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Sustainability Reporting in the Raw Materials Industry †

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Abstract: The aim of this paper is to study and compare the Global Reporting Initiative (GRI) standard widely used in the Sustainability Reporting of the Raw Material (RM) Industry with the recently emerged European Sustainability Reporting Standards (ESRS). The Non-Financial Reporting Directive (NFRD), 2014, that initially set the requirements for NFR to companies with more than 500 employees, will be replaced by 2024 with the new European Corporate Sustainability Reporting Directive (CSRD) 2023. As of 2024, large undertakings, as well as small and medium-sized undertakings that are public-interest entities, will be required to publish reports on their environmental and social impacts, replacing the NFRD. Within this framework, the present paper aims to review and compare the two standards, GRI and ESRS, given that due to the forthcoming Directive, a significantly higher number of companies, as compared to the entities subjected to NFRD, including large and SME companies of the RM sector, will have to prepare the procedures for the implementation of the new standards. Moreover, it has been reported that EFRAG-GRI organizations have started planning the new standard update. Taking into account the extensive use of the GRI indicators in sustainability reporting, the article highlights both their similarities and differences with the first set of 12 draft ESRS. From this study, it was mainly concluded that the two sustainability reporting standards present several similarities; thus, companies already using GRI are expected to seamlessly adapt to the new standard.

Keywords: GRI; ESRS; CSRD; NFRD; EFRAG; sustainability report; sustainability indicators; Raw Material Industry

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1. Introduction

Sustainability issues are becoming increasingly important to companies and their stakeholders worldwide, including in the Raw Material Industry. In the past decades, the number of companies publishing information in their annual reports regarding their sustainability performance has been rapidly growing.

Within this framework, in 2014, the European Union approved the Non-Financial Reporting Directive (NFRD), 2014/95/EU, which stated that large undertakings of public interest with more than 500 employees must publish a Non-Financial Report on their impact on the environment, society, labor issues, respect for human rights and anti-corruption and anti-bribery information [1].

Sustainable reporting requires the application of specific methodologies so that each company and/or organization can rely on guidelines according to its specific characteristics and needs. Over time, many international organizations have taken the initiative in developing methodologies for the assessment of sustainable development performance, with GRI becoming the world's most widely used and internationally accepted tool for corporate transparency [2].

The NFRD is currently being replaced by the Corporate Sustainability Reporting Directive (CSRD) introduced by the European Commission in November 2022, with the first implementation taking place in 2024.

CSRD, within its scope, requires companies to report using a double materiality perspective in compliance with European Sustainability Reporting Standards (ESRS). The European Financial Reporting Advisory Group (EFRAG) was appointed technical adviser to the European Commission developing these draft ESRS. The European Commission consulted EU bodies and Member States on the draft standards before adopting the final standards as delegated acts in June 2023. The first companies will have to apply the standards in financial year 2024 for reports published in 2025. Listed SMEs are obliged to report as of 2026, with a further possibility of voluntary opt-out until 2028, and will be able to report according to separate, proportionate standards that EFRAG will develop next year (2024) [3].

The purpose of this article is to compare the recently emerged ESRS with the widely used GRI standard, since, due to the CSRD, a significantly higher number of companies, including companies of the RM sector, will have to prepare the procedures for the implementation of the new standards.

2. Literature Review

This section presents a summary of the relevant literature on sustainability and the reporting of its assessment. In Section 2.1, the concept of sustainability and its three pillars is briefly reviewed, whereas in Sections 2.2 and 2.3, the main points of the Directives providing the framework of sustainability reporting in the EU are summarized. The GRI and ESRS used for sustainability reporting are also presented in Sections 2.2 and 2.3.

2.1. Sustainability

In 1987, the United Nations Brundtland Commission defined sustainability as "meeting the needs of the present without compromising the ability of future generations to meet their own needs." [4]. Within sustainability, the terms economic, social and environmental sustainability are interlinked, as presented below.

Economic sustainability can be defined as a production system that satisfies current consumption levels without compromising future needs. Based on the above, an economically viable business or country must use its resources efficiently and responsibly so that it can operate in a sustainable manner to generate an operating profit.

In parallel, social sustainability is the ability of society, or any social system, to achieve social well-being on an ongoing basis. Achieving social sustainability ensures that the social well-being of a country, an organization, or a community can be maintained over the long term, thereby ensuring that future generations have the right to the same or better quality of life as current generations [5].

Issues included in social sustainability are human and labor rights, health equity, community development through social participation, social capital, support for justice and social responsibility, cultural competence, social resilience, and human adaptation [5].

Finally, environmental sustainability means living within the limits of our available natural resources. To live sustainably from the environmental viewpoint in practice, we need to ensure that the consumption of natural resources such as raw materials, energy fuels, land, and water is carried out at a sustainable rate. Some resources are more abundant or recyclable than others, so consideration must be given to the scarcity and depletion of resources, the footprint of their exploitation on the environment, and the preservation of the resources within the principles of the circular economy [5].

