(Convenience translation into English from the original previously issued in Portuguese)

GRANBIO INVESTIMENTOS S.A.

Independent auditor's report

Individual and consolidated financial statements
As at December 31, 2023

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Individual and consolidated financial statements
As at December 31, 2023

Contents

Management Report

Dear Shareholders,

In line with its legal and bylaw provisions, the Management of GranBio Investimentos S.A. hereby submits for your appreciation the Company's individual and consolidated financial statements along with the independent auditors' report on the individual and consolidated financial statements, prepared in accordance with the accounting practices adopted in Brazil for the period ended December 31, 2023.

Tel.: + 55 11 3848 5880
Fax: + 55 11 3045 7363
www.bdo.com.br

Rua Major Quedinho, 90
Consolação – São Paulo, SP
Brasil 01050-030

INDEPENDENT AUDITOR'S REPORT ON THE INDIVIDUAL AND CONSOLIDATED FINANCIAL STATEMENTS

To the
Shareholders and Management of
GranBio Investimentos S.A.
São Paulo – SP

Opinion on the individual and consolidated financial statements

We have audited the individual and consolidated financial statements of GranBio Investimentos S.A. ("Company"), identified as parent company and consolidated, respectively, which comprise the statement of financial position as at December 31, 2023, and the respective statements of operations, comprehensive income (loss), changes in equity and cash flows for the year then ended, as well as the corresponding notes to the financial statements, including the material accounting policies and other explanatory information.

Opinion on the individual financial statements

In our opinion, the accompanying individual financial statements present fairly, in all material respects, the financial position of GranBio Investimentos S.A. as at December 31, 2023, its financial performance and its cash flows for the year then ended, in accordance with Brazilian accounting practices.

Opinion on the consolidated financial statements

In our opinion, the accompanying consolidated financial statements present fairly, in all material respects, the financial position of GranBio Investimentos S.A. and its controlled companies as at December 31, 2023, its consolidated financial performance and its consolidated cash flows for the year then ended, in accordance with Brazilian accounting practices and International Financial Reporting Standards (IFRSs) issued by the International Accounting Standards Board (IASB).

Basis for opinion on the individual and consolidated financial statements

We conducted our audit in accordance with Brazilian and International Standards on Auditing (ISAs). Our responsibilities under those standards are further described in the "Auditor's Responsibilities for the Audit of the Individual and Consolidated Financial Statements" section of our report. We are independent of the Company and its controlled companies in accordance with the relevant ethical principles established in the Code of Ethics for Professional Accountants and in the professional standards issued by the Brazilian Federal Council of Accounting (CFC), and we have fulfilled our other ethical responsibilities in accordance with these standards. We believe that the audit evidence obtained is sufficient and appropriate to provide a basis for our opinion.

Emphasis

Investment realization stage

We draw attention to Notes 1 and 12 to the individual and consolidated financial statements, which describe that the Company and its controlled companies have reported recurring losses on their operations and accumulated loss in equity amounting to R$ 758,862 thousand (R$ 712,290 thousand as at December 31, 2022), individual and consolidated. This situation is mainly due to the fact that the ethanol plant of the controlled company Bioflex Agroindustrial S.A. is currently in the stage of investments to reach its business capacity of continual operations and, consequently, the recoverability of the investments made in fixed assets and technology (intangible assets). Our opinion is not qualified in respect of this matter.

Related-party transactions

We draw attention to Notes 10, 19 (b) and 24 to the individual and consolidated financial statements, which describe that the Company and its controlled companies maintain balances and transactions in significant amounts with related parties, according to the conditions described therein. Accordingly, the results of these operations could have been different if they had been carried out with third parties. Consequently, the individual and consolidated financial statements should be analyzed in this context. Our opinion is not qualified in respect of this matter.

Key audit matters

Key audit matters are those matters that, in our professional judgment, were of most significance in our audit of the financial statements for the current year. These matters were addressed in the context of our audit of the individual and consolidated financial statements as a whole and in forming our opinion thereon and, accordingly, we do not provide a separate opinion on them:

Compliance with contractual clauses in loan and financing agreements	How the matter was addressed in our audit
The Company and its controlled companies are a party to several loan and financing agreements totaling R$ 76,973 thousand and R$ 278,007 thousand, in the individual and consolidated financial statements, respectively. Certain agreements contain debt anticipation clauses involving certain obligations which, when not fulfilled, may trigger cross-acceleration and cross-default covenants. As mentioned in Note 15 (d), Management considers, based on its understanding and on the understanding of its legal advisors, that there is no non-compliance with non-financial covenants related to the filing of protests of bill. Management and its legal advisors believe that there is no legal or contractual basis for early maturity by the creditors until the reporting date, guaranteeing the Company and its controlled companies the unconditional right to continue maintaining the deferral of settlement based on the contractually established terms. Considering the complexity of judgment in interpreting agreements with some financial institutions, the need for robust and timely internal controls and the relevance of this matter in relation to the Company's liquidity risk, we consider this to be a key audit matter.	Our audit procedures included, among others: ▪ Reading loan and financing agreements; ▪ Issuing confirmation letters and receiving confirmation letter responses to confirm the balances recorded in the financial statements; ▪ Understanding Management's analysis of the covenants and the consistency of the application of the understanding in relation to the financial statements disclosed in previous periods; ▪ Obtaining the opinion of the Company's internal legal advisors; The results obtained by the audit procedures previously mentioned are consistent with Management's evaluation presented in the notes, in the context of the individual and consolidated financial statements taken as whole.

Impairment of non-financial assets	How the matter was addressed in our audit
As at December 31, 2023, the Company has fixed assets in the amount of R$ 684,001 thousand in the controlled company Bioflex Agroindustrial S.A., and in the amount of R$ 512,977thousand in the controlled company GranBio LLC, referring to licenses and intellectual properties and goodwill from expected future profitability, respectively. In the process of measuring the corresponding recoverable amounts, complex judgments are used by Management, mostly based on internally developed assumptions, which are not observable, and for a period longer than that formally supported by the approved business plan of the Group. Any changes in the assumptions used for the impairment test prepared by Management could have significant effects on the individual and consolidated financial statements and, for this reason, we consider this to be a key audit matter.	Our audit procedures included, among others: ▪ Analyzing the competence and objectivity of external experts hired by Management; ▪ Having our experts assess the model and the reasonableness of the assumptions considered and arithmetic recalculations; ▪ Comparing data used with comparable observable data; ▪ Confirming observable data based on data sources mentioned in the external experts' report; ▪ Comparing the financial performance considered in the model with prior periods (history); ▪ Verifying whether the methodology used was consistent with assumptions adopted in the previous year. We have identified failures in internal controls regarding the formalization of some assumptions, however, with no material adjustments to be recorded.

Other matters

Statements of value added

The individual and consolidated statements of value added for the year ended December 31, 2023, prepared under the responsibility of the Company's Management and presented as supplementary information for IFRS purposes, were submitted to the same audit procedures followed for the audit of the Company's financial statements. In order to form an opinion, we have checked whether these statements are reconciled with the financial statements and accounting records, as applicable, and whether their form and contents meet the criteria established in NBC TG 09 - Statement of Value Added. In our opinion, the statements of value added were properly prepared, in all material respects, in accordance with the criteria established in that Standard, and are consistent with the individual and consolidated financial statements taken as a whole.

Other information accompanying the individual and consolidated financial statements and auditor's report

The Company's Management is responsible for the other information that comprises the Management Report.

Our opinion on the individual and consolidated financial statements does not cover the Management Report and we do not express any form of audit conclusion thereon.

In connection with our audit of the individual and consolidated financial statements, our responsibility is to read the Management Report and, in doing so, consider whether the report is materially inconsistent with the financial statements or our knowledge obtained in the audit, or otherwise appears to be materially misstated. If, based on the work we have performed, we conclude that there is a material misstatement of this Management Report, we are required to report that fact. We have nothing to report in this regard.

Responsibilities of Management and those charged with governance for the individual and consolidated financial statements

The Company's Management is responsible for the preparation and fair presentation of the individual and consolidated financial statements in accordance with Brazilian accounting practices and with the International Financial Reporting Standards, issued by IASB, and for such internal control as Management determines is necessary to enable the preparation of financial statements that are free from material misstatement, whether due to fraud or error.

In preparing the individual and consolidated financial statements, Management is responsible for assessing the Company's ability to continue as a going concern, disclosing, as applicable, matters related to going concern and using the going concern basis of accounting unless Management either intends to liquidate the Company or to cease operations, or has no realistic alternative but to do so.

Those charged with governance are responsible for overseeing the Company's and its controlled companies' financial reporting process.

Auditor's responsibilities for the audit of the individual and consolidated financial statements

Our objectives are to obtain reasonable assurance about whether the individual and consolidated financial statements as a whole are free from material misstatement, whether due to fraud or error, and to issue an auditor's report that includes our opinion. Reasonable assurance is a high level of assurance but is not a guarantee that an audit conducted in accordance with Brazilian and International Standards on Auditing (ISA) will always detect a material misstatement when it exists. Misstatements can arise from fraud or error and are considered material if, individually or in the aggregate, they could reasonably be expected to influence the economic decisions of users taken on the basis of the financial statements.

As part of an audit in accordance with Brazilian standards and ISAs, we exercise professional judgment and maintain professional skepticism throughout the audit. We also:

- Identify and assess the risks of material misstatement of the individual and consolidated financial statements, whether due to fraud or error, design and perform audit procedures responsive to those risks, and obtain audit evidence that is sufficient and appropriate to provide a basis for our opinion. The risk of not detecting a material misstatement resulting from fraud is higher than for one resulting from error, as fraud may involve collusion, forgery, intentional omissions, misrepresentations, or the override of internal controls;
- Obtain an understanding of internal controls relevant to the audit in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the Company's and its controlled companies' internal controls;
- Evaluate the appropriateness of accounting policies used and the reasonableness of accounting estimates and disclosures made by Management;
- Conclude on the appropriateness of Management's use of the going concern basis of accounting and, based on the audit evidence obtained, whether material uncertainty exists related to events or conditions that may cast significant doubt on the Company's ability to continue as a going concern. If we conclude that material uncertainty exists, we are required to draw attention in our auditor's report to the related disclosures in the individual and consolidated financial statements or, if such disclosures are inadequate, to modify our opinion. Our conclusions are based on the audit evidence obtained up to the date of our auditor's report. However, future events or conditions may cause the Company to cease to continue as a going concern;
- Evaluate the overall presentation, structure and content of the financial statements, including the disclosures, and whether the individual and consolidated financial statements represent the underlying transactions and events in a manner that achieves fair presentation;

- Obtain sufficient and appropriate audit evidence regarding the financial information of the entities or business activities within the group to express an opinion on the individual and consolidated financial statements. We are responsible for the direction, supervision and performance of the audit. We remain solely responsible for our audit opinion.

We communicate with those charged with governance regarding, among other matters, the planned scope and timing of the planned audit and significant audit findings, including any significant deficiencies in internal controls that we identify during our audit.

We also provide those charged with governance with a statement that we have complied with relevant ethical requirements regarding independence and communicate to them all relationships and other matters that may reasonably be thought to bear on our independence, and where applicable, related safeguards.

Of the matters communicated to those charged with governance, we determine those that were of most significance for the audit of the financial statements for the current year and which are therefore the key audit matters. We describe these matters in our auditor's report unless law or regulation precludes public disclosure about the matter or when, in extremely rare circumstances, we determine that a matter should not be communicated in our report because the adverse consequences of doing so would reasonably be expected to outweigh the public interest benefits of such communication.

The accompanying financial statements have been translated into English for the convenience of readers outside Brazil.

São Paulo, March 21, 2024.

BDO RCS Auditores Independentes SS Ltda.
CRC 2 SP 013846/O-1

Ricardo Vieira Rocha
Accountant CRC 1 BA 026357/O-2 – S - SP

GRANBIO INVESTIMENTOS S.A.

Statement of financial position
December 31, 2023 and 2022
(In R$ thousand)

Assets		Parent Company		Consolidated	
	Note	12/31/23	12/31/22	12/31/23	12/31/22
Current					
Cash and cash equivalents	6	1	1	200	64,723
Short-term investments	7	-	7,186	-	7,186
Accounts receivable	8	-	-	237	2,032
Inventory	9	-	-	8,608	8,570
Advance to suppliers - related parties	10	-	-	-	12,979
Advances to suppliers		-	11	1,953	515
Recoverable taxes		601	6	2,345	1,803
Prepaid expense		1	46	672	1,730
		603	**7,250**	**14,015**	**99,538**
Non-current					
Short-term investments	7	-	61,875	-	-
Recoverable taxes		-	-	479	2,850
Judicial deposits		84	166	482	770
Advances to suppliers		-	-	14,565	-
Related-party loans	10	2,429	-	-	-
Investments	11	948,931	1,015,825	-	-
Property, plant and equipment	12	2,278	2,482	700,861	746,533
Intangible assets	13	-	-	530,810	580,562
		953,722	**1,080,348**	**1,247,197**	**1,330,715**
Total assets		**954,325**	**1,087,598**	**1,261,212**	**1,430,253**

Liabilities and equity		Parent Company		Consolidated	
	Note	12/31/23	12/31/22	12/31/23	12/31/22
Current					
Loans and borrowings	15	390	9,346	32,338	44,152
Trade payables	16	176	562	35,291	39,670
Tax and labor obligations		10	9	6,675	7,502
Other accounts payable		82	190	1,066	1,577
Advances from clients	17	-	-	-	5,739
Related-party loans	10	30,660	44,363	-	-
		31,318	**54,470**	**75,370**	**98,640**
Non-current					
Loans and borrowings	15	76,583	123,030	245,669	298,101
Tax and labor obligations		-	-	6,680	7,081
Deferred income tax and social contribution	25.c	-	-	40,474	48,493
Provision for labor contingencies	18	-	-	634	-
Other accounts payable		1,797	1,879	2,580	3,449
Other accounts payable to related parties	10	-	-	43,172	63,502
		78,380	**124,909**	**339,209**	**420,626**
Equity					
Share capital	19.a	977,662	977,662	977,662	977,662
Advance for future capital increase	19.b	363,780	341,059	363,780	341,059
Capital reserves	19.c	108,175	108,175	108,175	108,175
Asset and liability valuation adjustments	19.d	153,872	193,613	153,872	193,613
Accumulated losses		(758,862)	(712,290)	(758,862)	(712,290)
Equity attributable to controlling shareholders		**844,627**	**908,219**	**844,627**	**908,219**
Non-controlling interest	11.d	-	-	2,006	2,768
		844,627	**908,219**	**846,633**	**910,987**
Total liabilities and equity		**954,325**	**1,087,598**	**1,261,212**	**1,430,253**

The explanatory notes are part of the individual and consolidated financial statements.

GRANBIO INVESTIMENTOS S.A.

