TASK FORCE ON CLIMATE-RELATED FINANCIAL DISCLOSURES

TCFD | 2023

ABOUT THIS **REPORT**

In line with our ongoing commitment to strengthening governance of and transparency around climate-related risks and opportunities, we are publishing our third consecutive annual report in accordance with the recommendations of the Task Force on Climate-related Financial Disclosures (TCFD).

This report describes our governance of climate-related risks and opportunities in the progress we have made on our strategies to manage these risks and maximize related opportunities.

We hope you enjoy the report!

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GOVERNANCE

Corporate governance is essential in integrating climate-related issues into our decision-making processes at all levels of the organization. Our governance model ensures that climate-related risks and opportunities are adequately assessed, managed, and integrated into our business strategy.

Our Board of Directors plays a critical role in overseeing climate-related risks and opportunities. As members of the Audit Committee, our shareholders have direct access to our risk matrix, which includes climate-related risks, and actively participate in evaluating and advising on action plans developed by our team. This best-practice approach informs the next steps in our operations and ensures risks are effectively managed.

Our Corporate Social Responsibility (CSR) Committee plays an advisory and decision-making role in evaluating and steering our sustainability initiatives, particularly those related to climate change. This committee, with support from our shareholders, discusses and oversees priority issues under our Strategic Sustainability Plan. It also approves and tracks progress on corporate goals, including commitments to increase renewable energy production, reduce the carbon footprint of our ethanol, and reduce the use of renewable products.

At the executive level, our CEO plays a central role in managing environmental challenges, establishing corporate climate commitments, and integrating these issues into our business strategy. He also serves as Energy Transition Chair at B20, a forum bringing together business leaders from developed and developing economies to discuss economic and business policies. He monitors progress towards established goals and assesses associated risks and opportunities. Each of our business units incorporates climate-related scenarios into their Risk and Opportunity (R&O) matrixes, which inform action plans that are closely tracked by the Corporate Controls team. Each action plan is assigned an owner, following a clearly defined hierarchy of responsibilities.

The Sustainability function provides support in managing climate-related risks and opportunities. Reporting to the Vice-President for Strategy and Sustainability, this function ensures that ESG issues, including climate change, are discussed at all levels of the organization, from strategic discussions to decision-making in relevant committees.

Effective governance of climate-related issues ensures we deliver on our sustainability commitments and are prepared to face the challenges and opportunities posed by climate change.

STRATEGY

In today's global landscape, sustainability and environmental impact mitigation have become one of the most pressing agenda items for companies across all sectors. Within the sugar and energy industry, Raízen is leading the way in addressing challenges and seizing opportunities in a constantly evolving market.

From navigating international market scrutiny regarding the sustainable attributes of our products to leveraging opportunities in new markets, we have the chance to align our corporate objectives with sustainable practices and growth strategies. We view this dynamic environment as an opportunity to innovate and reinforce our commitment to sustainability, opening doors to new possibilities and strengthening our position in the global market.

RISKS

Risk 1

The recent implementation of RenovaBio, Brazil's national biofuels policy, presents both significant opportunities and challenges for us and other industry players. This policy aims to reduce carbon intensity in Brazil's transportation sector by creating a carbon credit market to offset emissions from fossil fuels.

A major financial risk stemming from RenovaBio is the possibility that other industry players may not pass the cost of purchasing carbon credits (CBIOs) on to customers in their final fuel prices. This could force us to absorb these costs to remain competitive, eroding our profit margins.

To estimate the financial impact of this potential competitive challenge, we multiplied the average CBIO price over the past 12 months (R$ 100.00) by our target for CBIO purchases. This yielded an approximate financial impact of R$ 849 million.

We use a range of strategies in managing this risk: we maintain an operations desk responsible for the purchase and sale of CBIOs, allowing us to mitigate the financial impact at the end of each year. Additionally, we closely monitor competitor behavior to timely identify developments that could affect our margins.

To support these mitigation strategies, we invest in human capital, including a dedicated risk management team. This investment totals approximately R$ 5,960,000 per year, covering team salaries and costs associated with compliance monitoring and anti-competitive actions.

Risk 2

With over 1.3 million hectares of arable land, we are faced with the challenge of maintaining our production of sugar, biofuels, and bioenergy amid changing rainfall patterns and water stress. A shift in rainfall patterns, particularly an increase in drought periods in Brazil's central-southern region, could reduce sucrose content per unit of planted area, affecting our sugar and ethanol output and, consequently, our revenue.

To estimate the financial impact of reduced yields, we assumed a 1% decrease in total sugarcane yields. Based on net revenues from the last crop year (2022/2023), this reduction would result in a loss of approximately R$ 190.8 million in net revenue.