2.2. EU Framework for Sustainability

The primary purpose of the Non-Financial Reporting Directive (NFRD) was to encourage transparency and accountability by requiring companies to publish sustainability reports more frequently and to outline their specific policies for them. Companies that

do not comply with the requirements of the NFRD may face severe penalties, as well as adverse reactions from their own customers, employees, and shareholders [1]. Therefore, the sustainability reports foreseen by NFRD provide potential investors, consumers, and various stakeholders with the necessary information required to decide whether this is a company with which their values are aligned.

Subsequently, the Corporate Sustainability Reporting Directive (CSRD) published in 2022 provides more detailed reporting requirements compared with the NFRD. The CSRD has many of the NFRD provisions, but it also requires companies to report information on their company's sustainability risk and environmental and social impact.

The CSRD has many of the requirements of the NFRD, but the CSRD requires companies to also provide information on their sustainability risk and environmental and social impact. Another difference is that the CSRD states that undertakings of public interest with more than 10 employees must publish this report, thus excluding only very small businesses from the requirements of the CSR Directive [6].

As already noted, the CSRD, within its scope, requires companies to report in compliance with European Sustainability Reporting Standards (ESRS). The NFRD can be seen as a basis for the CSRD—both aim to introduce greater transparency in the business sector, but the CSRD has more requirements than the NFRD and it is applied to a significantly bigger number of enterprises of public interest [6].

In April 2021, the European Commission adopted a legislative proposal for a Corporate Sustainability Reporting Directive (CSRD) that, within its scope, requires companies to report using a double materiality perspective in compliance with European Sustainability Reporting Standards (ESRSs) adopted by the European Commission as delegated acts. The ESRS Exposure Drafts (EDs) prepared by the EFRAG Project Task Force on European Sustainability Reporting Standards (EFRAG PTF-ESRS) during the period of June 2021 till April 2022 were open for public consultation from 30 April to 8 August 2022. The EFRAG Sustainability Reporting Board (EFRAG SRB), advised by the EFRAG Sustainability Reporting Technical Expert Group (EFRAG SR TEG), addressed the feedback of the consultation and amended accordingly the twelve draft ESRS that were released to the European Commission.

2.3. Global Reporting Initiative (GRI)

The GRI standard is the most widely used form of assessing and communicating an organization's contribution to sustainable development. It consists of a set of guidelines aimed at enhancing the quality of sustainability reporting. The methodological framework of the GRI standard has remained the same over the years and recommends the use of indicators in order to (i) achieve benchmarking of the sustainability and evaluation of economic, social and environmental performance in accordance with institutional, legal, voluntary frameworks, and standards, (ii) present uniform and comparable results on progress towards sustainable development and (iii) allow comparisons internally in a company and between companies [7].

The KPMG Survey of Sustainability Reporting examined the disclosure practices of 250 of the world's biggest-by-revenue companies in 2022, and one of its findings is that four out of five largest global companies report using GRI [8].

3. Methodology

The question used to guide this study was: "What are the main similarities and differences between the recently emerged ESRS and the GRI standard widely used for Sustainability Reporting?". To address this question, the latest version of the Consolidated Set of the GRI standards and the first set of draft ESRSs were used.

A total of 36 GRI indicators, including 122 sub-indicators and 12 ESRS drafts consisting of 106 sub-indexes were compared in order to identify the main similarities and differences between the two systems. Firstly, regarding the general framework of the standards, the GRI indexes 101 (Foundation), 102 (General Disclosures), and 103 (Material Topics) were

compared and found to correspond to ESRS 1 (General Requirements) and ESRS 2 (General Disclosures). Regarding economic indicators, it was then noted that the ESRS does not include a full set of economic indexes, whereas GRI includes the set of 201 to 207 indexes relating to the economy. Environmental issues are assessed in both standards, with GRI presenting environmental indexes 301 to 308, while ESRS has E1–E5. Furthermore, social issues are examined in a similar way using GRI indexes 401 to 418 and ESRS drafts S1 to S4. It is noted that governance indexes correspond with GRI economic and social indexes. Table 1 provides a detailed description of the indexes mentioned above and their color coding, as given by the GRI and ESRS.

Table 1. GRI and ESRS indexes and color coding.

