



Consultores Actuariales, S.R.L.
CONSULTORES ACTUARIALES • PLANES DE PENSION • SOCIO-ECONOMICOS

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BELIZE

Social Security Board

**Actuarial Performance Analysis of the Social Security Scheme
(at 31 December 2022)**

**Belmopan, Belize
15 June 2023**



Consultores Actuariales, S.R.L.

CONSULTORES ACTUARIALES • PLANES DE PENSION • SOCIO-ECONOMICOS

15 June 2023

Board of Directors
Social Security Board
Belmopan, Belize

In accordance with the provisions of Section 45 of the Social Security Act, an actuarial performance assessment of the scheme was carried out as of 31 December 2022, as a complement to the triennial valuation carried out every three years, to assess the performance of the benefit branches and the adequacy of the statutory contributions to support benefits. The review was based on the legal provisions in force, including amendments introduced in 2019, 2020, and 2022. The analysis also comprises an assessment of the Investment Portfolio, the National Health Insurance Program, the Self-Employed Scheme, and the Non-Contributory Pension Scheme.

A summary of the main findings and recommendations is set out in Chapter I of the report, while Chapter II describes the legal bases and the consolidated financial operations. Chapters III, IV, and V present the actuarial analysis of the short-term benefits branch, the employment injury branch, and the long-term branch. Annexes will deal with the Investment Performance, as required by the Third Schedule of the Act, the performance of the Non-Contributory Pensions, and the Self-Employed Schemes, and a summary of the benefit provisions.

Acknowledgments

The actuary would like to express his appreciation to the Board for the facilities provided to the actuary during his assignment. Special thanks are due to the Chairman Mrs. Nigeli Sosa, CEO Mrs. Deborah Ruiz, and the staff of the Policy, Research and Actuarial Services and Corporate Services, for the assistance provided to the actuary during the valuation.



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Attestation

The analysis was carried out according to applicable actuarial cost methods and our interpretation of the provisions in force. Further, the valuation was carried out utilizing actuarial and financial bases and assumptions, which, in our opinion, are reasonable and offer an adequate estimate of the anticipated experience.

Yours sincerely,

For: Consultores Actuariales, SRL
Consultores Actuariales

Hernando Pérez Montás
Actuary



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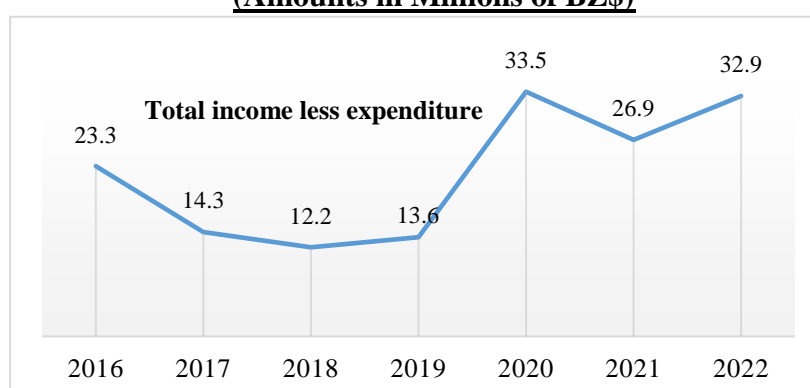
I

CONCLUSIONS AND RECOMMENDATIONS

1. Summary of Financial Trends

Contribution income increased by 22.4% (6.38% in 2021), a positive performance due to the impact of the legal amendments and the recovery of the economy. Total expenditure rose by 12.9% yielding a positive amount surplus of \$9.5 million (a \$1.4 million deficit in 2021). Adding \$21 million of investment income yields a total surplus of \$32.9 million in 2022, reversing the 2021 decline to only \$26.9 million.

Consolidated Income less Expenditure (Amounts in Millions of BZ\$)



2. Actuarial Trends

The 2022 performance analysis shows that the implementation of the last tranche of legal amendments contributed to extending the financial solvency of the scheme, despite the gradual maturity of the long-term branch due to the steady increase in age pensions at a faster rate than the increase of active insured persons.

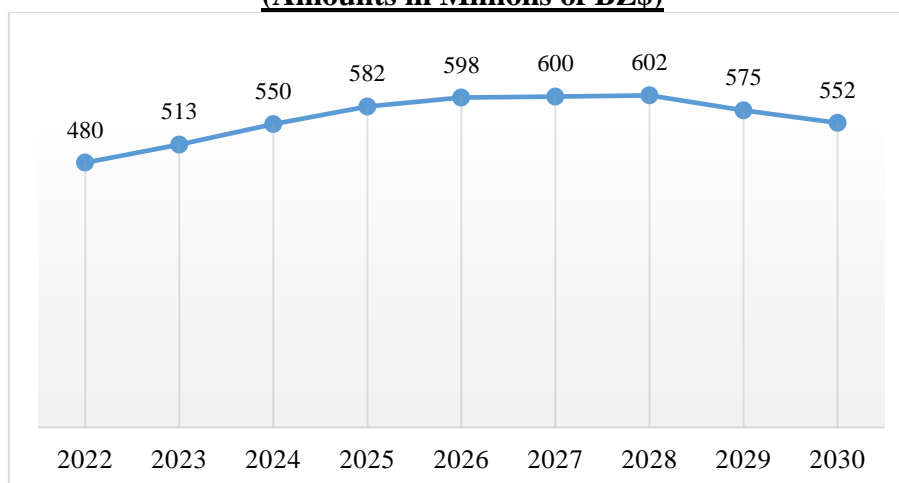
The reallocation of the contributions by branch recommended by the actuary, and the full implementation of the 10% contribution rate and the \$520 ceiling, is anticipated to yield the following outcome: **i) ensure the long-term sustainability of the short-term branch; ii) contain the capitalization of reserves by the EI branch and, once the updated actuarial APV factor Disability and Death branch are modified, reduce the excess level of reserves; and iii) strengthen the financing base of the Long-Term branch, by a gross allocation of insurable earnings of 7.20% (72% of contributions), extending the Period of Equilibrium (PE) to the end of the present decade.**

The analysis also shows that the capitalization of the long-term branch would depend almost exclusively on a share of investment income, a critical issue to ensure the sustainability of the scheme.

The analysis also shows that the statutory reserves of the Short-Term branch and the EI branch exceed the provisions stipulated in Sections 17 (1) and 17 (2) of the financial regulations.

A medium-term projection of the Long-Term branch is shown below, to be updated at year-end 2023, when the incidence of a full 12 months of contributions on the updated legal bases can be assessed (9 months in 2022).

Preliminary Projection of Long-Term Branch Reserves
(to be updated at 31/12/2024)
(Amounts in Millions of BZ\$)



3. Investment Performance

Annex C shows an analysis of the investment portfolio, as required by the Third Schedule of the Act, Section 17. **The nominal rate of return on investments was assessed at 3.33% (4.63% in 2021), and the real rate (CPI-adjusted) was negative at 2.41%, due to abnormally high inflation, which is expected to decline as from 2023.**

The execution of an investment plan to maximize income without undue risk is a key task of the Board, taking into consideration the advancing maturity of the scheme. The improved cash flow due to the legal amendments allows a strategic asset allocation to “development projects”, to achieve a more adequate balance of a portfolio concentrated on financial issues.

The diversification of the investment portfolio should be preceded by: i) a sound risk/reward assessment, ii) a favorable anticipated risk-adjusted return, and iii) a careful evaluation of the collateral funds, to ensure full recovery of the unamortized portion of the investment in case of default.

4. Investments Benchmarks

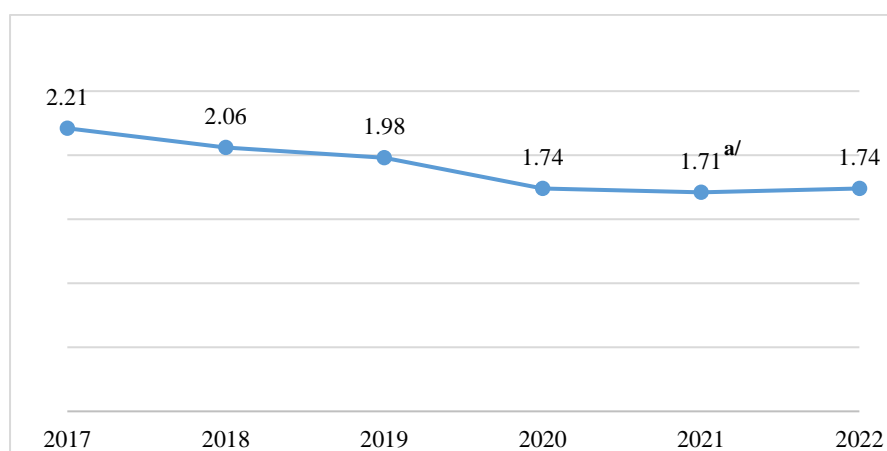
Consolidated projections show a positive cash flow for at least five years. Therefore, the Board is advised to establish guidelines to maximize investment income by setting minimum guidelines the share of cash instruments to be retained on the balance sheet, allocating the remaining assets to suitable asset categories. An 8% baseline cash balance is estimated as a suitable indicator with projected assets recording \$600 million in 2023, rather than \$147 million. Approximately \$100 million would be available to enhance the investment portfolio in 2023 and to restore an adequate rate of return on assets compatible with the actuarial expectations, including a small portion allocated to socio-economic investments or ETI, as shown in Annex C.

5. Administrative Expenditure

The consolidated actuarial cost of administrative expenditure in the last decade exceeds standard benchmarks but decreased as from 2020 as the increase in contributions exceeded the secular increase of administrative expenditure.

Financial data shows an administrative expenditure of 1.74% of insurable earnings in 2022, due to the incidence of the **10% contribution rate and the \$520 ceiling on insurable earnings**. Pending salary adjustments in 2023/25 show that the cost of administrative expenditure might remain within a range of 1.60% to 1.70% of insurable earnings in 2023/25. Further reduction of the actuarial cost of administrative expenditure once additional adjustments to the financing bases are introduced medium term.

Actuarial cost of Administrative Expenditure (as % of insurable earnings)



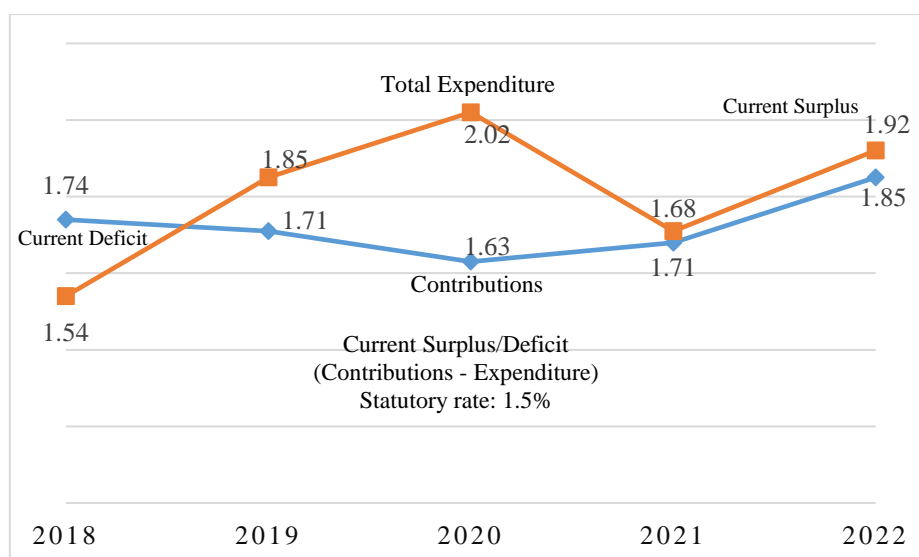
^{a/} Contained due to postponement of the ceiling and the rate on contributions.

6. Short-Term Branch

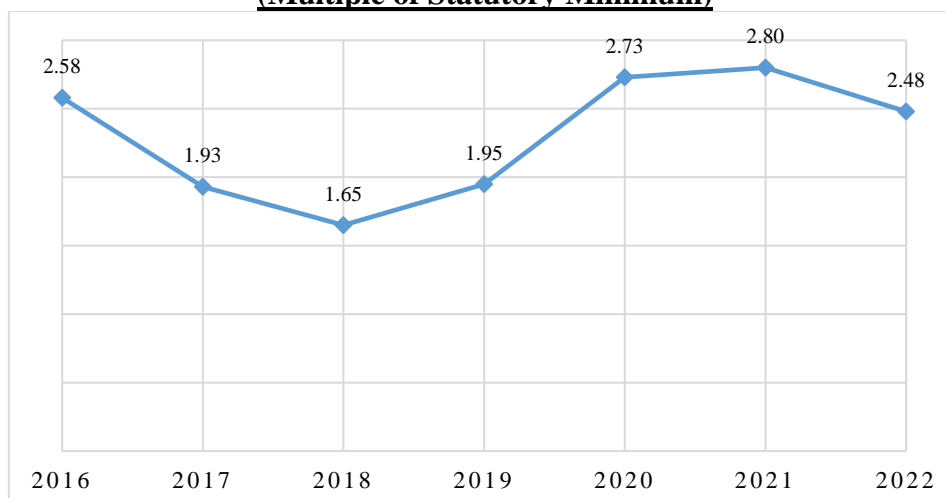
The analysis shows that the statutory contribution rate of the short-term branch is expected to guarantee the solvency of the branch, despite the reduction of the share of contributions to 19% as from January 2021. An imponderable is whether the morbidity rates of the high-income segment of insured persons, which have been increased to \$520 per week as of 1 April 2022, would moderate the actuarial cost of sickness benefits from 2022.

The minimum reserve, as provided in Section 17(1) of the Financial Regulations, should be equivalent to one-half the average benefit expenditure in the preceding three years. At 31 December 2022, the reserve exceeded the minimum by a 2.48 factor (2.80 in 2021).

Current Actuarial Operations of the Short-Term Branch (as % of insurable earnings, excluding adjustment income)



Short-Term Branch Trend of the Reserve Ratios (Multiple of Statutory Minimum)

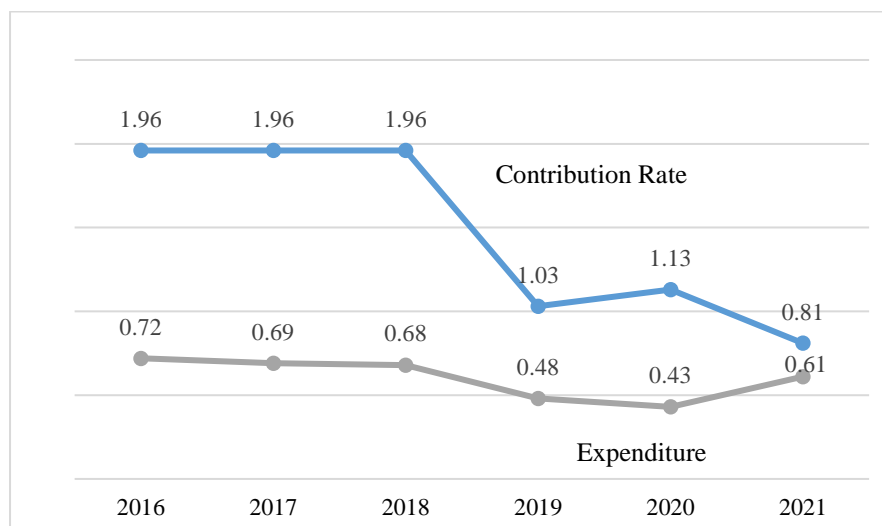


7. Employment Injury Branch

At year-end, the reserve is much higher than the statutory minimum, a clear indication that the branch is overfunded. The reduction of the contribution rate to 9% as from January 2021, assigning the difference to strengthen the actuarial situation of the long-term branch still shows funding bases exceeding total expenditure, with investment and generating the operational surplus.

The analysis of the Disablement and Death Reserve shows an actuarial deficit compensated by the surplus of the branch. Due to the substantial surplus of the EI branch, the difference can be met by an internal transfer within the branch. Updated factors to assess the cost of new pensions (APV) are shown in Section IV, pending implementation in 2023.

Actuarial Cost of EI Branch (in percent of insurable earnings)

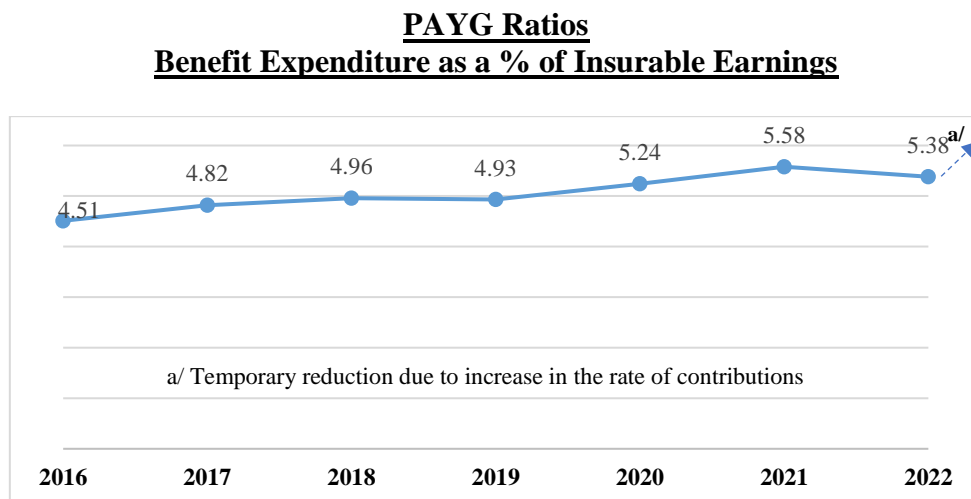
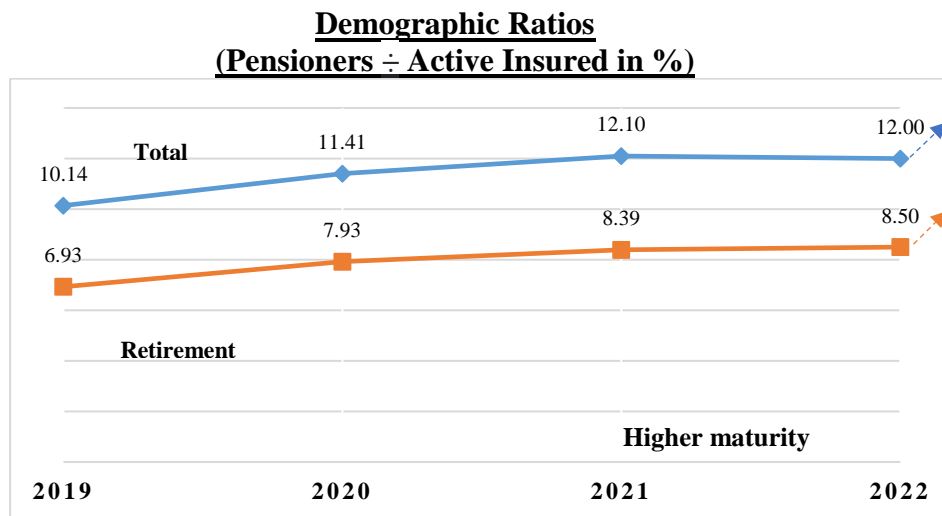


8. Long-Term Branch

The full set of legal amendments (10% rate and \$520 ceiling) from April 2022 would strengthen the funding bases of the long-term branch but the capitalization of reserves would depend basically on the return on investment, which has been impacted by excess liquidity and the impact of COVID on the economy. Therefore, the exact duration of the Period of Equilibrium depends on the satisfactory nominal rate of return of the investment portfolio, estimated at between 2028/29, based on legal provisions in force.