To manage this risk, we continuously monitor the suitability of sugarcane varieties with local climate conditions and make adjustments as necessary. In addition, we employ advanced management practices to optimize resource use and increase crop resilience. One example is modernizing our agricultural weather network. We have installed 280 automated stations across all our sugarcane regions, allowing for more precise monitoring of soil conditions and crop needs. The total cost of this investment and its annual maintenance is estimated at approximately R$ 800,000.

Risk 3

As the world transitions to a more sustainable economy, biofuels can play a crucial role in reducing greenhouse gas (GHG) emissions in the transportation sector. However, increased scrutiny from international markets regarding product sustainability can pose a challenge for companies relying on biofuel sales in markets with stringent sustainability requirements.

Raízen could become less competitive in global markets if we fail to maintain the sustainability attributes of our products, such as emissions management and traceability, in line with consumer demands and local regulations.

To estimate the financial impact of this potential loss of competitiveness, we modeled the decrease in EBITDA that would result from the sale of our ethanol in markets without sustainability requirements compared to more demanding markets. Based on sales volumes and the different profit margins in markets such as California, Europe, and Japan, the financial impact was estimated at approximately R$ 32.5 million.

We have taken several practice steps in managing this risk. This includes participating in forums discussing climate change, carbon pricing, and GHG emissions to keep abreast of market trends (learn more here). We also conduct an annual GHG emissions inventory, which provides inputs into subsequent assessments (learn more here).

Raízen has secured and maintained certifications such as Bonsucro, International Sustainability and Carbon Certification (ISCC), and California Air Resources Board (CARB) certification, supporting continued access to international markets. Inspections required by these markets account for more than 58% of our total spending on certifications and inspections, resulting in an estimated cost of R$ 1,336,700.

OPPORTUNITIES

Opportunity 1

In the current transition to a more sustainable economy, biofuels have emerged as a core part of the solution for mitigating impacts from climate change. Among them, ethanol stands out as a widely accepted and globally regulated alternative fuel.

Raízen is the only company capable of producing second-generation ethanol on an industrial scale, creating a valuable opportunity to grow our market share. As biofuels incentive policies are rolled out and demand for sustainable products continues to increase, we project a substantial increase in both sales volume and the average price of ethanol. Estimates indicate a financial impact ranging from R$ 150 million to R$ 450 million, depending on market trends and planned production volumes.

To fully capitalize on this opportunity, we have adopted a strategic and multifaceted approach that includes:

1) Market assessment: A multidisciplinary, experienced team is responsible for evaluating ethanol trends and premium prices in different countries, identifying market opportunities, and adapting production to meet demand.

2) Informed decision-making: Based on market assessments, we adjust our production planning to align with consumer preferences and explore the most lucrative markets, prioritizing strategic products and regions.

3) Investment in human capital: Forming specialized team of managers, coordinators, and analysts was a first and important step in realizing this opportunity. This team represents an annual cost of approximately R$ 2,157,120, but it supports a more proactive approach that creates significant competitive advantage.

A strategic approach to the energy transition has driven our performance and profitability, cementing our position as one of the leading global players in the sugar and ethanol markets. With a team dedicated to identifying and seizing market opportunities, we are well-prepared to lead in an environment increasingly focused on sustainability and energy efficiency.

Opportunity 2

Amid global efforts to reduce greenhouse gas (GHG) emissions, we see a significant opportunity to achieve revenue growth by tapping into the new markets and carbon pricing programs.

As one of the leading ethanol producers in Brazil, Raízen stands to benefit from the recent implementation of Renovabio in Brazil, a program which provides incentives for biofuels by creating a market for decarbonization credits (CBIOs). In the first year of Renovabio, we generated over 2.3 million CBIO credits, generating revenues of more than R$ 80 million. The potential regulation of carbon markets in Brazil presents further opportunities, with an estimated financial impact between R$ 228.8 million and R$ 279.7 million from the sale of CBIOs.

To fully capitalize on these opportunities, we keep all our bioenergy facilities operational and certified within the Renovabio decarbonization credit (CBIO) program. The annual cost to register and maintain these certifications is approximately R$ 2.1 million. We also have a dedicated CBIO trading team. The annual costs in connection with CBIO trading, including bookkeeping, brokerage, and custody, total about R$ 540,000.

We are strategically positioned to leverage opportunities presented by carbon markets and carbon pricing programs, expanding our presence in new and emerging markets, and contributing to a more sustainable and energy-efficient economy.

Opportunity 3

With growing international demand for the sustainable attributes of our products, we have identified a significant opportunity to expand our lead as a major producer of sugarcane ethanol.

We are committed to reducing the carbon footprint of our ethanol by 20% by 2030, which has the potential to increase the premium paid by more demanding markets, such as Europe and California. Achieving this would result in a substantial premium over corn ethanol. Based on this reduction, the potential minimum and maximum financial impacts of this opportunity are estimated R$ 42.9 million and R$ 85.9 million, respectively.

