but also hinders the effectiveness of authentic corporate social responsibility. Furthermore, the absence of uniform reporting on corporate social responsibility performance can add to the widespread occurrence of greenwashing methods (Okbagaber, 2023).

## **Limitations**

There are several constraints that must be considered. The primary constraint is in the sample size and the methodology employed to assess the significance of corporate social responsibility and circular principles in organisations during the development of the conceptual model. Due to the limitations of the research period and the selected organisation, it was not feasible to conduct interviews with diverse small and medium-sized enterprises (SMEs) from various business sectors in order to gain a comprehensive understanding of the current situation. Furthermore, there was an absence of communication with one of the managers from the Holcim company, which stopped throughout writing the practical part of the thesis. Hence, the assessment of the CSR and CE effort mostly relies on corporate reports, which serve as a comprehensive source of information regarding the subject of the study.

## **Recommendations to further research**

Businesses of different scales are increasingly interested in Corporate Social Responsibility (CSR) and circular economy principles. However, there is still much unexplored in terms of their application and the obstacles they encounter. Therefore, it is advisable to do additional studies to assess the effectiveness of implementing CSR and circular concepts in organisations of varying sizes, as well as to comprehend their willingness to do so. In addition, research about the importance of the three prerequisites introduced in the study should be conducted.

## Conclusion

The primary objective of this diploma thesis was to investigate the importance and challenges associated with integrating circular principles as a part of corporate social responsibility (CSR) within the economic, social, and environmental domains and deliver a design of conceptual model of implementing those principles. Holcim Group, a multinational construction conglomerate, was chosen for its active implementation of circular principles across its operations. The study employed a mixed-methods research strategy, utilising qualitative, theoretical, and empirical approaches, including an inductive reasoning method for creating a conceptual framework for CSR integration, which is the main output of the study. Data were collected from Holcim's CSR and sustainability reports from 2015 to 2023, providing insights into the company's CSR policies, circular principles implementation, and associated benefits and challenges. The analysis focused on key areas such as Climate and Energy, Circular Economy, Environment, and Community. The SMART tool was used to evaluate the company goals. Key performance indicators which were used in the analysis included CO<sub>2</sub> emissions per tonne of cementitious material for Climate and Energy, the volume of waste recycled for Circular Economy, freshwater withdrawal per tonne of cementitious material for the Environment, and community engagement metrics measured by the number of beneficiaries and contributions to social initiatives.

In the economic area, Holcim demonstrates a commitment to fostering sustainable economic development and societal well-being. Despite encountering occasional financial setbacks, such as losses in 2015 and 2017, the company maintains a robust economic foundation, enabling investments in various areas of corporate social responsibility. Holcim's sustainability reports provide transparent disclosures of its CSR expenditures, including overhead, social investment initiatives, donations, and inclusive business projects. Additionally, the company upholds high sustainability standards in its supply chain, ensuring compliance with environmental, social, and regulatory requirements, which must be applied by its suppliers.

In the social area, Holcim places significant emphasis on the impact of its operations on communities and employees. Upholding human and labour rights is a core focus, as evidenced by detailed policies and procedures aligned with international

standards. The company's approach to human rights systematically identifies, prevents, and addresses potential risks and effects on individuals caused by its operations. Despite challenges, such as the Lafarge Syria incident, Holcim demonstrates accountability by conducting thorough investigations, making findings public, and taking appropriate actions, including terminating the employment of implicated executives. Furthermore, Holcim is actively engaged in various social projects aimed at improving the lives of people in regions where it operates.

Holcim's dedication to environmental stewardship is evident through its robust policies, initiatives, and practical projects aimed at mitigating climate change, preserving natural resources, and promoting sustainable practices. By setting ambitious targets, implementing rigorous monitoring mechanisms, and engaging in collaborative efforts, Holcim strives to make a positive impact on the environment and contribute to a more sustainable future. Through its commitment to environmental responsibility, Holcim demonstrates its role as a leader in corporate sustainability and sets a precedent for responsible business practices in the construction industry and beyond.

