

## **ВНЕДРЯВАНЕ НА ESG РЕГЛАМЕНТИТЕ В СТРОИТЕЛНИЯ СЕКТОР: ПРЕХОД КЪМ КРЪГОВА ИКОНОМИКА**

**Емануела Манолова, Ячко Иванов**

## **EMBRACING ESG REGULATIONS IN THE CONSTRUCTION SECTOR: ADVANCING TOWARDS A CIRCULAR ECONOMY**

**Emanuela Manolova<sup>1</sup>, Yachko Ivanov<sup>2</sup>**

### **Abstract:**

*The construction sector stands at the nexus of environmental, social, and governance (ESG) concerns, grappling with sustainability challenges while navigating regulatory frameworks. This article delves into the evolving landscape of ESG regulations within the construction industry, highlighting the imperative of integrating principles of sustainability into its practices. Central to this discussion is the concept of the circular economy, which promotes the principles of reduce, reuse, and recycle (3R's) to minimize waste and optimize resource utilization. Through a comprehensive analysis of existing ESG regulations, this article elucidates the multifaceted benefits of adopting circular economy principles in construction activities. The transition towards a circular economy model in the construction sector not only mitigates environmental impacts but also fosters economic resilience and social impact. By reducing material consumption and waste generation, construction companies can achieve significant cost savings while simultaneously lowering their carbon footprint. Moreover, embracing the 3R's principles encourages innovation in construction techniques and materials, leading to the development of more sustainable infrastructure solutions.*

### **Keywords:**

*circular economy, ESG, sustainability, 3R concept, alternatives materials, carbon footprint*

### **1. PRINCIPLES OF ESG**

Environmental, Social, and Governance (ESG) principles have emerged as crucial benchmarks for evaluating the sustainability and ethical impact of businesses. In the construction sector, these principles aim to foster sustainable development by integrating environmental stewardship, social responsibility, and robust governance practices into business operations.

---

<sup>1</sup> Emanuela Manolova, Ph.D. eng. Commercial Department, Aurubis, Industrial zone, 2070 Pirdop, e.manolova@aurubis.com;

<sup>2</sup> Yachko Ivanov, prof. DSc, Eng. Member of BAS, yadir\_1@abv.bg;

Environmental criteria focus on how a company performs as a steward of the natural environment, which includes managing waste, reducing carbon emissions, and enhancing energy efficiency. In the context of construction, this might involve using sustainable building materials, implementing energy-efficient designs, and reducing construction waste through recycling and other circular economy practices.

Social criteria examine how a company manages relationships with employees, suppliers, customers, and the communities where it operates. For construction companies, this could mean ensuring worker safety, promoting diversity and inclusion, and engaging with local communities to minimize the social impact of construction projects.

Governance criteria deal with a company's leadership, executive pay, audits, internal controls, and shareholder rights. In the construction sector, strong governance might involve transparent procurement processes, compliance with legal and ethical standards, and accountability in project management.

## **2. GOALS BEHIND THE ESG STRATEGY AND ANTICIPATING CHANGES**

The primary goal behind ESG regulations is to encourage businesses to operate in a manner that is not only financially profitable but also environmentally sustainable and socially responsible. These regulations aim to:

1. Promote sustainable development by adhering to ESG principles, companies contribute to sustainable development goals (SDGs), such as reducing greenhouse gas emissions and promoting resource efficiency.
2. Mitigate risks: ESG compliance helps companies identify and mitigate risks related to environmental impact, social issues, and governance failures. This proactive approach can prevent costly legal battles, reputational damage, and operational disruptions.
3. Enhance long-term value: Companies that integrate ESG principles are often better positioned for long-term success. Sustainable practices can lead to cost savings, enhanced brand reputation, and improved investor confidence.
4. Encourage transparency and accountability: ESG regulations demand greater transparency and accountability, compelling companies to disclose their environmental impact, social initiatives, and governance practices.

