

DEFINING THE NEED FOR EO SOLUTIONS TO STRENGTHEN THE SUSTAINABILITY OF CORPORATE SUPPLY CHAINS

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Abstract

The expansion of agricultural land, particularly for the production of commodities such as soy, beef, palm oil, cocoa, coffee and wood, is the **primary cause of deforestation and forest degradation**. As a major economy and consumer of these commodities associated with deforestation and forest degradation, the EU acknowledges its partial responsibility for this problem. With this in mind, the EU has introduced a **new regulation (2021/0366(COD)) aimed at minimising the consumption of products associated with deforestation or forest degradation**. The regulation also aims at increasing demand for legal and 'deforestation-free' commodities and products. The regulation requires **mandatory due diligences** to be carried out by operators placing specific commodities on the EU market, including among others, wood, as well as some derived products.

This study investigates the **sustainability of supply chains within the corporate wood, food, fashion and metals industry**, to better understand the potential need for **EO-enabled solutions to improve business processes and transparency**. We assessed the impact these regulations may have on corporates in the wood, food, fashion and metals industries, as well as the role EU Space data and signals can play in monitoring the sustainability measures implemented by the regulations and the corporates, support the reduction of emissions or pollution by corporates, provide information on risk parameters and potential solutions, and help improve corporate processes to contribute to sustainability measures.

1 Regulations are having a driving impact on corporate sustainability

Driven by consumer demand for sustainability and its 2050 climate neutrality goal, the EU is taking **legal action to regulate the social and environmental impact of economic output**

Regulations will **impact companies at all stages of the supply chain**, spanning sourcing, production, distribution and disposal, **across every sector of the economy**

The main provisions in the legislation will **require companies to produce eco-friendly products, disclose impacts, minimise harm to rights/environment, and follow EPR schemes**

The EU is **actively discussing binding legislation** for Member States & companies, with a **projected timeline of 3-5 years for finalisation and implementation**

The majority of the legislation is calling for the **instilling of robust monitoring systems** to ensure the transparency and accountability of companies

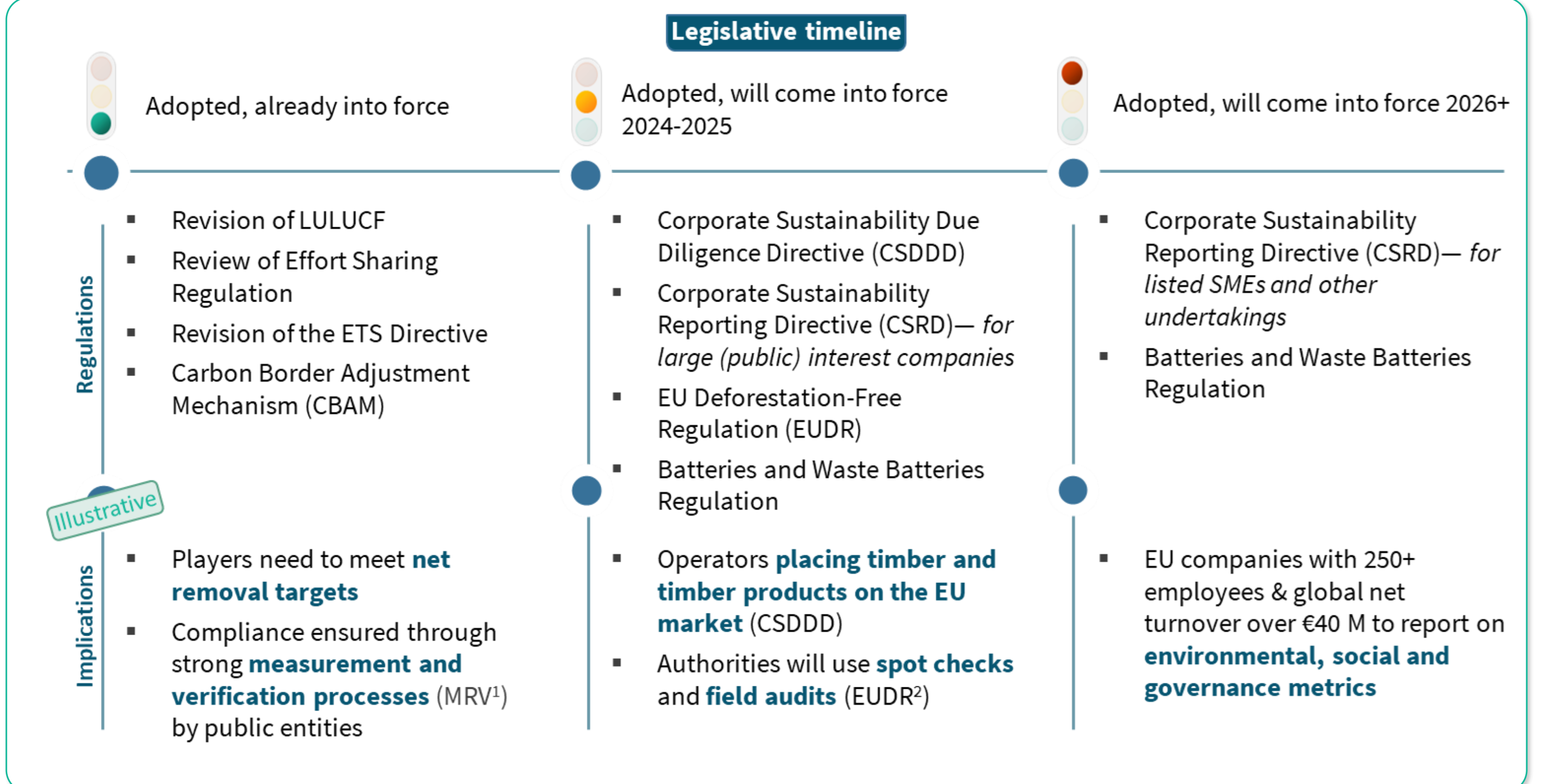
Legislation specifically identifies **Copernicus as a tool to help monitor and protect nature and ecosystems**