Holcim's "2030 Plan" represents a comprehensive and ambitious sustainability initiative aimed at decarbonising the construction sector and embracing the circular economy. Through strategic focus areas encompassing Climate, Circular Economy, Water and Nature, and People and Communities, the company sets forth clear objectives and targets aligned with international standards and scientific frameworks.

The SMART rule evaluation indicates that Holcim's strategic goals are well-defined, measurable, achievable, relevant, and time-bound. The only issue is the changing methodology, which is not properly explained in the reports and can lead to a biased interpretation of data. The company demonstrates a robust governance structure, with clear responsibility delegated to the Board of Directors, Health, Safety and Sustainability Committee, and Executive Committee. Annual monitoring and reporting mechanisms ensure accountability and facilitate continuous improvement towards the set objectives.

In terms of Climate and Energy, Holcim has made significant progress in reducing carbon emissions through technological advancements and initiatives such as ECOCycle and Carbon Capture, Utilization, and Storage (CCUS). The company's commitment to achieving a net-zero future is evident, with a clear roadmap and measurable targets in place.

In the Circular Economy domain, Holcim aims to increase waste reuse and recycling despite facing challenges such as fluctuations in manufacturing activity. The incorporation of circularity and recycling ratios provides a more holistic understanding of the company's progress towards achieving its waste management goals.

Regarding Environmental sustainability, Holcim strives to decrease freshwater withdrawal and minimise its environmental footprint. Despite adjustments in measurement methodologies, the company maintains a consistent focus on reducing its impact on natural resources and ecosystems.

Lastly, in Community engagement, Holcim demonstrates a commitment to making a positive social impact through initiatives that benefit millions of individuals worldwide. While progress towards the total beneficiary target has been substantial, ongoing efforts are needed to achieve the target by 2030.

Implementing Corporate Social Responsibility and circular economy principles is essential for businesses of all sizes to ensure long-term viability, competitiveness, and positive societal impact. The research underscores the significant influence of CSR initiatives on consumer attitudes and behaviours, highlighting the importance of aligning business practices with social and environmental values. Successful CSR implementation requires companies to consider prerequisites such as economic viability, organisational philosophy, and societal demand. A conceptual model based on the DMAIC approach provides a systematic framework for defining goals, measuring progress, analysing outcomes, improving processes, and maintaining control. Communication is pivotal in CSR implementation, both internally and externally. Establishing clear roles and responsibilities within the organisation, along with effective communication channels, fosters strong relationships and commitment to sustainable initiatives. External communication via social media and



company websites can enhance transparency and accountability, serving as a competitive advantage in today's market. RACI matrix can be used as a tool to distinguish responsibilities throughout the implementation processes.

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# Appendix A Integrated Annual Report




Source: Holcim (2023)

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### LEADING IN ESG DISCLOSURES & TRANSPARENCY

- Art. 964b Swiss Code of Obligations read on page 434
- EU Taxonomy read on page 266
- TCFD read on page 238
- TNFD read on page 238

### CLIMATE HIGHLIGHTS 2023

20%	5M
Reduction in CO <sub>2</sub> /net sales <sup>1</sup>	Tons of CO <sub>2</sub> /annum captured by 2030
3%	8.4M
Reduction in CO <sub>2</sub> net/ton of cementitious material <sup>2</sup>	Tons of CDM recycled
6	+24%
CCUS projects in execution	Recycling of CDM <sup>2</sup>

Source: Holcim (2023)