GRI	ESRS
101: Foundation 1. Purpose and system of GRI Standards 2. Key concepts 3. Reporting in accordance with the GRI Standards 4. Reporting principles 5. Additional recommendations for reporting	1: General requirements 1. Categories of (draft) standards and disclosures under (draft) European Sustainability Reporting Standards 1.1 Complying with (draft) ESRSs 1.2 Cross-cutting standards and reporting areas 1.3 Topical ESRSs 1.4 Entity-specific disclosures 1.5 Disclosure content for policies, actions, and targets 2. Qualitative characteristics of information 3. Double materiality as the basis for sustainability disclosures 3.1 Stakeholders and their relevance to the materiality assessment process 3.2 Material matters and materiality of information 3.3. Double materiality 3.4 Impact materiality 3.5 Financial materiality 3.6 Material impacts or risks arising from actions to address sustainability matters 3.7 Level of disaggregation 4. Sustainability due diligence 5. Value chain 5.1 Reporting undertaking and value chain 5.2 Estimation using sector averages and proxies 6. Time horizons 6.1 Reporting period 6.2 Linking past, present, and future 6.3 Reporting progress against the base year 6.4 Definition of short-, medium-, and long-term for reporting purposes 7. Preparation and presentation of sustainability information 7.1 Presenting comparative information 7.2 Sources of estimation and outcome uncertainty 7.3 Updating disclosures about events after the end of the reporting period 7.4 Changes in preparation or presentation of sustainability information 7.5 Reporting errors in prior periods 7.6 Consolidated reporting and subsidiary exemption 7.7 Information on intellectual property, know-how, or results of innovation 8. Structure of sustainability statements 8.1 General presentation requirement 8.2 Content and structure of the sustainability statements 9. Linkages with other parts of corporate reporting and connected information
102: General Disclosures 2-1 Organizational details 2-2 Entities included in the organization's sustainability reporting 2-3 Reporting period, frequency, and contact point 2-4 Restatements of information 2-5 External assurance 2-6 Activities, value chain, and other business relationships 2-7 Employees 2-8 Workers who are not employees 2-9 Governance structure and composition 2-10 Nomination and selection of the highest governance body 2-11 Chair of the highest governance body 2-12 Role of the highest governance body in overseeing the management of impacts 2-13 Delegation of responsibility for managing impacts 2-14 Role of the highest governance body in sustainability reporting 2-15 Conflicts of interest 2-16 Communication of critical concerns 2-17 Collective knowledge of the highest governance body 2-18 Evaluation of the performance of the highest governance body 2-19 Remuneration policies 2-20 Process to determine remuneration 2-21 Annual total compensation ratio 2-22 Statement on sustainable development strategy 2-23 Policy commitments 2-24 Embedding policy commitments 2-25 Processes to remediate negative impacts 2-26 Mechanisms for seeking advice and raising concerns 2-27 Compliance with laws and regulations 2-28 Membership associations 2-29 Approach to stakeholder engagement 2-30 Collective bargaining agreements	
103: Material Topics 3-1 Process to determine material topics 3-2 List of material topics 3-3 Management of material topics	

Table 1. *Cont.*

	GRI	ESRS
		9.1 Incorporation by reference 9.2 Connected information and connectivity with financial statements 10. Transitional provisions 10.1. Transitional provision related to Section 1.4: Entity-specific disclosures 10.2 Transitional provision related to Chapter 5: Value chain 10.3 Transitional provision related to Section 7.1: Presenting comparative information 10.4 Transitional provision: List of disclosure requirements that are phased in for (draft) ESRS to year 2 or subsequent years 2: General disclosures 1. Basis for preparation BP-1—General basis for preparation of the sustainability statements BP-2—Disclosures in relation to specific circumstances 2. Governance GOV-1—The role of the administrative, management, and supervisory bodies GOV-2—Information provided to and sustainability matters addressed by the undertaking's administrative, management, and supervisory bodies GOV-3—Integration of sustainability-related performance in incentive schemes GOV-4—Statement on sustainability due diligence GOV-5—Risk management and internal controls over sustainability reporting 3. Strategy SBM-1—Market position, strategy, business model(s), and value chain SBM-2—Interests and views of stakeholders SBM-3—Material impacts, risks, and opportunities, and their interaction with strategy and business model(s) 4. Impact, risk, and opportunity management 4.1 Disclosures on the materiality assessment process IRO-1—Description of the processes to identify and assess material impacts, risks, and opportunities IRO-2—Disclosure requirements in ESRSs covered by the undertaking's sustainability statements 4.2 Reporting on opportunities 4.3 Disclosure content on policies and actions DC-P—Policies adopted to manage material sustainability matters DC-A—Actions and resources in relation to material sustainability matters 5. Metrics and targets DC-M—Metrics in relation to material sustainability matters DC-T—Tracking effectiveness of policies and actions through targets
Economy	201: Economic Performance 201-1 Direct economic value generated and distributed 201-2 Financial implications and other risks and opportunities due to climate change 201-3 Defined benefit plan obligations and other retirement plans 201-4 Financial assistance received from government	