Statement of operations
Periods ended December 31, 2023 and 2022
(In R$ thousand)

	Note	Parent Company 12/31/23	Parent Company 12/31/22	Consolidated 12/31/23	Consolidated 12/31/22
Revenue from goods sold and services rendered	20	**-**	**-**	**5,504**	**22,970**
Cost of goods sold and services rendered	21	-	-	(46,092)	(34,679)
Gross loss		**-**	**-**	**(40,588)**	**(11,709)**
Operating income / (expenses)					
Administrative and general expenses	22	(5,656)	(12,849)	(52,134)	(59,977)
Other operating income and (expenses)	23	26	614	(11,014)	138,092
Equity result	11.c	(47,295)	44,236	-	-
Net income before financial revenue (expenses)		**(52,925)**	**32,001**	**(103,736)**	**66,406**
Financial revenue	24	21,649	11,012	107,572	41,130
Financial expenses	24	(15,296)	(15,831)	(55,831)	(85,086)
Financial Result, net		**6,353**	**(4,819)**	**51,741**	**(43,956)**
Profit/loss before income tax and social contribution		**(46,572)**	**27,182**	**(51,995)**	**22,450**
Current income tax and social contribution	25	-	-	(3)	(853)
Deferred income tax and social contribution	25	-	-	4,664	4,823
Income/(loss) for the period		**(46,572)**	**27,182**	**(47,334)**	**26,420**
Controlling interest		-	-	(46,572)	27,182
Non-controlling interest		-	-	(762)	(762)
Income/(loss) for the period		**-**	**-**	**(47,334)**	**26,420**
Number of shares		-	-	108,133	108,133
Earnings per share		-	-	(0.4307)	0.2514

The explanatory notes are part of the individual and consolidated financial statements.

GRANBIO INVESTIMENTOS S.A.

Statement of comprehensive income (loss)
Periods ended December 31, 2023 and 2022
(In R$ thousand)

		Parent Company		Consolidated	
	Note	12/31/23	12/31/22	31/12/23	12/31/22
Net income/(loss) for the period		**(46,572)**	**27,182**	**(47,334)**	**26,420**
Other comprehensive income to be reclassified to profit or loss in subsequent periods:					
Accumulated translation adjustment - CTA	11.c e 19.d	(39,741)	(38,984)	(39,741)	(38,984)
Comprehensive income for the period		**(86,313)**	**(11,802)**	**(87,075)**	**(12,564)**
Profit attributable to:					
Controlling interest		-	-	(86,313)	(11,802)
Non-controlling interest		-	-	(762)	(762)
Total comprehensive income		-	-	**(87,075)**	**(12,564)**

The explanatory notes are part of the individual and consolidated financial statements.

GRANBIO INVESTIMENTOS S.A.

Statement of changes in equity
Periods ended December 31, 2023 and 2022
(In R$ thousand)

		Attributable to the controlling shareholders							
	Note	Share capital	Advance for future capital increase	Capital reserve	Asset and liability valuation adjustments	Accumulated losses	Equity attributable to shareholders	Noncontrolling interest	Total equity
Balances on January 01, 2022		**977,662**	**-**	**108,175**	**232,597**	**(739,472)**	**578,962**	**3,530**	**582,492**
Accumulated translation adjustment - CTA	11.c	-	-	-	(38,984)	-	**(38,984)**	-	**(38,984)**
Advance for future capital increase	19.b	-	341,059	-	-	-	**341,059**	-	**341,059**
Income for the period		-	-	-	-	27,182	**27,182**	(762)	**26,420**
Balances on December 31, 2022		**977,662**	**341,059**	**108,175**	**193,613**	**(712,290)**	**908,219**	**2,768**	**910,987**
Accumulated translation adjustment - CTA	11.c	-	-	-	(39,741)	-	**(39,741)**	-	**(39,741)**
Advance for future capital increase	19.b	-	22,721	-	-	-	**22,721**	-	**22,721**
Loss for the period		-	-	-	-	(46,572)	**(46,572)**	(762)	**(47,334)**
Balances on December 31, 2023		**977,662**	**363,780**	**108,175**	**153,872**	**(758,862)**	**844,627**	**2,006**	**846,633**

The explanatory notes are part of the individual and consolidated financial statements.

GRANBIO INVESTIMENTOS S.A.

Statement of cash flow
Periods ended December 31, 2023 and 2022
(In R$ thousand)

	Note	Parent Company		Consolidated	
		12/31/23	12/31/22	12/31/23	12/31/22
Cash flow from operating activities					
Income/(Loss) for the period		**(46,572)**	**27,182**	**(47,334)**	**26,420**
Adjustments for:					
Depreciation	12	204	194	40,039	29,128
Amortization	13	-	-	16,660	17,882
Earnings on short-term investments		-	(7,533)	-	(186)
Loss from the sale of property, plant and equipment	23	-	503	-	61,632
Income from the sale of intangible assets	23	-	-	55	(114,012)
Write-off of property, plant and equipment	12	-	-	13,404	-
Partial debt forgiveness with third parties	15.b	-	-	-	(8,156)
Equity result	11.c	47,295	(44,236)	-	-
Provision for interest on loans and borrowings	15.b	13,523	14,874	43,313	73,952
Debt forgiveness with related-party		(11,000)	-	(97,219)	-
Deferred income tax and social contribution		-	-	(4,682)	(4,823)
Provision for leasing interest		(72)	(67)	(72)	(67)
Provision for labor contingencies	18	-	-	634	-
Provision (reversal) for impairment losses	23	-	-	167	(70,522)
Reversal of inventory losses	9	-	-	-	(30)
Result for adjustments in the period		**3,378**	**(9,083)**	**(35,035)**	**11,218**
Change in assets and liabilities:					
Accounts receivable		-	-	1,626	(762)
Advance to suppliers		11	69	(3,024)	1,457
Advance to suppliers - related parties		-	-	-	(12,979)
Inventories		-	-	(38)	183
Recoverable taxes		(595)	255	1,829	938
Prepaid expenses		45	91	953	(281)
Other accounts receivable		-	-	-	161
Judicial deposits		82	11	288	(95)
Other related-party receivables		-	-	8,210	(17,428)
Trade payables		(386)	(3,982)	(3,935)	(22,149)
Tax and labor obligations		1	(62)	(963)	(3,536)
Advances from clients		-	-	(5,526)	(10,952)
Other accounts payable		(118)	18	(1,307)	(16,997)
Net cash used in operating activities		**(960)**	**(3,600)**	**(1,887)**	**(82,440)**
Interest on amortized loans and borrowings	15.b	(14,232)	(14,288)	(14,232)	(23,421)
Net cash used in operating activities		**(11,814)**	**(26,971)**	**(51,154)**	**(94,643)**
Cash flows from investing activities					
Discharge (placement) of short-term investments		7,186	(7,000)	7,186	(7,000)
Increase in investments	11.c	(20,142)	(19,418)	-	-
Acquisition of property, plant and equipment	12	-	(29)	(8,350)	(175)
Amount received from the sale of property, plant and equipment		-	-	-	2,801
Acquisition of intangible assets	13	-	-	(7,445)	(812)
Amount received from the sale of intangible assets		-	-	-	128,068
Net cash produced by (used in) investing activities		**(12,956)**	**(26,447)**	**(8,609)**	**122,882**
Cash flows from financing activities					
Advances for future capital increase		22,721	-	22,721	-
Loans from related parties		29,556	69,068	-	63,888
Payment of loans and borrowings - principal	15.b	(27,507)	(15,649)	(27,507)	(27,649)
Net cash produced by (used in) financing activities		**24,770**	**53,419**	**(4,786)**	**36,239**
Effect of exchange variation on cash and cash equivalents		-	-	26	(29)
Net increase (decrease) in cash and cash equivalents		**-**	**1**	**(64,523)**	**64,449**
Cash and cash equivalents on January 01		1	-	64,723	274
Cash and cash equivalents on December 31		1	1	200	64,723
Increase (decrease) in cash and cash equivalents		**-**	**1**	**(64,523)**	**64,449**

The explanatory notes are part of the individual and consolidated financial statements.

GRANBIO INVESTIMENTOS S.A.

Statement of added value
Periods ended December 31, 2023 and 2022
(In R$ thousand)

	Parent Company		Consolidated	
	12/31/23	12/31/22	12/31/23	12/31/22
Revenue				
Sales of merchandise, goods and services	-	-	5,504	24,237
Other revenue and (expenses)	26	614	(10,826)	138,092
Impairment loss on trade receivables	-	-	(167)	-
	26	**614**	**(5,489)**	**162,329**
Inputs acquired from third parties				
Costs	-	-	(8,887)	(6,995)
Material, electricity, outsourced services and other operating expenses	(4,994)	(12,538)	(20,773)	(27,667)
	(4,994)	**(12,538)**	**(29,660)**	**(34,662)**
Gross value added	**(4,968)**	**(11,924)**	**(35,149)**	**127,667**
Depreciation and amortization	(204)	(194)	(56,699)	(47,010)
	(204)	**(194)**	**(56,699)**	**(47,010)**
Net value added	**(5,172)**	**(12,118)**	**(91,848)**	**80,657**
Transferred value added				
Equity result	(47,295)	44,236	-	-
Financial revenue	21,649	11,012	107,572	41,537
	(25,646)	**55,248**	**107,572**	**41,537**
Added value to be distributed	**(30,818)**	**43,130**	**15,724**	**122,194**
Distribution of added value				
Personnel				
Direct compensation	-	2	3,309	3,714
Benefits	136	87	1,055	1,480
Government Severance Indemnity Fund for Employees (FGTS)	-	-	352	786
	136	**89**	**4,716**	**5,980**
Taxes and contributions				
Federal	548	102	1,633	4,737
State	-	-	1,104	988
	548	**102**	**2,737**	**5,725**
Interest on third-party capital				
Interest on loans and borrowings	15,070	15,757	55,605	84,069
	15,070	**15,757**	**55,605**	**84,069**
Return on own capital				
Profit (loss) retained	(46,572)	27,182	(46,572)	27,182
Non-controlling interest		-	(762)	(762)
	(46,572)	**27,182**	**(47,334)**	**26,420**
Total	**(30,818)**	**43,130**	**15,724**	**122,194**

The explanatory notes are part of the individual and consolidated financial statements.

1. Reporting entity

GranBio Investimentos S.A. (“GranBio” or “Company”) is a privately held company having its registered office at Av. Professor Almeida Prado, 532 – Edif. Prédio, 50, Butantã, in the city and state of São Paulo. It was founded on June 13, 2011. Its ultimate and direct parent company is GranInvestimentos S.A., which has its registered office at Av. Faria Lima, 3144 – 3º andar, Jardim Paulistano, in the city and state of São Paulo.

GranBio is a holding company and its subsidiaries are mainly engaged in: (a) logistical and technological solutions for supplying biomass (b) creating viable flexible biorefineries that can be rolled out on an industrial scale to convert biomass into cellulose sugar, biofuels, biochemicals, nanocellulose and other ligno-cellulosic materials, in addition to electricity; (c) developing and licensing patents and intellectual property in the renewables sector using biomass as a raw material; and (d) generating and cogenerating renewable electric power.

Through its subsidiaries in the United States of America (USA), the Company develops and licenses clean technology to produce nanocellulose and biochemicals. GranBio LLC has upwards of 400 patents, including registered patents and applications, for various proprietary technologies it has developed. The Thomaston Research Center in Georgia, USA, has four integrated pilot plants that have been continuously operating for 12 years.

In February 2023, the United States Department of Energy (D.O.E.) announced a grant of USD 80 million to AVAPCO LLC, a subsidiary of GranBio, for the construction of a biorefinery to convert biomass into sustainable aviation kerosene or sustainable aviation fuel (SAF).

AVAPCO LLC, a subsidiary of GranBio LLC, reached an agreement in September 2023 with UOP LLC, a subsidiary of the Honeywell International Company, supporting the construction of a plant to produce advanced aviation fuel (Sustainable Aviation Fuel – SAF) providing engineering services and technology licenses, in addition to the development of modular engineering in the design of the plant.

GranBio entered a global alliance with Nuseed through 2034 for the technical development of sugarcane varietals as a source of biomass for second-generation biochemicals and fuels (2G). The alliance with Nuseed guarantees GranBio an exclusive cane-energy licensing contract in 2G biorefineries worldwide.

The Company's financial statements embraces the Company and its subsidiaries (jointly referred to as ‘Group’).

Continued operation

On December 31, 2023 the Company presented a consolidated net working capital deficiency of R$ 61,355 and accumulated losses of R$ 758,862.

Due to the business characteristics of a technology firm, Management is continuously evaluating the ability of the Company and its subsidiaries to keep generating sufficient cash flow to ensure the continuity of its operations for the foreseeable future, by either generating operating cash flows, disposing of assets, external funding, or shareholder funding.

As regards the subsidiary BioFlex Agroindustrial S.A., the Group monitors projected short-term cash flow, which reflects the expected use of the recently implemented asset and the investments being made to achieve commercial capacity in an ongoing operation. Additionally, in January 2023 we engaged consultancy services from a specialized engineering company to develop a project to increase production capacity from 30 million liters per year to 60 million liters per year from 2026 and potentially 200 million liters/year from 2027 combining 2G ethanol and 1G ethanol, produced from residual molasses.