The increase in contributions and the ceiling constrained the progression of the two key variables of the Long-Term branch, the Demographic Ratio and the PAYG ratio, albeit temporarily, as shown in the two charts below, but these indicators will revert to an upward trend as from 2023.

The recent increase of the minimum wage to BZ\$5.00 per hour shows the urgent need to phase out the first two wage bands established at the inception of the scheme more than 40 years ago. The actuary has reiterated the anomaly of allowing an insured person on the first wage band to contribute \$0.55 per week, equivalent to a wage earned in less than one hour, and access to a minimum pension of \$150.25 per week.



Medium-term and Long-term projections are shown below. However, the Board is advised to focus on the medium-term projections, to determine emerging policy issues for the rest of this decade, as the terminal cost of the scheme in 60/80 years would approach the estimate shown in the 2019 actuarial valuation.

Updated Short-Term Projection Preliminary (Updated)

Year	C	Ex	CI	I*	S	R
2021	85	89	(4)	19	15	456
2022	104	96	7	17	24	480
2023	115	106	19	24	33	513
2024	123	114	19	28	37	550
2025	128	126	12	30	32	582

C: Contributions

Ex: Expenditure: 9%

CI: Current Income (deficit)

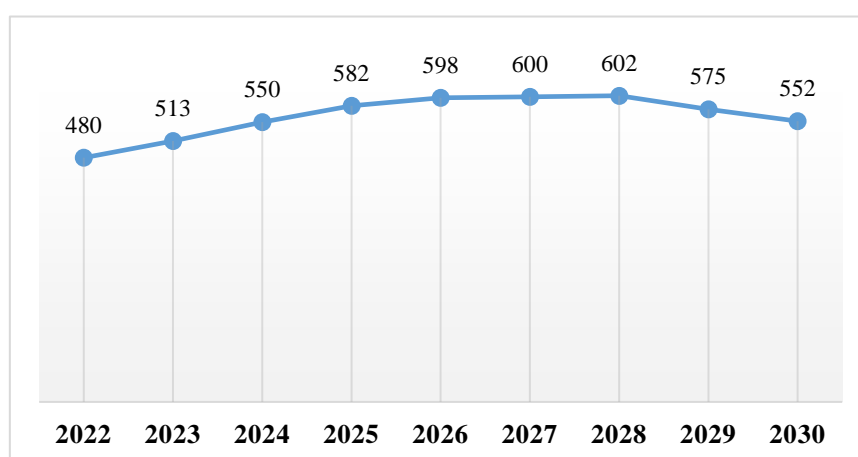
I: Investment income (ROA = 4/5%)

S: Total surplus (deficit)

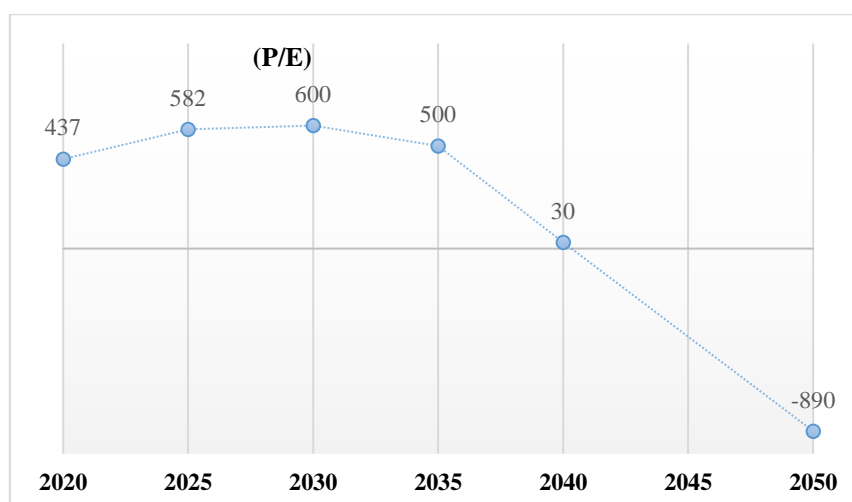
R: Accumulated reserve

* Assumes improved investment performance

**Preliminary Projection of Long-Term Branch Reserves
(2021 Performance Analysis)
(Amounts in Millions of BZ\$)**



**Illustrative Trend of Actuarial Reserves. Long-term Branch
(Amounts in millions of BZ\$)/ 2021 (Adjusted) Actuarial Performance**



9. Self-Employed Scheme

The actuary advises the Board to recommend to the Government to introduce parametric adjustments to the Self-Employed Scheme as a top priority. The actuary also estimates that structural adjustments might entail more complex procedures, including the issue of acquired rights. Pending 2023 amendments are as follows: **i) Substitution of 266 wage bands by a set of six wage bands as shown in Annex A, Table 10; ii) Adjustment of the contributions rates correlated to the increase of the rate of contributions in the general scheme, and iii) apply the same retirement provisions for retirements pensions as in the general scheme (60/65 years).**

The analysis shows that the self-employed scheme is already insolvent, due to faulty design, including the “voluntary” feature of the scheme, which is conducive to adverse selection. The self-employed can qualify for a minimum pension with a low number of contributions, negatively impacting the actuarial situation of the SSB, **generating a transfer of funds from employed persons to the self-employed.** The matrix of legal amendments should address these issues, including the exclusion of “housewives”, requiring a higher number of self-employed contributions to qualify for pensions, the elimination of the window of early retirement at age 60, and establishing “compliance” standards once they become voluntarily insured. Specific details are shown in Annex A, **showing that the number of pensions in force to the self-employed is equivalent to almost one-half the number of active contributors, four times than ratio in the general scheme.**

10. Non-Contributory Pension Scheme

The actuarial cost of the NCP has been declining steadily, due to the joint incidence of mortality of pensioners and more stringent eligibility requirements imposed by the NCP Committee.

The analysis shows a steady reduction of actuarial costs of **0.08% of insurable earnings in 2022 (0.11% in 2021) and a further reduction of 0.07% of insurable earnings in 2023**, yielding non-material amounts. Specific details are shown in Annex B, as well as pending amendments to the eligibility regulations.

11. Schedule of Required Amendments

A. Short-Term (2023) Self-Employed Scheme

- Adjust the contributions rate from 7% to 10% in correlation to the increase in the general scheme from 8% to 10%.
- Delete the anomalous 266 wage bands of the SE scheme and substitute by 6 notional earnings from \$120 to \$320 per week for the SE Scheme.
- Establish the same eligibility provisions for the SE than in the general scheme.
- Eliminate the first two wage bands in the general scheme (also in the General Scheme).
- Establish a ceiling on retirement and invalidity grants.
- Establish provisions to ensure “sustainable” contributions on the SE scheme.
- Update the APV of the EI/Disability and Death pensions.
- Apply the same provisions as for the general scheme for retirement before age 65.
- Increase the contribution to a minimum of \$3.50 pw, for EI coverage (> 65 years).

B. Medium term (2024/25)

- Establish contributions as a percent of insurable earnings, and eliminate the obsolete wage bands by contributions based as a percent of earnings.
- Increase gradually the qualifying conditions (number of contributions) to become eligible for age or invalidity pensions, 1000 and 250 weekly contributions respectively.
- Equalize the minimum retirement age of females to that of males (67 years) in the Non-Contributory scheme.
- Restore a 2-day waiting period and a 70% replacement rate (ST Branch).

C. Long Term (2026/28)

- Establish "trigger points" or automatic adjustments to the ceiling, the pension adjustment system, and the rate of contributions, as suggested by the stakeholders. The first two are linked to the CPI, and the rate of contributions is linked to the Period of Equilibrium or a minimum Fund Ratio (branch reserve ÷ total branch expenditure). This latter method would extend the adjustment to the contribution rate more than the PE method.
- Establish a ceiling to the minimum pension, linked to the minimum insurable earnings (50% of \$130 pw.).

12. Conversion of a Static into a Dynamic Scheme

Industrialized economies usually follow a dynamic approach characterized by “automatic triggers”, with a frequency of 1-3 years, not only to the ceiling but also to pensions in force, the former related to increases to the level of wages, and the latter related to general inflation, usually designated as COLA (cost-of-living-adjustments). Developing countries have adopted “ad-hoc” adjustments with a longer frequency of 3 to 5 years; but as the schemes mature, the frequency of adjustments would become more frequent due to the actuarial requirements. These two variables (ceiling/pension adjustments) are complemented by adjustments to the rate of contributions, based on actuarial reviews. The adjustment to the ceiling and pensions in payment are aimed at ensuring the **adequacy of the scheme by providing benefits closely linked to actual earnings and the cost of living**. The rate of contributions is intended at **ensuring the financial sustainability for the scheme**.

II

LEGAL BASES AND CONSOLIDATED FINANCIAL OPERATIONS

1. Legal Bases, Coverage, and Benefit Provisions

The social protection system in Belize, as regards cash benefits, is composed of the national social security scheme administered by the Social Security Board (SSB), as the first pillar of pension protection, with the Civil Service Pension Scheme, and a limited number of complementary pension schemes, as a second pillar. The SSB operates a "defined benefit" and contributory scheme funded on a bipartite basis by employers and employees, whereas the Government system (Civil Service Pension Scheme) is non-contributory and unfunded, with payments made from current revenues. The remaining complementary schemes are usually funded on a bipartite basis. No individual retirement provisions (IRA) with tax incentives are presently envisaged as a third voluntary pillar of pension protection. The adequate planning of social protection should take into consideration these arrangements for an adequate and sustainable design of the pension system in Belize, although the present report deals exclusively with the national social security scheme administered by the SSB.

The legal bases of the social security scheme are set out in the Social Security Act (1980) and the regulations issued thereunder. The scheme commenced operations on 1 June 1981 and, except for marginal amendments to the benefit regulations, the level of benefits and contributions were not updated until 1 January 2001, when a comprehensive improvement in benefit provisions took place. Also, a Third Schedule regulating the Investment Framework, as recommended by the Actuary, was annexed to the Act in 2007. A significant set of legal amendments were finally approved in 2019, as shown below, including step increases to the ceiling and the rate of contributions, and a reallocation of contribution income among the benefit branches.

The scheme provides a basic level of social protection, and, after a full career, the scheme is designed to provide a maximum pension of 60% of pensionable salary, which in practice should yield average replacement ratios of 50% to 55% of the last salary, due to salary progression and density of work before retirement.

The scheme covers all employed persons from 14 to 64 years of age, with specified exceptions such as workers working less than 8 hours per week and persons in the military. Employed persons 65 years and over are covered only against employment injury. A summary of the benefit provisions is shown in Appendix A.

2. Summary of Legal Amendments

As of 1 January 2021, the contributions among the benefit branches were redistributed, increasing the share of contributions to the Long-term branch and reducing the share of the Short-term branch and, mainly, the EI branch. As of 4 April 2022, the pending adjustment to the contribution rate and the ceiling was approved, as shown in Table 4.

Table 1
Allocations by Branch as a percent of Contributions

Branch	2009/2018	January 2019/ December 2020	2021/ 22
Short-Term	19.25	22.50	19.00
Employment Injury	24.50	12.50	9.00
Long-Term	56.25	65.00	72.00
Total	100%	100%	100%

Table 2
Step-Increase of the Ceiling on Insurable Earnings (per week)

Up to June 2019	\$320
June / December 2019	\$440
January / March 2022	\$480
As from April 2022	\$520

Therefore, in accordance with actuarial recommendations, the share of contributions to the long-term branch has been increased gradually, as shown in Table 3, while the allocation to the EI branch has been reduced, based on the analysis of emerging actuarial costs, in order to contain the accumulation of excess reserves.

Table 3
Actuarial Rate of Contributions by Branch
(Rate as a percent of Insurable Earnings)

Branch	Up to 2018	January / June 2019	July / December 2019	2020	2021	2022	2023+
Short-Term	1.54	1.80	1.912	2.025	1.710	1.853	1.900
Employment Injury	1.96	1.00	1.063	1.125	0.810	0.877	0.900
Long-Term	4.50	5.20	5.525	5.850	6.480	7.020	7.200
Total	8.00%	8.00%	8.50%	9.00%	9.00%	9.75%	10.00%

Table 4
Adjustments to the Rate and the Ceiling of Contributions

Period	Rate Adjustments (%)	Ceiling Adjustments (\$)
July / December 2019	8.5 / 8.0	440/320
2020	9.0 / 8.5	480/440
2021	9.0 / 9.0	480/480
2022 (as from April 2022)	10.0 / 9.0	520/480

3. Operational Branches

Three benefit branches are presently in operation: a Short-Term branch comprising sickness and maternity benefits; a Long-Term branch comprising retirement, invalidity, and survivors' benefits, and an Employment Injury branch comprising medical care, temporary employment injury benefits, and grants or pensions in the event of permanent disability or death due to employment injury. The Long-Term branch also comprises two sub-branches: a Non-Contributory pension scheme and a Self-Employed voluntary Scheme. Medical care for employment injury was initially provided only in government institutions but as of September 1999, private medical facilities have been integrated into the available options, and at present, most of such care is dispensed by the private sector.

If the insured person is over 65 years, the employer pays \$2.60 per week for only employment injury benefits, **a rate that should be adjusted due to the high cost of medical treatment for elderly insured persons.** Investment income is allocated to each branch in proportion to the reserves of each branch at the beginning of the year, whereas other income is distributed equally among the three benefit branches.

New low-income workers are still eligible for a minimum pension of \$47 per week and pay a minimum contribution of \$0.83 per week, an anomaly that should be corrected, establishing a minimum of \$49.75. **The actuarial recommendation is to phase out the first two wage bands,** which do not correlate with the minimum legal wage and cause the distortion specified above.

4. Actuarial Systems

The regulations state that each branch shall be financially autonomous. The short-term branch and the temporary injury benefit of the employment injury branch operate under the "assessment" or pay-as-you-go (PAYG) system of financing, as relative costs are expected to remain within a narrow range for long periods. Any adverse fluctuations or trends would be covered by a "contingency" reserve.

The reserve is established in the regulations at six months of the average benefit expenditure of the last three years for the short-term branch, and 12 months of the same average for the employment injury branch.

The survivors' and disability pensions of the employment injury branch operate under the "assessment of constituent capitals", under which the present value of pensions awarded is accounted for as the expense in a given year.

The "technical" reserve should theoretically be sufficient to meet the actuarial liabilities in respect of pensions in force. This method was recommended in the actuarial valuation carried out before the inception of the scheme and should be retained, due to the distinct nature of short-term obligations and long-term disability pensions.

The long-term branch operates under the "scaled-premium" system of finance, which is a partial capitalization system under which the contribution rate should provide for increasing reserves for a given "period of equilibrium". When expenses exceed contribution income and interest, or before reserves fall below the prescribed minimum, the contribution rate should be adjusted to ensure an adequate level of capitalization.

It is noted that the phased amendments to the financing provisions would have a minimum impact on labour cost to employers, whilst ensuring the medium-term **sustainability** of the scheme and restoring the **adequacy** of the benefits provisions to more than 100,000 insured persons and their dependents, with the positive impact on the majority of the population of Belize.

5. Accounting Standards

Accounting standards and policies are outlined in Section 46 of the Act, the Financial Regulations, and the report of the external auditors. Investment income is recorded on an accrual basis, and income from associates is accounted for by the equity method. Severance obligations are recorded on a current basis.

6. National Health Insurance Program

Based on the recommendations of a National Health Sector Reform Committee, the Government amended the Social Security Act to include a new chapter to introduce National Health Insurance (NHI). The Act was gazetted on 29 July 2000 but the financing regulations have yet to be implemented. On a transition basis, a focalized program at present is funded exclusively by Government transfers, although managed by the SSB. The program operated initially in two geographical areas (Belize City and Southern Belize) and later expanded to selective northern regions.

7. Consolidated Trend of Income and Expenditure

The impact of COVID on the labour force and the economy seems to have abated, with an incidence that has decreased substantially in 2022/23. The impact of the 10% rate and \$520 ceiling as from 4 April 2022 and a gradual recovery of the economy yielded a substantial increase in 2022 contributions, as shown in Table 5.

The financial performance is better visualized as a percent of insurable earnings, as shown in Table 6. The actuarial rate of contributions plus the volatile investment income yielded a total income of 11.44% in 2022 (11.17% in 2021).

Benefits payments increased in absolute terms but remained stable in relative terms while administrative expenditure remained stable at 1.74% of insurable earnings (1.71% in 2021). The net income increased to 2.23% of insurable earnings, whereas the important “current income” (contributions less expenditure), to a 0.65% surplus of insurable earnings.

Table 5
Consolidated Statement of Income and Expenditure (ex-NHI Operations)
(Amounts in thousands of BZ\$)

Income	2022 ^{4/}	2021	2020	2019
Contributions ^{1/}	143,847	117,475	110,428	100,181
Investment Income	21,029	26,445	28,330	16,240
Other income ^{2/}	2,361	1,866	1,519	2,022
Total Income	167,237	145,786	140,277	118,443
Benefits				
Short-term branch	23,212	17,481	15,342	15,567
Long-term branch ^{3/}	79,374	72,789	64,434	59,988
Employment injury branch	6,016	6,340	5,316	5,545
Benefit Expenditure	108,602	96,610	85,092	81,100
Administrative and other expenses	25,701	22,309	21,684	23,978
Total expenditure	134,303	118,919	106,776	105,078
Net income	32,934	26,867	33,501	13,365
Contributions less expenditure	9,544	(1,444)	3,652	(4,897)

^{1/} Excludes GOB contribution to the NHI Fund and NHI operations.

^{2/} Includes interest on rental income and surcharges for late contributions.

^{3/} Includes non-contributory pensions.

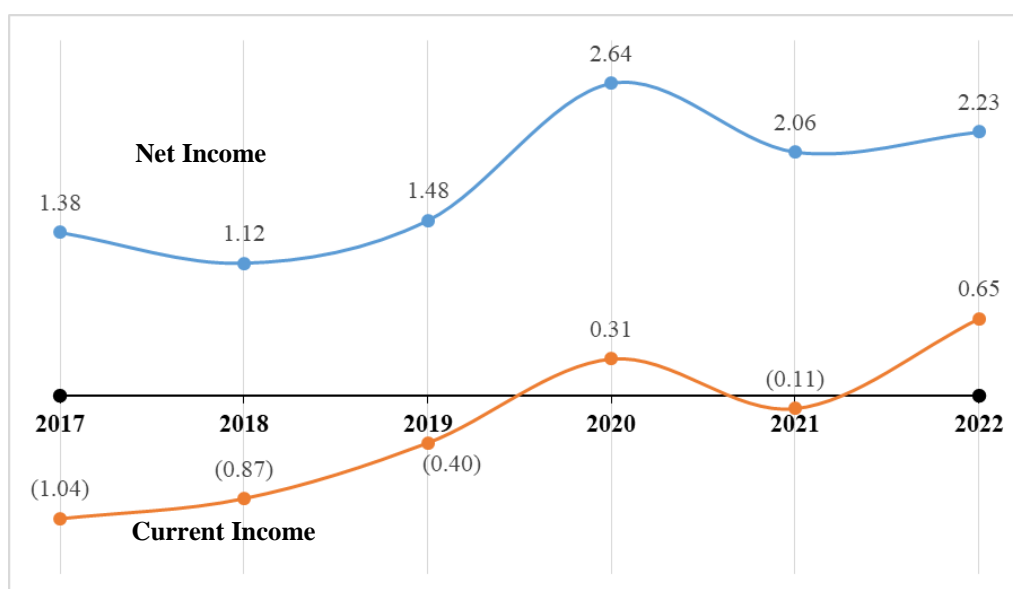
^{4/} Pre-audited data.