Table 1. *Cont.*

	GRI	ESRS
Economy	202: Market Presence 202-1 Ratios of standard entry level wage by gender compared to local minimum wage 202-2 Proportion of senior management hired from the local community 203: Indirect Economic Impacts 203-1 Infrastructure investments and services supported 203-2 Significant indirect economic impacts 204: Procurement Practices 204-1 Proportion of spending on local suppliers 205: Anti-Corruption 205-1 Operations assessed for risks related to corruption 205-2 Communication and training about anti-corruption policies and procedures 205-3 Confirmed incidents of corruption and actions taken 206: Anti-Competitive Behavior 206-1 Legal actions for anti-competitive behavior, anti-trust, and monopoly practices 207: Tax 207-1 Approach to tax 207-2 Tax governance, control, and risk management 207-3 Stakeholder engagement and management of concerns related to tax 207-4 Country-by-country reporting	
Environment	301: Materials 301-1 Materials used by weight or volume 301-2 Recycled input materials used 301-3 Reclaimed products and their packaging materials 302: Energy 302-1 Energy consumption within the organization 302-2 Energy consumption outside of the organization 302-3 Energy intensity 302-4 Reduction of energy consumption 302-5 Reductions in energy requirements of products and services 303: Water and Effluents 303-1 Interactions with water as a shared resource 303-2 Management of water discharge-related impacts 303-3 Water withdrawal 303-4 Water discharge 303-5 Water consumption 304: Biodiversity 304-1 Operational sites owned, leased, managed in, or adjacent to protected areas and areas of high biodiversity value outside protected areas 304-2 Significant impacts of activities, products and services on biodiversity 304-3 Habitats protected or restored 304-4 IUCN Red List species and national conservation list species with habitats in areas affected by operations 305: Emissions 305-1 Direct (Scope 1) GHG emissions 305-2 Energy indirect (Scope 2) GHG emissions 305-3 Other indirect (Scope 3) GHG emissions 305-4 GHG emissions intensity	Environment E1: Climate Change E1-1—Transition plan for climate change mitigation E1-2—Policies related to climate change mitigation and adaptation E1-3—Actions and resources in relation to climate change policies E1-4—Targets related to climate change mitigation and adaptation E1-5—Energy consumption and mix E1-6—Gross Scopes 1, 2, 3, and Total GHG emissions E1-7—GHG removals and GHG mitigation projects financed through carbon credits E1-8—Internal carbon pricing E1-9—Potential financial effects from material physical and transition risks and potential climate-related opportunities E2: Pollution E2-1—Policies related to pollution E2-2—Actions and resources related to pollution E2-3—Targets related to pollution 6 E2-4—Pollution of air, water and soil E2-5—Substances of concern and substances of very high concern E2-6—Potential financial effects from pollution-related impacts, risks and opportunities E3: Water and marine resources E3-1—Policies related to water and marine resources E3-2—Actions and resources related to water and marine resources E3-3—Targets related to water and marine resources E3-4—Water consumption

Table 1. *Cont.*

	GRI		ESRS
Environment	305-5 Reduction of GHG emissions 16 305-6 Emissions of ozone-depleting substances (ODS) 305-7 Nitrogen oxides (NOx), sulfur oxides (SOx), and other significant air emissions 306: Effluents and Waste 306-1 Water discharge by quality and destination 306-2 Waste by type and disposal method 306-3 Significant spills 306-4 Transport of hazardous waste 306-5 Water bodies affected by water discharges and/or runoff 308: Supplier Environmental Assessment 308-1 New suppliers that were screened using environmental criteria 308-2 Negative environmental impacts in the supply chain and actions taken	Environment	E3-5—Potential financial effects from water and marine resources-related impacts, risks, and opportunities E4: Biodiversity and ecosystems E4-1—Transition plan on biodiversity and ecosystems E4-2—Policies related to biodiversity and ecosystems E4-3—Actions and resources related to biodiversity and ecosystems E4-4—Targets related to biodiversity and ecosystems E4-5—Impact metrics related to biodiversity and ecosystems change E4-6—Potential financial effects from biodiversity and ecosystem-related impacts, risks and opportunities E5: Resource use and circular economy E5-1—Policies related to resource use and circular economy E5-2—Actions and resources related to resource use and circular E5-3—Targets related to resource use and circular economy E5-4—Resource inflows E5-5—Resource outflows E5-6—Potential financial effects from resource use and circular economy-related impacts, risks and opportunities
Social	401: Employment 401-1 New employee hires and employee turnover 401-2 Benefits provided to full-time employees that are not provided to temporary or part-time employees 401-3 Parental leave 402: Labor/Management Relations 402-1 Minimum notice periods regarding operational changes 403: Occupational Health and Safety 403-1 Occupational health and safety management system 403-2 Hazard identification, risk assessment, and incident investigation 403-3 Occupational health services 403-4 Worker participation, consultation, and communication on occupational health and safety 403-5 Worker training on occupational health and safety 403-6 Promotion of worker health 403-7 Prevention and mitigation of occupational health and safety impacts directly linked by business relationships 403-8 Workers covered by an occupational health and safety management system 403-9 Work-related injuries 403-10 Work-related ill health 404: Training and Education 404-1 Average hours of training per year per employee 404-2 Programs for upgrading employee skills and transition assistance programs 404-3 Percentage of employees receiving regular performance and career development reviews	Social	S1: Own workforce S1-1—Policies related to own workforce S1-2—Processes for engaging with own workers and workers' representatives about impacts S1-3—Processes to remediate negative impacts and channels for own workers to raise concerns S1-4—Taking action on material impacts on own workforce, and approaches to mitigating material risks and pursuing material opportunities related to own workforce, and effectiveness of those actions S1-5—Targets related to managing material negative impacts, advancing positive impacts, and managing material risks and opportunities S1-6—Characteristics of the undertaking's employees S1-7—Characteristics of non-employee workers in the undertaking's own workforce S1-8—Collective bargaining coverage and social dialogue S1-9—Diversity indicators S1-10—Adequate wages S1-11—Social protection S1-12– Persons with disabilities S1-13—Training and skills development indicators S1-14—Health and safety indicators S1-15—Work-life balance indicators S1-16—Compensation indicators (pay gap and total compensation) S1-17—Incidents, complaints, and severe human rights impacts and incidents