EU regulations have had a profound impact on corporate sustainability by establishing a **robust framework that compels businesses to prioritise environmental and social responsibility**. Since its announcement in 2019, numerous legislative proposals and policy initiatives have been introduced to support its goals.

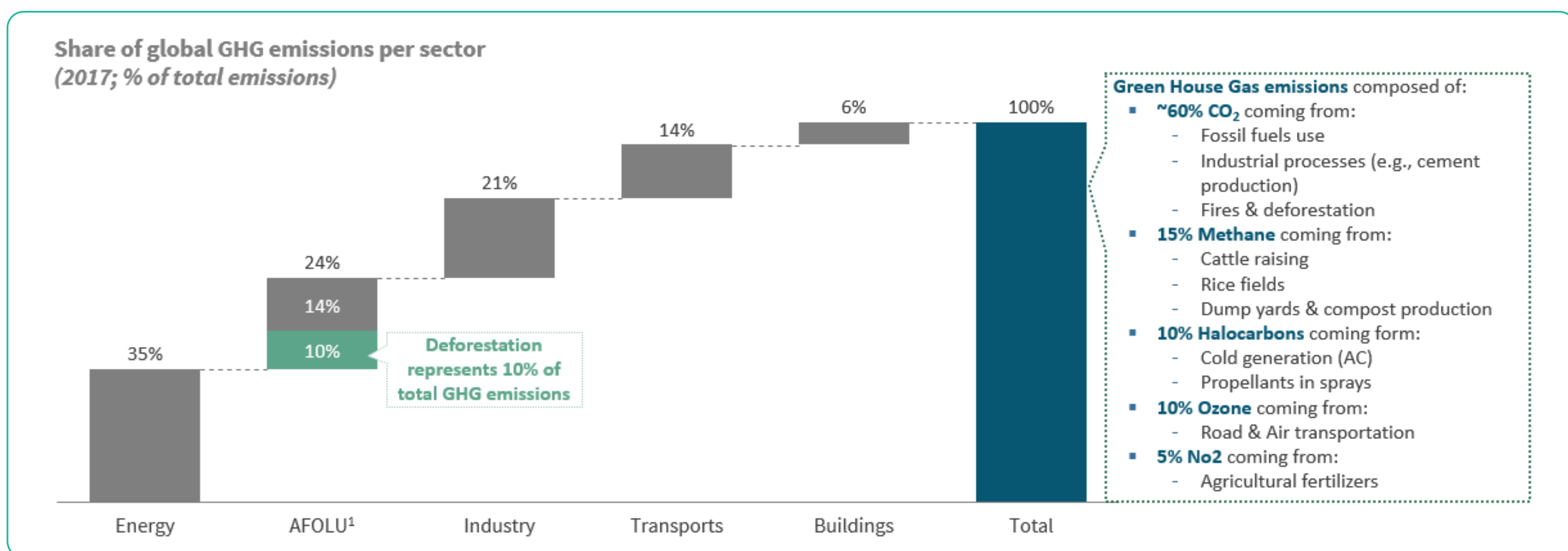
These regulations encompass a wide range of areas such as:

- Carbon emissions reduction targets
- Due diligence schemes
- Ecosystem monitoring frameworks
- Lifecycle analyses
- Recycling targets
- Product passports
- Stringent product labeling requirements

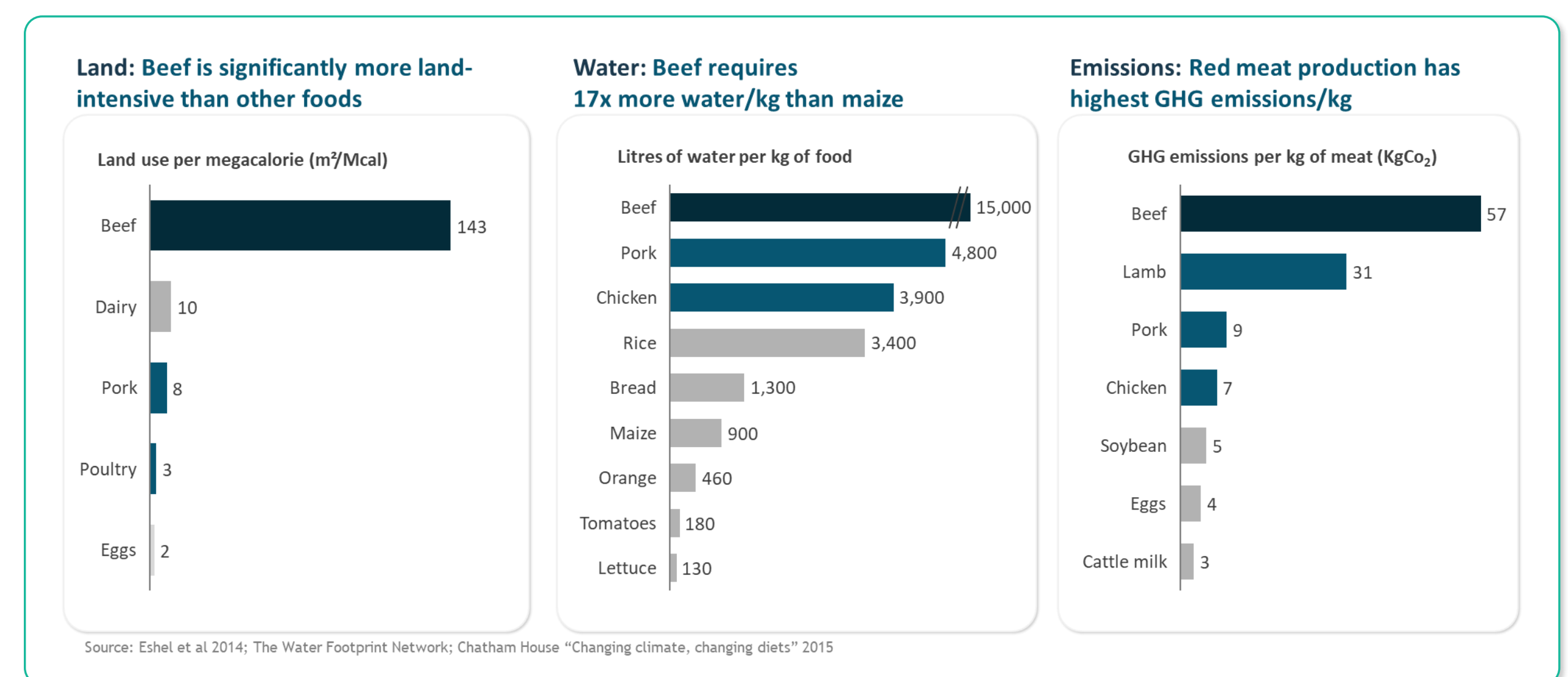
As a result, **European corporations are increasingly compelled to invest in sustainable practices**, such as renewable energy adoption, waste reduction, and supply chain transparency.