# Appendix C GRI Index

GRI INDEX		
GRI Standard/ Other Source	Disclosure	Report Location / Website / Omissions / Explanations
<b>Employment</b>		
	3-3 Management of material topics	AR: pages 132–137 AR: page 410 <a href="http://holcim.com/group-human-resources-policy">holcim.com/group-human-resources-policy</a> <a href="http://holcim.com/code-of-business-conduct">holcim.com/code-of-business-conduct</a>
<b>GRI 3: Material Topics 2021</b>		
<b>GRI 401: Employment 2016</b>	401-1 New employee hires and employee turnover	AR: page 410 and annex to this document
	401-2 Benefits provided to full-time employees that are not provided to temporary or part-time employees	Omission: Information unavailable. We will collect data and report on this disclosure in the medium term.
	401-3 Parental leave	Omission: Information unavailable. We will collect data and report on this disclosure in the medium term.
<b>Labor/Management Relations</b>		
	3-3 Management of material topics	<a href="http://holcim.com/group-human-resources-policy">holcim.com/group-human-resources-policy</a> <a href="http://holcim.com/code-of-business-conduct">holcim.com/code-of-business-conduct</a>
<b>GRI 3: Material Topics 2021</b>		
<b>GRI 402: Labor/Management Relations 2016</b>	402-1 Minimum notice periods regarding operational changes	Omission: Information unavailable. Not collated globally. However, all operations are required to adhere to local law and agreements as well as Holcim internal standards and policies.
<b>Occupational Health and Safety</b>		
	3-3 Management of material topics	AR: page 138 AR: page 410 <a href="http://holcim.com/health-safety">holcim.com/health-safety</a>
<b>GRI 3: Material Topics 2021</b>		
<b>GRI 403: Occupational Health and Safety 2018</b>	403-1 Occupational health and safety management system	AR: page 138 AR: page 410 <a href="http://holcim.com/hse-mangement-standard">holcim.com/hse-mangement-standard</a>
	403-2 Hazard identification, risk assessment, and incident investigation	AR: page 138 <a href="http://holcim.com/hse-mangement-standard">holcim.com/hse-mangement-standard</a>
	403-3 Occupational health services	AR: page 138 <a href="http://holcim.com/hse-mangement-standard">holcim.com/hse-mangement-standard</a> (section 3.3.5.6)
	403-4 Worker participation, consultation, and communication on occupational health and safety	AR: page 138 AR: page 410 <a href="http://holcim.com/hse-mangement-standard">holcim.com/hse-mangement-standard</a>
	403-5 Worker training on occupational health and safety	In 2023, Group companies reported 604,537 hours of training on Health and Safety for direct employees. <a href="http://holcim.com/hse-mangement-standard">holcim.com/hse-mangement-standard</a>
	403-6 Promotion of worker health	AR: page 138 <a href="http://holcim.com/hse-mangement-standard">holcim.com/hse-mangement-standard</a>
	403-7 Prevention and mitigation of occupational health and safety impacts directly linked by business relationships	H&S is an integral part of our Sustainable Procurement program: <a href="http://holcim.com/sustainable-procurement">holcim.com/sustainable-procurement</a>
	403-8 Workers covered by an occupational health and safety management system	AR: page 410
	403-9 Work-related injuries	AR: page 138 AR: page 410
	403-10 Work-related ill health	AR: page 410 (OIFR)

Source: Holcim (2024)