Table 6
Trend of Consolidated Actuarial Cost
(As a percent of insurable earnings)

	2022	2021	2020	2019
Contributions	9.75	9.00	9.00	8.25
Investment Income	1.43	2.03	2.20	1.72
Other income	0.16	0.14	0.13	0.17
Total income	11.34	11.17	11.33	10.14
Benefit Expenditure	7.36	7.40	6.95	6.68
Administrative Expenditure	1.74	1.71	1.74	1.98
Total expenses	9.10	9.11	8.69	8.66
Net income	2.23	2.06	2.64	1.48
Current income ^{a/}	0.65	(0.11)	0.31	(0.40)

^{a/} Contributions less expenditure.

Consolidated Net Income and Current Income
(As a percent of insurable earnings)



Net income: Total income – Total expenditure

Current income: Contributions – Total expenditure

8. Other Income

The rate of other income has averaged 0.15% of insurable earnings in the past three years, including interest on late contributions, and rental income. The income is distributed in equal parts among the three benefit branches, according to the provisions of Section 14 (3) of the Financial Regulations. The actuarial rate will be adjusted based on future valuations if higher compliance by employers tends to reduce the penalties for late contributions.

9. Balance Sheet and Reserves by Branch

Table 7 shows the balance sheet, with total assets increasing steadily from 5.5% in FY 2021 to 7.9% in FY 2022, a process that should continue for several years due to the adjustment to the contribution rate and the ceiling on insurable earnings.

Table 7
Balance Sheet of the Social Security Board (as of 31 December)
(Amounts in thousands of BZ\$)

	2022 ^{b/}	2021	2020	2019
Cash and bank balance	146,709	106,032	73,379	30,667
Short-term investments	20,842	22,479	20,077	19,842
Long-term investments ^{a/}	424,826	418,931	421,508	444,717
Accounts Receivables and others	75,455	71,737	71,888	63,420
Total assets	667,832	619,179	586,852	558,646
Liabilities and deferred income	(22,789)	(14,230)	(13,615)	(12,319)
Net reserves and special funds	645,043	604,949	573,237	546,327

^{a/}Includes investments in Associates and loans.

^{b/}Unaudited.

As to the distribution of reserves by branch, Table 8 shows increases in the three branches with the EI reserves exceeding accepted benchmarks, whereas the Disablement and Death reserve has decreased, as the **actuarial** adjustment factors to determine the present value of provisions recommended last year is still pending.

Table 8
Distribution of Reserves by Branch
(As of 31 December, in thousands of BZ\$)

Benefit Branch	2022 ^{a/}	2021	2020	2019
Short-term	23,345	22,620	20,567	14,571
Long-term	482,098	456,445	437,534	427,146
Employment Injury	116,188	106,110	98,672	87,756
Disablement and Death	11,474	12,163	11,277	12,397
Sub-total	633,105	597,338	568,050	541,870
National Health Insurance Fund	12,014	7,276	3,781	2,774
Social Security Development Fund	1,922	2,332	2,895	2,614
Pension reserve	(1,998) ^{b/}	(1,997)	(1,489)	(931)
Total	645,043	604,949	573,237	546,327

^{a/}Unaudited.

^{b/}To be adjusted/ actuarial valuation.

10. Rate of Return on Investments

Table 9 shows the Rate of Return on Assets (ROA). The nominal rate of return declined to 3.33% in 2022, and the real (inflation-adjusted) return was negative by 2.41%, due to the impact of the higher inflation rate (CPI) which is expected to decline in 2023/24.

The real rate of return fell in 2022 below the 3% actuarial assumption utilized for the projection of the long-term branch. Should that trend continue, it will have a negative impact on the rate of return and the period of equilibrium for the rest of the decade. The reduction in the 2022 ROA is due basically to excess liquid assets in an environment of low passive rates of interest by financial entities.

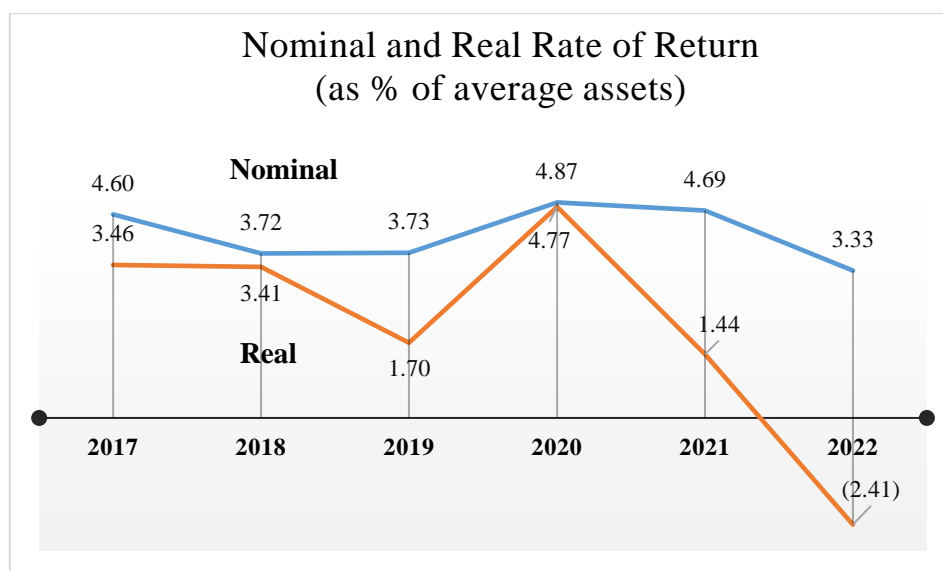


Table 9
Rates of Return on Financial Investments, in thousands (net assets)

	2022 ^{a/}	2021	2020	2019
Net investment income	21,029	26,801	28,330	16,240
Nominal rate of return ^{1/}	3.33%	4.69%	4.87%	3.73%
Annual inflation rate	6.30%	3.20%	0.10%	0.20%
Real return ^{2/}	(2.41%)	1.44%	4.77%	1.70%

^{1/} According to the formula $i = 2I / (R_0 + R_1 - I)$, where I is the return on investments and R is the assets at the beginning and the end of the year, excluding financial expenses.

^{2/} According to the formula: $[(1 + i) / (1 + s)] - 1$ where i and s represent the interest rate and the inflation rate.

^{a/} Preliminary.

Due to the importance of the investment return, a strategy must be developed to ensure a prudent investment policy aimed at maximizing a return compatible with the safety of the capital, the latter being the primary consideration. Actuarial projections provide a platform for a long-term investment strategy.

11. Scenarios of Consolidated Contribution Income (2023/ 30)

Table 10 shows a baseline scenario of consolidated contributions based on legal and financial provisions in force. In FY 2023, the average rate of contributions will reach the full 10% ceiling (a 2.26% rate of increase vs. 8.33% in 2021), and the \$520 ceiling on contributions, with a “gross” 1.90% rate of increase (3.63% in 2021), and a “net” 0.90% rate, after adjusting for the proportion of insured persons with earnings above the ceiling, as shown in table 10-A and 10-B. Assessed contributions as from 2024 are based on an initial 4% inflation rate declining to 2% in two years, a 1% merit increase, and a 1.5% rate of growth of insured persons.

Scenarios with a high (optimistic) assumption and a low (pessimistic) assumption are also shown, with a 3% deviation from the baseline.

Table 10
Projection of Contributions
High/ Medium/ Low Assumptions
(Amounts in Millions of BZ\$)

	High	Baseline	Low
2022	144	144	144
2023 ^{a/}	162	157	152
2024	171	166	160
2025	179	174	169
2026	187	182	177
2027	196	190	184
2028	205	199	193
2029	214	208	202
2030	225	219	212

^{a/}Transition period. Full 10%/ \$520 rates.

Baseline Assumptions (2024+): Inflation: 4% (2023/ 24), declining to 2% in 2025.

Demographic Growth: 1.5%

Compound Rate: 5.56% per annum, decreasing to 4.53% as from 2025.

Table 10-A
Average Contribution Rate (Percent of Insurable Earnings)

Financial Year	Average Rate	Rate of Increase
2021	9.00%	0.00%
2022 ^{a/}	9.75%	8.33%
2023+	10.00%	2.26%

^{a/} 9 months.

Table 10-B
Average Ceiling of Contributions (BZ\$ per week)

Financial Year	Average Rate	Rate of Increase	Adjustments (ceiling)
2021	\$480	0.00%	0.00%
2022 ^{a/}	\$510	6.25%	3.63%
2023+	\$520	1.96%	0.90%

^{a/} 9 months.

12. Baseline Consolidated Financial Projection

The following table shows a preliminary projection of the SSB. **It is noted that the Financial Regulations state that each branch shall be financially autonomous, as shown in the following Chapters.** The baseline scenario shows rising reserves up to 2030, declining thereafter, assuming a static 10% contribution rate and frozen parametric assumptions adjustments for the rest of the present decade, an issue to be reviewed periodically.

The “low assumption” reflects an inflation-adjusted rate of return of the investment portfolio lower than the 3% actuarial rate, causing a 1.5-year impact to 2028/29 are the peak reserves. The projection combines surpluses by the Short-term and the EI branches, and initial surpluses by the long-term branch, followed by a decline in reserves in the second half of the present decade. **Amendments to the regulations would extend the capitalization of reserves for additional years, in accordance with the Board’s policy to introduce semi-automatic adjustments provisions (trigger points) the second half of this decade.**

Table 11
Baseline Consolidated Estimate of Income, Expenditure, and Reserves
(Amounts in millions of BZ\$)

Year	Contributions	Expenditure	Current Income	Investment & Other Income	Surplus/ Deficit	Accumulated Assumption Baseline	Low Reserve Investment ^{a/}
2021	118	119	(1)	27	26	597	597
2022	144	132	12	25	37	633	633
2023	157	144	13	26	39	672	671
2024	168	157	11	28	39	711	697
2025	174	171	3	30	33	744	724
2026	182	182	0	34	34	778	742
2027	190	202	(12)	37	25	803	752
2028	199	219	(20)	39	19	822	762
2029	208	238	(30)	41	11	833	761
2030	219	259	(40)	44	4	837	751

^{a/} Peak reserves. Lower than the 3% actuarial rate, inflation-adjusted.

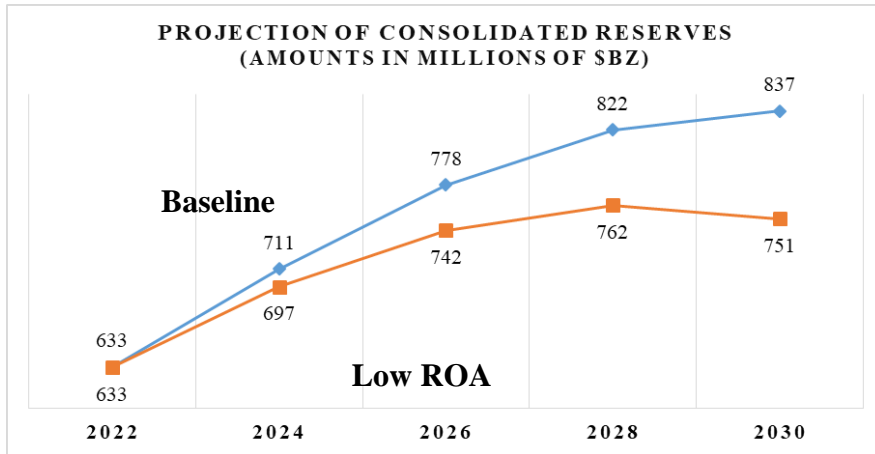
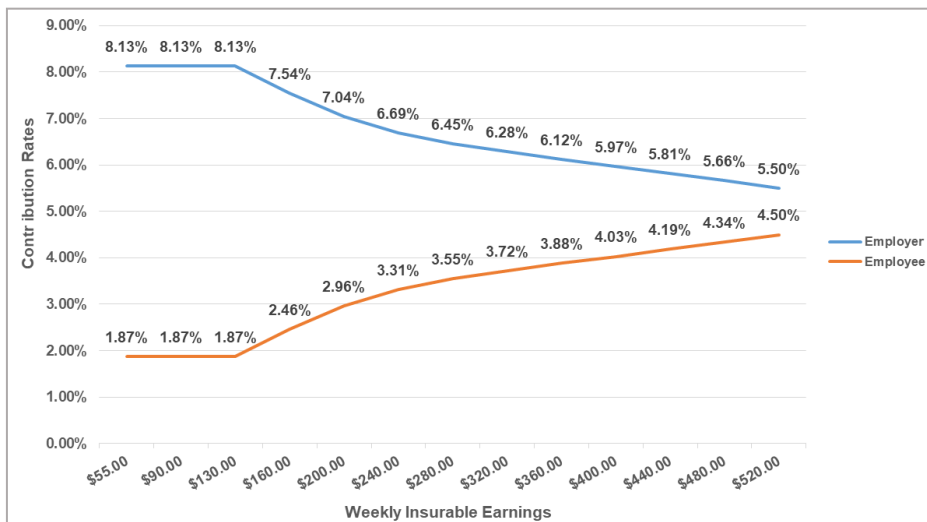


Table 12
Rates of Weekly Contributions Payable by Employed Person and Employer:
1 April 2022
(Prepaid by SSB/Research)

No.	Actual Weekly Earnings	Weekly Insurable Earnings	Amount of Weekly Contributions			Rate of Contributions (%)		
			Employer	Employee	Total	Employer	Employee	Total
1	UNDER \$70.00	\$55.00	\$4.47	\$1.03	\$5.50	8.13%	1.87%	10.00%
2	\$70.00 - \$109.99	\$90.00	\$7.32	\$1.68	\$9.00	8.13%	1.87%	10.00%
3	\$110.00 - \$139.99	\$130.00	\$10.57	\$2.43	\$13.00	8.13%	1.87%	10.00%
4	\$140.00 - \$179.99	\$160.00	\$12.06	\$3.94	\$16.00	7.54%	2.46%	10.00%
5	\$180.00 - \$219.99	\$200.00	\$14.08	\$5.92	\$20.00	7.04%	2.96%	10.00%
6	\$220.00 - \$259.99	\$240.00	\$16.06	\$7.94	\$24.00	6.69%	3.31%	10.00%
7	\$260.00 - \$299.99	\$280.00	\$18.06	\$9.94	\$28.00	6.45%	3.55%	10.00%
8	\$300.00 - \$339.99	\$320.00	\$20.10	\$11.90	\$32.00	6.28%	3.72%	10.00%
9	\$340.00 - \$379.99	\$360.00	\$22.03	\$13.97	\$36.00	6.12%	3.88%	10.00%
10	\$380.00 - \$419.99	\$400.00	\$23.88	\$16.12	\$40.00	5.97%	4.03%	10.00%
11	\$420.00 - \$459.99	\$440.00	\$25.56	\$18.44	\$44.00	5.81%	4.19%	10.00%
12	\$460.00 - \$499.99	\$480.00	\$27.17	\$20.83	\$48.00	5.66%	4.34%	10.00%
13	\$500.00 - OVER	\$520.00	\$28.60	\$23.40	\$52.00	5.50%	4.50%	10.00%

Average Employer and Employee Contribution Rates in April 2022
by Weekly Insurable Earnings



13. Administrative Expenditure

Administrative expenditure is distributed among the three benefit branches by a weighted share of the sum of contribution income and benefit of the branch as compared to the Fund as a whole, as shown in Table 13

Table 13
Distribution of Administrative Expenditure (Amounts in thousands of BZ\$)

	2022 ^{a/}	2021	2020	2019
Net Operating Expenses	25,701 ^{c/}	22,309	21,392	23,978
Actuarial Cost (Total) ^{b/}	1.74%	1.71%	1.74%	2.06%
Budget Performance Indicators				
As % of Contributions	17.9%	19.0%	19.3%	23.9%
As % of Contributions + Benefits	10.2%	9.8%	10.9%	13.2%

^{a/} Unaudited.

^{b/} As percent of insurable earnings.

^{c/} Excludes NHI.

As the ceiling and the rates of contributions have been updated in the preceding three years, raising the level of insurable earnings and contributions, **the relative cost of administrative expenditure has declined from 2.06% in 2019 to 1.74% in 2022, but reaching a standard benchmark of 1.50% of insurable earnings or 15% of contributions might be unattainable in 2023/25, due to pending salary adjustments.** Administrative expenses are not comparable with other CARICOM schemes, as the Belize scheme operates several Branch Offices increasing the administrative tasks. The elimination of the “waiting period” for short-term sickness cases has increased the workload to process the number of claims lasting less than three days, while potential salary adjustments in 2023/25 might have an incidence on the operational cost.

The distribution by benefit branch of the total actuarial costs is shown in Table 14.

Table 14
Administrative Expenditure by Branch, as a percent of insurable earnings

	2022	2021	2020
Short-term branch	0.37	0.34	0.38
EI branch	0.15	0.15	0.18
Long-term branch	1.22	1.22	1.20
Total	1.74	1.71	1.76

14. Social Development Fund and Disaster Fund

Originally 0.15% of insurable earnings of the short-term branch were assigned to a Social Development Account, reducing the effective financing of short-term branch benefits. As of 2009, the financing of those funds has been transferred to the EI branch, as recommended by the actuary. As of 31 December, the accounts had the following balances:

Table 15
Reserves of the Social Development Funds and Pension Obligation

	2022^{a/}	2021	2020	2019
Amounts in thousands of BZ\$				
Social Development Fund	871	437	841	814
Natural Disaster Fund	1,051	2,301	2,051	1,801
Total	1,922	2,738	2,892	2,615
Pension obligation	2,242	1,998	1,489	931

^{a/} Unaudited.