## **3. BENEFITS FOR THE COMPANIES**

Adopting ESG principles offers several benefits for construction companies:

1. Competitive advantages: Companies that lead in ESG practices can differentiate themselves from competitors, attract more business, and win tenders for environmentally conscious projects.
2. Investment attraction: Investors are increasingly looking for companies with strong ESG credentials. By demonstrating commitment to ESG, construction companies can attract investment from ethical funds and sustainability-focused investors.
3. Operational efficiency: Implementing sustainable practices often leads to improved operational efficiency. For instance, reducing waste and enhancing energy efficiency can lower operating costs.
4. Enhanced reputation: Companies that are seen as socially and environmentally responsible can enhance their reputation, leading to increased customer loyalty and improved stakeholder relations.

## **4. ANTICIPATED CHANGES FOR THE COMPANIES**

As ESG regulations become more stringent, construction companies will need to make several changes:

1. Material sourcing: Increased use of sustainable and recycled materials to minimize environmental impact.

2. Energy efficiency: Adoption of energy-efficient construction techniques and renewable energy sources.
3. Waste management: Implementation of circular economy principles to reduce waste and promote recycling and reuse of materials.
4. Workforce policies: Enhanced focus on worker safety, diversity, and community engagement.
5. Governance practices: Strengthening of governance frameworks to ensure transparency, accountability, and ethical business conduct.

## **5. DELEGATED ACTS AND DIRECTIVES**

### **5.1. Key regulations and directives**

Several key regulations and directives underpin the ESG principles and their implementation in the construction sector:

1. Taxonomy regulation [1]: This regulation establishes a classification system for environmentally sustainable economic activities. It provides a framework for determining which activities contribute substantially to environmental objectives, such as climate change mitigation and the transition to a circular economy.
2. Corporate Sustainability Reporting Directive (CSRD) [2]: Replacing the Non-Financial Reporting Directive (NFRD), the CSRD requires companies to report on their sustainability performance, including environmental, social, and governance aspects. This directive aims to enhance transparency and comparability of ESG disclosures.
3. Sustainability Finance Disclosure Regulation (SFDR) [3]: This regulation mandates financial market participants to disclose how they integrate ESG factors into their investment decisions. It promotes transparency and helps investors make informed decisions about sustainable investments.
4. EU Circular Economy Action Plan [4]: Part of the European Green Deal, this action plan focuses on promoting circular economy practices, which are crucial for the construction sector. It emphasizes the importance of sustainable product design, waste reduction, and recycling.

### **5.2. Interactions between regulations**

The interaction between these regulations ensures a comprehensive approach to ESG implementation:

5. Harmonization of standards: The EU Taxonomy provides a common language for sustainable activities, which aligns with the reporting requirements of the CSRD. This harmonization ensures consistency in sustainability reporting across different sectors, including construction.
6. Enhance transparency: The SFDR and CSRD work together to enhance transparency in financial and non-financial disclosures. While the SFDR focuses on the financial sector, the CSRD applies to a broader range of companies, including those in the construction industry, ensuring that sustainability information is publicly available and comparable.
7. Support for circular economy: The EU Circular Economy Action Plan complements the EU Taxonomy by promoting activities that contribute to the circular economy. For construction companies, this means integrating sustainable practices in material sourcing, design, and waste management.
8. Regulatory synergy: These regulations create a synergistic framework that encourages construction companies to adopt sustainable practices. By aligning financial incentives with sustainability goals, these regulations drive the construction sector towards more responsible and sustainable operations.

ESG regulations in the construction sector are designed to foster sustainable development, mitigate risks, and enhance long-term value. The interplay between key directives and regulations ensures a comprehensive and coherent approach to integrating ESG principles, ultimately driving the sector towards a more sustainable future.

