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B E L I Z E

Social Security Board

Actuarial Valuation of the Social Security Scheme (at 31 December 2020)

Belmopan, Belize
06 May 2021

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

06 May 2021

Board of Trustees
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 2020, 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 and 2020. 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.

Due to the imponderable effect caused by COVID-19 on the economic activities, the labour force, and the density of contributions, the actuarial key parameters should be updated at the periodic annual performance reviews; while the next triennial projections of the long-term branch would provide updated indicators of long-term pension cost and reserves.

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 Ms. Deborah Ruiz, CEO (Acting), and Ms. Leticia Vega, GM, Policy and Programs, and their staff, for the technical guidance provided to the actuary during all the phases of the valuation.

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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ACTUARIAL PERFORMANCE ANALYSIS OF THE SOCIAL SECURITY SCHEME
(AT 31 DECEMBER 2020)

EXECUTIVE SUMMARY

1. Impact of the Legal Amendments

After almost two decades of frozen key financial provisions, the stakeholders finally agreed on a significant set of legal amendments, subsequently sanctioned by the Government, to ensure the financial sustainability of the scheme and a closer linkage between actual earnings and benefit provisions. The amendments would improve the social standard of insured persons and the entire population of Belize. It also represents an initial step for a dynamic approach to the legal provision of the scheme, which had remained stagnant for almost two decades.

2. Impact of the Pandemic

The impact of COVID-19 in 2020 has introduced imponderables to assess the financial trends of the scheme, particularly of the long-term branch, as the sequence of pensions in payment will not be affected, while the expected level of contribution income experienced a significant decline in the 2020 fiscal year, with an expected full recovery as from the second half of 2021. Therefore, long-term projections are subject to material deviations.

3. Financial Trends

The analysis shows that the second tranche of legal amendments comprising the entire 2020 fiscal year, increasing the rate of contribution from 8.5% of insurable earnings as from 1 July 2019 and 9% as from 1 January 2020, and the ceiling to $480 per week, contributed to a solid financial performance in 2020, despite the impact of the pandemic on economic activity and employment. **Consolidated financial operations show a surplus estimated at $33 million in 2020 as compared to $17.9 million in 2019,** to be restated to $13.3 million due to a BTL'S adjustment.

4. Sustainability of the Benefit Branches

The analysis also shows that the financing bases guarantee the financial sustainability of the Short-Term branch and the Employment Injury branch, but the Long-Term branch, which accounts for seventy-five percent of the total expenditure, requires a strengthening of its financial bases. Therefore, as stated in the report, as from 2021 it is recommended: i) to allocate 72% of contribution income to the long-term branch, 19% to the short-term branch, and 9% to employment injury branch, and ii) to implement the third tranche of legal

amendments as from 1 January 2022, adjusting the contribution rate at 10% of insurable earnings and the ceiling on contributions at $520 per week. These measures would strengthen the medium-term actuarial sustainability of the long-term branch and provide benefits closer to actual earnings for almost one-half of insured persons until the end of this decade.

5. Performance of the Investment Portfolio

The nominal rate of return on investments was assessed at 4.8% in 2020, above the 3.7% assessed in 2019, and also above the 3% actuarial rate.

As the actuarial maturity of the long-term branch increases, as shown by the proportion of pensioners to active contributors, an adequate return of the investment portfolio becomes a crucial element to ensure an optimal performance of the long-term branch and extend the period of equilibrium. Investment income is anticipated to represent approximately 25% of total income, becoming gradually the principal element in the capitalization of the scheme. Extensive consultations and advisory services were provided recently to the Board, allowing the Board to develop a prudent investment strategy with adequate risk-adjusted returns. The actuarial projections provide also a platform to implement an asset allocation strategy to diversify the investment portfolio.

The analysis shows that diversification of the investment portfolio seems advisable, with fresh funds targeted to alternative investments, preceded by i) a sound "risk/reward" assessment, ii) a favorable "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.