Table 1. *Cont.*

	GRI		ESRS
Social	405: Diversity and Equal Opportunity 405-1 Diversity of governance bodies and employees 405-2 Ratio of basic salary and remuneration of women to men 406: Non-Discrimination 406-1 Incidents of discrimination and corrective actions taken 407: Freedom of Association and Collective Bargaining 407-1 Operations and suppliers in which the right to freedom of association and collective bargaining may be at risk 408: Child Labor 408-1 Operations and suppliers at significant risk for incidents of child labor 409: Forced or Compulsory Labor 409-1 Operations and suppliers at significant risk for incidents of forced or compulsory labor 410: Security Practices 410-1 Security personnel trained in human rights policies or procedures 411: Rights of Indigenous Peoples 411-1 Incidents of violations involving rights of indigenous peoples 413: Local Communities 413-1 Operations with local community engagement, impact assessments, and development programs 413-2 Operations with significant actual and potential negative impacts on local communities 414: Supplier Social Assessment 414-1 New suppliers that were screened using social criteria 7 414-2 Negative social impacts in the supply chain and actions taken 415: Public Policy 415-1 Political contributions 416: Customer Health and Safety 416-1 Assessment of the health and safety impacts of product and service categories 416-2 Incidents of non-compliance concerning the health and safety impacts of products and services 417: Marketing and Labeling 417-1 Requirements for product and service information and labeling 417-2 Incidents of non-compliance concerning product and service information and labeling 417-3 Incidents of non-compliance concerning marketing communications 418: Customer Privacy 418-1 Substantiated complaints concerning breaches of customer privacy and losses of customer data	Social	S2: Workers in the value chain S2-1—Policies related to value chain workers S2-2—Processes for engaging with value chain workers about impacts S2-3—Processes to remediate negative impacts and channels for value chain workers to raise concerns S2-4—Taking action on material impacts on value chain workers, approaches to mitigating material risks and pursuing material opportunities related to value chain workers, and effectiveness of those actions S2-5—Targets related to managing material negative impacts, advancing positive impacts, and managing material risks and opportunities S3: Affected communities S3-1—Policies related to affected communities S3-2—Processes for engaging with affected communities about impacts S3-3—Processes to remediate negative impacts and channels for affected communities to raise concerns S3-4—Taking action on material impacts on affected communities, approaches to mitigating material risks and pursuing material opportunities related to affected communities, and effectiveness of those actions S3-5—Targets related to managing material negative impacts, advancing positive impacts, and managing material risks and opportunities S4: Consumers and end-users S4-1—Policies related to consumers and end-users S4-2—Processes for engaging with consumers and end-users about impacts S4-3—Processes to remediate negative impacts and channels for consumers and end-users to raise concerns S4-4—Taking action on material impacts on consumers and end-users, approaches to mitigating material risks and pursuing material opportunities related to consumers and end-users, and effectiveness of those actions S4-5—Targets related to managing material negative impacts, advancing positive impacts, and managing material risks and opportunities
		Governance	G1: Business conduct G1-1—Corporate culture and business conduct policies G1-2—Management of relationships with suppliers G1-3—Prevention and detection of corruption or bribery G1-4—Confirmed incidents of corruption or bribery G1-5—Political influence and lobbying activities G1-6—Payment practices

It is noted that in addition to the groups of indexes appearing in both standards, i.e., General, Environment, and Social, the ESRS standards also include a number of additional indicators under the codes GOV, SBM, IRO, and MT, relating to governance processes, controls and procedures (GOV), strategy and business model(s) interaction with material impacts, risks and opportunities (SBM), impact, risk and opportunity management (IRO), and metrics and targets (MT).

It is noted that a comparison between the two systems, presented in the next section, is made between sub-indexes.

4. Comparison Results

The similarities and differences between the ESRS and GRI standards are presented in the following sections.

4.1. General Requirements

As far as the general requirements of ESRS indicators are concerned, a number of them are included in the general indexes (101-103) of GRI, but the majority of them are new requirements aiming to address the issues of the current needs for the assessment of sustainability performance.

More specifically, the ESRS-1 index 2 on "Qualitative characteristics of information" corresponds to the GRI sub-index 101-4 on "Reporting principles". As reported in the ESRS 1 draft, information should have relevance and faithful representation, comparability, verifiability, and understandability, while the specifications of GRI indicators should have accuracy, balance, clarity, comparability, completeness, sustainability context, timeliness, and verifiability. It should be noted that comparability is also mentioned as an ESRS principle through sub-index 7.1 on "Presenting comparative information".

ESRS-1 index 3.1 on "Stakeholders and their relevance to the materiality assessment process" covers the same information as GRI sub-index 102-4 on "Stakeholder", whereas ESRS index 3.2 "Material matters and materiality of information" corresponds to GRI sub-index 102-2 on "Material topics", with ESRS providing more specific guidance than GRI.

ESRS-1 index 4 on "Sustainability due diligence" bears similarities to GRI sub-index 101-2.3 on "Due diligence".