# Appendix D SASB Index

SASB INDEX		
SASB reference	Description	Page, comment, performance
<b>Greenhouse Gas Emissions</b>		
<b>EM-CM-110a.1</b>	Gross global Scope 1 emissions, percentage covered under emissions-limiting regulations	We report this in our annual disclosure to the CDP. We post our annual CDP disclosures on our website. In our 2023 submission (reflecting 2022 data) we list all carbon pricing regulations which impact our operations and the percentage of Scope 1 and Scope 2 emissions covered by the regulations. See sections C11.a and C11.b <a href="https://www.holcim.com/cdp">holcim.com/cdp</a>
<b>EM-CM-110a.2</b>	Discussion of long-term and short-term strategy or plan to manage Scope 1 emissions, emissions reduction targets, and an analysis of performance against those targets	AR: pages 70–73 AR: page 403 <a href="https://www.holcim.com/climate-action">holcim.com/climate-action</a>
<b>Air Quality</b>		
<b>EM-CM-120a.1</b>	Air emissions of the following pollutants: <ul style="list-style-type: none"> <li>• NO<sub>x</sub> (excluding N<sub>2</sub>O)</li> <li>• SO<sub>x</sub></li> <li>• Particulate matter (Dust-PM<sub>10</sub>)</li> <li>• Dioxins/furans</li> <li>• Volatile Organic Compounds (VOCs)</li> <li>• Polycyclic aromatic hydrocarbons (PAHs)</li> <li>• Heavy metals</li> </ul>	AR: page 408 We report annually on all emissions with the exception of polycyclic aromatic hydrocarbons (PAHs) in our Sustainability Performance Report. We report not only absolute emissions of these substances but also specific emissions by both clinker and cementitious material.  The only PAH we consider material and measure is benzene, and this is measured as required by the Global Cement and Concrete Association. Our measurements of benzene emissions in 2023 were: Total benzene emissions (tons): 215 Specific benzene emissions: • Grams/ton clinker: 2.4
<b>Energy Management</b>		
<b>EM-CM-130a.1</b>	Total energy consumed	AR: page 404
<b>EM-CM-130a.1</b>	Percentage grid electricity	85 percent of 2023 electricity consumption was from the grid.
<b>EM-CM-130a.1</b>	Percentage alternative energy	AR: page 404 • Thermal energy percentage of alternative fuels (excluding biomass): 17 • Thermal energy percentage biomass: 10 • Total thermal substitution rate (cement plants only): 30 percent
<b>EM-CM-130a.1</b>	Percentage renewable	AR: page 404
<b>Water Management</b>		
<b>EM-CM-140a.1</b>	Total water withdrawn	AR page 406 We report water withdrawn from a number of sources for all segments and for captive power plants separately.
<b>EM-CM-140a.1</b>	Total water consumed	AR page 406 We report total water consumed for all segments and for captive power plants separately.
<b>EM-CM-140a.1</b>	Percentage in regions with High or Extremely High Baseline Water Stress	AR page 406 We measure and report on the number of sites located in Medium-High to Extremely High water risk areas according to the WRI Aqueduct tool. The concept of water risk includes not only water stress but also water quality, regulatory and reputational risks. In 2023, 28 percent of our sites (cement, aggregates and ready mix) were located in such areas.

Source: Holcim (2024)