The Company's Business Plan is based on the following actions already carried out impacting estimated future cash flows:

- By way of its shareholders, on March 09, 2022 the parent company GranInvestimentos S.A. fully settled the working capital loan, which stood at R$ 12,637 as of December 31, 2021, reducing the Company's overall banking indebtedness;
- On September 08, 2022 the direct subsidiary BioEdge Agroindustrial Ltda. and Atlântica Sementes S.A, of Nuseed Group, entered into a long-term strategic alliance to accelerate investments in Research and Development (R&D) and sales in global sugarcane markets. Atlântica Sementes S.A acquired the commercial and sugarcane processing assets from the indirect subsidiary BioVertis Produção Agrícola Ltda. and the R&D program in order to improve the value of the energy produced by innovating in bioenergy cane. GranBio will continue investing in cane energy by way of Nuseed Group and will be the exclusive license holder of cane energy as a raw material for 2G applications in the ligno-cellulosic field, such as cellulose sugar and lignin, 2G ethanol, biochemicals, SAF and renewable materials worldwide. The agreement will allow the value chain for biomass fuel to become an even more versatile solution to guarantee a secure supply of renewable raw material on a large-scale without competing with food products;
- On November 10, 2022 and December 05, 2022, the indirect subsidiary BioFlex Agroindustrial S.A. entered into a re-profiling agreement with Banco do Brasil S.A. and Bradesco S.A., respectively, which involved the granting of a partial reduction of the balance payable on the financing lines and guarantee commission contracted with the two institutions, as well as the granting of a grace period for principal and interest. The total exposure as of December 31, 2023 is R$ 117,967 and R$ 83,070 respectively;
- On December 30, 2022 the indirect subsidiary BioFlex Agroindustrial S.A. and the then investee Companhia Energética de São Miguel dos Campos (CESM) entered into an operation that involved the assumption by CESM of the entirety of the existing debt contracted by BioFlex Agroindustrial S.A. with the National Bank for Economic and Social Development - BNDES. This debt assumption will provide the Company and its subsidiaries with substantial debt relief, maintaining the long-term contract with CESM for the supply of energy and steam for the operations of the Company and its subsidiaries. On February 24, 2023, 50% of the CESM shares held by BioFlex were transferred to Usina Caeté S.A. without a gain or loss in the operation, as detailed in Note 5.a.
- Through its subsidiary AVAPCO, on January 26, 2023 GranBio obtained a new grant line of up to USD 80 million from the U.S. Department of Energy (DOE) for the construction of an integrated 2G SAF (Sustainable Aviation Fuel) biorefinery on a demonstrative scale, equivalent to 6 million liters per year, and a joint industrial-scale nanocellulose plant using wood and sugarcane trash as raw materials;
- On September 1, 2023, the debt of the indirect subsidiary BioFlex Agroindustrial S.A with Banco Itaú, originally classified as Guarantee Honor, was renegotiated through a Bank Credit Certificate (CCB) instrument. On September 13, 2023, the related party Olympia Shipping B.V, a subsidiary of Stratus Energy B.V, which has the same controlling shareholders as GranBio, assumed the loan on behalf of BioFlex in the amount of R$38,633 equivalent to USD 7,857. Subsequently, on October 19, 2023, Olympia Shipping B.V onerously assigned such credit which, on that date, was recognized in the amount of R$ 39,586, to its controlling company, Stratus Energy B.V, with the consent of BioFlex which, on the same date, through of a Private Payment Instrument and Other Covenants, assigned 22,848 units of BLFE11 Debentures, paying off the balance payable to the related party;
- On December 28, 2023, the Parent Company GranInvestimentos S.A., through its shareholders, paid off sub-credit "A" of the financing with Financiadora de Estudos e Projetos (FINEP), in the amount of R$ 48,963 Explanatory Note 15.

The planned actions that impact the future cash flow estimates are:

- The Company is implementing its capital restructuring plan through: (i) identifying a strategic partner for joint action in the development of its business plan for technology marketing and licensing, selling second generation ethanol and biochemicals, and an investing partner for the advanced jet fuel production plant (Sustainable Aviation Fuel – SAF); and (ii) negotiating ethanol presale contracts as cash advances strategy to optimize its working capital equation and accelerate investments to raise BioFlex I's capacity, focusing on the return of its operations for the 2024/2025 harvest.

Considering the business plan, Management believes that obligations will be paid as planned, and that the cash flow generation will be appropriate to meet its obligations in the foreseeable future.

However, if the business plan is not successful, the Company's current controlling shareholders have formally committed to continue supporting the Company in all actions required for continuity, including the commitment to allocate additional resources in sufficient amount.

Based on its evaluation, Management has concluded that there is no significant uncertainty as to the Company's ability to continue in operation for the foreseeable future. Therefore, the Company and its subsidiaries' financial statements was prepared under the assumption of continuity.

2. List of Subsidiaries

Direct subsidiaries

- BioEdge Agroindustrial Ltda.: Company that invests, on a commercial scale, in second-generation ethanol and biochemical plants;
- GranBio LLC: A US-based company engaged in investing in companies strategically related to the Company's business plan, by creating technologies for converting biomass into cellulose sugar for biochemicals and second-generation ethanol, in addition to developing nanocellulose for a range of industries.

Indirect subsidiaries

- BioFlex Agroindustrial S.A.: Company engaged in the production of biomass, processing biomass for the production and sale of biofuel, electricity, biochemicals and pharmachemicals, technological research and development, sale of sugarcane straw, bagasse and biomass;
- GranBio Intellectual Property Holdings LLC: Owner of all the patents and industrial and technological secrets developed by GranAPI LLC and its subsidiaries;
- GranBio Conversion Technologies LLC: Company that owns the Thomaston asset, a demonstration plant for existing biomass conversion technologies. This company has a leasing agreement of its assets with AVAPCO LLC;
- American Green + LLC: Company that holds the sublicensing rights of technologies owned by GranBio Intellectual Property Holdings LLC for converting biomass into cellulosic ethanol;
- AVAPCO LLC: Company that holds the sublicensing rights of technologies owned by GranBio Intellectual Property Holdings LLC for converting biomass into cellulosic ethanol and nanocellulose. This company leases the Thomaston asset (a demonstration plant) from GranBio Process Conversion Technologies LLC to develop new technologies and provide services to clients;

- GranBio Services Inc.: A US-based company that invests in companies strategically related to the Company's business plan. It is the holding company of the three companies below:

  - ✓ Alpena Biorefinery Inc.: Company providing water treatment services to the paper and pulp company Decorative Panels International, located in Alpena, MI, and the production and sale of molasses to other clients;
  - ✓ Alpena Protoype Bioref LLC: Nonoperating company owner of the Alpena Biorefinery land;
  - ✓ Alternative Bioprod Inv. LLC: Nonoperating company.

Joint Ventures

- Companhia Energética de São Miguel dos Campos: Company dedicated to developing an integrated electricity and steam generation system running on biomass - cogeneration, electricity and steam supply and provision of services related to energy efficiency enhancement and generation. Energy generation is substantially to meet the demand of its shareholders and the excess of its generation is included in electrical grid system.
- On February 24, 2023, 50% of the CESM shares held by BioFlex were transferred to Usina Caeté S.A. without no gain or loss on the transaction, as detailed in Note 5.a.

Note 5 shows the percentage of interests in the direct and indirect subsidiaries and joint ventures.

3. Basis of preparation and presentation of the individual and consolidated financial statements

The Board of Directors approved the preparation of the individual and consolidated financial statements on March 21, 2024.

The Company's individual and consolidated quarterly information on December 31, 2023 comprise the individual and consolidated financial statements of the Company and its subsidiaries. In the individual and consolidated financial statements, the corresponding interest in the subsidiaries is presented using the equity method.

Statement of Compliance

The individual financial statements were prepared in accordance with accounting practices adopted in Brazil ("BR GAAP") and the consolidated financial statements in accordance with accounting practices adopted in Brazil ("BR GAAP") and in accordance with International Financial Reporting Standards ("IFRS"), issued by the International Accounting Standards Boards ("IASB").

The accounting practices adopted in Brazil comprise the policies established in the Brazilian Corporate Law and the pronouncements, guidelines and interpretations issued by the Accounting Pronouncements Committee (CPC), approved by the Brazilian Securities and Exchange Commission (CVM) and the Brazilian Federal Accounting Council (CFC).

IFRSs comprise the International Accounting Standards (IASs), the Interpretations of the International Financial Reporting Interpretations Committee (IFRIC) and the Standing Interpretations Committee (SIC).

Details on the Group's main accounting policies are presented in Note 5.

Functional and presentation currency

The individual and consolidated financial statements are being presented in Brazilian Reais, which is the Company and its subsidiaries' functional currency, except the subsidiary GranBio LLC and its direct and indirect subsidiaries, whose functional currency is the US Dollar. All balances have been rounded to the nearest thousand, unless otherwise indicated.

Use of estimates and judgments

In preparing the individual and consolidated financial statements, Management has made judgments and used estimates that affect the application of the accounting policies and the reported amounts of assets, liabilities, income and expenses. Actual results may differ from these estimates.

Estimates and underlying assumptions are reviewed on an ongoing basis. Revisions to estimates are recognized prospectively.

a. Judgments

The information on judgments made in applying the accounting policies that have significant effects on the amounts recognized in the individual and consolidated financial statements are included in the following notes:

- Note 1 – Reporting Entity (Operation continuity): Management's evaluation of how the Group will produce and/or obtain capital to support operations over the next 12 months;
- Note 5 – Significant accounting policies (a. Consolidation basis): determination whether the Company has control over an investee;
- Note 10 – Related-party transactions: the shareholder GranInvestimentos S.A. repurchased the debentures issued by BioFlex Agroindustrial S.A for R$ 1,00, with each share of the debenture payable by BioFlex being update by its market value until its completion;
- Note 11 - Investments: determines whether the Company has influence over an investee;
- Note 12 - Property, plant and equipment and Note 13 – Intangible assets: impairment test, key assumptions underlying the recoverable amounts. For further information see Note 14;
- Note 15 – Loans and borrowings: Compliance with the contractual terms of loans and borrowings;
- Note 20 - Net revenue from goods and services sold: the Group recognizes revenue when it transfers the control of a product or service to the client.

b. Uncertainties about assumptions and estimates

Information about assumptions and estimation uncertainties as of December 31, 2023 that have a significant risk of resulting in a material adjustment to the carrying amounts of assets and liabilities within the coming financial year are included in the following notes:

- Note 9 – Inventories: recoverable value of inventory based on market replacement cost, slow-moving products, expired products or products nearing the expiration date and products that do not meet quality standards, recorded as "Cost of products sold" and replacement cost in the market;
- Note 12 – Property, plant and equipment: Assessing the need to conduct impairment tests on property, plant and equipment and key assumptions underlying recoverable amounts. For further information see Note 14;

- Note 13 - Intangible assets: main assumptions underlying the recoverable amounts, including the recoverability of development costs, licenses, intellectual property and goodwill deriving from the business combination; for further information see Note 14.

Measurement of fair value

Several of the Company's accounting policies and disclosures require the measurement of fair values, for both financial and non-financial assets and liabilities; disclosures are shown in Note 26.

When measuring the fair value of an asset or a liability, the Group used observable market data as far as possible. Fair values are categorized into different levels in a fair value hierarchy based on the inputs used in the valuation techniques as follows.

- Level 1: quoted prices (unadjusted) in active markets for identical assets or liabilities;
- Level 2: inputs, other than quoted prices included within Level 1, that are observable for the asset or liability, either directly (i.e. as prices) or indirectly (i.e. derived from prices);
- Level 3: inputs for the asset or liability that are not based on observable market data (unobservable inputs);
- Further information about the assumptions adopted in measuring fair values is included in Note 14.

4. Basis of measurement

The individual and consolidated financial statements have been prepared on the historical cost basis, except for the valuation of certain assets and liabilities, such as financial instruments, which are measured at fair value.

5. Material accounting policies

The accounting policies set out below have been applied consistently to all periods presented in these individual and consolidated financial statements.

(In R$ thousand)

a. Basis of consolidation

Percentage interest in investees

See below the percentage interest in the direct and indirect subsidiaries and joint ventures on December 31, 2023 and 2022.

	Country	% Interest	
Direct Subsidiaries		12/31/2023	12/31/2022
GranBio LLC	United States of America	100.00%	100.00%
BioEdge Agroindustrial Ltda.	Brazil	100.00%	100.00%
Indirect Subsidiaries			
BioFlex Agroindustrial S.A.	Brazil	100.00%	100.00%
GranBio - Intellectual Property Holdings LLC	United States of America	97.00%	97.00%
GranBio Conversion Technologies LLC	United States of America	100.00%	100.00%
American Green + LLC	United States of America	100.00%	100.00%
AVAPCO LLC	United States of America	100.00%	100.00%
GranBio Services Inc.	United States of America	96.10%	96.10%
Alpena Biorefinery INC	United States of America	100.00%	100.00%
Alpena Protoype Bioref LLC	United States of America	100.00%	100.00%
Alternative Bioprod Inv. LLC	United States of America	100.00%	100.00%
Joint Ventures			
Companhia Energética de São Miguel dos Campos – CESM (a)	Brazil	-	50.00%

(a) In FY 2022 the indirect subsidiary BioFlex entered into various negotiations with the then Joint Venture, Companhia Energética de São Miguel dos Campos (CESM): (i) On September 30, 2022 the Company's management authorized the sale of property, plant and equipment related to the thermoelectric plant; (ii) on December 30, 2022 the amount that the indirect subsidiary BioFlex had receivable from Companhia Energética São Miguel dos Campos (CESM) was fully amortized due to the agreement between the companies by which CESM assumed the entire existing debt contracted by the indirect subsidiary BioFlex from the National Bank for Economic and Social Development– BNDES; (iii) On February 24, 2023, 50% of the CESM shares held by BioFlex were transferred to Usina Caeté S.A. without a gain or loss in the operation, to cover the pass-through of the debt to BNDES.

(i) Subsidiaries

The Group controls an entity when it is exposed to, or has rights to, variable returns from its involvement with the entity and could affect those returns through its power over the entity. The financial statements of subsidiaries are included in the consolidated financial statements from the date on which control commences until the date on which control ceases.

The subsidiaries' financial statement is recognized in the parent company's financial statement by the equity-income method.

(ii) Investments in equity-accounted investees

The Group's investments in entities valued by the equity method consists of interests in subsidiaries, in the individual financial statements.

(iii) Transactions eliminated on consolidation

Intra-group balances and transactions and any unrealized income and expenses arising from intra-group transactions are eliminated in preparing the consolidated financial statements. Unrealized gains arising from transactions with investees recorded by the equity income method are eliminated against the investment in proportion to the Group's interest in the investee. Unrealized losses are eliminated in the same way as unrealized gains, but only to the extent that there is no evidence of an impairment loss.

(iv) Loss of control

When the Group loses control over a subsidiary, it derecognizes the assets and liabilities of the subsidiary, and any related NCI and other components of equity. Any gain or loss arising from the loss of control is recognized in profit or loss.

(v) Non-controlling interests

NCI are measured initially at their proportionate share of the acquiree’s identifiable net assets at the date of acquisition. Changes in the Group’s interest in a subsidiary that do not result in a loss of control are accounted for as equity transactions.

b. Foreign currency

(i) Foreign-currency transactions

Foreign-currency transactions are translated to the respective functional currencies of Company's entities at exchange rates on the dates of the transactions.

Cash assets and liabilities denominated in foreign currencies are translated into the functional currency at the exchange rate on the reporting date. Non-cash assets and liabilities that are measured at fair value in a foreign currency are translated to the functional currency at the exchange rate when the fair value was determined. Non-monetary items that are measured based on historical cost in a foreign currency are translated at the exchange rates on the date of the transaction. Foreign currency differences are generally recognized in profit or loss.

The investees’ statements of profit or loss and cash flow, not in the parent company’s functional currency, are translated to Brazilian Real at the average monthly exchange rate; assets and liabilities are translated at the closing rate and other equity items are translated at the historic rate.

Exchange variation on investments in subsidiaries and associated companies, with a functional currency different from the Parent Company, are recorded in equity as an accumulated translation adjustment, and are transferred to profit or loss when investments are sold.

(ii) Overseas subsidiaries

The assets and liabilities of overseas subsidiaries, including goodwill and fair value adjustment from acquisition, are translated into Brazilian Real at the exchange rate on the reporting date. The income and expenses of overseas subsidiaries are translated into Brazilian Real at the exchange rate on the dates of the transactions.

Foreign currency differences generated on translation into the presentation currency are recognized in other comprehensive income and accumulated in the asset and liability valuation adjustment in equity. If the subsidiary is not a wholly owned subsidiary, the corresponding proportion of the translation difference is attributed to non-controlling interests.

c. Revenues

Revenue is measured based on the consideration specified in a contract with the client. The Group recognizes revenue when it transfers control over a good or service to a client or when the sale/concession of the license takes place.