III

ANALYSIS OF THE SHORT-TERM BENEFIT BRANCH

1. Financial Operations

Table 16 shows the financial operations of the short-term benefit branch. Lower morbidity rates of the segment of the insured person with earnings above the \$320 ceiling seem to have ensured a positive financial performance in 2021, despite a lower share of contributions as from 1 January 2021. **The 2022 benefit cost of sickness benefits has been distorted due to the backlog of a situation that has been normalized early in 2023.**

Table 16
Income and Expenditure of the Short-Term Benefits Branch
(Amounts in Thousands of Belize Dollars)

	2022	2021	2020
Contributions	27,331	22,320	24,885
Investment and other income	1,583	1,589	1,258
Total Income	28,914	23,909	26,143
Maternity allowances	4,790	3,738	4,049
Sickness benefits	17,637	13,029	10,513
Maternity grants	784	714	781
Total Benefits	23,211	17,481	15,342
Operational expenses	5,128	4,393	4,672
Total Expenditure	28,339	21,874	20,014
Income less Expenditure	575	2,035	6,129
Contributions less Expenditure	(1,008)	446	4,871
Contingency Reserve	23,195	22,620	20,567

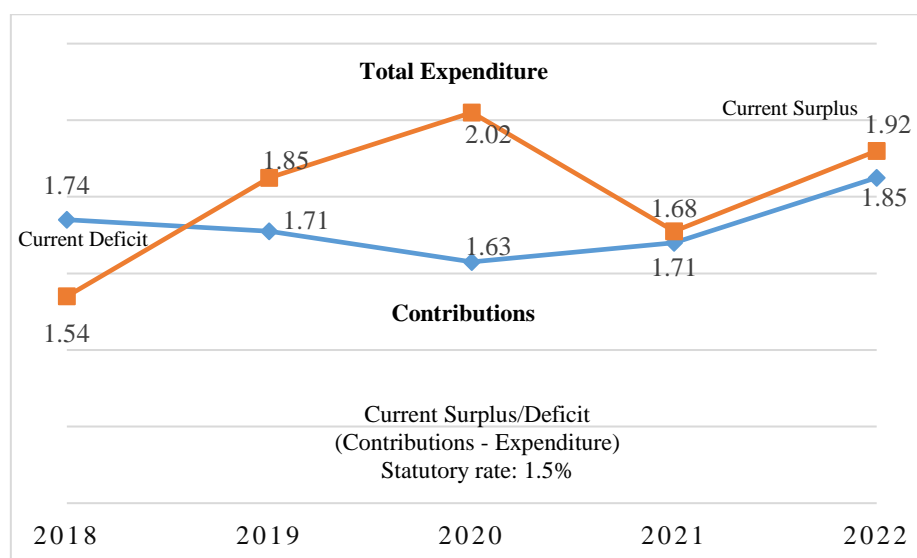
2. Income and Expenditure as a Percent of Insurable Earnings

Income and expenditure as a percentage of insurable earnings are shown in Table 17. The average contribution rate allocated to the branch has exceeded the total expenditure, restoring a financial structure in accordance with actuarial requirements. **The updated legal amendments as of 1 April 2022 generated a positive incidence on the actuarial performance and the financial sustainability of the Long-Term and the Short-Term branch for the rest of the present decade.**

Table 17
Income and Expenditure of the Short-Term Branch as a Percent of Insurable Earnings

	2022	2021	2020
Contributions	1.853	1.710	2.025
Investment & other income	0.107	0.121	0.102
Total Income	1.960	1.831	2.127
Maternity allowances	0.325	0.286	0.329
Sickness benefits	1.196	0.998	0.856
Maternity grants	0.053	0.055	0.063
Total Benefits	1.574	1.339	1.248
Operating expenses	0.348	0.338	0.380
Total Expenditure	1.921	1.677	1.628
Income less Expenditure	0.039	0.154	0.499
Contributions less Expenditure	(0.068)	0.033	0.397

Current Actuarial Operations of the Short-Term Branch
(as % of insurable earnings)



3. Cost and Fund Ratios

Section 17 (1) of the Financial Regulations set a minimum level of reserves equivalent to six months of the average benefit expenditure in the last three years. As shown in Table 18, at the end of 2022 the reserve stands above the minimum stipulated in the regulations.

Table 18
Statutory Minimum Level of Reserves (31 December)

	2022	2021	2020
	(amounts in thousands of BZ\$)		
Minimum statutory reserve ^{1/}	9,339	8,065	7,544
Actuarial reserve	23,195	22,602	20,567
Reserve ratio (actual/minimum)	2.48	2.80	2.73

^{1/} Six months average benefit expenditure in the last three years.

Trend of Reserve Ratios
(Multiple of Statutory Minimum)

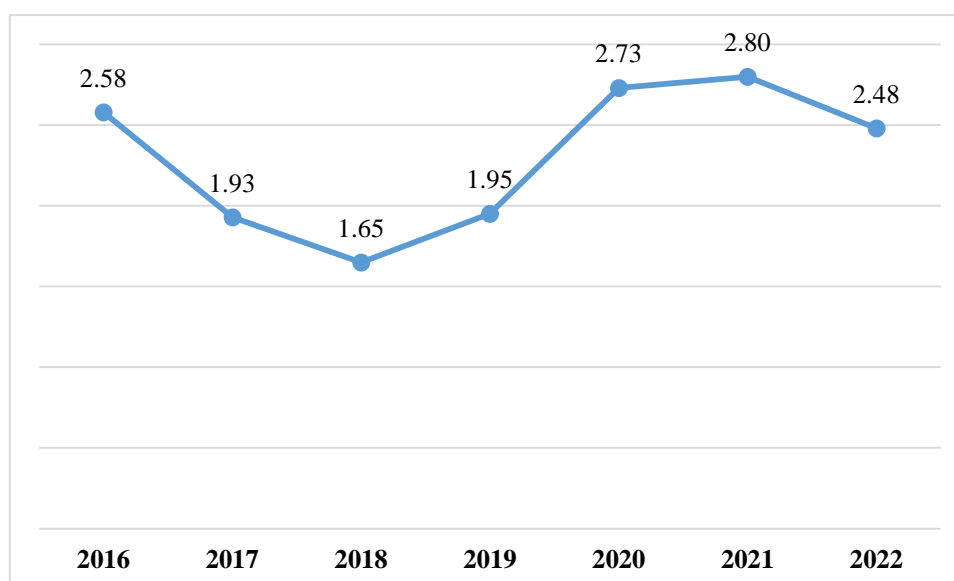


Table 19 shows the cost and funding ratios of the short-term branch, with all indicators showing an increase due to the increase in benefit expenditure due to the backlog of claims due to the pandemic, except for a decline in the Fund Ratio.

Table 19
Cost and Fund Ratios of the Short-Term Branch

	2022	2021	2020
Benefits ÷ contributions	0.85	0.78	0.69
Cost Ratio ^{a/}	1.04	0.98	0.87
Total expenditure ÷ total income	0.98	0.92	0.77
Fund Ratio ^{b/}	0.82	1.03	1.03

^{a/} Reserve ÷ total expenditure in the year.

^{b/} Total expenditure ÷ contributions.

4. Frequency and Unit Cost of Sickness Benefit

The analysis for the period under review shows (Tables 20 and 21):

- a) **The average duration of terminated sickness cases declined probably due to abnormal fluctuations due to the incidence of COVID-19.**
- b) **The average “morbidity rates” (days paid per insured per year) rose from 3.55 days in 2021 to 4.00 days in 2022.**
- c) **The average duration of new cases rose in 2021, due to the incidence of the pandemic, but declined to normal in 2022.**
- d) **The morbidity rates are probably higher for males, due to the impact of materiality on sickness trends.**

Table 20
Sickness Incidence of Terminate Cases

	2022	2021	2020
Insured Population			
Males	67,511	64,436	63,173
Females	47,690	42,728	41,310
Total Active Insured	115,201	107,164	104,483
Terminated Cases			
Cases	5,213	4,093	2,267
Days Paid	44,984	53,990*	19,271*
Average duration (days)	8.6**	13.20	8.50

* Distorted/ Covid-19.

** Normalized post Covid-19.

Table 21
Incidence of Sickness Awarded (New Cases)

Granted New Cases	2022	2021	2020
No. of Cases	41,895	29,029	24,037
No. of Days	461,000	380,270	280,108
Active Insured	115,201	107,164	104,483
Average days per case	11.0	13.1	11.6
Average cases per insured	0.36	0.27	0.23
Average days per insured ^{a/}	4.00	3.55	2.68
Cases / Active Insured	0.36	0.27	0.23
Benefits paid	17,637	13,029	10,513
Cost per insured	153	122	101

^{a/} Morbidity rate.

5. Actuarial Cost of Sickness Benefit

Table 22 shows the actual actuarial cost of sickness benefits. For 2022, a rate of 1.20% of insurable earnings has been assessed. Taking into consideration that the anticipated increase in the ceiling would reduce the incidence of sickness claims, a rate of 1.10% is projected for 2023/25.

Table 22

Average	Actual			
	2023/25	2022*	2021	2020
Cases per insured	0.40	0.36*	0.27	0.23
Days per insured (Morbidity rate)	3.80	4.00	3.55	2.68
Cost per insured	\$140	\$130	\$122	\$101
Actuarial cost (% of IE)	1.10%	1.20%	1.00%	0.86%

*Distorted by a backlog of cases.

6. Trend of Maternity Benefits

The rates of maternity allowances were as follows:

Table 23
Actuarial Cost of Maternity Benefits

	2022	2021	2020
Total contributors	115,201	107,164	104,483
Female contributors	47,690	42,728	41,310
Number of allowances paid	1,375	1,110	1,233
Number of grants paid	2,602	2,359	2,583
Allowance paid per 100 females	2.80	2.60	2.97
Grants paid per 100 females	5.45	5.52	6.25
Allowances by 100 average contributors	1.20	1.04	1.18
Grants per 100 average contributors	2.25	2.20	2.47

7. Actuarial Cost of Maternity Benefits and Grants

The cost of maternity allowances and grants has remained rather stable in the last three years, (Table 24). For the period 2023/25, the joint average cost was assessed at 0.40% of insurable earnings.

Table 24
Actuarial Cost of Maternity Benefit

	2023/25 ^{P/}	2022	2021	2020
Actuarial cost (allowances)	0.35%	0.33%	0.29%	0.33%
Actuarial cost (grants)	0.05%	0.05%	0.06%	0.06%
Total	0.40%	0.38%	0.35%	0.39%

^{P/} Projected.

The SIB statistical data shows that the fertility rate has started to decline moderately in Belize, and the age structure of the population over 15 years is changing gradually, a trend which is also influenced by migration, with an estimated 10% of the population over 60 years of age, as compared to 8% in 2002, a ratio that should be monitored periodically.

8. Actual Experience and Projected Actuarial Cost

Table 25 shows the total benefits in 2022, exceeding the expected trend due to the backlog of cases arising during the pandemic, and **lower surplus due to the adjustment of the contribution rate**. For the next two years, contributions are assessed as close to expenses, with a marginal surplus due to the incidence of investment and other income, assuming stable morbidity and fertility rates.

Table 25
Actual and Expected Actuarial Cost (as % of insurable earnings)

Benefit	Projected		Actual	
	2023/2025	2022	2021	2020
Sickness allowance	1.10	1.20	1.00	0.86
Maternity allowance	0.35	0.32	0.29	0.33
Maternity grant	0.05	0.05	0.06	0.06
Total benefits	1.50	1.57	1.34	1.25
Administrative expenses	0.40	0.35	0.34	0.38
Total	1.90	1.93	1.68	1.63
Contribution rate	1.90	1.85	1.71	2.03
Current Surplus (deficit)	0.00	(0.07)	0.03	0.40
Investment Income	0.10	0.11	0.12	0.10
Total Surplus (Deficit)	0.10	0.04	0.15	0.50

9. Impact of the Elimination of the Waiting Period and the Increase of Replacement Ratio (2024/25)

Statistics on sickness claims show that approximately 45% lasted from one to three days, accounting for 13.6% of the total days paid and 14.4% of the amounts paid. **Therefore, the elimination of the 3-day waiting period in the legal amendments enacted in 2001 has almost doubled the number of claims processed, generating a significant increase in the administrative workload, while increasing the SSB cost of sickness benefits. Restoration of a waiting period will have no material incidence in the direct cost to employers, but it will reduce the SSB administrative expenses.** The morbidity rate (days paid per insured) should also decrease, due to a high incidence of cases in the agricultural sector, usually before the conclusion of the harvesting season.

The high replacement ratio of 80% of the average insurable earnings, as compared to 60% to 70% in other countries, also contributes to the high incidence and duration of sickness cases, particularly if the beneficiary can work in the informal sector as a self-employed without being detected by the SSB.

The restoration of the waiting period (one to three days) and a replacement rate of 70% rather than 80% would reduce the actuarial cost, yielding a steady surplus for the short-term branch.

10. Short-Term Branch Actuarial Scenarios (2022-2030)

Assumptions

- Insured person: 1.4% p.a.
- Salary scale: 2.6% p.a.
- Expense trend stable rates (Scenarios): 3.5% / 4.0% / 4.5%
- Investments Returns (ROA): 3.5% / 4.0% / 4.5%
- Administrative expenditure: Stable Rates

The basic Fund Ratios yield higher factors than the minimum stipulated in the Financial Regulations, which are based on six months of the average benefit expenditure in the last 3 years, excluding the administrative expenditure.

Short-Term Branch Projection of Financial Trends Cost Trend: 3.5%

Year	Insurable Earnings	Rate of Contributions	Total Contributions	Actuarial Cost % of salaries	Total Expenses	Current Surplus/deficit	Interest-Other Income	Annual Surplus/deficit	Reserve at year end	Fund Ratio a/
2018	1,088	1.540	16,756	1.74	18,892	(2,136)	936	(1,200)	11,848	0.63
2019	1,116	1.856	22,541	1.71	20,841	1,700	1,036	2,736	14,438	0.69
2020	1,230	2.025	24,884	1.63	20,014	4,870	1,258	6,129	20,567	1.03
2021	1,305	1.710	22,320	1.68	21,890	430	1,578	2,008	22,608	1.03
2022*	1,474	1.853	27,331	1.92	28,339	(1,008)	1,583	575	23,195	0.82
2023	1,500	1.90	28,500	1.811	27,169	1,331	1,662	2,993	26,188	0.96
2024	1,560	1.90	29,640	1.875	29,244	396	1,745	2,141	28,329	0.97
2025	1,622	1.90	30,818	1.940	31,471	(653)	1,833	1,180	29,509	0.94
2026	1,687	1.90	32,053	2.008	33,878	(1,825)	1,924	99	29,608	0.87
2027	1,754	1.90	33,326	2.078	36,456	(3,130)	2,020	(1,110)	28,498	0.78
2028	1,824	1.90	34,656	2.151	39,238	(4,582)	2,121	(2,461)	26,038	0.66
2029	1,897	1.90	36,043	2.226	42,237	(6,194)	2,227	(3,967)	22,071	0.52
2030	1,973	1.90	37,487	2.304	45,466	(7,979)	2,339	(5,640)	16,431	0.36

a/ Reserve at the end of the year ÷ total expenses.

* Sickness benefit distorted by a backlog of Covid claims.

IV
ANALYSIS OF THE EMPLOYMENT INJURY BRANCH

1. Financial Operations of the Employment Injury Branch

Table 26 shows the financial operations of the employment injury branch, which records as expenses the actuarial present value of disablement and survivor's pensions, in accordance with the actuarial method of "terminal reserves" or "assessment of constituent capital" applied to the scheme. The adjusted contribution rate from 1st January 2021 has reduced the operational surplus, with the reserve increasing at a slower pace than before, due to the investment income on the substantial reserve.

Table 26
Income and Expenditure of the Employment Injury Branch
(Amounts in thousands of BZ\$ Dollars)

	2022	2021	2020
Contributions	12,946	10,573	13,804
Investment and other income	4,523	5,274	5,094
Total Income	17,469	15,847	18,898
Disablement grants	204	410	331
Employment injury (short-term) ^{a/}	2,155	1,949	2,110
Disablement benefits	58	2,120	609
Death benefits	43*	464	40
Funeral grants	1,220*	0	3
Total Benefits	3,680	4,943	3,093
Operating expenses	2,082	2,015	2,216
Total Expenditure	5,762	6,958	5,308
Income less Expenditure	11,707	8,889	13,589
Contributions less expenditure	7,184	3,615	8,496
Net Reserve (Short-term benefits)	115,933	106,110	98,966

^{a/} Includes medical expenses.

APV: Actuarial present value (new cases).

* Abnormal deviation.

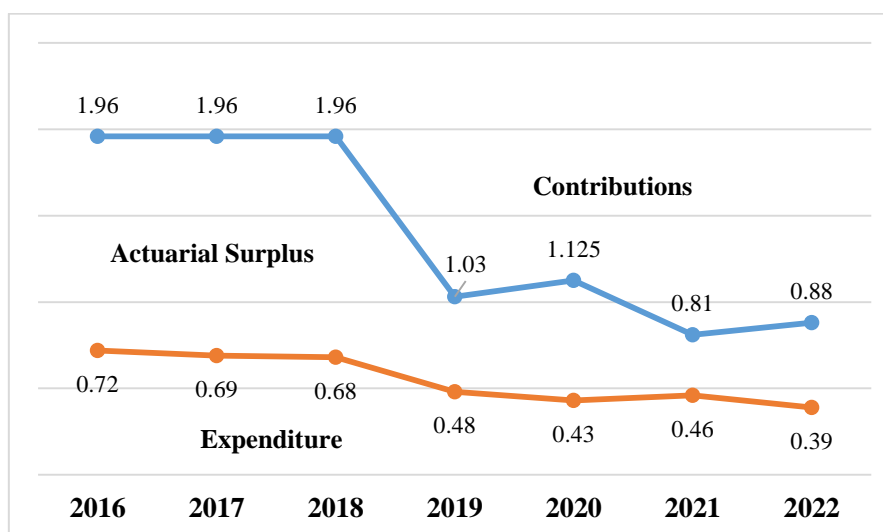
2. Income and Expenditure as a Percent of Insurable Earnings

Income and expenditure as a percentage of insurable earnings are shown in Table 27. Total benefits in 2022 declined to 0.25% of insurable earnings (0.38% in 2021). The relative rate of contribution, which was reduced by almost one-half in 2019, still yields a current surplus, due to the incidence of investment incomes on the accumulated reserve.

Table 27
Income and Expenditure as a Percent of Insurable Earnings (EI Branch)

	2022	2021	2020
Contributions	0.877	0.810	1.125
Investment and other income	0.306	0.404	0.415
Total Income	1.183	1.214	1.540
Disablement grants	0.014	0.031	0.027
Employment injury (short-term)	0.146	0.150	0.171
Disablement benefits (APV)	0.004	0.163	0.049
Death benefits (APV)	0.003	0.035	0.003
Funeral grants	0.083	0.000	0.001
Total Benefits	0.250	0.379	0.252
Operating expenses	0.141	0.154	0.180
Total Expenditure	0.391	0.533	0.432
Income less Expenditure	0.792	0.681	1.108
Contributions less expenditure	0.486	0.277	0.693

Actuarial Cost of EI Branch
(as % of insurable earnings)



3. Statutory and Actual Reserves

Reserves of employment injury benefits have evolved as shown in Table 28. The minimum short-term reserve of the branch, as provided for in Section 17 (2) of the Financial Regulations, should be equivalent to the average benefit expenditure in the preceding three years. **Therefore, at year-end, the reserve is 32.3 times higher than the stipulated minimum, a clear indication that the branch reserves exceed the standard parameters, which are expected to remain frozen in 2023 and start decreasing thereafter as higher claims offset the reduced rate of contributions.**

Table 28
Employment Injury Benefit Reserve
(Amounts in thousands of BZ\$)

31 December	Reserve	Statutory Minimum	Multiple Minimum Reserve
2022	115,933	3,598	32.2
2021	105,971	3,494	30.3
2020	98,672	3,365	29.3

4. **Incidence of Short-Term Injury Benefits**

Table 29 shows the incidence and cost ratios of employment injury benefits.

Table 29
Incidence of Employment Injury Short-Term Benefit

	2022	2021	2020 ^{b/}
Cases paid	1,748	1,484	1,250
Amount paid (in thousands)	\$2,155	\$2,081	\$2,054
Active insured persons	115,201	107,164	104,483
Cases per 100 insured	1.52	1.38	1.20
Cost per case	\$1,233	\$1,402	\$1,640
Cost per insured	\$18.71	\$19.42	\$19.66
Actuarial cost (% of salaries)	0.144	0.149	0.169

^{a/} Financial Statement.

^{b/} Preliminary.

The emerging trend shows that the anticipated incidence has been slightly lower than the actuarial expectations, as shown in Table 29. For the next two years, the actuarial cost estimate is assessed at 0.22%, equal to the average of the preceding three years.