# Appendix E TCFD Content Index

## TASK FORCE ON NATURE-RELATED FINANCIAL DISCLOSURES (TNFD) ALIGNMENT

<b>GOVERNANCE</b>	<p><b>Board oversight</b></p> <ul style="list-style-type: none"> <li>Refer to "Holcim governance approach Climate and Nature-related risks and opportunities", page 167, "Information and control instruments of the Board of Directors," page 169, "Long Term Incentives", page 201, and "Risk and Control" &gt; Roles and responsibilities, page 221</li> </ul>	<p><b>Management's role</b></p> <ul style="list-style-type: none"> <li>Refer to "Risk and Control" &gt; "Roles and Responsibilities," page 221</li> </ul> <p><b>Organization's engagement with local stakeholders</b></p> <ul style="list-style-type: none"> <li>Refer to "Human Rights", page 140</li> </ul>
<b>STRATEGY</b>	<p><b>Identification of nature-related dependencies, impacts, risks and opportunities over the short, medium and long term</b></p> <ul style="list-style-type: none"> <li>Refer to "Material Priorities", pages 222–223, "Climate and Nature Risks &amp; Opportunities", pages 236–251</li> </ul> <p><b>Effects nature-related dependencies, impacts, risks and opportunities have on the organization</b></p> <ul style="list-style-type: none"> <li>Refer to "Our Approach", pages 60–61, "Climate and Nature Risks &amp; Opportunities", pages 236–251</li> </ul>	<p><b>Resilience taking into account different scenarios</b></p> <ul style="list-style-type: none"> <li>Refer to "Climate and Nature Risks &amp; Opportunities", pages 236–251, "Scenario Analysis", pages 252–255</li> </ul> <p><b>Location of assets and activities on direct operations, upstream and downstream that are in priority locations</b></p> <ul style="list-style-type: none"> <li>Refer to our Sustainability Performance Data Tables on pages 406–407</li> </ul>
<b>RISK AND IMPACT MANAGEMENT</b>	<p><b>Identification and prioritization of impacts, dependencies, risks &amp; opportunities in direct operations</b></p> <ul style="list-style-type: none"> <li>Refer to "Our Approach", pages 60–61, "Material Priorities", pages 222–223, "Climate and Nature Risks &amp; Opportunities", pages 236–251</li> </ul> <p><b>Identification and prioritization of impacts, dependencies, risks &amp; opportunities in upstream and downstream value chain</b></p> <ul style="list-style-type: none"> <li>Refer to "Climate and Nature Risks &amp; Opportunities", pages 236–251, "Measuring Our Value", page 264</li> </ul>	<p><b>Managing impacts, dependencies, risks &amp; opportunities</b></p> <ul style="list-style-type: none"> <li>Refer to "Climate and Nature Risks &amp; Opportunities" section, pages 236–251</li> </ul> <p><b>Integration with overall risk management processes</b></p> <ul style="list-style-type: none"> <li>Refer to "Risk and Control" section, pages 220–255, "Information and control instruments of the Board of Directors," page 169, "Measuring Our Value", page 264</li> </ul>
<b>METRICS AND TARGETS</b>	<p><b>Metrics to manage risks and opportunities</b></p> <ul style="list-style-type: none"> <li>Refer to "Climate and Nature Risks &amp; Opportunities", pages 236–251, Sustainability Performance Data Tables on pages 403–411</li> </ul> <p><b>Metrics dependencies and impacts on nature</b></p> <ul style="list-style-type: none"> <li>Refer to "Our Approach", pages 60–61, Sustainability Performance Data Tables on pages 403–411</li> </ul>	<p><b>Targets and goals</b></p> <ul style="list-style-type: none"> <li>Refer to the "Our Approach", pages 60–61, Sustainability Performance Data Tables on page 403</li> </ul>

## TASK FORCE ON CLIMATE-RELATED FINANCIAL DISCLOSURES (TCFD) ALIGNMENT

<b>GOVERNANCE</b>	<p><b>Board oversight</b></p> <ul style="list-style-type: none"> <li>Refer to "Holcim governance approach for climate and nature-related risks and opportunities", page 167, "Information and control instruments of the Board of Directors," page 169, and "Risk and Control" section &gt; Roles and responsibilities, page 221</li> </ul>	<p><b>Management's role</b></p> <ul style="list-style-type: none"> <li>Refer to "Risk and Control" section &gt; "Roles and Responsibilities," page 221</li> </ul>	
<b>STRATEGY</b>	<p><b>Risks and opportunities over the short, medium and long term</b></p> <ul style="list-style-type: none"> <li>Refer to "Climate and Nature Risks &amp; Opportunity" section pages 236–251</li> </ul>	<p><b>Impact on the organization's business, strategy and financial planning</b></p> <ul style="list-style-type: none"> <li>Refer to "Risk and Control" section, pages 220–255 and "Climate and Nature Risks &amp; Opportunity" section pages 236–251</li> </ul>	<p><b>Scenario planning</b></p> <ul style="list-style-type: none"> <li>Refer to our Climate and Nature Risk &amp; Opportunity section &gt; Scenario planning, pages 252–255</li> </ul>
<b>RISK MANAGEMENT</b>	<p><b>Climate change-related risks identification and assessment</b></p> <ul style="list-style-type: none"> <li>Refer to "Risk and Control" section, pages 220–255 and "Climate and Nature Risks &amp; Opportunity" section pages 236–251</li> </ul>	<p><b>Climate change-related risks management</b></p> <ul style="list-style-type: none"> <li>Refer to "Risk and Control" section, pages 220–255 and "Climate and Nature Risks &amp; Opportunity" section pages 236–251</li> </ul>	<p><b>Integration into overall risk management</b></p> <ul style="list-style-type: none"> <li>Refer to "Risk and Control" section, pages 220–255 and "Information and control instruments of the Board of Directors," page 169</li> </ul>
<b>METRICS AND TARGETS</b>	<p><b>Reporting CO<sub>2</sub> metrics</b></p> <ul style="list-style-type: none"> <li>Refer to our Sustainability Performance Data Tables on pages 403–405</li> </ul>	<p><b>Details Scope 1, 2 and 3</b></p> <ul style="list-style-type: none"> <li>Refer to our Sustainability Performance Data Tables on page 405</li> </ul>	<p><b>CO<sub>2</sub> targets</b></p> <ul style="list-style-type: none"> <li>Refer to our Sustainability Performance Data Tables on page 403</li> </ul>