The following topics provide information about the nature and timing of the satisfaction of performance obligations in contracts with clients, including significant payment terms, and the related revenue recognition policies:

- Service fee income: revenue is recognized over time as services are provided. The stage of completion to determine the amount of revenue to recognized is assessed based on surveys of work performed. If the services under a single arrangement are rendered in different reporting periods, then the consideration is allocated based on their relative stand-alone selling prices. The stand-alone selling price is determined based on the list prices at which the Group sells the services in separate transactions. Invoices are issued monthly and are usually payable within 30 days;
- License revenue: the Company's license revenue is recognized at the specific time of sale or concession, since, at that time, the client can determine how and when to use this license without needing the Company’s performance, that is, the Company will no longer carry out any activities that significantly affect the intellectual property under that license to which the client has rights. Therefore, the license provides the right to use the Company's intellectual property as it exists at the time it is sold and granted and, for this reason, revenue is recognized at that specific time of the sale and concession of the license, as its intellectual property does not change, and the client obtains control at the time the license is granted;
- Revenue from collaboration agreements: revenue is deferred and recognized over time, on a straight-line basis, according to the time determined in the agreement between the parties. Revenue from collaboration agreements also includes revenue recognition from the development of new products. The price and billing methods are determined in specific negotiations with each client.

d. Employee benefit

Short-term employee benefits

Short-term employee benefits obligations are recognized as personnel expenses as the corresponding service is provided. The liability is recognized for the expected payable amount if the Group has a present legal or constructive obligation to pay this amount as a result of service provided by the employee, and the obligation can be reliably estimated.

e. Financial income and revenues

The Company's financial income and expenses include:

- Interest income and expenses;
- The net gain/loss on financial assets at fair value through profit/loss;
- The foreign-currency gain/loss on financial assets and liabilities.

Interest income or expense is recognized using the effective interest method.

'Effective interest rate' is the rate that exactly discounts the estimated future cash payments or receipts through the expected life of the financial instrument by:

- Gross carrying amount of the financial asset; or
- At amortized cost of the financial liability.

When calculating the interest income or expense, the effective interest rate is charged on the gross carrying amount of the asset (when the asset is not impaired) or at the amortized cost of the liability. However, interest revenue is calculated by applying the effective interest rate to the amortized cost of the financial asset suffering impairment after initial recognition. If the asset is no longer impaired, the interest revenue is once again calculated on the gross amount.

f. Inventories

Inventories are valued at the lowest average purchase or production cost and net realizable value. The Group considers the following when determining the provision for inventory losses: low turnover products, expired or expiring products and products that do not meet quality standards at market replacement cost, recorded as “Cost of products sold”. As described in Note 9, inventories are classified into raw materials and inputs necessary for the production of 2G ethanol.

g. Property, plant and equipment

(i) Recognition and measurement

Items of property, plant and equipment are measured at historical cost of acquisition or construction, which includes the capitalized borrowing costs, less accumulated depreciation and any impairment losses, when applicable.

If parts of an item of property, plant and equipment have different useful lives, they are recorded as individual items (major components) of property, plant and equipment. Gains and losses on the sale of an item of property, plant and equipment (calculated by the difference between the proceeds from the sale and the book value of the property, plant and equipment) is recognized in other operating income/loss.

(ii) Subsequent expenditure

Subsequent expenses are capitalized to the extent that it is probable that future benefits associated with the expenditures will accrue to the Group. Recurring maintenance and repair expenses are recorded in profit/loss.

(iii) Depreciation

Depreciation is calculated to amortize the cost of property, plant and equipment items, net of their estimated residual values, using the straight-line method on the estimated useful lives of the items and the depreciation is recognized in profit/loss. Depreciation is recognized in profit or loss. The right-of-use asset is subsequently amortized using the straight-line method from the inception date to the end of the lease term, unless the lease transfers ownership of the underlying asset to the Group at the end of the lease term or the cost of the lease right-of-use asset reflects that the Group will exercise a call option. In that case the right-of-use asset will be amortized over its lifetime. Land is not depreciated.

(In R$ thousand)

Property, plant and equipment items are depreciated from the date they are installed and available for use, or in the case of internally built assets, from the day construction is completed and the asset is available for use.

The estimated useful lives are (in years):

Property, plant and equipment	12/31/2023	12/31/2022
IT equipment	2 – 10	3 – 5
Vehicles	5	5
Furniture and fixtures	10 – 15	3 – 10
Lab plant and equipment	10 - 25	2 – 10
Agricultural plant and equipment	10 - 30	4 – 12
Improvements to rented property	30	25
Machinery, equipment, and industrial facilities	5 - 60	2 – 40
Lease rights-of-use	10	10
Buildings and constructions	30 - 60	2 – 60

Depreciation methods, useful lives and residual values are reviewed annually and adjusted if appropriate.

The Company hired a company specialized in evaluating the useful lives of the main assets of the indirect subsidiary BioFlex, and the new useful lives began to be considered in January 2023.

h. Intangible assets and goodwill

(i) Goodwill

The goodwill resulting from the acquisition of subsidiaries is measured at cost, less impairment test losses.

(ii) Research and development

Expenditure on research activities is recognized in profit or loss as incurred.
Development expenditures are capitalized only if development costs can be reliably measured, if the product or process is technically and commercially viable, if future economic benefits are probable, and if the Group has the intention and sufficient resources to complete development and use or sell the asset. After initial recognition, capitalized development expenditures are measured at cost, less accumulated amortization, and any impairment losses.

(iii) Other intangible assets

Other intangible assets that are acquired by the Group that have finite useful lives are measured at cost, less accumulated amortization and accumulated impairment losses. Subsequent expenditures are capitalized only when they increase the future economic benefits embodied in the specific asset to which they relate. Amortization is calculated on the cost of an asset, or other equivalent cost, less the residual value.

(iv) Subsequent expenses

Subsequent expenses are only capitalized when they increase the future economic benefits embodied in the specific asset to which they relate. All other expenses are recognized in the statement of profit or loss when incurred.

(v) Amortization

Amortization is recognized in profit of loss using the straight-line method based on the estimated useful lives of intangible assets, from the date they are available for use.

The estimated useful lives are as follows (in years):

Intangible assets	12/31/2023	12/31/2022
Software	5	5
Technology licenses and intellectual property	30	30
Development - Energy Cane	12	-

(vi) Licenses, technological intellectual property and goodwill arising from the business combination

Intangible assets are recorded at acquisition cost or at the fair value of intangible assets acquired in a business combination, less accumulated amortization calculated using the straight-line method, when applicable. These intangible assets are tested for impairment according to the accounting policy in Note 5 (k.ii). Goodwill is not amortized.

i. Financial instruments

(i) Recognition and initial measurement

Trade receivables and issued debt securities are initially recognized on the date they were originated.

All other financial assets and liabilities are initially recognized when the Group becomes a party to the contractual provisions of the instrument.

A financial asset (unless it is a trade receivable without a significant financing component) or financial liability is initially measured at fair value. A trade receivable without a significant financing component is initially measured at transaction price.

(ii) Classification and subsequent measurement

On initial recognition, a financial asset is classified as measured: at amortized cost or fair value through profit or loss - FVTPL.

Financial assets are not reclassified subsequent to initial recognition, unless the Group changes its business model for managing financial assets, in which case all affected financial assets are reclassified on the first day of the reporting period subsequent to the change in business model.
A financial asset is measured at amortized cost if it meets both of the following conditions below and it is not designated as being measured at FVTPL:

- It is held within a business model whose objective is to hold financial assets to receive contractual cash flows; and
- Its contractual terms generate, on specific dates, cash flows that are related only to the payments of principal and interest on the outstanding principal amount.

A debt instrument is measured at FVTPL.

Financial assets held for trading or managed with performance evaluated based on fair value are measured at FVTPL.

Financial assets

These assets are subsequently measured at amortized cost using the effective interest method. The amortized cost is reduced by impairment losses. Interest revenue, exchange gains and losses and impairment are recognized in profit or loss. Any gain or loss on derecognition is recognized in profit or loss.

Financial liabilities

Financial liabilities were classified as measured at amortized cost or at FVTPL. A financial liability is classified at FVTPL if it is classified as held for trading, is a derivative or is designated as such upon initial recognition. Financial liabilities measured at FVTPL are measured at fair value and net income (loss), including interest, is recognized in profit or loss. Other financial liabilities are subsequently measured at amortized cost using the effective interest rate method. Interest expenses, exchange gains and losses are recognized in profit or loss. Any gain or loss on derecognition is also recognized in profit or loss.

(iii) Derecognition

Financial assets

The Group derecognizes a financial asset when the contractual rights to the cash flows from the asset expire, or when the Group transfers the contractual rights to receive the contractual cash flows on a financial asset in a transaction in which substantially all the risks and rewards of ownership of the financial asset are transferred or in which the Group neither transfers nor retains substantially all the risks and rewards of ownership of the financial asset and also does not retain control over the financial asset.

Financial liabilities

The Group derecognizes a financial liability when its contractual obligation is discharged, canceled, or expires. The Group also derecognizes a financial liability when the terms are modified and the cash flows of the modified liability are substantially different, in which case a new financial liability based on the modified terms is recognized at fair value.

Upon derecognition of a financial liability, the difference between the former carrying amount and the consideration paid (including assets transferred that do not carry cash or liabilities assumed) is recognized in profit or loss.

(iv) Offsetting

Financial assets and financial liabilities are offset, and the net amount presented in the statement of financial position when, and only when, the Group currently has a legally enforceable right to offset the amounts and intends to settle them on a net basis or to realize the asset and settle the liability simultaneously.

j. Capital share

Common shares are classified as equity.

Additional costs directly attributable to the issuance of common shares and share options are recognized as a deduction from equity. Tax effects relating to transaction costs of these transactions are accounted for in accordance with CPC 32. /IAS 12.

k. Impairment

(i) Non-derivative financial assets

Financial instruments and contractual assets

The Group recognizes provisions for expected credit losses on:

- Financial assets measured at amortized cost; and
- Contract assets.

The Group measures the loss allowance at an amount equal to the ECL. Provisions for losses on trade receivables and contract assets are measured at an amount equal to the expected credit loss for the entire life of the instrument.

When determining whether the credit risk of a financial asset has increased significantly since initial recognition and when estimating the ECL, the Group considers reasonable and supportable information that is relevant and available without undue cost or effort. This includes quantitative and qualitative information and analyses based on the Company's historical experience, credit assessment and forward-looking information.

The Group assumes that the credit risk of a financial asset has increased substantially if it is more than 30 days overdue.

The Group considers a financial asset to be in default when:

- It is highly unlikely that the debtor will pay all its credit obligations without resorting to actions such as enforcing the guarantee (if applicable); or
- The financial asset is more than 90 days overdue.

The Group considers that a debt security has a low credit risk when its credit risk rating is equivalent to the globally accepted definition of "investment grade".

- Lifetime ECLs are ECLs that result from all possible default events over the expected life of a financial instrument;
- 12-month ECLs are ECLs that result from possible default events within the 12 months after the reporting date (or a shorter period if the expected life of the instrument is less than 12 months).

The maximum period considered to estimate the expected credit loss is the maximum contractual period during which the Group is subject to credit risks.

Measuring expected credit losses

Expected credit losses are estimates weighted by the probability of credit loss. Credit losses are measured at present value based on all cash shortfalls (i.e. the difference between the cash flows due to the Group under the contract and the cash flows expected to be receive). Expected credit losses are discounted at the financial asset's effective interest rate, when applicable.

Impaired financial assets

At each reporting date, the Group evaluates whether the financial assets recorded at amortized cost are impaired. A financial asset is ‘impaired’ when one or more events occur that have a detrimental impact on the estimated future cash flows of the financial asset. Objective evidence that a financial asset is impaired includes the following observable data:

- Significant financial difficulty of the issuer or borrower; violation of contractual clauses, such as default or being more than 90 days overdue;
- Restructuring of an amount due to the Group under conditions that will not be accepted under normal circumstances;
- The probability that the borrower will file for bankruptcy or undergo another type of financial reorganization;
- The disappearance of an active market for that financial asset because of financial difficulties.

Presenting the provision for expected credit losses in the statement of financial position

The provision for financial asset losses measured at amortized cost is deducted from the gross carrying amount of the assets, when applicable.

Write-off

The gross carrying amount of a financial asset is written-off when the Group does not have a reasonable expectation to recovering the financial asset in whole or in part. The Group does not expect any significant recovery of the written-off amount. However, written-off financial assets may still be subject to credit enforcement for compliance with the Company’s procedures for recovering amounts due.

(ii) Non-financial assets

At each reporting date the Group reviews the carrying amounts of its non-financial assets (except biological assets and inventory) for signs of impairment. If there is such an indication, the asset’s recoverable amount is estimated. Goodwill is tested annually for impairment.

For impairment testing, assets are grouped into the smallest group of assets that generate cash inflows from continuing use that are largely independent of cash inflows from other assets or CGUs (cash generating units). Goodwill resulting from a business combination is allocated to the CGUs or groups of CGUs that are expected to benefit from the synergies of the combination.

The recoverable amount of an asset or CGUs is the higher of its value in use and its fair value less selling expenses. Value in use is based on estimated future cash flows, discounted to their present value using a pre-tax discount rate that reflects current market assessments of the time value of money and risks specific to the asset or CGU.

An impairment loss is recognized if the carrying amount of an asset or CGU exceeds its recoverable amount.

Impairment losses are recognized in profit or loss. They are allocated first to reduce the carrying amount of any goodwill allocated to the CGU (or group of CGUs) and then to reduce the carrying amount of the other assets in the CGU (or group of CGUs) on a pro rata basis.

An impairment loss with respect to goodwill is not reversed. For other assets, an impairment loss is reversed only to the extent that the asset's carrying amount does not exceed the carrying amount that would have been determined, net of depreciation or amortization, if no impairment loss had been recognized

l. Provisions

Provisions are recognized when the Group has a present obligation (legal or constructive) as a result of past events, it is probable that an outflow of resources will be required to settle the obligation and a reliable estimate of the amount of the obligation can be made. When the Group expects the amount of a provision to be reimbursed, in whole or in part, for example under an insurance contract, the reimbursement is recognized as a separate asset, but only when the reimbursement is virtually certain. The expense relating to any provision is presented in the statement of profit or loss, net of any reimbursement. The increase in the obligation due to the passage of time is recognized as a financial expense.

m. Statement of added value

The Group prepared the statements of value added pursuant to technical pronouncement CPC 09 - Statement of value added, which are presented as an integral part of the financial statements in accordance with the BR GAAP applicable to publicly held companies, while for IFRS they represent supplementary financial information.

n. New and revised technical pronouncements applied for the first time in 2023

The new IFRS standards will only be applied in Brazil after issued in Portuguese by the Accounting Pronouncements Committee and approved by the Federal Accounting Council.