6. Conversion into a Dynamic Scheme

The conversion of the scheme from a static into a dynamic social security scheme requires periodic adjustment to the financing and benefit provisions, to enhance the adequacy and social effectiveness of the scheme. Trigger points conducive to semi-automatic adjustments to the ceiling on contributions, to ensure a close link between actual and insured salaries; adjustments to pensions in payment, to compensate for the inflation; and adjustments to the financial bases to guarantee the solvency of the scheme, requires periodic updates more frequent than in the past. Guidelines are provided in the report, including also amendments to the self-employed scheme and other benefit provisions.

7. Administrative Expenditure

The actuarial cost of administrative expenditure declined to 1.74% of insurable earnings in 2020, and the 1.50% target, in accordance with international branch marks, is projected to be achieved in 2022, subject to the implementation of the last tranche of legal amendments as from 1 January 2022.

8. Self-Employed Scheme

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. Most of the pensioners have opted to claim pensions at the minimum age of 60 years, with the SSB is unable to verify whether the retiree continues to work in the informal sector in the absence of an employer.

9. Non-Contributory Pensions

The analysis of the Non-Contributory Pension Scheme shows a steady reduction of actuarial costs of 0.12% of insurable earnings in 2020 and a further reduction of 0.10% of insurable earnings in the 2021/22 period.

10. NHI Operations

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. The administrative cost is below standard benchmarks, and the scheme operates with a satisfactory level of efficiency.

I
CONCLUSIONS AND RECOMMENDATIONS

1. Impact of the Legal Amendments

After almost two decades of frozen key financial provisions, the stakeholders finally agreed on a significant set of legal amendments, subsequently sanctioned by the Government, to ensure the financial sustainability of the scheme and a closer link between actual earnings and benefit provisions. As a by-product of the legal amendments, the period of equilibrium of the long-term branch was extended, albeit temporarily, restoring also a rising level of consolidated reserves and an extended horizon of the investment portfolio.

The second tranche of legal amendments was implemented in 2020 for the entire 12 months, with an expected contribution income of $130 million that decreased to $110 million, due to the incidence of the pandemic on economic activity and the labour market. On the positive side, investment income was higher than anticipated and both benefit and administrative expenditure were lower than anticipated, offsetting in part the decline in contribution income. The net results show a 2020 surplus of $33 million rather than an expected surplus of $36 million, with a financial impact due to the pandemic lower than the actuarial assessment carried out in September 2020.

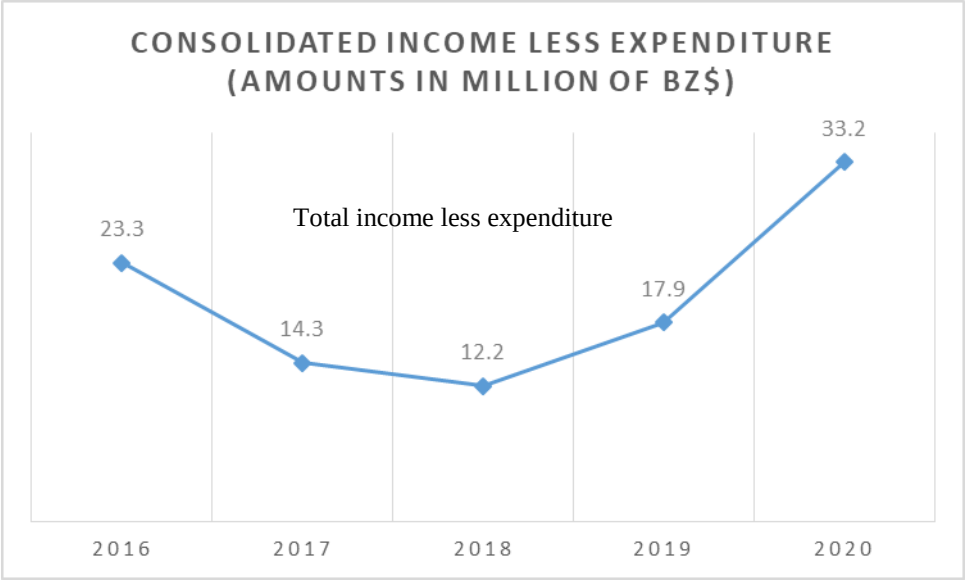
The incidence of the pandemic was more severe on public finances, leading to a decision by the government, after actuarial consultations, to a temporary postponement of the implementation of the third and last tranche of legal amendments, which would have had a negative impact on public finances and constrain employment creation in 2021, the latter a crucial element to ensure a satisfactory rate of increase of contribution income (SI 184/30 December 2020). Another amendment SI 43/2020, 27 May 2020, allowed insured pensions who lost employment due to the pandemic to access to sickness benefits for a temporary period.