Source: Holcim (2024)



# Appendix F Strategic Plan 2030

AREA	TARGETS			2015 PERFORMANCE
	2020	2025	2030	
<b>The 2030 Plan</b>				
<b>INNOVATION</b>				
% turnover from 2030 Solutions – solutions with enhanced sustainability performance	10%	20%	33%	6% of revenues (estimated) Measurement methodology being developed
<b>CLIMATE</b>				
Reduction of CO <sub>2</sub> emissions per tonne of cement vs 1990	33% reduction	37% reduction	40% reduction	26% reduction
Avoidance of CO <sub>2</sub> emissions from buildings and infrastructure			10 million tonnes	Reporting methodology being developed
<b>CIRCULAR ECONOMY</b>				
Use of waste-derived resources	>60 million tonnes	>65 million tonnes	80 million tonnes	53.5 million tonnes
Supply of recycled aggregates from construction and demolition waste, and reclaimed asphalt pavement	>12 million tonnes	>18 million tonnes	26 million tonnes	6.5 million tonnes (estimated) Reporting methodology being developed
<b>WATER AND NATURE</b>				
Reduction of specific freshwater withdrawal in cement operations vs 2015	20% reduction	25% reduction	30% reduction	315 l/tonne cement
Implementation of WASH Pledge	Implemented at all sites			Assessments being carried out
Impact on water resources in water-scarce areas			Demonstrate a positive impact	Reporting methodology being developed
Impact on biodiversity			Demonstrate a positive change	Biodiversity indicators reporting methodology being rolled out
<b>PEOPLE AND COMMUNITIES</b>				
Fatalities	Zero onsite	Zero onsite	Zero onsite	15 onsite
		50% reduction offsite	Zero offsite	35 offsite
			Zero fatalities	50 fatalities
LTIFR* (employees and contractors onsite)	<0.5	<0.25	<0.2	1.02 per million hours worked
TIFR** - reduction vs 2015 (employees and contractors onsite)	30% reduction	40% reduction	50% reduction	3.17 per million hours worked
Occupational Disease Rate		<0.5	<0.1	Work in progress to establish robust reporting procedures
Gender diversity (minimum of each gender)	20% at each management level		30% at each management level	Top management: 13% Senior management: 16% Middle management: 19%
Beneficiaries from our affordable housing solutions, our inclusive business initiatives, and our social investments	25 million (cumulative)	50 million (cumulative)	75 million (cumulative)	6.6 million
Participation in collective action to combat bribery and corruption in high-risk countries	3 high-risk countries	10 high-risk countries	All high-risk countries	Work in progress
<b>Other sustainability targets</b>				
<b>AIR EMISSIONS</b>				
Reduction of average specific emissions of dust, NO <sub>x</sub> and SO <sub>2</sub> (g/tonne cement) vs 2015	15% reduction	20% reduction	30% reduction	Dust: 47 g/tonne NO <sub>x</sub> : 1,038 g/tonne SO <sub>2</sub> : 179 g/tonne
<b>STAKEHOLDER ENGAGEMENT</b>				
Community engagement plans in place at site level	Cement plants – 80% Aggregates and concrete – 40% at cluster level	Cement plants – 100% Aggregates and concrete – 60% at cluster level	Cement plants – 100% Aggregates and concrete – 60% at cluster level	Cement plants – 62% Aggregates and concrete – 31%

\* Lost Time Injury Frequency Rate.

\*\* Total Injury Frequency Rate.

Source: Holcim (2024)