(i) Change in standard IAS 1/CPC 26 Presentation of Financial Statements;

In February 2021, the IASB issued amendments to IAS 1, which aim to make accounting policy disclosures more informative, replacing the requirement to disclose "significant accounting practices" with "material accounting policies". The amendments also provide guidance on the circumstances in which accounting policy information is likely to be considered material and therefore requiring disclosure.

These changes have no effect on the measurement or presentation of any items in the Company's consolidated financial statements, but they do affect the disclosure of its accounting policies.

(ii) Change in standard IAS 12/CPC 32 Taxes on Profit;

- Deferred Tax related to Assets and Liabilities arising from a Single Transaction.

In May 2021, IASB issued amendments to IAS 12, with clarifications on the exemption from initial recognition for certain transactions that result in both an asset and a liability being recognized simultaneously (for example, a lease under IFRS 16). The amendments clarify that the exemption does not apply to the initial recognition of an asset or liability that, at the time of the transaction, generates equal taxable and deductible temporary differences.

These changes had no effect on the Company's annual consolidated financial statements.

- International Tax Reform – Pillar Two Model Rules

In December 2021, the Organization for Economic Co-operation and Development (OECD) released a draft legislative framework for a global minimum tax that should be used by individual jurisdictions. The aim of the framework is to reduce the shifting of profits from one jurisdiction to another, to reduce overall tax obligations across business structures. In March 2022, the OECD released detailed technical guidance on the Pillar Two rules.

Stakeholders have raised concerns with the IASB about the potential implications for income tax accounting, especially deferred tax accounting, arising from the Pillar Two model rules.

IASB issued the final Amendments to the International Tax Reform – Pillar Two Model Rules in response to stakeholder concerns on May 23, 2023.

The amendments introduce a mandatory exception for entities from recognizing and disclosing information on deferred tax assets and liabilities related to the Pillar Two model rules. The exception takes effect immediately and retrospectively. The amendments also provide for additional disclosure requirements with respect to an entity's exposure to Pillar Two income tax.

Management has determined that the Company is not within the scope of the OECD Pillar Two Model Rules and the exception to the recognition and disclosure of deferred tax information.

(iii) Change in standard IAS 8/CPC 23 Accounting Policies, Changes in Estimates and Rectification of Errors;

The amendments to IAS 8, which added the definition of accounting estimates, clarify that the effects of a change in information or measurement technique are changes in accounting estimates, unless they result from the correction of errors from previous periods. These changes clarify how entities distinguish between changes in accounting estimates, changes in accounting policy and errors from prior periods.

These changes had no effect on the Company's annual consolidated financial statements.

o. New standards, revisions and interpretations issued that have not yet entered into force on December 31, 2023

For the following standards or changes, management has not yet determined whether there will be significant impacts on the Company's financial statements, namely:

(i) Changes to IFRS 16/CPC 06 (R2) - add subsequent measurement requirements for sale and leaseback transactions, which satisfy the requirements of IFRS 15/CPC 47 - effective for periods beginning on or after 01/01/2024;
(ii) Changes to standard IAS 1/CPC 26 - clarifies aspects to be considered for classifying liabilities as current and non-current - effective for periods beginning on or after 01/01/2024;
(iii) Changes to standard IAS 1/CPC 26 – clarifies that only covenants to be fulfilled at or before the end of the reporting period affect the entity's right to postpone the settlement of a liability for at least 12 months after the date of report - effective for periods beginning on or after 01/01/;

(In R$ thousand)

(iv) Changes to IAS 7/CPC 03 (R2) and IFRS 7/CPC 40 (R1) – clarifies that the entity must disclose supplier financing agreements, with information that allows users of the financial statements to evaluate the effects of these agreements on the liabilities and cash flows of the entity - effective for periods beginning on or after 01/01/2024;
(v) Changes to IAS 21/CPC 02 (R2) - require the disclosure of information that allows users of financial statements to understand the impact of a currency not being exchangeable - effective for periods beginning on or after 01/01/2025;

The Company is currently evaluating the impact of these new accounting standards and changes. The Company will evaluate the impact of the final amendments to IAS 1 on the classification of its liabilities as they are issued by the IASB. The Company does not believe that the changes to IAS 1, in its current form, will have a significant impact on the classification of its liabilities, as the conversion feature on its convertible debt instruments is classified as an equity instrument, and therefore does not affect the classification of its convertible debt as a non-current liability.

6. Cash and cash equivalents

	Parent Company		Consolidated	
	2023	2022	2023	2022
Cash and banks - checking account	1	1	200	107
Other cash equivalents	-	-	-	64,616
Total	1	1	200	64,723

Cash and cash equivalents include cash, bank deposits used for payments and receipts for the Company's operations, in addition to short-term investments.

Other cash equivalents are short-term investments classified as current, with a maximum grace period of three months from investment to redemption, and are used to manage immediate obligations. The yield on short-term investments is fixed income with an average of 102% of the CDI rate along 2023 (102% of the CDI rate on December 31, 2022).

During 2023, financial investments were redeemed to pay loans, financing and operational expenses such as payroll, consultancy, advisory and taxes.

7. Short-term investments

	Parent Company		Consolidated	
	2023	2022	2023	2022
Cash Collateral (i)	-	7,186	-	7,186
Debenture (ii)	-	61,875	-	-
Total	-	69,061	-	7,186
Current	-	7,186	-	7,186
Non-current	-	61,875	-	-

On December 31, 2023 and 2022 the short-term investments refer exclusively to:

(i) Short-term investment made by the Company in October 2022, yielding 99.5% of the CDI rate. Investment made to create a guarantee to secure the FINEP loan, which was redeemed in 2023 to reduce part of the financing.

(In R$ thousand)

(ii) Short-term investment made by the Company in 39.229 units of BFLE11 debentures for R$ 61,875 on December 31, 2022. On September 29, 2023, the Company transferred all units of debentures to BioFlex, which booked then in Treasury.

8. Accounts receivable

	Consolidated	
	2023	2022
Accounts receivable	404	2,032
(-) Provision for impairment losses	(167)	-
	237	2,032

Receivables maturities

The maturities of receivables are presented below:

	Consolidated	
	2023	2022
Neither past due nor impaired	45	1,287
1 to 30 days past due	146	50
91 to 360 days past due	-	2
More than 1 year past due	213	693
	404	2,032

9. Inventories

	Consolidated	
	2023	2022
Consumables (i)	5,796	5,797
Finished goods	25	25
Storeroom materials	2,787	2,748
Total	8,608	8,570

(i) Balance of various consumables used to produce 2G ethanol. One of the main inputs for producing 2G ethanol are the enzymes which are stored in a specific location with a suitable temperature so as not to lose their productive capacity. On December 31, 2023 and 2022 R$ 4,753, equivalent to 286,000 Kg is held by third parties.

Inventory risk:

- Inventory counts are carried out periodically and, when necessary, the corresponding adjustments are recorded. However, in recent years there have been no significant inventory adjustments.

(In R$ thousand)

Management valued the inventory based on its recoverable amount on December 31, 2023 and 2022 as follows:

Movement	Provision
Balances on December 31, 2021	(212)
Use of provision for losses	30
Balances on December 31, 2022	(182)
Use of provision for losses	-
Balances on December 31, 2023	(182)

10. Related-party transactions

The Company has transactions with its direct subsidiaries, indirect subsidiaries, joint ventures, parent companies and associated companies, with the objective of providing funds for the maintenance of its operations. These operations have no remuneration or maturity, as agreed between the parties.

Transactions between related parties refer to loans to supply cash and commercial transactions that refer to transacted amounts of shared costs and other commercial transactions.

On December 31, 2023 and 2022, the balances are presented as follows:

- Parent Company:

		2023		2022	
	Relation	Asset	Liability	Asset	Liability
Loans to related parties					
GranBio LLC (i)	Subsidiary	-	30,660	-	33,044
BioEdge Agroindustrial Ltda. (ii)	Subsidiary	2,429	-	-	11,319
Total		2,429	30,660	-	44,363
Current		-	30,660	-	44,363
Non-current		2,429	-	-	-

- Consolidated:

		2023		2022	
	Relation	Asset	Liability	Asset	Liability
Advances to suppliers					
Companhia Energética São Miguel dos Campos (CESM) (iii)	Joint subsidiary	-	-	12,979	-
Total		-	-	12,979	-
Other accounts payable to related parties					
Investment fund of shareholders (iv)	Others	-	31,890	-	27,815
GranInvestimentos S.A. (v)	Parent Company	-	-	-	35,687
Stratus Energy B.V. (vi)	Others	-	11,282	-	-
Total		-	43,172	-	63,502
Grand Total		-	43,172	12.979	63,502
Current		-	-	12.979	-
Non-current		-	43,172	-	63,502

(In R$ thousand)

Operations affecting profit or loss for the periods:

	Relation	2023	2022
Lease income			
Companhia Energética São Miguel dos Campos (vii)	Joint subsidiary	-	13,251
Income from the sale of thermoelectric plant			
Companhia Energética São Miguel dos Campos (viii)	Joint subsidiary	-	(60,636)

(i) Loans taken out from GranBio LLC with a defined maturity;
(ii) Denote the amounts in the Company's current account with its subsidiaries. The loans are interest free and have no defined maturity date.
(iii) Denotes the supply of electricity, steam, treated water and inputs for the production process of 2G ethanol. As all the shares held by BioFlex in CESM (Joint Venture) had been transferred to Usina Caeté S.A., it was no longer presented as a related party. For further information see Note 5.a;
(iv) Part of the debentures issued by the indirect parent company BioFlex Agroindustrial S.A. held by an investment fund of the final beneficiaries of GranInvestimentos S.A. (18,000 shares in the updated amount of R$ 31,890);
(v) Part of the debentures BFLE11 issued by the indirect parent company BioFlex Agroindustrial S.A. were purchased in August 2021 by the shareholder GranInvestimentos S.A. for R$ 1.00 (22,771 shares), consequently the balance payable of the debentures started to be reclassified as other accounts payable with related parties. On 2023, the debentures held by GranInvestimentos S.A were settled, as follows: (a) On June 28, 2023, the indirect subsidiary BioFlex purchased on the secondary market (7,345 shares) for the amount of R$12,247; (b) On July 7, 2023, a private instrument of payment was signed between GranInvestimentos and with the related party Stratus Energy B.V., which has the same final shareholders as GranBio, being transferred (12,084 shares) for the amount of R$20,220; and (c) On September 29, 2023, it was also transferred to the indirect subsidiary BioFlex (3,342 shares) for the amount of R$5,756.
(vi) Refers to 6,368 units of BFLE11 debentures for the updated value of R$11,282.
(vii) Billing referring to the lease of the boiler between the indirect subsidiaries BioFlex Agroindustrial S.A. and Companhia Energética São Miguel dos Campos – CESM. This billing ceased to exist in October 2022, after the sale of property, plant and equipment related to the thermoelectric power plant, as per Note 5 a
(viii) On September 30, 2022, BioFlex's thermoelectric assets were sold to Companhia Energética São Miguel dos Campos – CESM, the result of this sale generated a loss of R$60,636. More information on Explanatory Note 23.

Key management personnel compensation:

	Parent Company		Consolidated	
	2023	2022	2023	2022
Key management personnel compensation	(231)	(237)	(1,202)	(998)
Total	(231)	(237)	(1,202)	(998)

The amount paid as key management personnel compensation is included in personal expenses disclosed in Note 22.

(In R$ thousand)

11. Investments

a. Breakdown of balances:

	Parent Company	
	2023	2022
Direct and indirect subsidiaries	948,931	1,015,825
Total	948,931	1,015,825

b. Direct Investments:

	Equity		Loss for the Period	
	2023	2022	2023	2022
Investees				
BioEdge Agroindustrial Ltda.	460,501	464,182	(3,681)	68,679
BioVertis Produção Agrícola Ltda.	-	-	-	(3,171)
GranBio LLC	488,430	551,643	(43,614)	(21,272)

(In R$ thousand)

Changes in investments

c. Direct subsidiaries:

	Balance on 12/31/2022	Translation adjustments	Investments (i)	Equity result	Balance on 12/31/2023
Subsidiaries					
BioEdge Agroindustrial Ltda.	464,182	-	-	(3,681)	460,501
GranBio LLC	551,643	(39,741)	20,142	(43,614)	488,430
Total investments	1,015,825	(39,741)	20,142	(47,295)	948,931

(i) The amount of R$ 20,142 consists of financial contributions made in the investee based on its cash needs.

	Balance on 12/31/2021	Translation adjustments	Investments (i)	Incorporation (ii)	Equity result	Balance on 12/31/20222
Subsidiaries						
BioEdge Agroindustrial Ltda.	379,032	-	-	16,471	68,679	464,182
BioVertis Produção Agrícola Ltda.	19,642	-	-	(16,471)	(3,171)	-
GranBio LLC	592,481	(38,984)	19,418	-	(21,272)	551,643
Total investments	991,155	(38,984)	19,418	-	44,236	1,015,825

(i) The amount of R$ 19,418 consists of financial contributions made in the investee based on its cash needs.
(ii) On June 2, 2022, the direct subsidiary BioVertis was incorporated into the indirect subsidiary BioFlex, which is a direct subsidiary of BioEdge.

d. Summary of direct subsidiaries' equity accounts

Direct subsidiaries on December 31, 2023	Assets	Liabilities	Controlling interest	Non-controlling interest	Equity
BioEdge Agroindustrial Ltda.	1,114,236	653,735	460,501	-	460,501
GranBio LLC	554,681	64,245	488,430	2,006	490,436

Direct subsidiaries on December 31, 2022	Assets	Liabilities	Controlling interest	Non-controlling interest	Equity
BioEdge Agroindustrial Ltda.	1,045,969	581,787	464,182	-	464,182
GranBio LLC	634,009	79,598	551,643	2,768	554,411

(In R$ thousand)

Direct Subsidiaries	Net Result 2023	Net Result 2022
BioEdge Agroindustrial Ltda.	(3,681)	68,679
BioVertis Produção Agrícola Ltda.	-	(3,171)
GranBio LLC	(43,614)	(21,272)
	(47,295)	44,236

12. Property, plant and equipment

a. Breakdown of carrying amount

- Parent Company:

	2023			2022
	Cost	Depreciation	Net	Net
IT equipment	803	(787)	16	24
Improvement to rented properties	688	(78)	610	662
Furniture and fixtures	807	(805)	2	6
Administrative facilities	84	(84)	-	-
Right of use	2,081	(431)	1,650	1,790
	4,463	(2,185)	2,278	2,482

- Consolidated:

	2023			2022
	Cost	Depreciation	Net	Net
IT equipment	3,248	(3,007)	241	153
Furniture and fixtures	1,657	(1,558)	99	118
Lab plant and equipment	5,193	(4,696)	497	753
Agricultural plant and equipment	37,620	(33,319)	4,301	6,493
Improvement to rented properties	4,929	(2,792)	2,137	2,252
Industrial machinery, equipment and facilities	823,271	(181,838)	641,433	691,190
Property, plant and equipment in progress	11,983	-	11,983	3,942
Right of use	2,081	(431)	1,650	1,790
Land	2,095	-	2,095	2,247
Buildings and constructions	42,018	(5,593)	36,425	37,595
Total	934,095	(233,234)	700,861	746,533