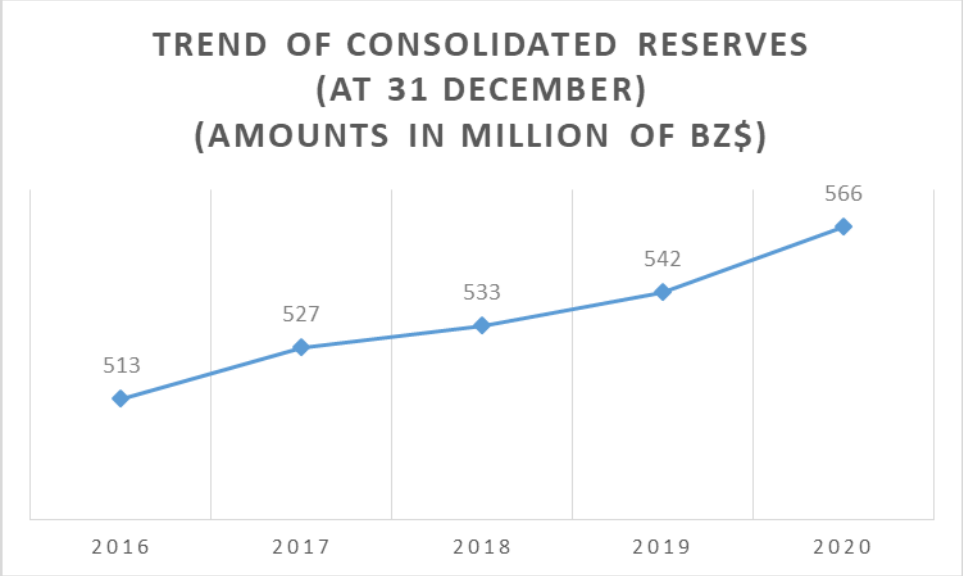
As to the performance by benefit branch, the recommended internal re-allocation of contribution, with a higher share targeted to the long-term branch, would ensure that the projected current deficit would be absorbed mainly by the employment injury branch, which shows a substantial actuarial surplus.

The economy of Belize is more diversified than in other CARICOM states, which are highly dependent on tourism, with the agricultural sector of Belize representing a significant proportion of the GDP. Therefore, the impact of the pandemic in the labour force has been less severe in Belize than in the CARICOM states.

2. Consolidated Financial Trends

Contribution income increased by 10.3% in 2020, due to the impact of the legal amendments, but less than budgeted due to the adversary effect of the pandemic, as the budgeted amount was 18% higher. However, benefit and administrative expenditure were lower than anticipated and investment income was higher compensating the reduction of contribution and yielding total income slightly lower than expected, as shown in Chapter II, Table 5. Un-restated net income rose to $33 million, reflecting the impact of the 9% contribution rate for the entire 2020 fiscal year, as compared to an average of 8.25% in 2019.