## **6. CSRD DIRECTIVE 2022/2464 IN THE CONTEXT OF CONSTRUCTION SECTOR**

### **6.1. Principle of the CSRD directive**

The Corporate Sustainability Reporting Directive (CSRD) 2022/2464, introduced by the European Union, significantly enhances the framework for sustainability reporting by mandating more comprehensive and detailed disclosures from companies. This directive aims to ensure that companies provide transparent and comparable sustainability information, facilitating better decision-making by investors and stakeholders. In the construction sector, the CSRD has profound implications, necessitating a strategic approach to compliance and reporting.

### **6.2. Applicability and requirements**

The CSRD applies to large companies and all listed companies, including those in the construction sector, which previously might not have been subject to such detailed reporting under the NFRD. The key requirements include the disclosure of detailed information on e ESG factors. Construction companies must now report on their sustainability risks and impacts, covering areas such as resource usage, waste management, greenhouse gas emissions, and labour practices.

### **6.3. Implementation in construction**

To comply with the CSRD, construction companies need to integrate sustainability reporting into their core business processes. Here are several practical steps for effective implementation:

1. **Establish a Reporting Framework:** Construction companies should adopt recognized reporting frameworks such as the Global Reporting Initiative (GRI) or the European Sustainability Reporting Standards (ESRS). These frameworks provide structured guidelines for disclosing ESG information in line with CSRD requirements.
2. **Data collection and management:** Accurate and comprehensive data collection is critical. Companies must implement robust systems for tracking and managing sustainability-related data. This includes monitoring energy consumption, waste generation, emissions, and social metrics like health and safety incidents and employee diversity.
3. **Stakeholder Engagement:** Engaging with stakeholders, including employees, suppliers, customers, and local communities, is essential for identifying material sustainability issues. Regular consultations help in understanding stakeholder concerns and expectations, which should be reflected in the sustainability reports.
4. **Risk Assessment and Management:** Construction companies should conduct thorough risk assessments to identify potential ESG risks and opportunities. This involves analysing environmental impacts, such as carbon footprint and resource depletion, as well as social risks related to labour practices and community relations. Effective risk management strategies should be developed and integrated into overall business planning.
5. **Training and Capacity Building:** Ensuring that employees at all levels understand the importance of sustainability reporting and are equipped with the necessary skills is crucial. Training programs should be implemented to educate staff about the CSRD requirements and the company's sustainability objectives.
6. **Continuous Improvement and Reporting:** Sustainability reporting is not a one-time exercise but an ongoing process. Companies should establish mechanisms for continuous improvement, regularly reviewing and updating their sustainability practices and

reporting procedures. Annual reports should not only reflect past performance but also outline future goals and strategies for achieving them.

#### **6.4. Practical Benefits and challenges**

Implementing the CSRD in the construction sector offers several benefits. It enhances transparency, building trust with stakeholders and potentially leading to increased investment. Detailed sustainability reporting can also highlight areas for operational efficiencies, such as reducing energy consumption and waste, which can result in cost savings. Additionally, it helps companies align with broader societal goals and regulatory requirements, mitigating legal and reputational risks.

### **7. THE EU TAXONOMY REGULATION**

The EU Taxonomy Regulation is a cornerstone of the European Union's strategy to promote sustainable finance and guide investments towards environmentally sustainable projects. The regulation establishes a classification system for economic activities that significantly contribute to environmental objectives, aiming to create a common language for sustainability and provide clarity to investors, companies, and policymakers. In the construction sector, the EU Taxonomy Regulation plays a crucial role in driving sustainable building practices and enhancing the sector's contribution to the EU's climate and environmental goals.

The Taxonomy Regulation sets out technical screening criteria to determine whether an economic activity, such as a construction project, qualifies as environmentally sustainable. These criteria cover six environmental objectives: climate change mitigation, climate change adaptation, sustainable use and protection of water and marine resources, transition to a circular economy, pollution prevention and control, and protection and restoration of biodiversity and ecosystems.