(In R$ thousand)

b. Movement in property, plant and equipment:

- Parent Company

	Balance on 12/31/2022	Addition	Write-off	Balance on 12/31/2023
Cost				
Improvements to rented property	688	-	-	688
Furniture and fixtures	874	-	(67)	807
IT equipment	837	-	(34)	803
Administrative facilities	84	-	-	84
Right of use	2,081	-	-	2,081
Total	4,564	-	(101)	4,463
Depreciation				
Improvements to rented property	(26)	(52)	-	(78)
Furniture and fixtures	(868)	(4)	67	(805)
IT equipment	(813)	(8)	34	(787)
Administrative facilities	(84)	-	-	(84)
Right of use	(291)	(140)	-	(431)
Total	(2,082)	(204)	101	(2,185)
Total property, plant and equipment	2,482	(204)	-	2,278

	Balance on 12/31/2021	Addition	Write-off	Reclassification	Balance on 12/31/2022
Cost					
Improvements to rented property	-	-	-	688	688
Property, plant and equipment in progress	1,191	-	(503)	(688)	-
Furniture and fixtures	874	-	-	-	874
IT equipment	808	29	-	-	837
Administrative facilities	84	-	-	-	184
Right of use	2,081	-	-	-	2,081
Total	5,038	29	(503)	-	4,564
Depreciation					
Improvements to rented property	-	(26)	-	-	(26)
Furniture and fixtures	(846)	(22)	-	-	(868)
IT equipment	(808)	(5)	-	-	(813)
Administrative facilities	(82)	(2)	-	-	(84)
Right of use	(152)	(139)	-	-	(291)
Total	(1,888)	(194)	-	-	(2,082)
Total property, plant and equipment	3,150	(165)	(503)	-	2,482

(In R$ thousand)

- Consolidated:

	Balance on 12/31/2022	Addition	Write-off	Exchange variation	Balance on 12/31/2023
Cost					
IT equipment	3,257	138	(33)	(114)	3,248
Furniture and fixtures	1,734	-	(70)	(7)	1,657
Lab plant and equipment	5,495	-	-	(302)	5,193
Agricultural plant and equipment	40,209	-	(2,589)	-	37,620
Improvements to rented property	4,929	-	-	-	4,929
Industrial machinery, equipment and facilities	846,263	25	(14,069)	(8,948)	823,271
Property, plant and equipment in progress	3,942	8,187	-	(146)	11,983
Right of use	2,081	-	-	-	2,081
Land	2,247	-	-	(152)	2,095
Buildings and constructions	42,284	-	-	(266)	42,018
Total	952,441	8,350	(16,761)	(9,935)	934,095
Depreciation					
IT equipment	(3,104)	(40)	33	104	(3,007)
Furniture and fixtures	(1,616)	(19)	70	7	(1,558)
Lab plant and equipment	(4,742)	(243)	-	289	(4,696)
Agricultural plant and equipment	(33,716)	(1,105)	1,502	-	(33,319)
Improvements to rented property	(2,677)	(115)	-	-	(2,792)
Industrial machinery, equipment and facilities	(155,073)	(37,329)	1,733	8,831	(181,838)
Right of use	(291)	(140)	-	-	(431)
Buildings and constructions	(4,689)	(1,048)	-	144	(5,593)
Total	(205,908)	(40,039)	3,338	9,375	(233,234)
Total property, plant and equipment	746,533	(31,689)	(13,423)	(560)	700,861

(In R$ thousand)

	Balance on 12/31/2021	Addition	Write-off	Incorporation	Exchange variation	Reclassification	Balance on 12/31/2022
Cost							
IT equipment	3,489	160	(253)	(41)	(98)	-	3,257
Vehicle	20	-	(20)	-	-	-	-
Furniture and fixtures	2,020	-	(88)	(190)	(8)	-	1,734
Lab plant and equipment	6,433	15	(245)	(417)	(291)	-	5,495
Agricultural plant and equipment	43,601	-	(2,033)	(1,359)	-	-	40,209
Improvements to rented property	9,543	-	(5,302)	-	-	688	4,929
Industrial machinery, equipment and facilities	1,015,660	-	(160,361)	(412)	(8,624)	-	846,263
Property, plant and equipment in progress	5,761	-	(1,131)	-	-	(688)	3,942
Right of use	2,081	-	-	-	-	-	2,081
Land	2,394	-	-	-	(147)	-	2,247
Buildings and constructions	44,925	-	(1,532)	(853)	(256)	-	42,284
Total	1,135,927	175	(170,965)	(3,272)	(9,424)	-	952,441
Depreciation							
IT equipment	(3,481)	(16)	253	41	99	-	(3,104)
Vehicle	(20)	-	20	-	-	-	-
Furniture and fixtures	(1,827)	(65)	79	190	7	-	(1,616)
Lab plant and equipment	(4,922)	(605)	121	417	247	-	(4,742)
Agricultural plant and equipment	(31,996)	(4,220)	1,141	1,359	-	-	(33,716)
Improvements to rented property	(3,299)	(237)	859	-	-	-	(2,677)
Industrial machinery, equipment and facilities	(192,583)	(22,845)	52,035	412	7,908	-	(155,073)
Right of use	(152)	(139)	-	-	-	-	(291)
Buildings and constructions	(4,680)	(1,001)	24	853	115	-	(4,689)
Total	(242,960)	(29,128)	54,532	3,272	8,376	-	(205,908)
Total property, plant and equipment	892,967	(28,953)	(116,433)	-	(1,048)	-	746,533

Property, plant and equipment in progress

On December 31, 2023 and 2022 the balance of property, plant and equipment in progress refers to expenses to upgrade consumables processing and feeding machinery and upgrades to the dedusting system. In addition, a consultancy was hired to project the expansion of 2G ethanol plant's production capacity from 30 million to 60 million liters/year. Expansion expenses started in the first quarter of 2023.

Guarantees

The residual carrying amount of property, plant and equipment pledged as collateral for loans and borrowings amounts to R$ 681,718 on December 31, 2023. For more information see Note 15 c.

Write-off of assets

On December 31, 2023 the amount of R$ 13,423 represent the (i) write-off for the sale of a vehicle in the amount of R$ 19; (ii) write-off of inventory of fixed assets in the amount of R$ 13,404. For more information see Note 23.

(In R$ thousand)

13. Intangible assets

- Consolidated:

	Software	Development (Yeast and Energy cane) (a)	Joint development (Energy cane)	Licenses and intellectual property	Goodwill	Total
Balance on December 31, 2021	116	28,500	-	494,883	129,931	653,430
Addition	-	-	-	812	-	812
Write-off	-	(15,789)	-	(1,068)	-	(16,857)
Amortization (b)	(5)	(821)	-	(17,056)	-	(17,882)
Exchange variation	-	-	-	(30,494)	(8,447)	(38,941)
Balance on December 31, 2022	111	11,890	-	447,077	121,484	580,562
Addition	-	-	6,484	961	-	7,445
Amortization (b)	(111)	-	(540)	(16,009)	-	(16,660)
Exchange variation	-	-	-	(31,773)	(8,764)	(40,537)
Balance on December 31, 2023	-	11,890	5,944	400,256	112,720	530,810

(a) On March 31, 2022, there was a write-off of 4 patterns in the amount of R$ 495 due to the discontinuity of projects and on September 8, 2022, there was a write-off of R$ 15,294 related to the sale of proprietary varieties of energy cane.
(b) Amortization expenses were booked as administrative and general expenses.

- Development (yeast and energy cane) - Development of genetically modified yeast to ferment cellulose sugar in the amount of R$ 11,890 on December 31, 2023. On December 31, 2022 the balance comprises R$ 11,890 for the development of yeast.
- Joint development (energy cane) – GranBio signed a global alliance with Nuseed Group until 2034 for the technical development of sugarcane varietals as a source of biomass for second-generation biochemicals and fuels (2G). The alliance with Nuseed guarantees an exclusive licensing agreement for energy cane in 2G biorefineries worldwide. In January 2023, R$ 6,484 (USD 1,250) was paid for the first phase of the partnership;
- Licenses and intellectual property – Amounts referring to the development of licenses and intellectual property in the development of nanocellulose technology, biorefineries and commercial and industrial secrets. On March 31, 2019, the amount of R$ 368,086 was recognized referring to the intangible assets identified by Management in the business combination between Granbio LLC and the companies GranAPI LLC, API- Property-Intellectual Holdings LLC, American Process Conversion Technologies LLC and American Process Conversion Technologies Holdco LLC. The amount of technology licenses and intellectual property was calculated based on the expected revenue generated by the sale of licenses to third parties, based on the existing commercial pipeline and growth expected for the number of projects for converting biomass into cellulosic ethanol, biochemicals and nanocellulose;
- Goodwill – Value refers to the expected future earnings of the companies GranAPI LLC, API-Propriety Intellectual Holdings LLC, American Process Conversion Technologies LLC and American Process Conversion Technologies Holdco LLC, through their existing technology. Management used the relief-from-royalty method to estimate the fair value of these companies' technology. This method assumes that, rather than paying to acquire a business, a company would be willing to pay to exploit the benefits related to this class of assets. This goodwill is not deductible for tax purposes.

14. Impairment analysis

a. Property, plant and equipment

At each annual reporting date, the Group checks whether there is evidence that the carrying amount of a definite-lived asset has incurred impairment. If there is evidence of impairment, a test is carried out to quantify the asset's recoverable value. The recoverable value of an asset is determined by the higher of: (a) its fair value less estimated costs to sell and (b) its value in use. The value in use is measured based on the discounted cash flows (before tax) deriving from the continuous use of an asset until the end of its useful life.

For the period ended December 31, 2022, although management understands that there is evidence that its property, plant and equipment has suffered impairment, given that the fair value less costs to sell indicates that the construction of a plant similar to that of BioFlex Agroindustrial S.A. would result in values higher than the depreciated carrying amount, due to the short operational history resulting from strategic decisions made by Management, which considered micro and macroeconomic issues for past periods and investments in innovation, the Group also performs an impairment test on the value in use for the property, plant and equipment intended for the production of 2G ethanol at BioFlex Agroindustrial S.A., substantially developed based on internal management assumptions. Based on Management's assessment, the results demonstrate that there are no indications of a relevant change in its calculations and analyzes that could cause the need to recognize impairment losses due to the recoverability of property, plant and equipment.

(In R$ thousand)

To reinforce the Management's opinion that there is no indication of devaluation of assets, for the fiscal year ending December 31, 2023, the Company hired an independent valuation company to measure the industrial assets of BioFlex Agroindustrial S.A. using the analysis method of fair value less estimated selling costs.

Below is a comparison between the fair value and book value of the valued assets:

	Year	Fair value less selling costs	Book value	Fair value/Book value
BioFlex Agroindustrial	2023	742,828	684,001	1.09

As a result of the recoverability analysis carried out, an excess of R$ 58,827 was identified on December 31, 2023 over the book value and, therefore, it is not necessary to recognize a reduction in the recoverable value for the cash generating unit.

However, if current or future results are not consistent with the estimates and assumptions used in determining the fair value of property, plant and equipment, the Company may be exposed to losses.

b. Intangible assets and goodwill

Goodwill resulting from business combinations and indefinite-lived intangible assets are tested for impairment at least once a year, in December.

As regards the impairment test for the subsidiary GranBio LLC, the recoverable amount of the intellectual property and goodwill cash generating unit was of R$ 791,260 on December 31, 2023, (R$ 732,166 on December 31, 2022), the Group used a 10-year cash flow plus perpetuity, without considering growth rate, which reflects the expected use of the recently implemented asset and the investments being made to achieve commercial capacity in an ongoing operation based on financial estimates approved by Senior Management. The licenses' sale prices were determined based on evidence from target markets. The opex projection was compiled based on the history of costs incurred adjusted to an industrial capacity level of use.

The average discount rate used was 19.43% on December 31, 2023 (17.06% on December 31, 2022), respectively in real terms.

The growth rate used was considered based on the year-on-year increase in the number of patent licenses to be sold.

Below is a comparison between value in use and book value:

		Value in use (A)	Book value of the licenses and intellectual properties (B)	Book value of goodwill (C)	Total book value (D=B+C)	Value in use/book value (A/D)
GranBio LLC	2023	791,260	400,256	112,720	512,976	1.54
GranBio LLC	2022	732,166	447,077	121,484	568,561	1.29

As a result of the recoverability analysis carried out, an excess of R$ 278,284 was identified on December 31, 2023 (R$ 163,605 on December 31, 2022) over the book value, therefore, it is not necessary to recognize a reduction in value recoverable for the cash generating unit.

(In R$ thousand)

Due to the potential impact of a variation in the "discount rate" on cash flow, the Group carried out a sensitivity analysis with a change in this variable increasing by 1 percentage point 20.43% on December 31, 2023 (18.06% on 31 December 2022), being the value in use a calculation as shown in the following table:

		Value in use (A)	Book value of the licenses and intellectual properties (B)	Book value of goodwill (C)	Total book value (D=B+C)	Value in use/book value (A/D)
GranBio LLC	2023	715,899	400,256	112,720	512,976	1.40
GranBio LLC	2022	637,912	447,077	121,484	568,561	1.12

In the recent past, the Company commissioned a study to evaluate the value of its brands and patents, which presented a market value higher than the book value.

15. Loans and borrowings

				Parent Company		Consolidated	
Type	Index	Interest	Maturity	2023	2022	2023	2022
FINEP – Financing	TJLP	+ 5.00%	Feb/29	76,973	132.376	76.973	132.376
Working capital	CDI	+1.19	Dec/27	-	-	201.034	175.072
Guarantee honor	CDI	-	Jun/22	-	-	-	34.805
				76,973	132.376	278.007	342.253
Current				390	9.346	32.338	44,152
Non-current				76.583	123.030	245.669	298,101

Short-term debt had been putting pressure on the Group's cash flow. Management concluded some renegotiations with financial institutions to lengthen the debt profile in order to readjust its operating cash flow. See Note 1.

Finep - Financing

In December 2023, sub credit "A" was fully amortized for the amount of R$ 48,963, being: (i) use of short term investment of cash collateral of R$ 13,760; (ii) R$8,016 received as a loan from the controlling company GranInvestimentos S.A.; and (iii) R$27,187 through negotiation with Banco Santander, which granted a new loan to the related party MRO Participações S.A., which, in turn settled this amount with FINEP.

Sub credit "B" remains in force with final maturity in February 2029, with the updated amount being R$76,973 on December 31, 2023 (R$78,220 on December 31, 2022).

Working Capital

In FY 2021, the Company carried out a restructuring of its loans and borrowings with the main creditors, and the guarantees on loans and borrowings from public banks were exercised by private banks.