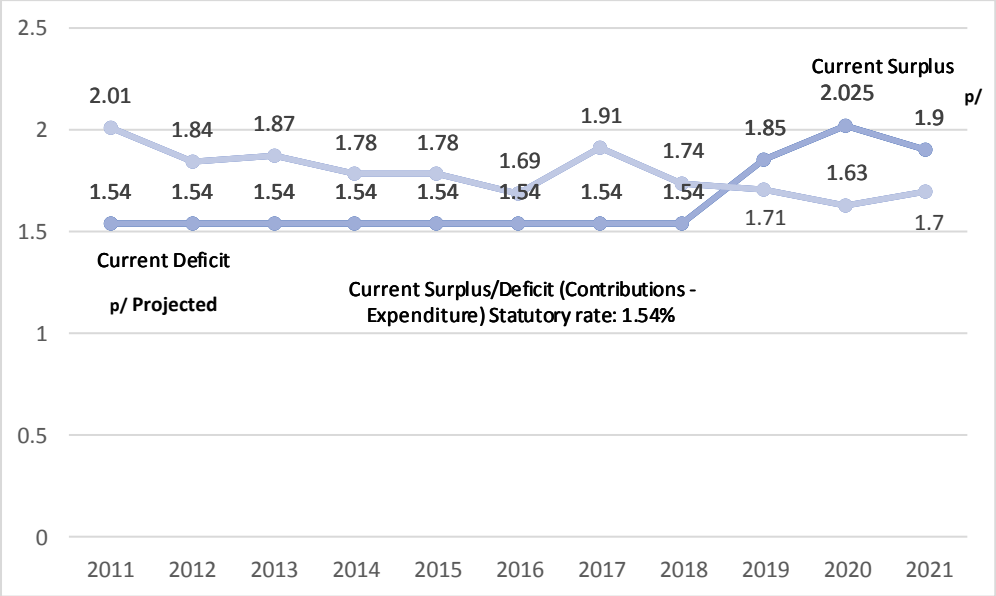
3. Short-Term Branch

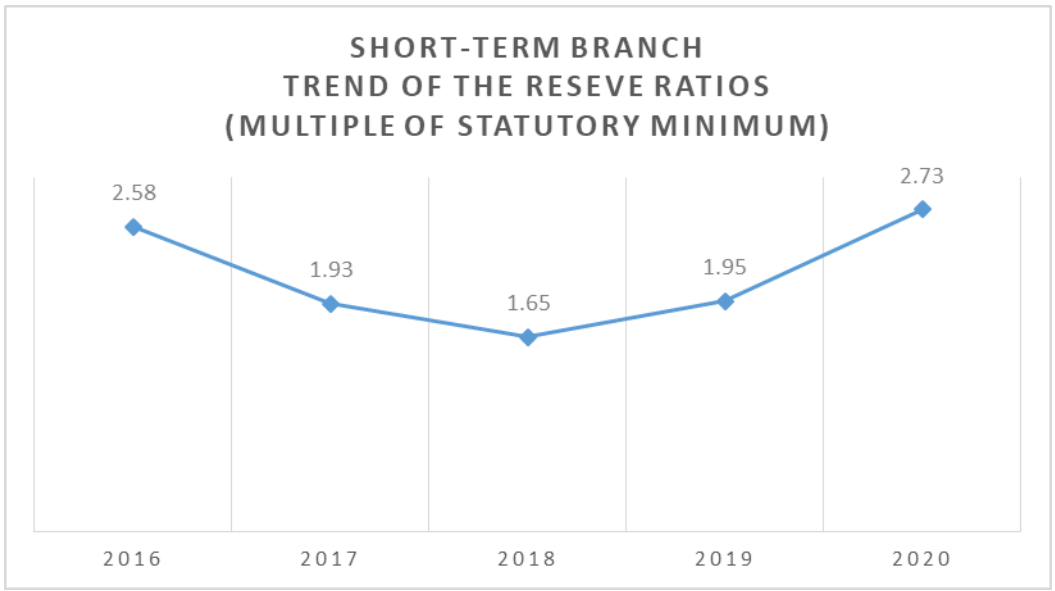
The minimum reserve, as provided in Section 17(1) of the Financial Regulations, should be equivalent to one-half the average benefit expenditure in the preceding three years. At 31 December 2020, the reserve exceeded the minimum by a 2.73 factor.