2 Unsustainable raw materials sourcing in timber and food

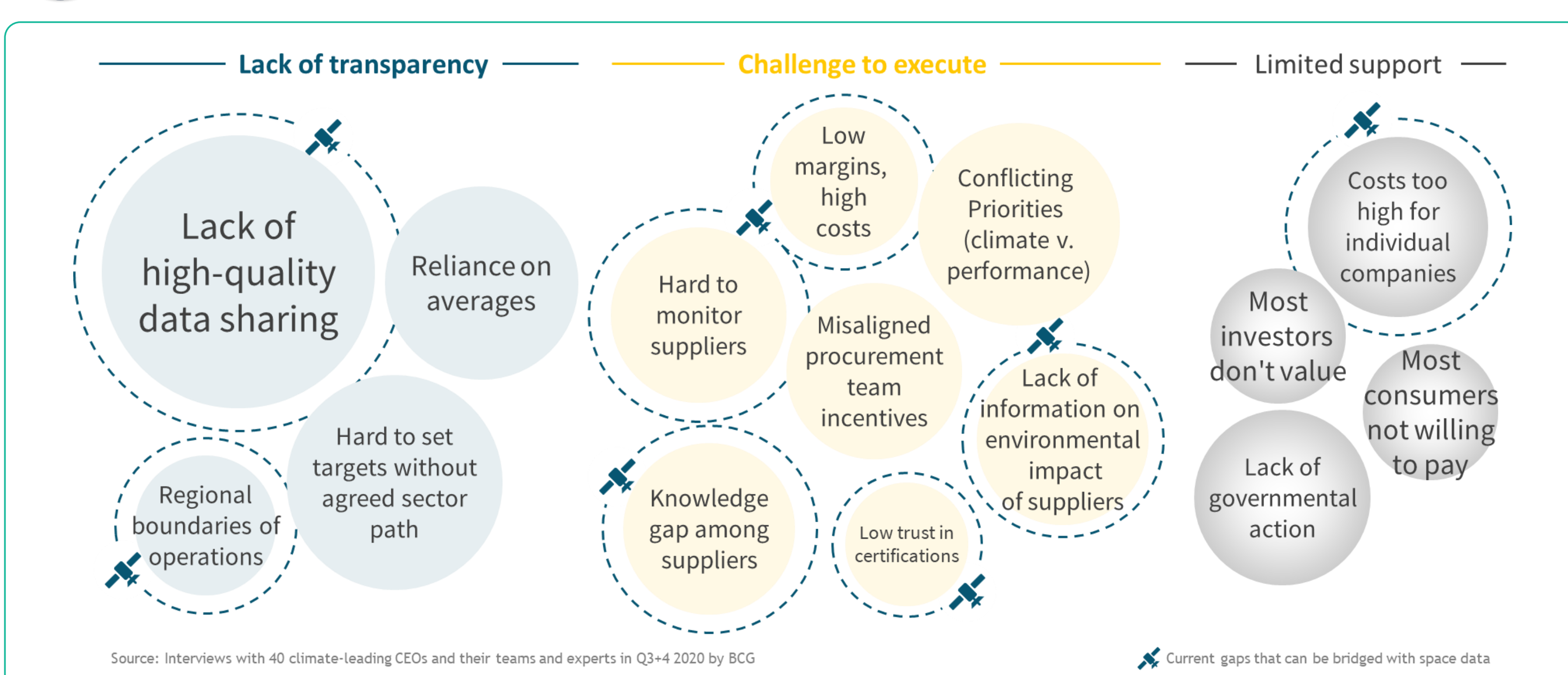


The **energy sector**, driven by fossil fuel combustion for electricity and transportation, is a major source of GHGs¹. **Agriculture and forestry** contribute through livestock methane and fertilizer nitrous oxide emissions. **Manufacturing** of heavy production like cement and steel, release substantial CO₂. The **transport industry** generates emissions via vehicle fuel combustion, and **construction** adds to emissions through energy-intensive building practices.



The food industry faces sustainability challenges, notably in raw material sourcing and greenhouse gas emissions, with beef production as a major problem. **Conventional beef production is inefficient, demanding extensive land for ranching**, causing deforestation, high water usage, and additional emissions from grain-fed cattle. Tackling emissions from these industries through **innovative technologies and sustainable practices** is crucial in mitigating the detrimental effects of climate change.

3 Space can contribute to much-needed unbiased data



Space technology holds immense potential in providing unbiased and crucial data to **support the global effort to decarbonise various industries**:

- EO measures GHG emissions** during the production of mass-market products (e.g., CO₂, N₂O, O₃, HFC and PFC) and **tracks specific emission weak points** within the production supply chain.
- SAR and LiDAR techniques allow for the exact mapping of forests**, measuring its quantity including height, density and volume which is key for carbon accounting purposes.
- Tracking and tracing of raw materials for mass-market products** uses space assets to get an overview of *travelled miles* on a consumer product.

1: GHG = Greenhouse Gas