5. **Financial Trend of the Disablement & Death Benefits**

The sub-branch operates on the actuarial funding method of “assessment of constituent capitals” or terminal reserves. Each year the actuarial present value (APV) of the cases occurring during the year is credited to the reserve of the sub-branch, jointly with the investment income earned by the reserve. The updated cumulative reserve should be sufficient to cover the cost of pensions in payment at the close of the year.

Table 30 shows the income, expenditure, reserve, and the Fund Ratio of the Disablement and Death benefits. The Disablement and Death Reserve is different from the PAYG reserve of short-term benefits, representing the amounts required to pay pensions in payment until the cessation of payment due to death, recovery, or termination of survivors' benefits, while the short-term branch “contingency reserve” is designed to cover adverse deviations in the experience.

Table 30
Income, Expenditure, and Reserves of Disablement & Death Pensions
(Amounts in thousands of BZ\$)

	2022 ^{a/}	2021	2020
APV disablement benefits	667	2,120	609
APV death benefits	530	464	40
Total APV	1,197	2,584	649
Net investment income	428	533	647
Total income	1,625	3,117	1,296
Expenditure			
Disablement pension	1,458	1,711	1,603
Death benefits	878	579	649
Total benefits	2,336	2,289	2,252
Excess of income over expenditures	(711)	827	(956)
Actuarial Reserve	11,452	12,163	11,336
Fund Ratio ^{b/}	4.90	5.31	5.01

^{a/} Unaudited.

^{b/} Reserve ÷ total benefits.

6. Incidence of Disablement and Death Benefits

Table 31 shows the rates of accidents per 1000 insured persons due to EI accidents. The incidence of accidents shows significant volatility, according to preliminary data, including cases of permanent incapacity which account for the majority of cases awarded.

Table 31
Number of Accidents by Consequence and Rates per 1000 insured

Year	Number of Cases			Rates for 1000 insured		
	Medical Care only	Permanent incapacity	Deaths	Medical care only	Permanent incapacity	Deaths
2022	1,052	252	6	9.1	2.2	0.01
2021	1,048	207	1	9.8	1.93	0.00
2020	977	231	3	9.4	2.4	0.03

7. Trend of Pensions in Payment

The statistics shown in Table 32 indicate a stable trend of pensions in payment, with new pensions awarded offset by terminations due to death and other causes, indicative of a significant number of retirees that opt to return to active employment.

Table 32
EI Pensions in Course of Payment

	2022	2021	2020
<u>Disablement Pensions</u>			
Number	520	512	508
Monthly amount	130,506	126,999	123,625
<u>Widows</u>			
Number	83	85	90
Monthly amount	33,691	32,987	34,122
<u>Orphans</u>			
Number	117	118	135
Monthly amount	20,264	19,801	22,003

8. Expected Cost of the EI Branch

The analysis shows the incidence of the allocation of contributions on the actuarial surplus, reducing the capitalization of reserves and eventually freezing the surplus reserves in the second half of this decade.

Table 33
Actuarial Cost of the EI Branch (excluding Investment Income)
(as % of insurable earnings)

Benefit	2023/25 ^{p/}	2022	2021	2020
Employment Injury	0.17	0.14	0.15	0.17
Disablement & Death Benefits (APV) ^{b/}	0.25	0.07	0.13	0.05
Grants & Medical	0.05	0.04	0.03	0.03
Total Benefits	0.47	0.25	0.31	0.25
Administrative Expenditure	0.18	0.14	0.15	0.18
Total Expenditure	0.65	0.39	(0.46)	(0.43)
Contributions	0.90	0.88	0.81	1.13
Current Surplus (deficit) ^{a/}	0.30	0.49	0.35	0.70
Investment & Other Income	0.30	0.30	0.40	0.41
Total Surplus	0.60	0.79	0.75	1.11

^{a/} Contributions less Expenditure.

^{b/} Assumes APV factors updated in 2023.

^{p/} Projected.

9. Funded Status of the Disablement and Death Reserve

A direct valuation of the level of sufficiency of the Disablement and Death Reserve was performed at the former triennial valuations. The assessment was carried out according to the following bases:

Mortality Table: GAM-83. Widely used in the region for group annuities, with mortality rates compatible with the Central American experience.

Mortality of Disabled Lives: $a_x + 4$ ($x = \text{age}$).

Remarriage Rates (Widows): Non-material. Reduction factor (widows): 0.90 (remarriage and contingent suspension at age 50).

Basic Discount Rate: 5% (ad hoc pension adjustments).

Actuarial Reserve: \$11.452 million at 31 December 2022.

The analysis of the Disablement and Death Reserve also shows an actuarial deficit, as shown in Table 34, but the balance of the joint programs still yields an actuarial surplus of \$91.3 million at 31 December 2022, as shown in Table 35.

Due to the substantial surplus of the EI branch, the difference can be met by an internal transfer within the branch, although due to the fluctuation of the incidence of EI disability and death, and the long-term time frame involved, such a transfer is not required at present. **The APV updated actuarial factors shown below should contribute to a gradual reduction of the actuarial deficit.**

Table 35 shows a consolidated assessment of the EI branch. The surplus reserves of short-term benefits, assessed at 29 times the statutory minimum, compensate by a wide margin the deficit of the Disablement and Death Obligations, still yielding a consolidated surplus of \$91.3 million at 31 December 2022.

Table 34
Funded Status of the EI/Disablement & Death Reserve (on 31 December)
(Amounts in millions of BZ\$)

	2022	2021	2020
Present value of pensions in payments	32,500 ^{P/}	31,007	30,506
Reserve	(11,452)	(12,193)	(11,277)
Net Liability	21,048	18,814	19,229

^{P/} Extrapolated.

Table 35
Consolidated Actuarial Assessment of the Employment Injury Brand
(at 31 December)

	2022 (Extrapolated)			2021 (Triennial Valuation)		
	Reserve	Actuarial Liabilities	Surplus (Deficit)	Reserve	Actuarial Liabilities	Surplus (Deficit)
Short-term benefits ^{a/}	115,933	3,598	112,335	105,971	(3,491)	102,480
Disablement death benefits ^{b/}	11,452	32,500	(21,048)	12,193	(31,007)	(18,814)
Total	127,385	36,098	91,287	118,164	(34,498)	83,666

^{a/} Statutory reserve (PAYG basis).

^{b/} Actuarial reserve (present value of pensions in payment).

10. Adjustment of the Actuarial Factors to determine the Disability and Survivors' Pensions. Employment Injury Branch

The analysis shows that the factors set forth in the First Schedule (Reg. 20), Tables 36 and 37 of the Disablement and Death Benefit, are outdated, as the mortality of pensioners has improved gradually since the inception of the scheme, yielding an actuarial present value (APV) lower than required to cover the cost of EI disability and death pensions. Practically, all the disability cases occur among males, while the majority of survivors are females.

The mortality assumptions of **disabled lives are estimated at the attained age plus three years but no age adjustment is required for adult survivors.**

The mortality factors have been derived from the GAM-83 (USA) mortality table, but for children, the mortality assumption has been assumed as zero with cost factors derived from temporary financial annuities rather than actuarial annuities. No automatic cost-of-living assumptions are stipulated yet in the regulations, with 3% discount factors applied in the determination of the annuities.

Actuarial Bases:

A. Disabilities

- Mortality Table: GAM-83
- Discount Rate: 3%
- Disabled mortality: Age + 3 years
- Continuous annuities: ($\bar{a}_x = a_x - \frac{1}{2}$)
- 52 weeks per year

B. Children

- Financial temporary annuities (zero mortality assumptions)

First Schedule (Regulation 20)
Disablement and Death Benefits
To be implemented in 2023

New factors for calculating the actuarial present values applicable to disablement pension for widows, widowers, and parents apply factors less than 3 years, with a minimum of 20 years.

Table 36

Factor (x weekly rate of benefit) Disablement Benefit		
Age Attained	Males	Females
20 or less	1384	1449
21	1373	1440
22	1362	1431
23	1351	1421
24	1339	1411
25	1327	1401
26	1315	1391
27	1303	1380
28	1290	1370
29	1277	1358
30	1263	1347
31	1249	1335
32	1235	1323
33	1220	1310
34	1205	1298
35	1189	1284
36	1174	1271
37	1157	1257
38	1141	1243
39	1124	1228
40	1106	1213
41	1089	1198
42	1071	1182
43	1053	1166
44	1034	1150
45	1015	1133
46	996	1116
47	977	1098
48	957	1080
49	937	1061
50	917	1043

51	896	1023
52	876	1004
53	854	984
54	833	963
55	811	942
56	789	921
57	767	899
58	744	877
59	721	855
60	698	832
61	675	809
62	651	786
63	628	762
64	606	738
65	583	714
66	561	690
67	539	665
68	517	641
69	496	616
70	475	592
71	454	568
72	433	544
73	413	521
74	393	498
75	374	475
76	356	453
77	338	432
78	321	411
79	305	390
80	289	370
81	274	350
82	260	331
83	247	311
84	233	292
85	221	274
86	208	255
87	196	236
88	182	218
89	169	200
90	156	181
91	142	161
92	127	141
93	110	119
94	89	94
95	62	64
96	26	26

DEATH BENEFIT

New factors for calculating the actuarial present values applicable to pensions to children.

Table 37

Age attained during the year	Factor by which weekly rate of benefits is to be multiplied
0	787.60
1	759.23
2	730.01
3	699.91
4	668.91
5	636.97
6	604.08
7	570.21
8	535.31
9	499.37
10	462.35
11	424.22
12	384.95
13	344.50
14	302.83
15	259.92
16	215.72
17	170.19
18	123.29
19	74.99
20	25.24

V
ACTUARIAL ANALYSIS OF THE LONG-TERM BRANCH

1. Actuarial System

For the long-term branch, the "scaled-premium" system of finance is being applied. Under this system, the contribution rate is fixed at such a level that the income from contributions and investment is expected to exceed the expenditure on benefits and administration for a period of years referred to as the "period of equilibrium". Throughout the period of equilibrium, the annual excess of income over expenditure is accumulated in a reserve that increases steadily but declines thereafter if there are no adjustments to the contribution rate. A primary objective of the actuarial review is to ascertain the adequacy of the statutory contribution rate in accordance with the system of finance and to quantify the projected level of reserves derived from the financial development of the branch.

2. Financial Operations

The comparative data in Table 38 shows the trend of benefit and administrative expenditure in the period under review. The analysis shows the impact of the enhanced contribution rate allocated to the branch.

Table 38
Income and Expenditure of the Long-Term Branch
(Amounts in thousands of Belize Dollars)

	2022	2021	2020
Contributions	103,560	84,582	71,778
Investment and other income	16,866	21,271	22,833
Total Income	120,426	105,853	94,611
Retirement benefits	62,093	56,011	49,385
Invalidity benefits	4,632	4,374	4,058
Survivors' benefits	9,835	9,148	8,095
Funeral Grants	1,678	1,941	1,371
Non-contributory pensions	1,136	1,314	1,525
Total Benefits	79,374	72,788	64,434
Operating Expenses	17,016	15,903	14,802
Total Expenditure	96,390	88,691	79,235
Contributions less expenditure (current deficit)	7,170	(4,109)	(7,457)
Income less Expenditure	24,036	17,161	15,375
Actuarial Reserve	480,480	456,445	439,263
Fund Ratio ^{a/}	5.0	5.1	5.5

^{a/} Reserves ÷ total expenditure.

3. Income and Expenditure as a Percent of Insurable Earnings

The “current deficit” (contributions less expenditure) increased to 0.49% of insurable earnings (0.32% in 2021) and should yield a surplus in 2023. **However, the investment income on the substantial reserve should be the main contributor to the financial performance of the long-term branch for the rest of the present decade.**

Table 39
Income and Expenditure as a Percent of Insurable Earnings

	2022	2021	2020
Contributions	7.02	6.48	5.85
Investment & other income	1.14	1.61	1.83
Total Income	8.16	8.09	7.68
Retirement benefits	4.21	4.29	4.02
Invalidity benefits	0.31	0.34	0.33
Survivors' benefits	0.67	0.70	0.66
Funeral Grants	0.11	0.15	0.11
Non-contributory pensions	0.08	0.10	0.12
Total Benefits^{a/}	5.38	5.58	5.24
Operating Expenses	1.15	1.22	1.20
Total Expenditure	6.53	6.80	6.44
Income less Expenditure	1.63	1.29	1.24
Current surplus (deficit)^{b/}	0.49	(0.32)	(0.60)

^{a/} PAYG rate (pay-as-you-go).

^{b/} Contributions less expenditure.

4. Trend of Insured Pensions and Earnings

The trend of insured pensions and contributions is shown in Table 40. The data shows the impact of the legal amendments on the income from contributions, but the impact of the pandemic had a negative incidence in 2020 and 2021.

Table 40
Trend of Insured Persons and Earnings
(Amounts in thousands of BZ\$)

	2022	2021	2020
Insured persons	115,201	107,164	104,483
Contributions (BZ\$)	103,560	84,582	71,889
<u>Rate of increase</u>			
Contributions	22.4%	17.6%	10.4%
Insured persons	7.5%	2.6%	(5.8)%

5. Distribution of Active Insured by Wage-Band and Age-Group (in percent)

Table 41

	Wage-Band	Age-Group	Percent
\$110 and less	9.2	15/34	55.8
\$110/299	46.4	35/54	37.0
\$300/499	26.1	55 and over	7.2
\$500 and over	18.3	-	-
Total	100%	Total	100%

6. Sectorial Distribution of Active Insured

The data shows that insured persons in the private sector account for 80.7% of the total, but only for 71.5% of contributions, due to higher salaries in the public sector.

Table 43
Sectorial Distribution of Active Insured (2022)

Sector	Number	Contribution
Private	80.7	71.5
Public	15.9	25.0
Other	3.4	3.5
Total	100%	100%

7. Trend of Pensions in Payment

Table 44 shows the trend of pensions in payment, with a steady increase in all the categories of pensioners, a normal trend reflecting the gradual demographic maturity of the long-term branch.

Table 44
Number of Pensions in Payment (year-end)

	Retirement	Invalidity	Survivors	Total	Rate of Increase (%)
2018	6,957	500	3,040	10,497	8.9
2019	7,685	532	3,030	11,247	7.2
2020	8,290	570	3,060	11,920	6.0
2021	8,982	603	3,376	12,961	8.7
2022	9,796	642	3,418 ^{a/}	13,856	6.6

^{a/} 53% widows / 47% others.

The low rate of increase in the number of invalidity and orphans' pensions is due, in the first instance, to high termination rates due to the transfer of invalidity persons to retirement pensions from 60 years of age, a process that has been suspended as from 2019, and also due to terminations, as many pensioners resume work and the pension is then suspended, or by reaching the maximum qualifying age in the case of orphans.

8. Invalidity Pensions and Grants

Table 45 shows the incidence of invalidity pensions awarded and of invalidity grants.

Table 45

Number and Frequency of Invalidity Pensions Awarded

	Number awarded	Incidence Rate (per thousand)
2022	77	0.73
2021	76	0.71
2020	79	0.76
2019	61	0.55
2018	52	0.48
2017	58	0.54

9. Trend of Demographic Ratios (Pensioners ÷ Active insured)

Table 46 shows the trend of demographic ratios, indicative of the gradual aging of the long-term branch.

Table 46
Trend of Demographic Ratios
(On 31 December)

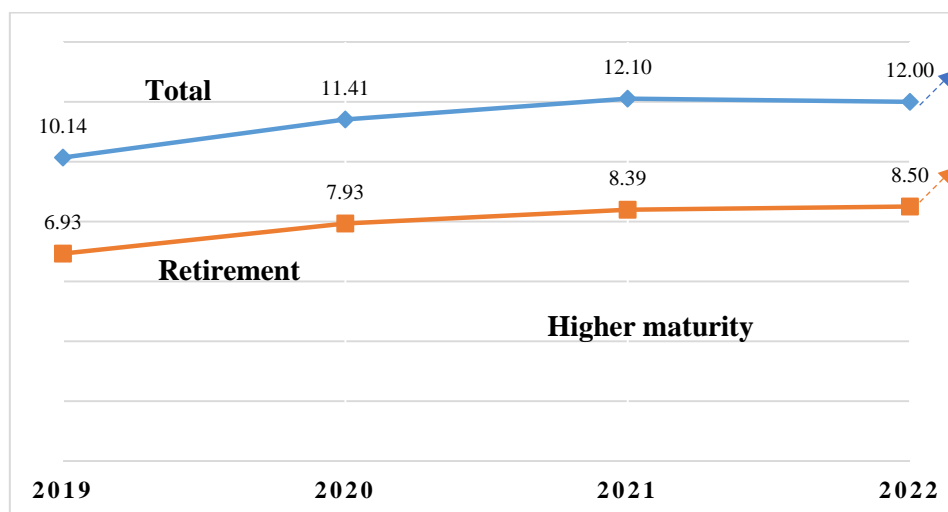
	2022	2021	2020	2018
Demographic Ratios (Pensioners ÷ active contributors, in %)				
Retirement ^{a/}	8.50	8.39	7.93	6.44
Invalidity ^{b/}	0.56	0.56	0.55	0.46
Survivors ^{c/}	2.97	3.15	2.93	2.81
Total	12.03	12.10	11.41	9.71

^{a/} Excludes NC pensions.

^{b/} Pensions transferred to an old-age category at age 60, up to 2018 only.

^{c/} Includes orphans.

Gradual Ageing of the Long-Term Branch
Demographic Ratios
(Pensioners / Active Insured in %)



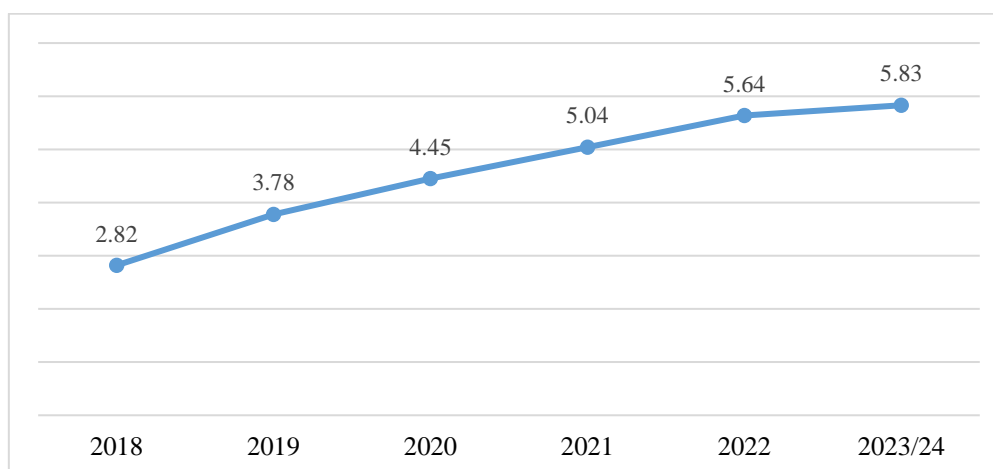
10. Distribution of Statutory Contributions

Deducting from the new gross share of contributions allocated to the long-term branch the estimated costs of grants, non-contributory pensions, and administrative expenditures, yield a net rate of contributions to cover the cost of retirement, invalidity, and survivor's pensions of 5.04% in 2021 and 5.64% in 2022.