The analysis shows that the statutory contribution rate of the short-term branch, which is expected to increase to 10% as from 2022, exceeds the actuarial requirements and should be modified from 22.5% of contributions to 19% of contributions as from 2021, diverting the reduction to strengthen the actuarial situation of the long-term branch.

Current Actuarial Operations of the Short-Term Branch

(as % of insurable earnings)





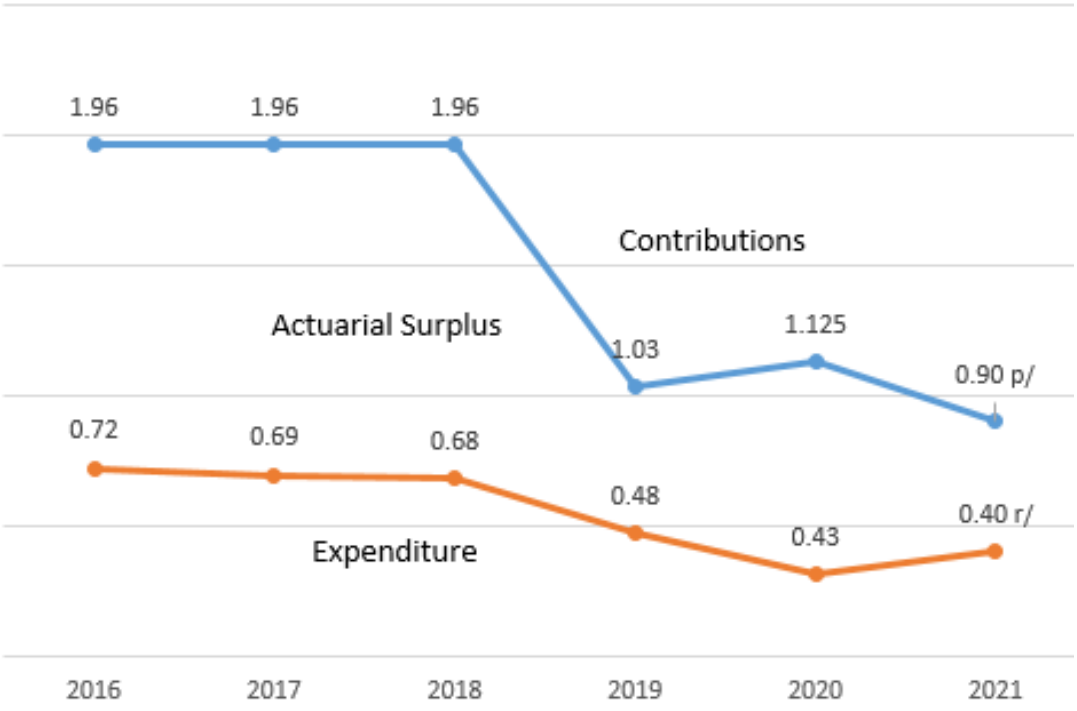
4. Employment Injury Branch

The contribution rate earmarked to the branch is still in excess of actuarial requirements, with investment income on the reserves augmenting the financial surplus.

The minimum 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 much higher than the statutory minimum, a clear indication that the contribution rate assigned to the branch exceeds the actuarial requirements.** Another reduction is therefore recommended to 9% of contributions, assigning the difference to strengthen the actuarial situation of the long-term branch.

The analysis of the Disablement and Death Reserve shows an actuarial deficit more than 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, although due to the fluctuation of the incidence of EI disability and death, and the time-frame involved, such a transfer is not required at present.