Finally, ESRS-1 index 6.1 on "Reporting period" refers to GRI sub-index 102-3 as "Reporting period, frequency and contact point" [7,9].

4.2. General Disclosures

Regarding the General Disclosures of ESRS-2, a number of differences were noted compared with the General Disclosures (102) index of the GRI, as the new Directive requires companies to provide information on their sustainability risk and environmental and social impact [3].

More specifically, ESRS-2 index GOV-1 on "The role of the administrative, management and supervisory bodies" is considered to slightly differ from GRI sub-index 102-9 on "Governance structure and composition", since GRI focuses only on governance, whereas ESRS expands to more groups that influence the company's governance.

Moreover, the GOV-4 index of ESRS-2 "Statement on sustainability due diligence" that relates with information from index 4 of ESRS-1 "Sustainability due diligence" presents similar themes to GRI sub-index 102-3 "Due diligence" [10].

4.3. Topical Standard—Environment

The Environmental Indicators of the ESRS are Climate Change, (E1), Pollution (E2), Water and Marine Resources (E3), Biodiversity and Ecosystems (E4) and Resource Use and Circular Economy (E5), whereas in the case of GRI, the Environmental Indicators are Materials (301), Energy (302), Water and Effluents (303), Biodiversity (304), Emissions (305), Effluents and Waste (306) and Supplier Environmental Assessment (308).

4.3.1. Climate Change (E1)

In the ESRS, special emphasis is given to Climate Change, with a specific indicator, E1, comprising of sub-indexes E1-1-E.1-9. The Climate Change index, like most environmental indexes, does not exactly correspond to a GRI index, as its main objective is to focus on the compliance of companies with the most recent European environmental legislation. However, it does contain data from indexes 302 (Energy) and 305 (Emissions).

More specifically, sub-index E1-5 (Energy consumption and mix) is a composite index that refers to both the energy consumption of each organization, distinguishing it by the source from which it is produced and measuring it in MWh, exactly as in GRI index 302.

Similarly, sub-index E1-6 (Gross Scopes 1, 2, 3, and Total GHG emissions) refers to Scopes 1, 2 and 3 emissions, similarly with GRI index 305. In both cases, gas emissions are measured in metric tons of CO2 equivalent.

4.3.2. Pollution (E2)

ESRS index E2 (Pollution), including sub-indexes E2-1 to E2-6, contains data from GRI indexes 303 (Water and Effluents), 305 (Emissions) and 306 (Effluents and Waste).

More specifically, emissions to water are included under sub-index E2-4, while in GRI, these are included under sub-indexes 306-1 (Water discharge by quality and destination) and 306-5 (Water bodies affected by water discharges and/or runoff).

Then, emissions of air pollutants and emissions of ozonedepleting substances, as mentioned above, are analyzed under GRI sub-indexes 305-1,2,3 (Direct (Scope 1) GHG emissions, Energy indirect (Scope 2) GHG emissions, Other indirect (Scope 3) GHG emissions) and 305-6 (Emissions of ozone-depleting substances), respectively.

4.3.3. Water and Marine Resources (E3)

Both standards have a subsection on water in the environment section.

More specifically, in ESRS, it is index E3, while in GRI, it is index 303. In terms of their common elements, both indexes refer to total water consumption, sub-indexes E3-4 and 303-5 of ESRS and GRI, respectively, commonly expressed in m^3.

Another similarity between these systems is the reference to the targets for reducing and managing the impacts of water consumption, and the policy and actions of companies to manage water. These parameters are summarized in GRI sub-indexes 303-1 "Interactions with water as a shared resource" and 303-2 "Management of water discharge related impacts", while in the ESRS system, it is divided into sub-indexes IRO-1 "Description of the processes to identify and assess material water and marine resources-related impacts, risks and opportunities", E3-1 "Policies related to water and marine resources", E3-2 "Actions and resources related to water and marine resources" and E3-3 "Targets related to water and marine resources".

4.3.4. Biodiversity and Ecosystems (E4)

Both standards include an index related to biodiversity. In the ESRS, this index is E4 "Biodiversity and ecosystems", with E4-1 to E4-6 sub-indexes, while in the GRI standard, it is index 304 "Biodiversity", with the sub-indexes 304-1 to 304-4. Despite the fact that the general theme of the index is common, each model develops it in a different way, since the ESRS system focuses on qualitative assessment, while the GRI system has more metrics.

4.3.5. Resource Use and Circular Economy (E5)

The ESRS E5 index, including five sub-indexes, covers renewable and non-renewable resources, the company's products and the materials used, as well as waste. In the GRI, these issues are analyzed in indexes 302 (Energy), 301 (Materials) and 306 (Effluents and Waste).

More specifically, ESRS sub-indexes E5-4 "Resource inflows" and E5-5 "Resource outflows" contain the information reported in GRI sub-indexes 306-2 "Waste by type

and disposal method", 301-3 "Reclaimed products and their packaging materials" and 302 "Energy".