Table 47
Distribution of the Statutory Contribution Rate as a percent of Insurable Earnings
(Excluding investment income)

	2023/24	2022	2021	2020
Gross rate	7.20%	7.02%	6.48%	5.85%
Other income	0.03	0.03	0.03	0.04
Total contributions	7.23	7.05	6.51	5.89
Administrative expenditure	(1.22)	(1.22)	(1.22)	(1.22)
Grants	(0.12)	(0.12)	(0.15)	(0.12)
Non-contributory pensions	(0.06)	(0.07)	(0.11)	(0.12)
Net rate for contributory pension benefits	5.83%	5.64%	5.04%	4.45%

Projected Net Contributions allocated for contributory pensions
(as % of insurable earnings)



11. Macro-Economic and Population Trends

The economy is characterized by a highly seasonal pattern of employment, and a significant proportion of insured persons spend part of the year either unemployed or in self-employed activities, particularly in the agricultural sector.

The total population of Belize has increased in the last decade at a pace similar to the high variant projections of the Statistical Institute of Belize (SIB). Such a rate of population increase is expected to decline in the future to 1.2% this decade. Family planning and higher educational standards should slow the intrinsic rate of fertility. From an actuarial standpoint, high fertility rates contribute to the delay in the aging of the population and, thus, the demographic ratio of pensioners over active contributors. Nevertheless, the age structure of the population has experienced a gradual change, with a demographic ratio (population 60 years and over divided by the population 15 to 60 years) that should increase steadily.

12. Demographic Trends and Ultimate PAYG-Cost

The ratio of pensioners to active insured persons continues to increase, an indicator of the demographic maturity of the long-term branch. Longer-term, the demographic ratio will increase steadily, a normal pattern of a maturing pension scheme, as the rate of increase in pensions in force is higher than the rate of increase of active insured persons.

The ultimate PAYG cost of a stable population can be derived by the formula: $PAYG = DR \times \bar{P}$, where DR is the ultimate demographic ratio and \bar{P} the average pension. Assuming a DR of 40% (1 pensioner by 2.5 active contributors), and an average pension of 50% of salary, the ultimate PAYG would be equivalent to 20% of salary. This is a theoretical estimate that would take place in approximately 60 years.

13. Actuarial Projections

The SSB has requested the ILO to assist with a Long-term projections model. As shown in the preceding Section, the Long-term PAYG rate can be estimated by the demographic rate and the average pension. Due to the maturity of the SSB, Short-term projections allow the GoB and the SSB to formulate and execute key policy issues in 2023/25.

A consolidated projection up to 2030 is shown in Chapter II, Section 12, Table 11. A short-term projection of the Long-term branch up to 2025 is shown in Table 48. The short-term projection shows a positive performance for the next three years. The PE is now assumed to take place in 2029/30, based on legal provisions in force. However, higher rates of inflation could generate demand for pension adjustments without correlative adjustments to the ceiling on the contribution rates it would cause a reduction in the PE by one or two years.

Table 48
Updated Short-Term Projection Preliminary (Updated)

Year	C	Ex	CI	I*	S	R
2021	85	89	(4)	19	15	456
2022	104	96	7	17	24	480
2023	115	106	19	24	33	513
2024	123	114	19	28	37	550
2025	128	126	12	30	32	582

C: Contributions

Ex: Expenditure: 9%

CI: Current Income (deficit)

I: Investment income (ROA = 4/5%)

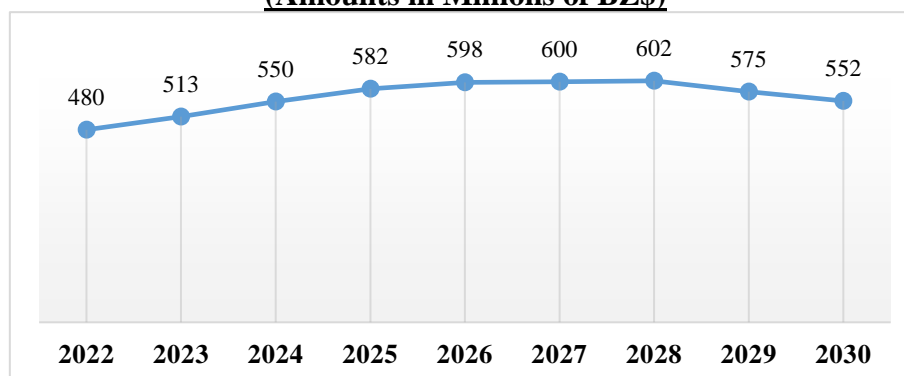
S: Total surplus (deficit)

R: Accumulated reserve

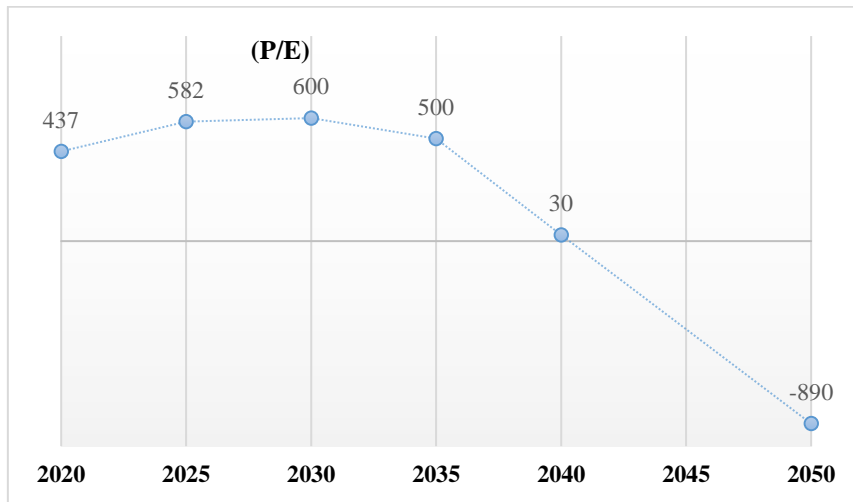
* Assumes improved investment performance

Two alternative projections up to 2030 and up to 2050 carried out last year, **based on legal provisions in force**, are also shown below.

Preliminary Projection of Long-Term Branch Reserves
(2021 Performance Analysis)
(Amounts in Millions of BZ\$)



Illustrative Trend of Actuarial Reserves. Long-term Branch
(Amounts in millions of BZ\$)/ 2021 (Adjusted) Actuarial Performance



ANNEX A
PERFORMANCE ANALYSIS OF THE SELF-EMPLOYED SCHEME

1. Trend of Active Contributors

The voluntary self-employed scheme started on 1 January 2003 and the number of active contributors has increased gradually in the period under review, with effective coverage of a minimal number of self-employed persons in the country. Many self-employed persons have previous credits as employed persons but the total number who have retired as self-employed is equivalent to approximately one-half the number of active SE contributions.

Global statistics show that approximately 40,000 self-employed persons in Belize, of which only a fraction is actively contributing to the voluntary self-employed scheme, but on an irregular basis, with an unusual high frequency of “new registrations”.

Table 1
Registered Self-Employed and Active Contributors by Year (31 December)
(Amounts in thousands of BZ\$)

Year	Active Insured Self-employed	Rate of Increase (Decrease)	New Registrations
2018	1,564	6.6%	515
2019	1,742	11.6%	598
2020	1,622	(6.7%)	335
2021	1,455	(10.5%)	389
2022	1,548	(6.4%)	370

2. Distribution of the Self-Employed by Wage-Group and Density of Contributions

Table 2 shows the distribution of the active self-employed by wage group and the comparison with the distribution of employed persons. The data shows that the proportion of self-employed persons with notional earnings in the top wage band is much lower than in the general scheme, but adjustments, as they get closer to retirement age, allow them to access a higher pension at retirement. An average of 40 weeks of contributions were recorded in 2022, the same as in 2021, but higher in 2020.

Table 2
Percent Distribution of Active Insured by Wage Group (2022)

Wage-group	Percent Distribution	
	Self-employed	Employed
Less than \$110	23	11
\$110/300	48	46
\$300 and over	29	43
Total	100%	100%

3. Comparative Distribution of Self-Employed and General Insured Persons

Table 3 shows that 25% of the active self-employed are 55 years and over, as compared to only 7% in the general scheme, an indicator of “adverse selection”, to obtain a “financial gain” by participating in the “voluntary” self-employed scheme at later ages.

Table 3
Differential Age Distribution of Employed and Self-Employed Persons
by Age Group (2022)

Age-Group	Self-Employed	Employed
15/34	17%	55%
35/54	58%	38%
55 +	25%	7%
Total	100%	100%

4. Long-Term Benefits to the Self-Employed

Table 4 shows the number of benefits awarded to the self-employed in 2022, with a higher frequency than for employed persons. A total of 739 pensions in payment, almost one-half the total number of active contributors, were recorded at 31 December 2022.

Table 4
Benefits Awarded to Self-Employed Insured Persons

Benefit Type	Number of Claims Allowed		
	2022	2021	2020
Invalidity	4	3	3
Retirement	114	89	69
Survivors	12	9	7
Disablement	4	3	2
Death	0	1	0
Total	134	105	81

5. Frequency of Short-Term Claims by the Self-Employed

Table 5 shows the frequency of short-term benefits awarded to active self-employed persons. Table 6 shows the differential rates of claims of short-term benefits, with a lower incidence by the self-employed, which could imply a “preference” for retirement pensions, rather than short-term benefits.

Statistics show an average number of Short-term benefits awarded to self-employed persons, in the last three years, with an average incidence of 11.7%.

Table 5
Frequency of Short-Term Claims by the Self-Employed

Year	Average Insured	Total Claims	Incidence Rate
2020	1,622	174	10.7%
2021	1,455	181	12.4%
2022	1,548	187	12.1%

Table 6
The ratio of Short-Term Benefits to Active Insured Person per category

	Employed	Self-Employed
2020	0.28	0.11
2021	0.32	0.12
2022	0.42	0.12

6. Demographic Ratios

Table 7 shows that the maturity of the self-employed scheme, measured by the ratio of pensioners to active contributions, is much higher in the general scheme. Although many former self-employed pensioners also had previous credits as employed persons, the disparity in the demographic ratios shows the “window of opportunity” offered by the voluntary self-employed scheme, allowing insured persons to activate their self-insured status and take advantage of the liberal provisions of the scheme to obtain life pensions lasting 20/25 years after credited contributions for ten years and over. The negative impact on the sustainability of the long-term branch is shown below.

Table 7
Demographic Ratios (Self-Employed Scheme)

(Pensioners ÷ Active Contributors, in %)	
Year-end	Demographic Ratio
2022	48%
2021	43%
2020	33%

7. Retirement Age of Self-Employed Persons

Statistics show that most self-employed persons opt to retire at 60 years of age, with no penalty in case of continuing with their business, an anomaly to be addressed urgently by the SSB.

The legal interpretation regarding the retirement age for the self-employed is subject to different interpretations. Common sense would indicate that the same provisions as for employed persons would apply, which is our interpretation. Alternatively, if they retire at age 60 with no penalty, they could enjoy a window of opportunity not available to employed persons.

8. Estimated Financial Performance

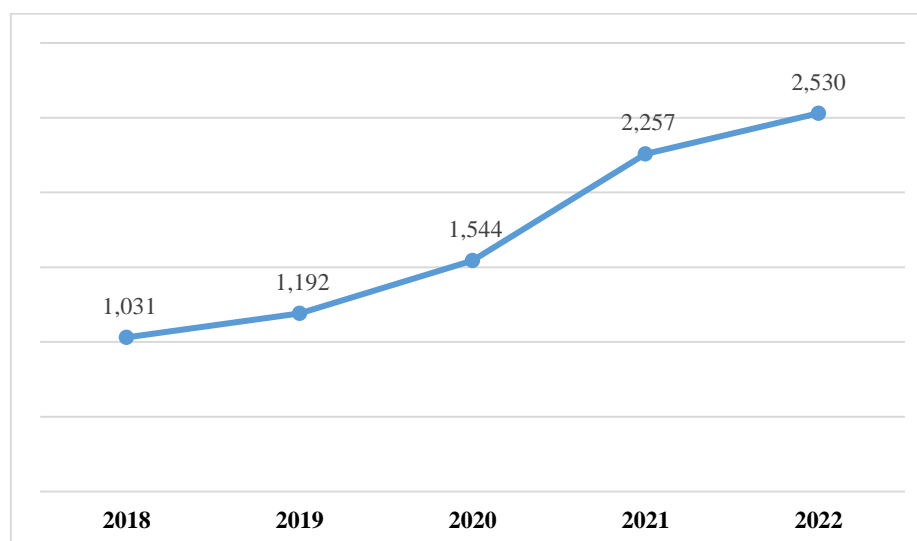
Table 8 shows the widening gap between contributions and expenditure of the self-employed scheme with recurrent deficits.

Table 8
Financial Performance of the Self-employed Scheme
(Amounts in thousands of BZ\$)

	2022	2021	2020
Contributions	856	782	755
Benefit Expenditure	(3,176)	(2,839)	(2,100) ^{a/}
Share of administrative expenditure	(210)	(200)	(200)
Total expenses	(3,386)	(3,039)	(2,300)
Net surplus (deficit)	(2,530)	(2,257)	(1,544)

^{a/}Preliminary.

Self-Employed Scheme Operational Loss (in thousands of BZ\$)



9. Actuarial Cost of the Self-Employed Scheme

The scheme is financed by 7% of insurable earnings which should increase to 9%, by 2023, in correlation to the 10% rate in the general scheme. Such deficits are funded by internal transfers from the general scheme that will worsen over time the actuarial situation of the long-term branch.

Table 9
Estimated Actuarial Cost of the Self-Employed Scheme
(In percent of insurable earnings)

	2023	2021/22	2020
Contributions	7.0% ^{a/}	7.0%	7.0%
Short-term benefits	1.1	1.1	1.1
Long-term benefits	16.5	15.0	14.5
Administrative expenditure	1.3	1.3	1.3
Total expenditure	18.9	17.4	16.9
Surplus (deficit)	(11.9%)	(10.4%)	(9.9%)

^{a/}To be updated.

10. Self-Employed Scheme.

Adoption of Wage Bands to determine Weekly Contributions. Substitution of unitary weekly income for Wage Bands

The second schedule of the Self-Employed Pension Regulations shows an anomalous set of individual weekly contributions derived from 262 dollar-by-dollar weekly income. The table below shows the adoption of the original wage bands system applied in the general scheme, **excluding the outdated first two wage bands**. It is also noted that in the general scheme, the bipartite contributions have increased. Therefore, **a similar adjustment should be applied in the Self-Employed scheme**, as shown below. In view of the excessive actuarial cost of the SE scheme, which is much higher than in the general scheme due to adverse selection, the same contribution rate as in the general scheme should also apply.

Another option is to exclude from the SE scheme the coverage of “employment” injury, an event that can’t be verified in the absence of an employer allowing for a 1% reduction in the stated contribution rate in effect at the general scheme.

Table 10
Self-Employed Scheme
Adoption of Wage Bands to Determine Weekly Contributions Second Schedule
(Regs. II)

	Weekly Income	Weekly Insurable Earnings	Weekly Contribution			
			7% ^{a/}	8% ^{b/}	9% ^{b/}	10% ^{c/}
1	110 < 140	130	9.10	10.40	11.70	13.00
2	140 < 180	160	11.20	12.80	14.40	16.00
3	180 < 220	200	14.00	16.00	18.00	20.00
4	220 < 260	240	16.80	19.20	21.60	24.00
5	260 < 300	280	19.60	22.40	25.20	28.00
6	300 < 320	320	22.40	25.60	28.80	32.00

^{a/} In effect on 1 January 2023.

^{b/} Adjustments pending.

^{c/} Applied to the General Scheme only.

ANNEX B
ASSESSMENT OF THE NON-CONTRIBUTORY PENSION SCHEME (NCP)

1. Background

The payment of Non-Contributory Pensions (NCP) was transferred from the Ministry of Social Services to the SSB in July 2003. In December 2007, the Government decided to add eligible males as beneficiaries of NCP and increased the payment to \$100 per month, which caused a significant increase in the number of beneficiaries and benefit expenditure. A financial assistance scheme funded by the Long-Term branch, effective entitlement controls by the NCP Committee has caused a steady decline in the number of active beneficiaries and the actuarial cost of the scheme.

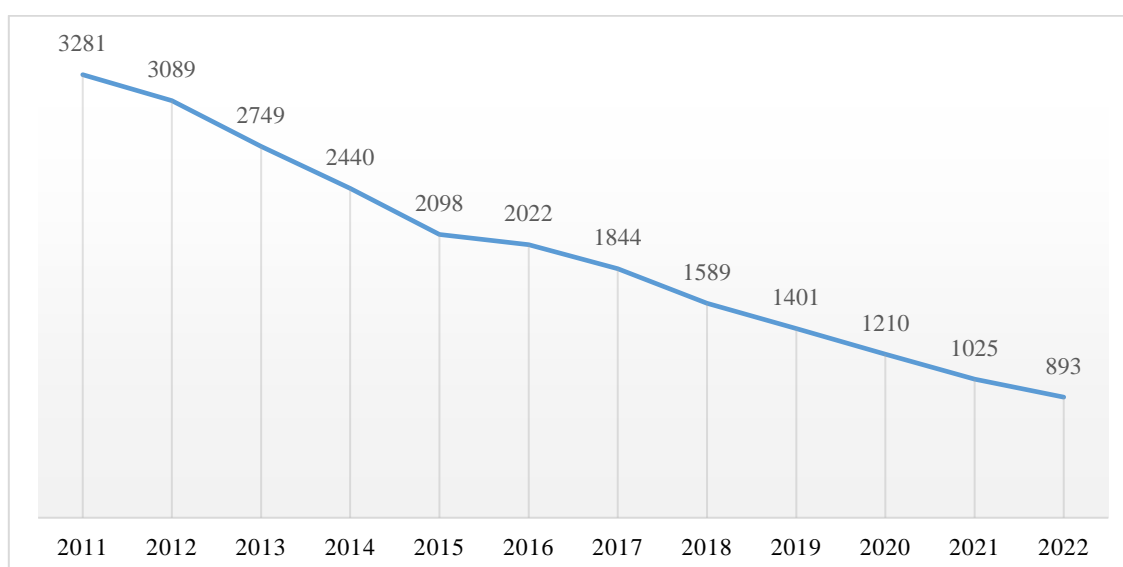
2. Trend of Pensions in Payment

The total number of NCPs has declined steadily from a peak of 4,934 early in 2008 to 893 pensions in payment in December 2022. The mortality of pensioners and more thorough evaluation procedures contributed to offsetting the abnormal surge of pensions awarded during the initial phase of operations.

Table 1
Trend of NCP Pensions (on 31 December)

	2022	2021	2020
<u>Number of pensions in payment</u>			
Males	286	328	388
Females	607	697	822
Total	893	1,025	1,210

Trend of NCP Pensions



3. Financial Trends

Table 2 shows the trend of benefit expenditure of non-contributory pensions with a steady reduction in benefit expenditure and a lower incidence in long-term actuarial cost.

Table 2
NCP Benefit Payments
(Amounts in thousands of BZ\$)

Year	Expenditure (BZ\$)	Rate of Increase (decrease) in %
2018	2,009	(12.5)
2019	1,754	(12.7)
2020	1,525	(13.1)
2021	1,380	(9.5)
2022	1,143	(17.2)

4. Rates of Award and Terminations

Table 3 shows the rates of terminations and awards in the past three years.