To seize this opportunity, we have adopted the following strategies:

1) Certifications: we hold certifications required by regulated markets and ensure that related standards are at least met, if not exceeded.

2) Market Risk Management: we manage market risks and regularly engage with regulatory bodies responsible for evaluating our products against environmental requirements.

3) Dedicated Team: we have a team dedicated to maintaining certifications, liaising with evaluating bodies, and proactively following external market developments.

With an annual investment of R$ 1,412,400 to execute these strategies, we are committed to capitalizing on this opportunity and further strengthening our position as a leader in the biofuels sector.

MANAGING **RISKS** AND **OPPORTUNITIES**

Climate risk management is integral to our global framework for financial and business risk management, and follows the same guidelines and methodologies. We assess and manage climate risks over three time horizons: short term (up to three years), medium term (three to five years), and long term (five to twenty years).

To determine the magnitude and likelihood of financial impacts, we conduct interviews with experts from various potentially affected business areas, including new technologies, finance, agriculture, and planning. Risks and opportunities are prioritized and classified in a matrix that intersects the magnitude of impact with the likelihood of occurrence. Medium and high-impact risks with a high likelihood are rated as substantial and are addressed by closer management and more immediate action.

Our process for identifying, assessing, and responding to climate-related risks and opportunities includes meetings and workshops with senior management. Teams are involved and required to assess and report their risks multiple times per fiscal year using a standard risk matrix. The methodology we use allows us to map the risks and opportunities associated with all our operations in light of the future climate scenario, both in terms of their physical impact as well as their reputational and market impact.

Risk matrix reviews follow a clear schedule with defined milestones. The matrix is consolidated and reviewed annually, and is shared with all senior management for alignment with five-year business plans. We have also developed a Business Continuity Plan for Critical Business Processes, which is reviewed annually to identify and plan for risk scenarios.

We are exposed to two primary types of risks: physical and transitional. In terms of physical risks, for example, we have identified changes in rainfall patterns and increased drought periods as having significant potential impacts on our operations. Reduza, one of the programs we have implemented to mitigate this risk, has resulted in a significant reduction in water consumption per metric ton of sugarcane crushed (read more here). Regarding transitional risks, increased scrutiny from international markets on product emissions could impact our portfolio. To address this challenge, we engage regularly with environmental standards evaluators and uphold our certification strategy, ensuring we remain competitive in international markets (learn more here).

We are actively managing climate-related risks and opportunities, integrating them into our strategy and financial planning to ensure the long-term resilience and sustainability of our business.

METRICS AND **TARGETS**

We have established a comprehensive set of metrics and targets to assess and manage climate change-related risks and opportunities. Our climate strategy includes four clearly articulated public commitments:

The first is **increasing our renewable electricity production output by 80%** while diversifying our portfolio. This will position us as a thought leader in the renewable energy market, while Helping make Brazil's electric grid more sustainable. We are proactively developing solutions to catalyze the energy transition, including difficult-to-decarbonize industries. This commitment aligns with our mission to produce biofuels supporting the energy transition, as well as with our second commitment: reducing the carbon footprint of our ethanol.

Reducing the carbon footprint of our ethanol by 20% is a core element of our climate strategy. By expanding our renewable generation capabilities, we are lowering the carbon footprint of our ethanol and thus reducing GHG emissions.

Our third goal is to **derive 80% of Adjusted EBITDA from renewable businesses.** This underscores our commitment to targeting investment to areas that support enhanced sustainability and climate change mitigation. To meet this goal, we plan to expand our renewables portfolio to cater to markets with stringent standards for high-value products.

Our fourth and final commitment is to **reduce our products' emission intensity by 10%**. This goal reflects our commitment to minimizing our environmental impact across the entire value chain.

Alongside these commitments, we continuously track our greenhouse gas (GHG) emissions to fully understand the impact of our operations, and are actively developing and implementing effective reduction strategies. Our Annual Emissions Inventories, developed in accordance with The Greenhouse Gas Protocol and the Brazilian GHG Protocol Program, have been an ongoing practice since our inception. We also conduct an annual Life Cycle Assessment (LCA) of our primary products, such as first and second-generation ethanols and bioelectricity, to identify and mitigate potential environmental impacts throughout the production and consumption chain. Our LCA methodology covers the entire production cycle, cradle to gate. As part of our efforts to enhance transparency and reduce emissions, we voluntarily respond to the Carbon Disclosure Project (CDP) questionnaire, achieving a Leadership-level score in 2023. We have also joined the CDP Supply Chain program to collaborate with our suppliers on their decarbonization journey and strengthen climate change management across the value chain. The climate-related risks and opportunities reported in our TCFD disclosures are also included in our CDP questionnaires, ensuring comprehensive transparency.

For more information on our sustainability disclosures and to track our performance against our targets, click here to read our 2023/2024 Integrated Report.

CREDITS

General coordination
Raízen

Project management and art direction
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