Negotiations were made with these private banks and the renegotiated debt was reclassified as Working Capital.

(In R$ thousand)

Guarantee Honor

On September 1, 2023, the debt of the indirect subsidiary BioFlex Agroindustrial S.A with Banco Itaú, originally classified as Guarantee Honor, was renegotiated through a Bank Credit Certificate (CCB) instrument. On September 13, 2023, the related party Olympia Shipping B.V, a subsidiary of Stratus Energy B.V, which has the same controlling shareholders as GranBio, assumed the loan on behalf of BioFlex in the amount of R$38,633 equivalent to USD 7,857. Subsequently, on October 19, 2023, Olympia Shipping B.V onerously assigned such credit which, on that date, was recognized in the amount of R$ 39,586, to its controlling company, Stratus Energy B.V, with the consent of BioFlex which, on the same date, through of a Private Payment Instrument and Other Covenants, assigned 22,848 units of BLFE11 debentures, paying off the balance payable to the related party. More information on notes 1 and 10.

a. Debt amortization schedule

See below the contractual maturities of financial liabilities:

	Parent Company		Consolidated	
	2023	2022	2023	2022
1 year	390	9,346	32,338	44,152
2 years	-	14,798	24,585	20,025
3 years	16,493	27,257	41,079	55,865
4 years and onwards	60,090	80,975	180,005	222,211
Total	76,973	132,376	278,007	342,253

b. Reconciliation of equity changes with cash flows arising from financing activities

	Parent Company	Consolidated
Balance on December 31, 2021	147,439	551,017
Amortization of loans and borrowings (principal)	(15,649)	(27,649)
Provision for interest on loans and borrowings	14,874	73,952
Amortization of loans and borrowings (interest)	(14,288)	(23,421)
Assumption for related parties – CESM	-	(223,490)
Partial debt forgiveness with third parties (i)	-	(8,156)
Balance on December 31, 2022	132,376	342,253
Amortization of loans and borrowings (principal)	(27,507)	(27,507)
Provision for interest on loans and borrowings	13,523	43,313
Amortization of loans and borrowings (interest)	(14,232)	(14,232)
Assumption for related parties – MRO Participações S.A. (ii)	(27,187)	(27,187)
Assumption for related parties – Olympia Shipping BV (ii)	-	(38,633)
Balance on December 31, 2023	76,973	278,007

(i) Partial debt forgiveness for the guarantee honors that were renegotiated for Working Capital and that did not impact the Company's cash flow.
(ii) In negotiation carried out with financial institutions, the debt were assumed by the Group's related parties. These transactions did not impact the statement of cash flow.

(In R$ thousand)

c. Guarantees

The Company's debts are secured by bank guarantee and corporate guarantee and real guarantees. Real guarantees are imposed on property, plant and equipment in favor of BNDES, FINEP, Bradesco and Banco do Brasil. The institutions have mortgages on the industrial assets of the subsidiary BioFlex, and FINEP also has a guarantee on agricultural equipment. See amounts of property, plant and equipment given as collateral in Note 12.

d. Covenants

The Group has loans and borrowings in the parent company and in the consolidated statements, maturing in February 2029.

The loans and borrowings contain non-financial operating covenants establishing a range of obligations, listed below:

- Compliance with environmental obligations and legislation, the biosafety quality certificate (CQB) and the Gene Pool Management Council (CGEN);
- Submit federal, state and municipal tax debt clearance certificates;
- Have not incurred protests for indisputable debts;
- Pausing of operating activities;
- Corporate and equity restructuring.

The Executive Board and its legal advisers understand there was no breach of covenants during the fiscal year 2023 until the date of approval of these financial statements.

16. Trade payables

	Parent company		Consolidated	
	2023	2022	2023	2022
Domestic payables	176	562	3,530	10,584
Overseas payables	-	-	31,761	29,086
Total	176	562	35,291	39,670

Trade payables are mainly due to the purchase of raw materials for the 2G ethanol production process and independent auditing and consultancy services acquired.

The Group has not yet developed a proprietary enzyme solution, which means that its technological and licensing process depend on enzyme suppliers, which are currently sourced exclusively from Novozymes North America INC.

17. Advances from clients

	Consolidated	
	2023	2022
Collaboration agreement - NextChem (i)	-	5,739
Current	-	5,739

(In R$ thousand)

On July 31, 2020, the Group established a strategic alliance with NextChem, a subsidiary of the Italian engineering group Maire Tecnimont with a worldwide presence in renewable energy. This is a 10-year partnership, initially receiving the amount of R$ 21,855 (US$ 4,000), which was amortized over a period of 40 months, according to the contract.

18. Provision for contingencies

The Company and its subsidiaries are defendants in lawsuits rated as probable defeats by our legal advisers in the consolidated amount of R$ 634 as of December 31, 2023.

The Company and its subsidiaries are defendants in lawsuits rated as possible defeats by our legal advisers in the consolidated amount of R$ 2,525 as of December 31, 2023 (R$ 4,349 as of December 31, 2022), for which no provisions were recorded.

19. Equity

a. Share capital

The ownership structure is as follows:

	December 31, 2023		
	Capital - R$	No. of shares	Interest
Shareholder			
GranInvestimentos S/A	377,662	93,038,165	86%
BNDES Participações S/A	600,000	15,094,340	14%
Total	977,662	108,132,505	100%

	December 31, 2022		
	Capital - R$	No. of shares	Interest
Shareholder			
GranInvestimentos S/A	377,662	93,038,165	86%
BNDES Participações S/A	600,000	15,094,340	14%
Total	977,662	108,132,505	100%

b. Advances for Future Capital Increase (AFAC)

On December 30, 2022 and December 29, 2023, the shareholder GranInvestimentos S.A. resolved, in a private instrument of advance for future capital increase, to transfer to the AFAC the amount of R$ 341,059 and R$ 22,721, respectively, which it had receivable from its direct subsidiary GranBio Investimentos S.A. referring to the amounts sent for supply cash from operating activities which will be converted into registered common shares. The Company expects to pay in capital by the end of FY 2024.

(In R$ thousand)

c. Capital reserve

In a Shareholders' Agreement signed on April 30, 2013 between BNDESPAR and GranInvestimentos S.A. (shareholders), it was stipulated that the shares were initially issued at R$ 39.75 each. Capital contributions after the signature of this Agreement had the share price updated by the Extended National Consumer Prices Index (IPCA). The variation in the share price between the date of the Shareholders' Agreement and the date of the effective receipt of the capital contribution was multiplied by the total number of paid-in shares, with this variation being recorded as a Capital Reserve.

d. Assets and liabilities valuation adjustments

The asset and liability valuation adjustments item includes accumulated adjustments for foreign currency differences resulting from the translation of the consolidated financial statements of foreign operations. In the 12-month period ended December 31, 2023, a translation of R$ 39,741 was recognized. On December 31,2023, the balance of the item is R$ 153,872.

20. Revenue from goods and services sold

The table below breaks down the company's gross revenue in accordance with CPC 47- item 112A.

	Consolidated	
	2023	2022
Revenue from collaboration agreement (i)	5,504	10,544
Revenue from royalties (ii)	-	442
Revenue	5,504	10,986
Revenue from equipment leasing (iii)	-	13,251
Other revenues	-	13,251
Total revenue	5,504	24,237
Sales taxes	-	(1,267)
Revenue from goods and services sold	5,504	22,970

(i) Revenue of R$ 5,504 (USD 1,100) due to recognition of revenue from the contract with Nextchem;
(ii) Operating revenue from energy cane royalties;
(iii) Operating revenue of the indirect subsidiary BioFlex Agroindustrial S.A. arising from the leasing of electricity cogeneration assets with CESM.

For further information on operating revenue see Note 27 - Segment Reporting

(In R$ thousand)

21. Cost of goods sold and services rendered

	Consolidated	
	2023	2022
Cost from commercial partner and services provided (i)	(4,732)	(11,007)
Leasing costs (ii)	-	(4,463)
Idleness cost (iii)	(41,360)	(19,209)
	(46,092)	(34,679)

(i) Operational cost of US indirect subsidiaries;
(ii) Depreciation cost of leased thermoelectric assets;
(iii) Cost mainly related to depreciation of the 2G ethanol industrial plant of the indirect subsidiary BioFlex, on December 31, 2023, was R$ 36,961 (R$ 15,698 on December 31, 2022). The variation refers to the new useful lives that began to be considered in January 2023 according to the report issued by the specialized provider hired by the company, Note 5.g.

22. Administrative and general expenses

	Parent Company		Consolidated	
	2023	2022	2023	2022
Depreciation and amortization (i)	(203)	(195)	(19,691)	(19,595)
Third-party services (ii)	(3,920)	(11,480)	(13,991)	(23,452)
Personnel expenses	(142)	(261)	(5,433)	(7,178)
Taxes and fees	(782)	(265)	(5,774)	(1,074)
Insurance	(185)	(183)	(4,205)	(5,927)
General expenses (iii)	(144)	(63)	(2,335)	(1,290)
Occupation expenses	(249)	(351)	(324)	(1,225)
Travel	(21)	(47)	(279)	(182)
Vehicle expenses	(1)	-	(85)	(50)
Selling expenses	(9)	(4)	(17)	(4)
Total	(5,656)	(12,849)	(52,134)	(59,977)

(i) Depreciation of other assets such as furniture, vehicles and IT equipment are recognized as an administrative and general expense. In the financial statement, the depreciation expense on December 31, 2023 was R$ 3,031 (R$ 1,713 on December 31, 2022) and the amortization expense for intangible assets on December 31, 2023 was R$ 16,660 (R$ 17,882 on December 31, 2022);
(ii) Denotes expenses on third-party services provided such as audit, tax and legal;
(iii) General expenses with mail, fuel, materials for use and consumables, costs with legal proceedings, property security and others.

(In R$ thousand)

23. Other operating income

	Consolidated	
	2023	2022
Proceeds from the sale of intangible assets (i)	-	114,012
Reversion of provision for related-party losses (ii)	-	70,522
Proceeds from sale of property, plant and equipment (iii)	55	-
Other operating income	2,335	15,190
Total other income	2,390	199,724
Write-off of property, plant and equipment by inventory (iv)	(13,404)	-
Proceeds from sale of property, plant and equipment (v)	-	(61,632)
Total other expenses	(13,404)	(61,632)
Total	(11,014)	138,092

(i) On September 8, 2022, the indirect subsidiary BioFlex Agroindustrial S.A. and Atlântica Sementes S.A, from the Nuseed Group, signed a long-term strategic alliance to accelerate investments in Research and Development (R&D) and commercialization in global energy-cane markets. Atlântica Sementes S.A. acquired the commercial and energy cane improvement assets and the R&D program with the aim of improving the value of energy produced through innovation in bioenergy cane. The transaction involved the receipt of R$130,869 (U$25,000). The result of this sale generated a gain of R$115,575, of which R$112,268 came from the sale of intangible assets and R$3,307 from the transfer of customer advances that must be performed by the buyer. In addition to this operation with Atlântica Sementes S.A, the Company wrote-off R$1,563 in intangible assets due to the discontinuation of projects;

(ii) The Company fully reversed the provision for loss with the related party CESM due to the termination of the Joint Venture with Usina Caeté, as per Explanatory Note No. 5 (a), generating a net impact of R$ 70,522;

(iii) Result from the sale of a vehicle authorized by the Company's management to be used as payment for a supplier. This transaction did not generate cash, as per Note 12;

(iv) During the maintenance of BioFlex's industrial plant, the Company carried out a physical inventory of machines and equipment, identifying R$ 13,404 of non-existing assets, which were written-off in December 2023;

(v) On September 30, 2022, the Company's management authorized the sale of fixed assets related to the thermoelectric power plant of the indirect subsidiary BioFlex Agroindustrial S.A, which were leased to the Joint Venture, Companhia Energética de São Miguel dos Campos (CESM). The result of this sale was a loss of R$60,636. This sale is part of the process of keeping only the assets related to its main corporate purpose of producing 2G ethanol in BioFlex. Additionally, this sale concludes the first phase of negotiation with CESM shareholders due to the restructuring of the Joint Venture. In addition to this operation, the Company wrote-off other fixed assets in the amount of R$996.

(In R$ thousand)

24. Net financial income/loss

	Parent Company		Consolidated	
Financial expenses	2023	2022	2023	2022
Interest in loans and borrowings	(13,523)	(15,138)	(43,313)	(73,952)
Interest expenses (i)	(360)	(361)	(11,098)	(9,108)
Bank expenses	(1,187)	(258)	(1,195)	(575)
IOF (tax on financial operation)	(226)	(74)	(225)	(1,424)
Monetary updates on liabilities	-	-	-	(27)
	(15,296)	(15,831)	(55,831)	(85,086)
Financial revenues				
Financial discounts obtained (ii)	11,000	1,151	97,356	32,530
Exchange variation	2,386	2,298	4,549	4,787
Earnings from investments	8,263	7,533	3,971	3,813
Interest received	-	-	1,696	-
Monetary updates	-	30	-	-
	21,649	11,012	107,572	41,130
Net financial income/loss	6,353	(4,819)	51,741	(43,956)

(i) Interest arising mainly from debentures, interest and fines for late payment of taxes, suppliers.

(ii) During 2023 and 2022 there were renegotiations with financial institutions, suppliers and third parties to settle certain debts, with part of the amount due having a financial discount to settle the outstanding balance. This transaction took place in the context of the sale of a related party, MRO Participações S.A..

25. Accrued tax losses

a. Amounts recognized in profit or loss in the period – Consolidated:

	Consolidated 2023	Consolidated 2022
Current income tax and social contribution expense		
Current year expense	(3)	(853)
Total	(3)	(853)
Deferred income tax and social contribution expense		
Temporary difference:		
Realization through amortization of intangible assets	4,664	4,823
	4,664	4,823

b. Deferred tax asset not recognized – Consolidated

The Group did not generate taxable profit in previous years and, therefore, there is increased doubt about whether future taxable profit will be available in the foreseeable future to realize deferred tax assets. As a result, deferred tax assets were not recognized on December 31, 2023.

For the Brazilian companies, accumulated tax losses and the negative base of social contribution do not expire, however, they can be offset only up to the limit of 30% of annual taxable earnings. The total income tax loss and negative base of social contribution is R$ 850,426 on December 31,2023 (R$ 848,268 on December 31, 2022).

For North American companies, tax losses accrued prior to December 31, 2017 can be used over 20 years and there is no taxable income limit for the use of these losses. Tax losses after December 31, 2017 can be carried forward indefinitely and can be used to offset only 80% of current year’s taxable income. The total tax loss is R$ 203,422 on December 31, 2023 (R$ 122,417 on December 31, 2022).