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



P/ Projected
R/ Recommended

5. Long-Term Branch

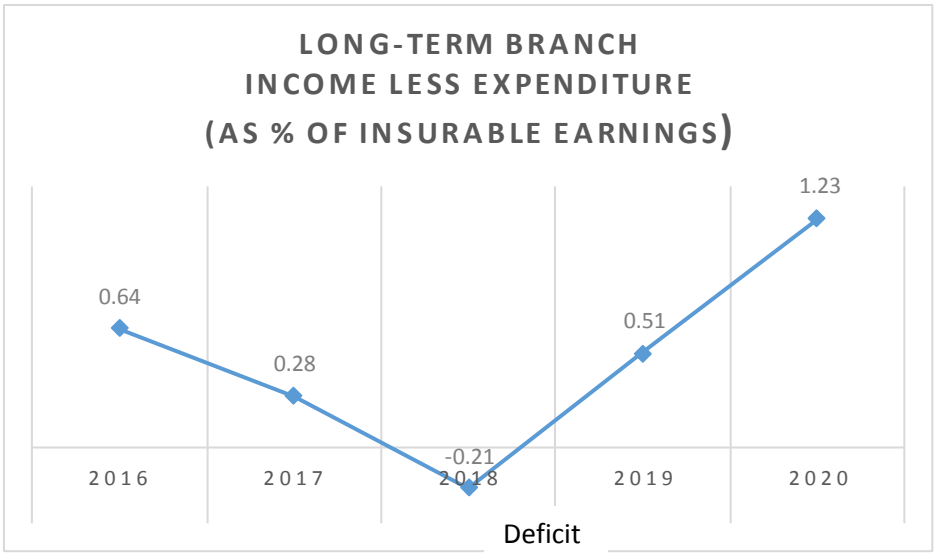
The increase of the ceiling and the rate of contributions will allow an increase in the share of contributions and the extension of the period of equilibrium until the end of the present decade. Negative income less expenditure in 2018, for the first time since the inception of the scheme, was reversed into a surplus in 2019 and 2020, restoring a trend of increasing reserves.

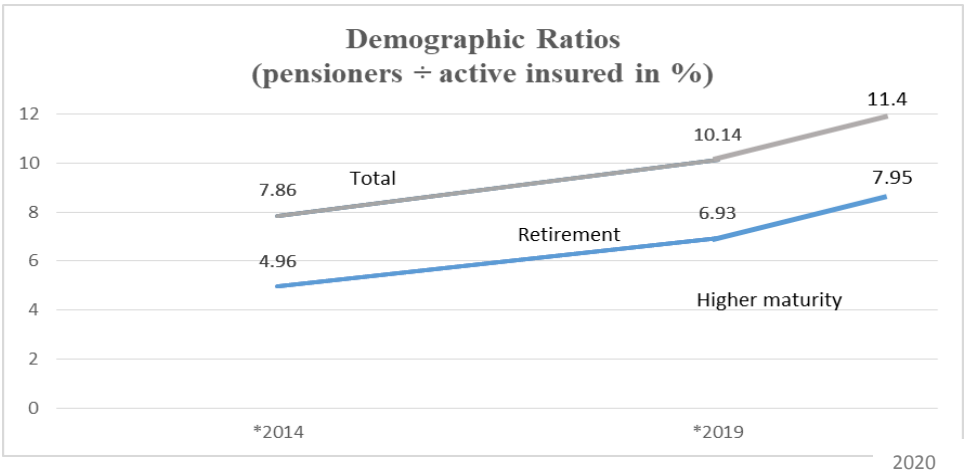
The full set of legal amendments (10% rate and $520 ceiling) as from 1 January 2022 would allow the allocation to the long-term branch 72% of contributions which, jointly with a 5% nominal rate of return of the investment portfolio, would allow extending the Period of Equilibrium until the end of this decade, provided that **the ROA (Return on Assets) is kept at a satisfactory level, yielding a nominal 5% rate of return on a long-term basis, and administrative expenditure is kept within the actuarial recommendations.**

The actuarial performance of the LT Branch is highly sensitive to the ROA and accounts for a substantial proportion of the increase in actuarial reserves in the present decades. A basic projection for the rest of the decade is shown below. Long-term estimates as of 2030 are shown in Chapter V, requiring adjustments to the contribution rates in accordance with the scaled-premium model applied to the scheme. The analysis also shows that the rate of 7.2% of insurable earnings (72% of contributions) to be applied as from 1 January 2022 is required to ensure the medium-term sustainability of the branch.