For a construction project to be considered environmentally sustainable under the Taxonomy Regulation, it must significantly contribute to climate change mitigation and adaptation. This involves:

1. **Energy efficiency:** Buildings must meet high energy efficiency standards, such as achieving nearly zero-energy building (NZEB) status. This can be achieved through the use of energy-efficient materials, advanced insulation, and renewable energy systems.
2. **Low carbon footprint:** The construction process itself should minimize carbon emissions through sustainable sourcing of materials, energy-efficient construction methods, and low-emission transportation.
3. **Climate resilience:** Projects must be designed to withstand the impacts of climate change, incorporating features that enhance resilience to extreme weather events and other climate-related risks.

The regulation also emphasizes the transition to a circular economy. In construction, this means:

1. **Material efficiency:** Using recycled and sustainable materials, and designing buildings for durability, adaptability, and eventual disassembly and recycling.
2. **Waste management:** Implementing strategies to minimize construction waste and promote recycling and reuse of materials.

The application of the EU Taxonomy Regulation in the construction sector offers several benefits. It helps attract green financing and investment by providing clear and credible sustainability benchmarks. Enhanced sustainability practices can lead to operational efficiencies, cost savings, and reduced environmental impact. Additionally, aligning with the Taxonomy can improve a company's reputation and competitiveness in the growing market for sustainable construction.

However, there are also challenges. The initial costs of implementing sustainable practices and technologies can be high. There is also a need for continuous monitoring and reporting,

which can be resource-intensive. Smaller construction firms might face difficulties in meeting the rigorous criteria due to limited resources and expertise.

The EU Taxonomy Regulation is a transformative framework for promoting sustainability in the construction sector. By adhering to its criteria, construction companies can significantly contribute to environmental objectives while enhancing their operational efficiency and market competitiveness. Practical application involves comprehensive planning, stakeholder collaboration, advanced technologies, and transparent reporting. Despite the challenges, the long-term benefits of sustainable construction practices, driven by the Taxonomy Regulation, are substantial, paving the way for a greener and more resilient built environment.

## **8. THE EU CIRCULAR ECONOMY ACTION PLAN**

The EU Circular Economy Action Plan, part of the European Green Deal, aims to transform the European economy into a sustainable, low-carbon, resource-efficient system. This plan emphasizes reducing waste, extending product lifecycles, and promoting recycling and reuse. The construction sector, being one of the largest consumers of raw materials and producers of waste, plays a pivotal role in achieving the goals of the Circular Economy Action Plan.

The construction sector can significantly contribute to the circular economy by adopting practices that minimize waste and maximize the efficient use of resources. Key aspects of applying the Circular Economy Action Plan in construction include:

1. Sustainable material management
  - Resource efficiency: The plan encourages the use of sustainable and recycled materials. Construction companies can prioritize materials with a lower environmental footprint and those that can be reused or recycled at the end of a building's life.
  - Innovative materials: Embracing innovative materials, such as recycled concrete and cross-laminated timber, can help reduce the environmental impact of construction activities.
2. Design of longevity and flexibility
  - Durable designs: Buildings should be designed for longevity, minimizing the need for frequent repairs and renovations. This involves selecting high-quality materials and construction techniques that enhance durability.
  - Adaptable structures: Design flexibility allows buildings to be easily modified, repurposed, or expanded, extending their useful life, and reducing the need for new constructions.
3. Efficient waste management
  - Waste reduction: Implementing strategies to reduce waste during construction is crucial. This can be achieved through precise material estimation, modular construction techniques, and on-site recycling systems.
  - Deconstruction over demolition: When buildings reach the end of their life, deconstruction, rather than demolition, enables the recovery of valuable materials for reuse and recycling, significantly reducing construction waste.
4. Circular Business Model
  - Leasing and service model: Embracing circular business models, such as leasing building materials or offering construction services instead of selling products, can promote sustainability. This encourages companies to maintain the quality and reusability of materials throughout their lifecycle.

- **Material banks:** Creating material banks or inventories of reusable components allows construction firms to store and trade materials, fostering a circular supply chain.