(In R$ thousand)

The tax returns of all Group companies are subject to tax inspections and revisions by the tax authorities for varying periods. As a result of these inspections and reviews, authorities may question the methodologies, criteria and interpretations of the legislation, and consequently, change the amounts recognized by the Company in the financial statements and/or result in legal challenges.

c. Movement on deferred tax balance

	Consolidated
Opening net balance on December 31, 2021	57.075
Realization through amortization of intangible assets	(4,822)
Exchange variation on translating taxes from the functional currency to the presentation currency	(3,760)
Closing net balance on December 31, 2022	48,493
Realization through amortization of intangible assets	(4,664)
Exchange variation on translating taxes from the functional currency to the presentation currency	(3,355)
Closing net balance on December 31, 2023	40,474

d. Tax benefit

The indirect subsidiary BioFlex Agroindustrial S.A. has benefits from the Federal Revenue Service and Northeast Development Superintendence (SUDENE) and has the right to a 75% reduction in non-refundable income tax (IRPJ) and surtaxes during the period from 01/01/2015 to 12/31/2024.

26. Financial instruments and risk management

Operations with financial instruments are fully recognized in the accounts and restricted to cash and cash equivalents, accounts receivable, loans and borrowings, and other accounts receivable and payable from related parties, loans, financing, trade payable and other accounts payable.

The Group and its direct and indirect subsidiaries do not invest in derivatives or any other risky assets on a speculative basis.

The Group and its direct and indirect subsidiaries assess such financial assets and liabilities with respect to market value was conducted on the basis of available information and appropriate assessment methods. However, the interpretation of market data and selection of assessment methods requires considerable judgment and estimates to calculate the most appropriate realizable value. As a result, the estimates do not necessarily indicate the values that could be realized in the current market.

The activities of the Company and its direct and indirect subsidiaries expose them to various financial risks: credit risk, liquidity risk and market risk (including interest rate risk), as described below:

(In R$ thousand)

a. Credit risk

Credit risk is the risk of financial loss to the Company if a client or counterparty to a financial instrument fails to meet its contractual obligations. This risk is primarily posed by trade receivables.

The carrying amount of financial assets represents the maximum credit exposure.

The Company has a credit policy whose purpose is to set procedures for granting loans in business transactions that are in line with the required levels of quality, fastness and security.

The Group determines credit limits by analyzing the client's credit standing, considering: (i) onboarding information (ii) economic and financial information and (iii) historical purchases and payments.

b. Liquidity risk

The cautious management of liquidity risk implies keeping enough cash and securities and credit facilities to be able to settle market positions. Due to the dynamic nature of their businesses, the Group and its direct and indirect subsidiaries use flexible funding by maintaining bank credit facilities.

Management monitors the level of the Company and its direct and indirect subsidiaries' liquidity, considering the expected cash flow and cash and cash equivalents. Furthermore, the liquidity management policy of the Company and its direct and indirect subsidiaries entails projecting cash flows and considering the level of net assets required to achieve these projections and maintain the debt financing plans.

Management is continuing to look into alternatives to guarantee a balanced capital structure. See further information in Note 1.

The following are the remaining contractual financial liability maturities and exclude the impact of netting agreements:

	Parent Company				
Non-derivative financial liabilities	Carrying amount	6 months or less	6 to 12 months	1 to 3 years	More than 3 years
Loans and borrowings*	76,973	206	218	61,262	55,953
Trade payables	176	176	-	-	-
Related-party loans	30,660	30,660	-	-	-
Accounts payable	1,879	28	54	1,797	-
	109,688	31,070	272	63,059	55,953

	Consolidated				
Non-derivative financial liabilities	Carrying amount	6 months or less	6 to 12 months	1 to 3 years	More than 3 years
Loans and borrowings *	278,007	17,175	18,243	244,612	131,827
Trade payables	35,291	35,291	-	-	-
Accounts payable	3,646	356	710	2,580	-
	316,944	52,822	18,953	247,192	131,827

(*) Amounts in each age range have projected interest to be incurred.

(In R$ thousand)

The maturity analyses of the Group do not project cash flows that could occur significantly earlier or at significantly different amounts.

- Market risk

The Group is exposed to interest-rate changes, charged on its loans and borrowings and exchange variation on the assets and liabilities of the overseas-based direct and indirect subsidiaries. To minimize possible impacts triggered by these changes, the Group adopts the policy of diversifying these contracts. The Group is primarily exposed to changes in CDI and TJLP interest rates, which are applied to its loans and borrowings.

At the financial statements reporting date, the profile of the Company's financial instruments yielding interest was:

	Carrying amount			
	Parent Company		Consolidated	
Variable-income instruments	2023	2022	2023	2022
Liabilities				
Loans and borrowings (CDI)	-	-	(201,034)	(209,877)
Loans and borrowings (TJLP)	(76,973)	(132,376)	(76,973)	(132,376)
Total	(76,973)	(132,376)	(278,007)	(342,253)

The profile of the assets and liabilities resulting from the consolidation of the direct and indirect subsidiaries in USD as the functional currency has been summarized below, and is exposed to exchange variation:

	Consolidated	
Instruments exposed to exchange variation	2023	2022
Assets		
Cash and cash equivalents	198	105
Accounts receivable	237	1,857
Other financial assets	32,419	56,932
	32,854	58,894
Liabilities		
Trade payables	(7,145)	(6,858)
Other accounts payable	(5,194)	(6,188)
Accounts payable	(11,431)	(12,319)
	(23,770)	(25,365)

Cash flow sensitivity analysis for variable-rate instruments and exchange variation

The sensitivity analysis considered the loans and borrowings which are restated by the CDI and TJLP indexes.

(In R$ thousand)

The sensitivity analysis on interest rates on loans and borrowings considers an increase and reduction of 25% and 50% in interest rates and how this would impact equity and results. This analysis takes into account the amounts presented in the financial statements as of December 31, 2023. Except for the previously mentioned 25% and 50% variation, no other changes were projected:

						12/31/2023
Interest rate exposure	Balance	Probable	25%	50%	-25%	-50%
Loans and borrowings						
TJLP	(76,973)	(5,026)	(6,283)	(7,540)	(3,770)	(2,513)
CDI	(201,034)	(23,420)	(29,276)	(35,131)	(17,565)	(11,710)
Profit or loss for the period	(278,007)	(28,446)	(35,559)	(42,671)	(21,335)	(14,223)

The interest rates the Company is subject to, based on projections of these rates in a probable scenario and the sensitivity analysis, are the following:

					12/31/2023
	Probable	25%	50%	-25%	-50%
TJLP (i)	6.53%	8.16%	9.80%	4.90%	3.27%
CDI (ii)	11.65%	14.56%	17.48%	8.74%	5.83%

(i) Interest rates based on information available at FINEP. Source: FINEP;
(ii) Interest rates based on information available at CETIP.

The sensitivity analysis into the exchange rates with the 25% and 50% increase and decrease in the consolidated figures is as follows, including the most likely USD variation used for translation on December 31, 2023. On December 31, 2023 the USD exchange rate was R$ 4.8413 to the USD:

Exposure to exchange rates	Carrying amount in R$	In – US$	25%	50%	-25%	-50%
Assets	32,854	6,786	8,214	16,427	(8,214)	(16,427)
Liabilities	(23,770)	(4,910)	(5,943)	(11,885)	5,943	11,885
Profit or loss exposure in the period		1,876	2,271	4,542	(2,271)	(4,542)

For the effects of the investments in overseas subsidiaries, see below the sensitivity analysis with the probable scenario for the future exchange rate:

					12/31/2023
	Probable	25%	50%	-25%	-50%
USD	4.8413	6.0516	7.2620	3.6310	2.4207

(In R$ thousand)

Capital management

The objective of the Company´s capital management is to ensure that it maintains its strong credit rating with the financial institutions and its excellent capital ratio, in order to support the Company´s business and maximize value for its shareholders. The Group and its direct and indirect subsidiaries control their capital structure by making adjustments and adapting to the existing economic conditions. In its net debt structure, the Group includes loans and borrowings less cash and cash equivalents and short-term investments.

	Parent Company		Consolidated	
	2023	2022	2023	2022
Cash and cash equivalents	1	1	200	64,723
Short term investments	-	7,186	-	7,186
(-) Loans and borrowings	(76,973)	(132,376)	(278,007)	(342,253)
Net debt	(76,972)	(125,189)	(277,807)	(270,344)
Equity	844,627	908,219	846,633	910,987
Equity and net debt	767,655	783,030	568,826	640,643

Classification of financial instruments

The table below shows the main financial instruments by category.

Parent Company

	Amortized cost	
Financial assets	2023	2022
Cash and cash equivalents	1	1
Related-party loans	2,429	-
Total	2,430	1
Liabilities		
Trade payables	176	562
Related-party loans	30,660	44,363
Loans and borrowings	76,973	132,376
Accounts payable	1,879	2,069
Total	109,688	179,370

	Fair value through profit or loss	
Financial assets	2023	2022
Short-term investments	-	69,061
Total	-	69,061

(In R$ thousand)

Consolidated:

	Amortized cost	
Financial assets	2023	2022
Cash and cash equivalents	200	64,723
Related-party loans	237	2,032
Total	437	66,755
Liabilities		
Trade payables	35,291	39,670
Loans and borrowings	278,007	342,253
Other accounts payable to related-party	43,172	63,502
Other accounts payable	3,646	5,026
Total	360,116	450,451

	Fair value through profit or loss	
Financial assets	2023	2022
Short-term investments	-	7,186
Total	-	7,186

The fair values of the financial instruments presented do not significantly vary from the balances presented in the statement of financial position.

27. Segment reporting

Basis for segmentation

The Group has the following 3 strategic divisions, which are its reportable segments. These divisions offer different products and services, and are managed separately because they require different technologies. The following summary describes the operations of each reportable segment of the Company:

Reportable segment	Operation
BioVertis	Company engaged in the experimentation, development, plantation, production and collection of biomass, i.e. Vertix energy cane and sugarcane straw.
BioFlex	Production of biomass, processing biomass for the production and sale of biofuel, electricity, biochemicals and pharma chemicals, technological research and development, sale of sugarcane straw, bagasse and biomass.
Biotech	Development of technology to convert biomass into cellulose ethanol, biochemicals and nanocellulose.

Information about the reportable segments

Information related to each reportable segment is set out below.
The performance is assessed based on final net income, as Management believes that this information is the most important for assessing the results of the respective segments:

(In R$ thousand)

	December 31, 2023				
	BioVertis	BioFlex	Biotech	Others	Total
Revenue from goods sold and services rendered	-	-	5,504	-	5,504
Cost of goods sold and services rendered	-	(41,360)	(4,732)	-	(46,092)
Gross (Loss) Profit	-	(41,360)	772	-	(40,588)
Operating revenue (expenses)					
Administrative expenses	-	(14,023)	(12,042)	-	(26,065)
Depreciation and amortization	-	(1,022)	(17,925)	-	(18,947)
Other revenue (expenses)	-	8,768	(19,808)	-	(11,040)
	-	(6,277)	(49,775)	-	(56,052)
Net (loss) before financial income and expenses	-	(47,637)	(49,003)	-	(96,640)
Financial revenues	-	91,035	123	-	91,158
Financial expenses	-	(47,088)	(160)	-	(47,248)
Net financial result	-	43,947	(37)	-	43,910
Deferred income tax and social contribution	-	-	4,664	-	4,664
Net (loss) for the period – Subtotal	-	(3,690)	(44,376)	-	(48,066)
Other	-	-	-	732	732
Net (loss) for the period					(47,334)
Segment reporting – Assets					
Inventories	-	8,608	-	-	8,608
Property, plant and equipment	-	689,733	8,850	2,278	700,861
Intangible assets	-	11890	512,977	5,943	530,810
Segment reporting – Liabilities					
Loans and borrowings	-	(201,034)	-	(76,973)	(278,007)
Other accounts payable	-	-	(1,767)	(1,879)	(3,646)

(In R$ thousand)

	December 31, 2022				
	BioVertis	BioFlex	Biotech	Others	Total
Revenue from goods sold and services rendered	77	12,350	10,543	-	22,970
Cost of goods sold and services rendered	-	(23,672)	(11,007)	-	(34,679)
Gross (Loss) Profit	77	(11,322)	(464)	-	(11,709)
Operating revenue (expenses)					
Administrative expenses	(1,530)	(12,282)	(13,726)	-	(27,538)
Depreciation and amortization	(829)	(1,297)	(17,275)	-	(19,401)
Other revenue (expenses)	(497)	138,384	(409)	-	137,478
	(2,856)	124,805	(31,410)	-	90,539
Net (loss) before financial income and expenses	(2,779)	113,483	(31,874)	-	78,830
Financial revenues	13	29,126	5,107	-	34,246
Financial expenses	(404)	(76,456)	(90)	-	(76,950)
Net financial result	(391)	(47,330)	5,017	-	(42,704)
Deferred income tax and social contribution	-	-	4,823	-	4,823
Net (loss) for the period – Subtotal	(3,170)	66,153	(22,034)	-	40,949
Other	-	-	-	-	(14,529)
Net (loss) for the period					26,420
Segment reporting – Assets					
Inventories	-	8,570	-	-	8,570
Property, plant and equipment	-	737,498	6,554	2,481	746,533
Intangible assets	-	12,001	568,561	-	580,562
Segment reporting – Liabilities					
Loans and borrowings	-	(335,254)	-	(6,999)	(342,253)
Other accounts payable	-	(639)	(2,320)	(2,067)	(5,026)

28. Earnings per share

In compliance with technical pronouncement CPC 41 (IAS 33) - Earnings per share, approved by CVM Resolution 636, the Company presents the following information on earnings per share for the period ended December 31, 2023 and 2022

Basic: the basic calculation of earnings per share is done by dividing the profit (loss) for the period, attributed to the holders of the Parent Company's common shares, by the weighted average number of common shares available during the period (denominator).

Diluted: the calculation of diluted earnings per share has been based on the following profit or loss attributable to the holders of the Company's common shares and weighted-average number of common shares for the effects of all dilutive potential common shares. The Company does not have any potential common shares.

The table below provides data on earnings and the shares used in calculating basic and diluted earnings per share, which are identical because the Company does not have potential common shares.

	2023	2022
Profit (Loss) for the period	(46,572)	27,182
Weighted average number of common shares (‘000)	108,133	108,133
Basic and diluted profit (loss) per share (in R$)	(0.4307)	0.2514

29. Insurance

On December 31, 2023, the Company and its subsidiaries have the following insurance contracts and amounts considered compatible by management with the risks involved:

PP&E and inventory (approximate coverage – R$ 723,993);

- Civil liability: coverage for material and personal damages caused involuntarily to third parties as a result of the production, facilities and assemblies taking place on the insured site;

Administrative (approximate coverage - R$ 278,504);

- Administrative head office: fire, lightning strike, explosion, theft, qualified theft, civil liability, and others.

Given their nature and specific features, the risk assumptions made and the respective coverage are not covered by a financial statements audit, and were not therefore reviewed by our independent auditors.

Bernardo de Almeida Gradin
CEO

Guilherme Mottin Refinetti
CFO

Dejair Adão Guerro de Oliveira
Controller
CRC PR-052741/O-4-T-CE