Finally, regarding environmental indicators, it is noted that ESRS sub-indexes E1-9, E2-6, E3-5, E4-6 and E5-6 cover the same topic from the environmental topic examined and no counterparts are identified in the GRI.

4.4. Topical Standard—Social

The Social Indicators of the ESRS are Own workforce (S1), Workers in the value chain (S2), Affected communities (S3), and Consumers and end-users (S4), whereas in the case of GRI, the Environmental Indicators are Employment (401), Labor/Management Relations (402), Occupational Health and Safety (403), Training and Education (404), Diversity and Equal Opportunity (405), Non-Discrimination (406), Freedom of Association and Collective Bargaining (407), Child Labor (408), Forced or Compulsory Labor (409), Security Practices (410), Rights of Indigenous Peoples (411), Local Communities (413), Supplier Social Assessment (414), Public Policy (415), Customer Health and Safety (416), Marketing and Labeling (417) and Customer Privacy (418).

4.4.1. Own Workforce (S1)

In terms of social issues, the ESRS-S1 indexes bear the most similarities with the corresponding GRI 401–418 social indexes. It was also noted that some of the ESRS-S1 social indexes have similarities with the 102 and 103 indexes included in the general background of the GRI.

ESRS sub-index S1-1, "Policies related to own workforce", covers topics related to social sub-indexes 403-7 "Prevention and mitigation of occupational health and safety impacts directly linked by business relationships" and 403-8 "Workers covered by an occupational health and safety management system", as well as GRI general sub-indexes 102-23 "Policy commitments" and 102-29 "Approach to stakeholder engagement". However, the ESRS gives additional and more stringent guidance on policies related to own workforce.

Then, ESRS sub-index S1-3 "Processes to remediate negative impacts and channels for own workers to raise concerns" is briefly referred to in the general GRI sub-index 102-25 "Processes to remediate negative impacts".

Similarly, sub-index S1-4, "Taking action on material impacts on own workforce, and approaches to mitigating material risks and pursuing material opportunities related to own workforce, and effectiveness of those actions", covers a small part of the GRI general sub-index 103-3 "Management of material issues", as the last one includes actions on all three pillars (society, economy, environment) with the workforce issues listed in the social issues.

Further, the ESRS sub-indexes S1-6 "Characteristics of the undertaking's employees" and S1-9 "Diversity indicators" are similar to the GRI social sub-indexes 401-1 "New employee hires and employee turnover" and 405-1 "Diversity of governance bodies and employees", while sub-indexes S1-7 "Characteristics of non-employee workers in the undertaking's own workforce" and S1-8 "Collective bargaining coverage and social dialogue" are included in the GRI general sub-indexes 102-8 "Workers who are not employees" and 102-30 "Collective bargaining agreements".

Moreover, the ESRS sub-index S1-10 "Adequate wages" and the GRI sub-index 202-1 "Ratios of standard entry level wage by gender compared to local minimum wage" develop similar themes, but provide different requirements, recommendations and guidance for their assessment.

In addition, ESRS sub-index S1-11 "Social protection" presents similarities with sub-index 401-2 "Benefits provided to full-time employees that are not provided to temporary or part-time employees".

Moreover, the ESRS dedicates a specific sub-index for "Persons with disabilities" through S1-12, while the GRI reports in sub-index 405-1 "Diversity of governance bodies

and employees" that companies should report results for persons belonging to minorities as a whole.

ESRS sub-index S1-13 "Training and skills development indicators" is related to GRI sub-indexes 403-5 "Worker training on occupational health and safety", 404-1 "Average hours of training per year per employee" and 404-2 "Programs for upgrading employee skills and transition assistance programs". Similarly, sub-index S1-14 "Health and safety indicators" is related to sub-indexes 403-8 "Workers covered by an occupational health and safety management system", 403-9 "Work-related injuries" and 403-10 "Work-related ill health", and sub-index S1-15 "Work-life balance indicators" is related to sub-indexes 401-3 "Parental leave" and 401-2 "Benefits provided to full-time employees that are not provided to temporary or part-time employees".

Finally, the ESRS sub-indexes S1-16 "Compensation indicators (pay gap and total compensation)" and S1-17 "Incidents, complaints and severe human rights impacts and incidents" are similar to the GRI sub-indexes 405-2 "Ratio of basic salary and remuneration of women to men" and 406-1 "Incidents of discrimination and corrective actions taken", respectively.

4.4.2. Workers in the Value Chain (S2)

The definition of "workers in the value chain" is introduced for the first time in the ESRS as «*An individual performing work in the value chain of the undertaking, regardless of the existence or nature of any contractual relationship with that undertaking. In the ESRS, the following definition is included in the scope of workers in the value chain: all workers in the undertaking's upstream and downstream value chain who are or can be materially impacted by the undertaking, this includes impacts that are caused or contributed to by the undertaking and those which are directly linked to its own operations, products, or services through its business relationships. This includes all workers who are not included in the scope of "Own workforce" ("Own workforce" includes workers who are in an employment relationship with the undertaking ('employees') and nonemployee workers who are either individual contractors supplying labour to the undertaking ('self-employed workers') or workers provided by undertakings primarily engaged in 'employment activities' (NACE Code N78)* » [11]. Therefore, ESRS S2 indexes are new indexes and do not correspond to any of the GRI indexes.