Table 3
Rates of Award and Terminations of NCP (In percent)

	2022	2021	2020
Death	(8.36)	(7.70)	(8.5)
Other	(7.79)	(6.06)	(5.8)
Sub-total	(16.20)	(13.76)	(14.3)
New awards	0.94	0.90	0.8
Net increase (decrease)	(15.2)	(12.8)	(13.5)

5. Actuarial Cost of the Scheme

The actuarial cost of benefits has evolved as follows, excluding management expenses. The anticipated actuarial cost as of 2022 is non-material, estimated at only **1.4% of benefit expenditure** of the long-term branch.

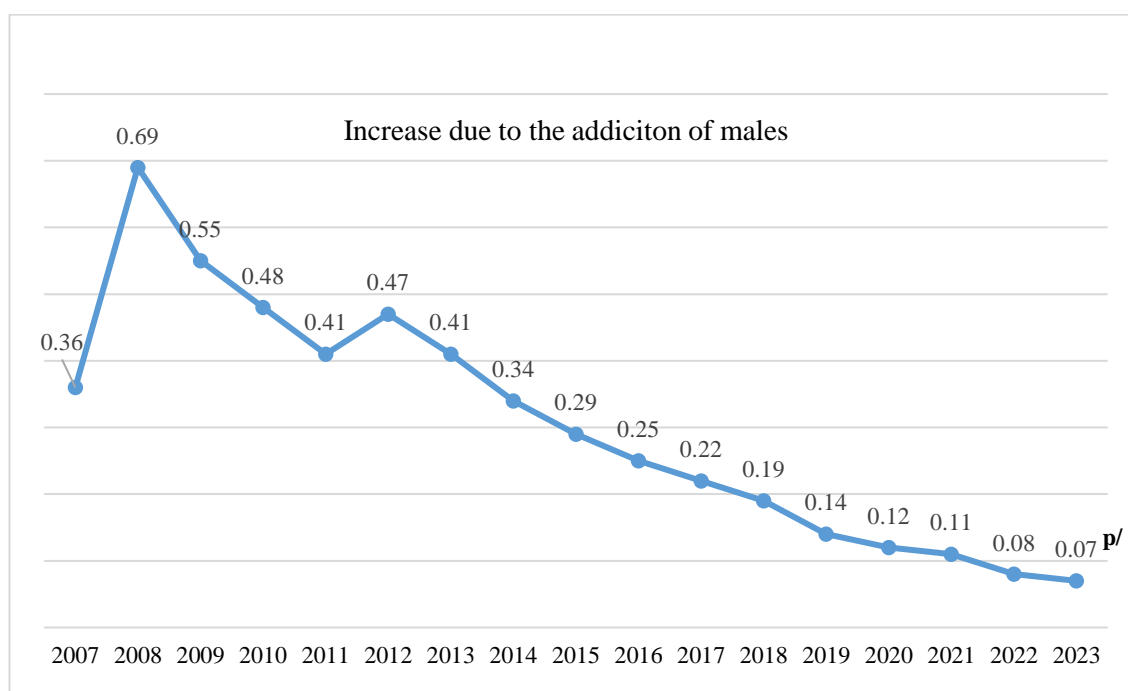
Table 4
Actuarial Cost of NCP Benefits

Year	Percent of insurable earnings
2018	0.19%
2019	0.14%
2020	0.12%
2021	0.11%
2022	0.08%

More strict evaluation procedures and the mortality of pensioners have exceeded the award of new pensions to a significant extent, with actuarial costs declining to only 0.08% on 31 December 2022 (0.11% in 2021).

Assuming a restricted pace of revaluation of pensions in payment, the long-term trend of the scheme is assessed at 0.06/0.07% of insurable earnings or only 1% of the Long-term branch benefit expenditure, including the incidence of the recent legal amendments raising both the ceiling and the rates of contributions. Raising the initial eligibility age to 67 years for females would reduce further the actuarial cost.

Actuarial Cost of NCP Scheme
(% of insurable earnings)



^{p/} Projected.

6. **Conclusions and Recommendations**

The analysis shows that more strict reduction procedures by the Committee and the incidence of a recent legal amendment, raising the ceiling and the rate of contributions, have caused a steady decline in the actuarial cost of the scheme. Further reductions are forecast for 2023/25, due to the impact of the legal amendments. The actuarial cost of benefits is assessed at 0.06/0.07% of insurable earnings for the period 2023/25, or almost 1 cent for each dollar in Long-term branch benefit expenditure, a non-material amount.

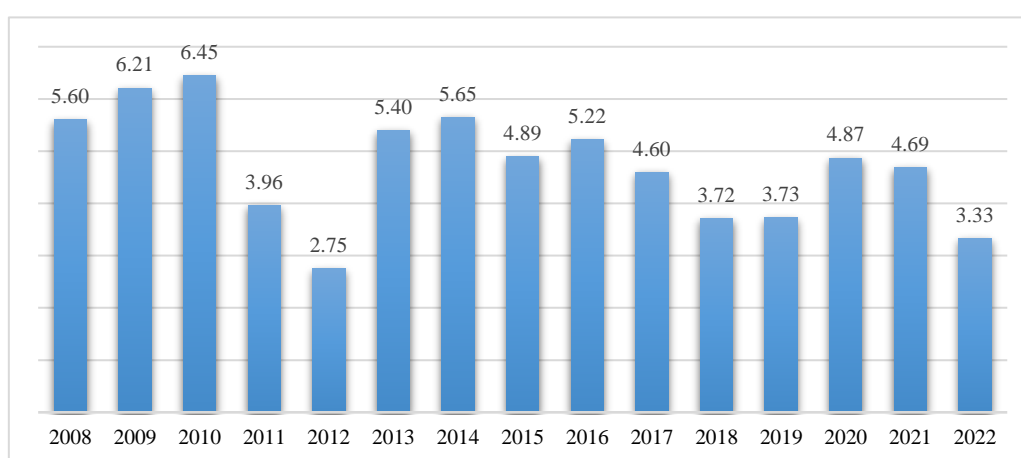
ANNEX C
ASSESSMENT OF THE INVESTMENT PORTFOLIO
(Third Schedule of the Act, Section 17)

1. Objective of the Analysis

Pursuant to the legal provisions, an analysis is presented below of the investments, the strategic assets allocation, and related technical issues, as required by the Third Schedule of the Social Security Act, as a supplement to the statutory actuarial valuation. The SSB investments are made on a “pooled-fund” basis rather than by branch and then distributed in accordance with the assets of each branch, as an interpretation of the provision of Section 14 (2) of the Financial Regulations.

Section 5 shows a reduction of return on assets in 2022, both on a nominal basis and an inflation-adjusted basis, the latter decreasing to -2.41% in 2022 due to a sudden increase in inflation.

Nominal Rate of Return on Investments
(In percentages)



At year-end, the liquidity of the portfolio reached a historical ceiling of \$146.5 million or 22% of assets, a situation that should be corrected by expanding the asset allocations to medium and long-term investments, a strategy allowed by positive cash-flows medium term due to the legal amendments, a key issue to restore rates of returns in accordance with actuarial expectations.

Table 1
Percent Distribution of the Assets (31 December)

	2022	2021	2020
Cash equivalents	20.4%	17.0%	12.5%
Short-term investments	3.2	8.0	3.4
Long-term investments	33.5	30.0	38.2
Investment in Associates ^{a/}	31.3	33.0	33.6
Sub-Total	88.4	88	87.7
Other assets	11.6	12.0	12.3
Total	100%	100%	100%

^{a/} Includes utilities.

2. **Cash Bank Balances (in millions of BZ\$ at 31 December)**

Table 2 shows the increase in cash in the preceding four years, rising 5.5% at 31 December 2019 to 22% at the close of 2022; the latter exceeding by an ample margin standard benchmarks.

Table 2

	Amount	As % of assets
2022	146.8	22.0
2021	106.3	17.1
2020	73.3	12.5
2019	30.7	5.5

3. **Social Investments**

Both the ILO and the ISSA guidelines allow for a suitable proportion of the reserves to be allocated to social investments which promote employment and therefore enhance economic development and increase employment, yielding additional SSB, contribution income. This category of investments, denominated as Economically Targeted Investment (ETI), would carry interest rates slightly lower than commercial investments (1% to 1.5%). A ceiling of 5% of net assets could be allocated to ETD by the SSB, or approximately \$30 million.

4. **Nominal and Real Return of Assets**

The following chart shows the nominal and real rates, which have been negatively impacted in FY 2022 due to the high amount of assets in cash and inflation trends.

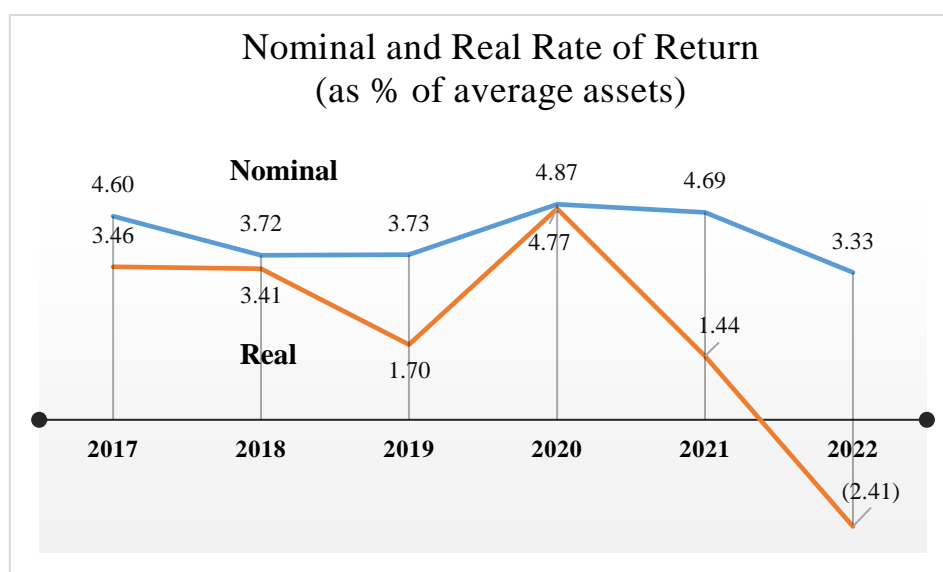


Table 3
Rates of Return on Financial Investments, in thousands (net assets)

	2022 ^{a/}	2021	2020	2019
Net investment income	21,029	26,801	28,330	16,240
Nominal rate of return ^{1/}	3.33%	4.69%	4.87%	3.73%
Annual inflation rate	6.30%	3.20%	0.10%	0.20%
Real return ^{2/}	(2.41%)	1.44%	4.77%	1.70%

^{1/} According to the formula $i = 2I/(R_0 + R_1 - I)$, where I is the return on investments and R is the assets at the beginning and the end of the year, excluding financial expenses.

^{2/} According to the formula: $[(1 + i) / (1 + s)] - 1$ where \underline{i} and \underline{s} represent the interest rate and the inflation rate.

^{a/} Preliminary.

5. Public Sector Investments

The strategy under the consideration of the SSB is to allocate additional funds to “development issues” rather than “financial issues”. The amendments setting a 10% contribution rate and a \$520 per week ceiling allow a longer horizon investment, with positive cash flows until the second half of this decade. An expansion of the investment portfolio, including additional allocations in Central Bank obligations or to the agricultural sector seen advisable:

Higher allocations to GOB bonds offer a rate of return that should allow the key actuarial assumption of a 3% real return on a long-term basis, after inflation.

Such allocation offers a risk-adjusted return higher than most gages, loans to private enterprises, or utilities, as shown before.

It is also noted that the SSB is essentially a subordinate provider of loans to private enterprises and not a substitute for the traditional banking sector lending activities. The Board is also advised to require the return of dividends and interest in cash, as no recapitalization of shares is feasible due to the SSB's need for liquid returns. Avoiding allocation in a single entity above 20% of assets should also be required, in compliance with ISSA guidelines.

6. Enhancement of Development Issues

The sectoral structure of the investment portfolio shows a skewed distribution in favour of **Financial Issues** as compared to **Development Issues**, the former comprising a large proportion of the portfolio.

An analysis of the medium-term cash flows shows the advisability to restructure the distribution of the investment portfolio by:

- Freezing temporarily the allocation to utilities and targeting fresh funds to productive sectors of the economy. This would cause a gradual reduction of the **relative distribution** of the investments in utilities, as shown below.
- Prioritizing the investment of fresh funds targeted to GOB bonds, and the sectors that enhance economic development, exports, and employment creation.
- As shown in Section 3, a certain proportion of assets could be allocated to social investments (ETI).
- The analysis also shows that the financial statements on 31 December 2021 adequately meet the Cash Working Balance outlined in Section 19 of the Financial Regulations, as well as the Liquidity Position.

7. Liquidity of the Investment Portfolio

In view of the increased actuarial maturity of the scheme, the Board is advised to seek an adequate level of liquidity on new investments. Actuarial liquidity means that the investment could be realized in cash when actuarially required.

The actuary also advises cautionary measures in non-liquid assets as collateral on commercial loans, such as land or fixed assets, which might have a fair value lower than the appraisal value in case of a forced liquidation.

Financing parameters for collateral loans could range from 40% to 70% depending on the type of property, and could even be lower for collateral such as land.

The actuary further advises avoiding additional purchases in local shares (utilities), as no active securities market is effective in Belize, as well as the higher risk of a shareholder as compared to a bondholder or depositor. Allocations of high-quality shares or bonds abroad could be evaluated in due course, as a diversification policy of the investment portfolio.

The significant reduction in the rates of interest payable by the local banks, due to excess liquidity and restrained demand by personal and institutional borrowers, is having a negative incidence on the rates of return. Indicators show that rates of interest in the US will increase significantly in 2023, with several adjustments on the agenda by the Federal Reserve Board.

The Board should assess the feasibility of negotiating with the banking sector the establishment of “special deposits”, for loans to private enterprises or individuals (earmarked), at the same rates that “active” interest rates are payable by borrowers, allowing the banks an adequate profit margin, yielding a net SSB return that might be higher than the “passive” rates payable on term deposits. To this effect, the SSB financial area should inform the Board, periodically, of the ongoing rates charged by the banks on personal and institutional loans, plus closing costs.

As the GOB has a direct subsidiary obligation to guarantee the financial solvency of the SSB, **the purchase of additional Treasury Notes or Bonds is deemed a more secure investment than private-sector obligations.**

8. Scenarios of Risk-Adjusted Returns. Sharpe Ratio Scenarios

$$S_a = \frac{E [R_a - R_b]}{\sigma_a}$$

S_a = Sharpe Ratio

E = expected value

R_a = asset return

R_b = risk-free return

$SD = \sigma_a$ = standard deviation of the asset excess return

The Sharpe ratio measures the performance of an investment such as security or portfolio compared to a risk-free asset, after adjusting for its risk.

The Sharpe ratio is calculated as follows: Subtract the risk-free rate from the return of the portfolio. The risk-free rate could be a U.S. Treasury rate or yields, such as the one-year or two-year Treasury yield. Divide the result by the standard deviation of the portfolio's excess return.

Does a good Sharpe ratio indicate a high degree of expected return for a relatively low amount of risk? Usually, any Sharpe ratio **greater than 1.0** is considered acceptable good by investors. A ratio higher than 2.0 is rated as very good. A ratio of 3.0 or higher is considered excellent.

Standard Deviation (x = Nominal Return on Assets / SSB Financial Statements)

$$SD = \sqrt{\frac{\sum(x - k)^2}{N - 1}}$$

<u>SSB / Belize</u>			
<u>Standard Deviation (Portfolio)/Post-ante</u>			
Year	x	x-k	(x-k) ²
2021	4.360	88	7,744
2020	4.800	528	278,784
2019	3.880	(392)	153,664
2018	3.720	(552)	304,704
2017	4.600	328	107,584
SD = K	21.36 / 5 = 4.272	-	852,480

Total Portfolio: (Standard Deviation / Post-ante)

852,480 / 4 = 213,120 = **0.461650** = SD mid-way but 0 and 1.

Sharpe Ratio (Sensitivities)
(Total Portfolio)

SR = (Rp-r) / S D

K = Risk-free Rate (Belize). 2/4% Scenarios

2% : S =	4.272 - 2 / SD =	4.92
3% : =	4.272 - 3 / SD =	2.76
4% : =	4.272 - 4 / SD =	0.58

The consolidated results show that the variability of the Sharpe Ratio depends on the Risk-Free return in Belize. With 2% or 3% the Sharpe ratio shares adequate ratios. With 4% the ratios are not satisfactory.

Examples / Belize

The segmentation by asset classes on as follows:

Financial Statements on 31 December 2021		
Atlantic Bank (CDs): Average Rate	= 3.50%	-
Central Bank of Belize: Average Rate	= 4.42%	(Float Rate)
	= 5.00 %	(Fixed Rate)
Sharpe (CDs)	$\frac{(3.50 - 2.00)}{0.95 \text{ (Assumed)}}$	1.58
Sharpe (FR/ Bonds)	$\frac{4.42 - 2.00}{0.70 \text{ (Assumed)}}$	3.46
Sharpe (Fixed Rate / Bonds)	$\frac{5.00 - 2.00}{0.8}$	3.75

Conclusion

Assuming SD of 0.95 (CDs), 0.70 (Floating Rates bonds), and 0.80 (Fixed Rate Bonds), the **post-ante** analysis shows that the Fixed Rates Bonds have performed better than the other higher Sharpe Ratio.

For a **theoretical example** of an investment in a mortgage or load

Load:	$7.00 - 5.00 / 0.60 =$	3.33
Mortgage:	$7.00 - 4.00 / 0.70 =$	4.28

For a loan in load, the interest rate showed higher than 7% for the risk-free operation to equal the mortgage.

9. Cash Working Balance and Liquidity Requirements

Section 19 of the financial regulations stipulate a “**cash working balance**” of two months' average expenditure over the preceding three years. On 31 December 2022, the unaudited financial statements show a cash position in excess of the statutory minimum.

In addition to the minimum **cash working balance**, **liquid assets** also include short-term investments in CDs and related items. Emerging scenarios concerning the proposed allocation to development issues on the SSB liquidity position should be assessed periodically.

ANNEX D
ACTUARIAL ASSESSMENT OF THE NATIONAL
HEALTH INSURANCE PROGRAM

1. Background

As stipulated in Part VI of the Social Security Act, the Board has been entrusted with the management of the National Health Insurance (NHI). However, the financing regulations have yet to be enacted and transitional pilot projects have been in operation in specific areas of Belize City, then in the Southern Region (Stann Creek and Toledo Districts), and gradually in the Corozal District as of 2016.

2. The Health Care Model in Belize

Belize has a multiple health care model based on three pillars, namely: a) services provided by the MOH, b) limited regional services provided by the NHI, and c) private services directly or through insurance companies or facilities offshore.

The NHI program is limited in coverage; its restricted primary health care package of benefits (excluding surgery, general hospitalization, and other services), was founded in its entirety by the SSB until December 2007, co-financed with GOB transfers from 2008, and entirely by GOB funds as from 2009.

3. Financing of the Program

In the first phase, the program was financed by the SSB, which implied a substantial financial burden to the SSB of about BZ\$40 million. From a fiscal standpoint, the redistribution of income was very regressive, as funds contributed by all stakeholders were utilized to benefit a small segment of the population, regardless of their social insurance status.