To implement the Circular Economy Action Plan in practice, construction companies need to integrate circular principles into their operational and strategic frameworks:

- adopt circular design principles;
- enhance collaboration across the value chain;
- invest in training and education;
- implement advanced technologies;
- established circular procurement policies;
- monitor and report on circular practices.

The adoption of the Circular Economy Action Plan in construction offers numerous benefits. It reduces environmental impact by lowering raw material consumption and waste generation. Circular practices can also lead to cost savings through more efficient use of materials and energy. Moreover, they enhance the sector’s resilience by reducing dependency on finite resources and promoting innovation.

However, the transition to a circular economy in construction is not without challenges. It requires significant changes in traditional practices and mindsets, as well as investments in new technologies and training. The initial costs of adopting circular materials and processes can be high, and there is often a lack of infrastructure and markets for recycled products.

## **9. IS THE CONSTRUCTION SECTOR READY FOR THE NEW ESG REGULATIONS?**

The construction sector is making strides towards readiness for the new regulations under the CSRD Directive, EU Taxonomy Regulation, Sustainability Finance Disclosure Regulation (SFDR) and the EU Circular Economy Action Plan, but significant challenges remain. Many large construction firms have begun integrating sustainability practices and enhancing their reporting capabilities to comply with these regulations. However, the sector as a whole, especially smaller companies, faces hurdles such as the need for substantial investments in data management systems, advanced technologies, and workforce training. While the overall direction is positive and aligns with broader sustainability goals, widespread readiness will require continued efforts, increased resources, and collaboration across the entire construction value chain to meet the stringent requirements of these new regulations effectively.

Additionally, the construction sector must address gaps in infrastructure and standardization to fully align with these regulatory frameworks. While larger companies may have the resources to implement sophisticated sustainability measures, smaller firms often struggle with the financial and technical barriers to compliance. Industry-wide initiatives and government support can play a crucial role in bridging these gaps by providing funding, technical assistance, and clear guidelines. Moreover, fostering innovation through the adoption of advanced materials, circular design principles, and digital tools [5] like Building Information Modeling (BIM) [5] will be essential. Collaborative efforts among stakeholders, including policymakers, industry leaders, and supply chain partners, are vital to ensuring that the construction sector not only meets regulatory requirements but also leads in sustainability and circular economy practices.

## **10. CONCLUSION**

The EU ESG strategy represents a transformative shift for the construction sector, driving it towards greater sustainability, transparency, and accountability. The implementation of the CSRD Directive, EU Taxonomy Regulation, and the EU Circular Economy Action Plan is

setting high standards for environmental, social, and governance practices within the industry. While the transition poses challenges, particularly for smaller firms, the long-term benefits of compliance are substantial. These regulations not only enhance operational efficiency and reduce environmental impact but also foster innovation and improve stakeholder relations. As the construction sector continues to adapt, collaboration across the industry, investment in technology and training, and supportive policies will be crucial. Ultimately, the EU ESG strategy is paving the way for a more resilient, sustainable, and competitive construction sector, positioning it as a leader in the global shift towards sustainable development.

## REFERENCES

- [1] Directive (EU) 2022/2464 of the European parliament and of the council, Official Journal of the European Union, 16.12.2022
- [2] Regulation (EU) 2020/852 of the European parliament and of the council, Official Journal of the European Union, 18 June 2020
- [3] Regulation (EU) 2019/2088 of the European parliament and of the council, Official Journal of the European Union, 9.12.2019
- [4] A new Circular Economy Action Plan For a cleaner and more competitive Europe, Official Journal of the European Union, Brussels, 11.3.2020
- [5] Ibrahim H. S. Hashim N. and Jamal K. A. A., The potential benefits of building information modelling (BIM) in construction industry, IOP Conference Series: Earth and Environmental Science, Chulalongkorn University, Malaysia, v. 385, 24-25, 2019.
- [6] Ivanov Ya. Yanakieva A. Angelieva V. Building Information Modeling, Proc. XII Intern. Conference DCB'2020, Sept 10, 2020, p.26 -40.