4.4.3. Affected Communities (S3)

In general, the S3 index has the same content as GRI indexes 411 "Rights of Indigenous Peoples" and 413 "Local Communities" with the main difference being that, in ESRS, these issues are qualitatively discussed, while the GRI has metrics of its own.

4.4.4. Consumers and End-Users (S4)

As in the S2 index, in the S4 index, the definitions of "consumers" and "end-users" are introduced for the first time in the ESRS system.

"Consumers" *are individuals who acquire, consume, or use goods and services for personal use, either for themselves or for others, that are not for resale or commercial purposes. Consumers include actually and potentially affected end-users* [12].

"End-users" are individuals who ultimately use or are intended to ultimately use a particular product or service [12].

Therefore, ESRS S4 are new indexes and do not correspond to the GRI indexes.

4.5. Topical Standard—Governance

As already mentioned, the ESRS "Governance" topic does not directly appear in the GRI, but several of the sub-indexes are in line with the economic and social sub-indexes of the GRI.

The Governance Indicator of ESRS includes only Business Conduct (G1) and its six sub-indicators.

Business Conduct (G1)

ESRS sub-index G1-3 "Prevention and detection of corruption or bribery" is in line with GRI sub-index 205-2 "Communication and training about anti-corruption policies and procedures".

In addition, ESRS sub-index G1-4 "Confirmed incidents of corruption or bribery" corresponds to GRI sub-index 205-3 "Confirmed incidents of corruption and actions taken", whereas the ESRS requirements include more detailed data on this topic.

Finally, ESRS sub-index G1-5 "Political influence and lobbying activities" partially corresponds with GRI sub-index 415-1 "Political contributions", as ESRS also analyses and provides information on lobbying activities.

5. Discussion

The comparison between the recently emerged ESRS and the widely used GRI standard for sustainability reporting revealed convergences, but also differences.

Both standards use indicators for the assessment of the sustainability performance of the examined undertakings, grouped into general themes reflecting the pillars of sustainable development.

Following the comparison of the two standards, it was initially concluded that GRI has a more computational approach, as it includes more metrics in the 36 listed indicators and their 122 sub-indexes, while the ESRS, including 12 indexes and 106 sub-indexes, also focuses on the qualitive description of the indexes.

In addition, the ESRS is considered more advanced and is structured in a way that better meets the current needs of companies regarding their compliance with the sustainability issues arising from the latest EU legislation. At the same time, the ESRS addresses a much wider range of companies, since, as mentioned above, it applies to companies with more than 10 employees, thus including SMEs, whereas the GRI was implemented mostly by large companies.

It is also noted that sub-indexes coded as GOV, SBM, and IRO are included in all ESRS topics providing a more theoretical framework, which are presented in the GRI, but not captured as a separate index category.

The majority of the general requirements of the ESRS are new requirements, so as to reflect the updated environmental framework. Some of these general requirements are also included in the general indexes of the GRI.

Regarding the General Disclosures of the ESRS, it was noted that there were few matches with the General Disclosures of the GRI. This is because the CSRD has more detailed requirements for businesses to disclose details about their sustainability risk and environmental and social impact.

As far as the environmental dimension of the ESRS is concerned, it is noted that the description of the indexes differs from those listed in the GRI; however, the issues and topics addressed are the same. Moreover, in the ESRS, there are some additions such as index E5 "Resource use and circular economy", which reflects the priority of a circular economy for companies. There are also major environmental issues that are developed separately, i.e., climate change, which involves two indexes from different sections of the GRI: Energy (302) and Emissions (305).

The ESRS and the relevant GRI social indexes are most comparable in terms of the social issues addressed, whereas some of the ESRS social indexes resemble the general background of GRI indexes, i.e., sub-indexes S1-1, S1-3 and S1-4. Moreover, the ESRS includes three new concepts for assessing social sustainability, which are "workers in the value chain", "consumers" and "end-users".

Despite the fact that the Governance topic is not included as a separate group of indicators in the GRI standard, a number of the ESRS indexes are similar to the economic and social indexes of the GRI.

As for the Sector standards provided by the GRI, such as GRI 11 for Oil and Gas and GRI 12 for Coal, they do not affect the comparison of the two standards, as the Sector

standards were created by the GRI due to the demand for guidance from companies in 40 sectors such as Oil and Gas, Coal, Agriculture, Aquaculture, and Fishing. Also, the Sector standards are designed to help identify a sector's most significant impacts and reflect stakeholder expectations for sustainability reporting. However, their core is based on the indicators developed above. It is currently not known whether the ESRS will include sector standards in the future.

For the development of these new ESRS, the European Commission has consulted EU bodies and Member States on their draft version, before adopting the final standards as delegated acts.

Within this framework, on 31 July 2023, the Commission adopted the European Sustainability Reporting Standards (ESRS) for use by all companies subject to the Corporate Sustainability Reporting Directive (CSRD). This marks another step forward in the transition to a sustainable EU economy. The reporting requirements will be phased in over time for different companies [13].

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