As of late 2006, in view of the financial inability of the SSB to earmark additional funds for the roll-out (expansion) to additional geographical areas, the Government began to supplement the funds allocated by the SSB with transfers from the MOH budget and direct Government transfers. As recommended in the actuarial assessment, no further SSB subsidies were feasible, and as of 2009, the program has been financed exclusively by GOB transfers to the SSB, and residual reserves from previous SSB transfers, which have been consumed.

4. Actuarial Systems

The program operates on a pay-as-you-go basis, with income based on GOB contributions equivalent to expected expenditure, and a margin for a contingency reserve. The same system would be applied if the financing model were expanded to include additional sources of revenue.

5. NHI Financial Trends

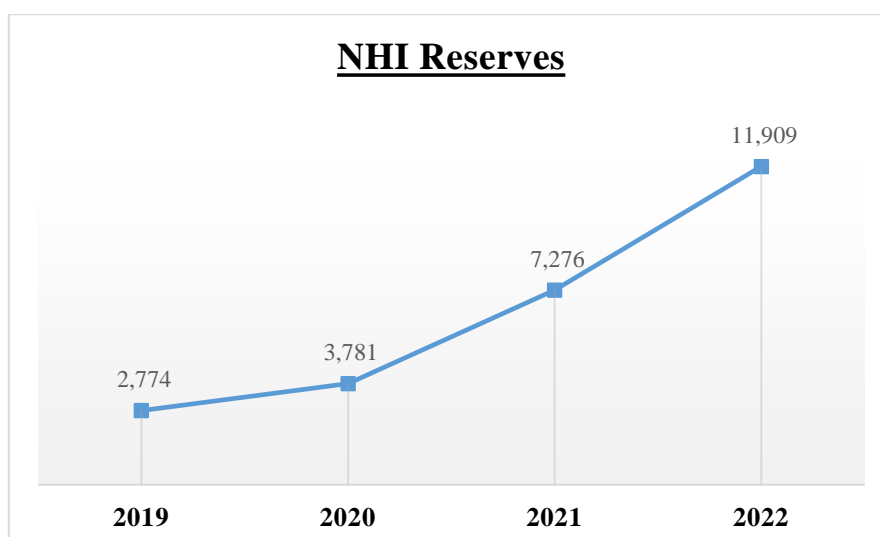
The financial trend is shown below, with a significant surplus of \$5.483 million in 2022, despite an increase in demand/ utilization, as shown in Table 4.

The average administrative cost of the scheme is lower than 10% of benefits, in accordance with accepted benchmarks.

Table 1
Financial Trends of the National Health Insurance Fund
Amounts in thousands of BZ\$

	2022	2021	2020
Total contributions (GOB)	22,000	17,740	16,265
Payments to providers (benefits)	15,109	13,181	14,544
Operating expenses ^{u/}	1,408	1,036	873
Total expenditure	(16,517)	(14,217)	(15,417)
Excess of income over expenditure	5,483	3,523	848
NHI Reserves	11,909	7,276	3,781
In benefit months	9.46	6.57	3.15

^{u/} Excludes claims pending payment.



6. Financial Ratios

Key financial ratios have evolved as shown in Table 2.

Table 2
Key Financial Ratios (in percent)

	2022	2021	2020
Benefits as % of contributions	68.7%	74.8%	89.4%
Total expenses as % of contributions	75.1%	80.7%	94.8%
Operating expenses as % of benefits	9.3%	7.8%	6.0%
Fund ratio (reserves ÷ total expenditure)	0.72	0.51	0.23
* In months	8.6	6.1	2.8

The analysis shows a Fund Ratio equivalent that increased substantially in 2022, exceeding the internationally accepted minimum benchmark of six months' expenditure. The ratio would decline if outstanding claims were deducted from the reserves. A key task of the NHI is to maintain an adequate Fund Ratio to cover potential increases in claims.

7. Summary of Financial Operations by Region

Table 3 shows a summary of the financial operations by region, according to the NHI activity reports. Expenses in Southside Belize account for the greater part of the total, as several services are provided only in Belize City. The proportion of expenses in the Northern Region increased to 11% of the total (10% in 2021), which might increase in correlation with the expansion of services in that area.

Table 3
Financial Operations by Region
(Percent distribution)

	2022	2021	2020
South Side Belize City	49	48	47
Southern Region	33	35	36
Northern Region	11	10	11
Total purchasing expenses	93	93	94
Administrative expenses	7	7	6
Total expense	100	100	100

8. Cost of Benefits by Type of Service

Table 4 shows the cost of benefits by type of service and region. Services in the Southern and Northern Regions are limited to Primary Care, Ophthalmology, and hospital deliveries. Pharmaceuticals, Imaging, and Lab tests expenditure declined in 2020 due to the pandemic, with a normal pattern restored in 2022.

Table 4
Benefit NHI Expenditure by Specific Service, (in thousands of BZ\$)

	2022	2021	2020
Primary Care (PCP)	10,957	10,566	11,453
Pharmacy	897	989	886
Imaging	729	399	389
Lab tests	1,448	832	862
Ophthalmology	248	126	67
Others	830	334	65
Total	15,109	13,246	13,722

9. Membership Data

Table 5 shows the membership (beneficiaries) data, with an increase in the number of beneficiaries in 2022.

Table 5
NHI Membership Southside Belize, Southern Region, and Northern Region
(31 December)

Provider	2022	2021	2020
BFLA	12,837	12,184	12,167
BMA SS CLINIC	13,176	11,639	11,631
BZE HEALTH PARTNERS	12,764	11,812	11,707
MATRON ROBERTS	11,788	10,919	10,910
MERCY CLINIC PCP	4,111	2,518	2,502
Belize City	54,676	49,072	48,917
COROZAL PCP	12,360	11,697	11,687
PRESBYTERIAN MEDICAL	3,659	3,565	3,529
SAN NARCISO PCP	4,602	3,938	3,933
LIBERTAD SATELLITE	421	395	395
CRISTO REY SATELLITE	202	-	-
CHUNOX PCP	4,332	945	945
Northern Region	25,576	20,540	20,489
DANGRIGA PCP	15,279	15,242	15,229
INDEPENDENCE PCP	15,373	15,171	14,931
PUNTA GORDA PCP	13,061	12,853	12,720
SAN ANTONIO PCP	9,877	9,798	9,761
Southern Region	53,590	53,064	52,641
Total	133,842	122,676	122,047

10. Actuarial Cost of the Program

Table 6 shows estimated actuarial costs as a percent of the wage base, showing estimated actuarial costs of 3.73% (3.64% in 2021), assuming a “notional” wage base of 30% of the total SSB insurable earnings.

Table 6
Estimated Actuarial Cost of Benefits
(Amounts in thousands of BZ\$)

	2022	2021	2020
SSB wage base	1,475,353	1,305,278	1,230,212
NHI beneficiaries	133,842	129,784	129,636
NHI wage-base (30%) ^{1/}	442,606	391,583	369,063
NHI benefit expenditure (\$)	15,109	13,249	14,544
Administrative expenditure (\$)	1,408	1,036	873
Total expenditure	16,517	14,285	15,417
Cost as % of NHI wage-base	3.73%	3.64%	4.18%
Cost per member per year	\$123	\$110	\$119

^{1/}Estimated average wages of the low-income and indigent segment of the NHI target population. Subject to re-assessment.

NHI has been covering a basic package range of benefits, excluding key services such as general hospitalization, surgery, drugs for outpatients, etc. Adding this to the package of benefits would entail additional costs to be borne by the GOB.

The total cost of a comprehensive package of benefits to the total population of the country (universal coverage) would amount to approximately 7.5% to 8.5% of the SSB insurable earnings, or BZ\$60 million. Deducting from this amount the GOB budget for healthcare with the Ministry of Health and other statutory bodies, along with private health-insuring policies, would provide general indicators of additional resources required to set up a universal National Health Insurance Plan in Belize, funded by contributions and/or earmarked taxes.

11. Cost Estimates of the Rollover

The additional cost to the GOB would depend on the proportion of beneficiaries to be covered, whether 100% or a lower proportion. A specific analysis should be carried out to assess the utilization and cost of the pending rollover.

12. Conclusions and Recommendations

The GOB has in place a program for residents of a section of Belize City and the other regions, financed by budget transfers. The reserve ratio increased substantially on 31 December 2022. **The analysis shows that the NHI has been able to expand services with static funds, generating a reduction in actuarial costs, an indicator of operational efficiency.**

The estimated average actuarial cost has declined to 4.18% of the national wage base of the targeted population. Primary health services account for about three-quarters of benefit expenditure. Closer coordination of services with the Ministry of Health might improve the cost ratios.

The actuarial cost to cover additional geographical areas under alternative financing scenarios was assessed in an actuarial report submitted by the actuary in June 2008 (NHI Assessment of Actuarial Costs and Financing Options), which should be updated based on emerging trends.

The authorities are assessing the remaining roll-out strategy for 2023/24, and more comprehensive actuarial assessments should be carried out once policy decisions in this respect are adopted. The average administrative cost of the scheme is lower than 10% of benefits, in accordance with accepted benchmarks.

As per Part II of the Social Security Act, the NHI scheme is managed by the Board, but financing is the responsibility of the Government. Therefore, the scheme is cost-neutral to the SSB, despite marginal supervisory and financial support by the SSB.

ANNEX E
SUMMARY OF BENEFIT PROVISIONS

A. Sickness Benefit

Eligibility	Insured persons rendered temporarily incapable of work, over 14 years and not older than 65 years of age, and in insurable employment when becoming incapacitated for work.
Contribution conditions	Not less than 50 contributions paid, and in insurable employment on the day of the incapacity with 5 weeks of contributions in the preceding 13 weeks.
Duration of payment	From the first day of incapacity (as from 1 January 2003) and for a continuous period of sickness not exceeding 39 weeks or 234 days. (Paid from the third day in 2001 and the second day in 2002). From the first day in 2001 and 2002, the incapacity lasts for 14 days or more.
Rate of daily benefit	80% of average weekly insurable earnings divided by 7 the first 156 days, and 60% the remaining 78 days (Sundays included).
Average weekly insurable earnings	Total weekly insurable earnings on which contributions were paid in the preceding 13 weeks divided by the number of weeks for which contributions were paid.

B. Maternity Benefits

(a) Maternity Allowance

Eligibility:	Payment to an insured woman in case of pregnancy and confinement.
Contribution conditions:	Not less than 50 contributions paid since the appointed day (1 June 1981) and in the period of 39 consecutive weeks immediately preceding the sixth week before the expected date of confinement; not less than 30 contributions must have been paid or credited (of which 20 must have been paid).
Starting date of payments:	Not earlier than 7 weeks before the expected date of confinement.
Rate and duration of weekly benefits:	80% of average weekly insurable earnings, for a period of 14 weeks.
Average weekly insurable earnings:	Total weekly insurable earnings on which contributions were paid in the 39 weeks preceding the sixth week before the expected date of confinement, divided by the number of weeks for which contributions were paid.

(b) Maternity Grant

Payable to an insured woman or a husband on the occasion of his wife's confinement if his wife is not entitled to the grant.

Eligibility: Not less than 50 contributions paid since the appointed day and 25 contributions paid in the 50 weeks immediately preceding the week in which the confinement occurs.

Amount of grant: \$300 per child (payable only once in respect of any contribution year).

C. Retirement Benefit**(a) Retirement Pension**

Retirement age: As from 60 years of age, and retired from insurable employment (last condition not required if an insured person has attained 65 years). **New provision: Eligibility jointly with a survivor's pension.**

Contribution condition: 500 paid or credited weekly contributions, of which 150 have been paid.

Rate of pension: 30% of average insurable earnings plus 2% for every 50 contributions (excluding special credits) in excess of 500 up to 750; and 1% for every 50 contributions in excess of 750 (plus an overall 5% adjustment / to be deleted).

Average insurable earnings: Sum of weekly insurable earnings during the best three years in the last 15 years (or lesser period of contribution years if contributions not made for 15 years) divided by 150.

Minimum pension: \$47 per week. (\$49.35 for those receiving the 5% increase). An anomaly as the SSB should not have **two** pensions.

Maximum pension: 60% of average insurable earnings.

Retirement Grant
Payable to insured persons retiring after the age of 60 years and not qualifying for a retirement pension.

Contribution conditions: Not less than 26 contributions paid.

Amount of grant: Six times the average insurable earnings for every 50 contributions paid or credited, or 2½ times the sum of such earnings divided by the number of weeks of contributions for each unit of 50 such contributions.

Minimum grant: \$800.

D. Invalidity Pension**(a) Invalidity Pension**

Invalidity: Insured person under the age of 60 years who is incapable of work due to a specific disease or bodily or mental disablement which is likely to

be permanent, and who has been incapacitated for not less than 13 consecutive weeks immediately preceding the week in which the benefit is claimed.

Contributions

conditions: Not less than 150 contributions paid and not less than 110 contributions paid or credited in the last five years, and not less than five contributions paid in the last 13 weeks.

Special credits: Claimants satisfying contribution conditions are awarded special credits equal to 25 contributions for each year between the age of the claimant and 60 years.

Rate of pension: If more than 500 contributions are paid or credited, as for retirement pension; otherwise, 25% of average insurable earnings with 150 to 299 contributions plus 1% for every 50 contributions in excess of 299 up to 499.

Minimum pension: \$49.35 per week as of April 2016.

Maximum pension: 60% of average insurable earnings.

(b) Invalidity Grant

Payable to an invalid person not qualifying for an invalidity pension.

Contribution

conditions: Not less than 26 contributions paid.

Amount of grant: As for retirement pension.

Minimum amount: \$800.

a. Funeral Grant

Qualifying conditions: Insured persons entitled to or in receipt of sickness or maternity benefit, or in receipt of, or satisfying the contribution for, a retirement or invalidity pension.

Contribution

conditions: 50 contributions paid; 150 contributions paid in respect of Funeral Grant for deceased spouse and deceased dependent child.

Amount of grant: \$1,500 deceased
\$1,000 deceased spouse.
\$ 500 deceased dependent child.

b. Survivor's Benefit

Survivor's Pension

Qualifying conditions: Deceased received retirement or invalidity pension or would have been entitled to invalidity or retirement pension if he had become incapacitated or retired at the time of his death.

Qualifying conditions of Beneficiaries:

- (a) **Widow:** On the date of her husband's death she was pregnant by the deceased or had the care of a child of his under 16 years of age, or on the date of his death she had been married to the deceased for not less than 3 years and
- i) she is over the age of 50 or,
 - ii) she is permanently incapable of self-support and was wholly dependent on her deceased husband.

Period of Pension

During the period while she has the care of a child, and if aged 50 or over when she no longer has care of a child, for her lifetime thereafter or until remarriage. For one year if the widow does not qualify for a longer period.

- (b) **Widower:** Married to the deceased, not less than 3 years, permanently incapable of self-support, and wholly dependent on his deceased wife.
- (c) **Unmarried Child:** Until 16 years of age, (or until 21 years, if receiving full-time education, whichever is earlier.
- (d) **Invalid Child:** Unmarried, permanently incapable of self-support, and wholly dependent on the deceased.

Rate of Benefit: Widows and Widowers: 66%; each child 25%, or 40% if invalid; parents – 40%.

Minimum pension: \$49.35 per week.

Maximum pension: 100% of the pension paid or payable to the deceased. Otherwise, each share is reduced proportionately.

(b) Survivor's Grant

Payable to beneficiaries if they are not entitled to pensions on the death of an insured person who satisfied the contribution conditions for retirement or invalidity grant. The grant is payable in the same proportion as the survivor's pensions and the total amount of the grant is the same as the retirement grant.

E. Employment Injury Benefits

The following benefits are included:

- Injury benefit (temporary incapacity for work), including accidents occurring "to and from work".
- Disablement benefit (permanent disability).
- Medical care is required as a result of employment injury.
- Constant-attendance allowance.
- Survivor's pension and funeral grant.

Average insurable earnings: earnings for which the last four contributions have been paid divided by four (or two or three as the case may be).

No contribution conditions are required and the rates (or the amounts) of benefit are as follows:

a) Injury benefit: 80% of the average insurable earnings from the first day of incapacity up to a maximum of 26 weeks.

Minimum pension: \$49.35 per week.

Disablement benefit

- degree of disability
25% or more Periodical payment equal to 60% of the average weekly insurable earnings times the degree of disability.
- degree of disability
less than 25% Lump-sum grant equal to 260 times the average weekly insurable earnings times the degree of disability.

Medical care: Provided free of charge in public or private facilities or abroad provided the Board gives prior approval.

Constant-attendance allowance: 25% of the amount of the disablement benefit for 100% disability, as per Section 21 of the Act and Section 45 of the Benefits Regulations.

Funeral grant: \$1,500.

F. Non-Contributory Pensions

As from age 65 females, and age 67 males (as of December 2007), and meeting the conditions to qualify for pensions. The monthly amount of \$100 increased from \$75, as of November 2007.

ANNEX F **GLOSSARY OF TERMS**

Adapted from the ILO/ISSA publication “Actuarial Practice in Social Security”, Plamondon,
Drouin, Pérez Montás, etc. (2002)

Assessment of Constituent Capitals

A financial system applied to employment injury (EI) benefits under which the annual cost of the scheme is determined as the present value of all future payments relative to pensions awarded during that year. Under that system, a reserve is continuously maintained equal to the present value of pensions in payment. This is sometimes designated as “the terminal funding” system of finance.

Defined-benefit scheme

A scheme under which the benefit is a defined amount, which depends on the number of contributions or insurance years and the number of insurable earnings.

Defined-contribution scheme

A pension plan under which contributions are paid to an “individual account” for each participant. The retirement pension is “undefined” and is dependent on the capitalized balance and the value of annuities at retirement, usually through for-profit entities (financial institutions or insurance companies).

Financial system

The systematic arrangement for raising the resources necessary to meet the financial obligations of a scheme. This is an expression often used to refer to the selected method of financing long-term pensions under a defined-benefit scheme (pay-as-you-go, partial funding, or full funding).

Level or average premium

A financial system based on a theoretical constant contribution rate that can be applied indefinitely or for the projection period. It is calculated by equating the present value of projected future contributions of active insured persons and new entrants, plus the value of existing reserves, to the present value of the projected future benefit and administration expenses.

Pay-as-you-go rate (PAYG)

The ratio of the total expenditure of a scheme to the sum of insurable earnings of that scheme. The PAYG financial system is usually applied to short-term benefits.

Period of equilibrium

As stated below in the “scaled premium system”, in actuarial valuations of a national pension scheme, the period of equilibrium measures the number of years when reserves will be increasing. At the end of the period of equilibrium, income from contributions and investments equal benefits and administrative expenditure, according to the actuarial assumptions. Without an adjustment to the contribution rate, assets will need to be liquidated to pay current expenditure, and reserves will begin to decrease.

Scaled premium system

A financial system for pensions under which contribution rates are increased throughout the life cycle of a pension scheme on a step-by-step basis (where the duration of each individual “step” is called the “**period of equilibrium**”). In a more narrow definition, the contribution rate is calculated for a defined period of years, that is, a “period of equilibrium” (which often ranges from ten to 25 years), with the objective of equating, at the end of the period of equilibrium, the income from contributions and the investment income to the expenditure on benefits and administration.

State Plan

A term used in accounting standards for a pension plan sponsored by a State or Government on a not-for-profit basis, and therefore with indefinite duration, as opposed to pension plans sponsored by an enterprise that can become insolvent if the enterprise fails.

Terminal funding

A financial system under which a premium equal to the present value of a pension is paid at the time the pension starts. The premium is set aside as a reserve to guarantee future benefit payments.