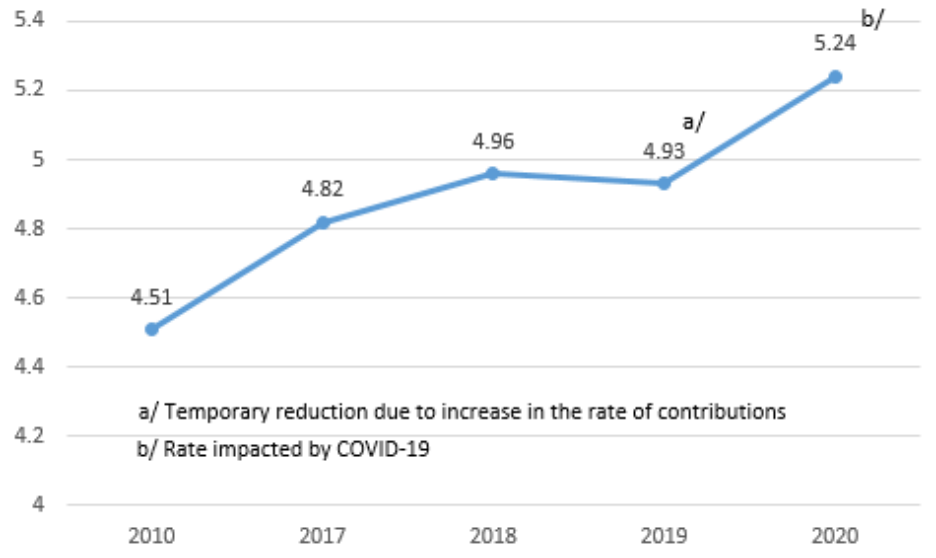
Year	C	Ex	CS	I	S	R
2022	102	94	8	23	31	448
2023	105	100	5	31	36	479
2024	107	108	(1)	24	23	481
2025	110	115	(5)	24	19	500
2026	113	123	(10)	25	15	515
2027	116	132	(16)	25	9	524
2028	118	141	(23)	26	3	527
2029	121	151	(30)	26	(4)	523
2030	125	162	(37)	26	(11)	512

C: Contributions
Ex: Expenditure (Basic: 7%. Low cost: 6%)
CS: Current surplus (deficit)
I: Investment income (ROA = 5%)
S: Total Surplus (deficit)
R: Accumulated reserve



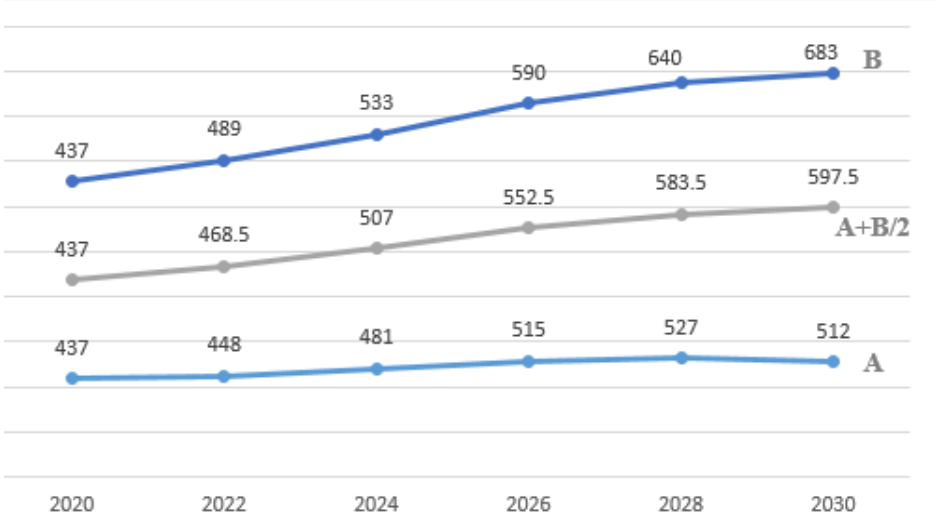


PAYG Ratios
Benefit Expenditure as a % of Insurable Earnings



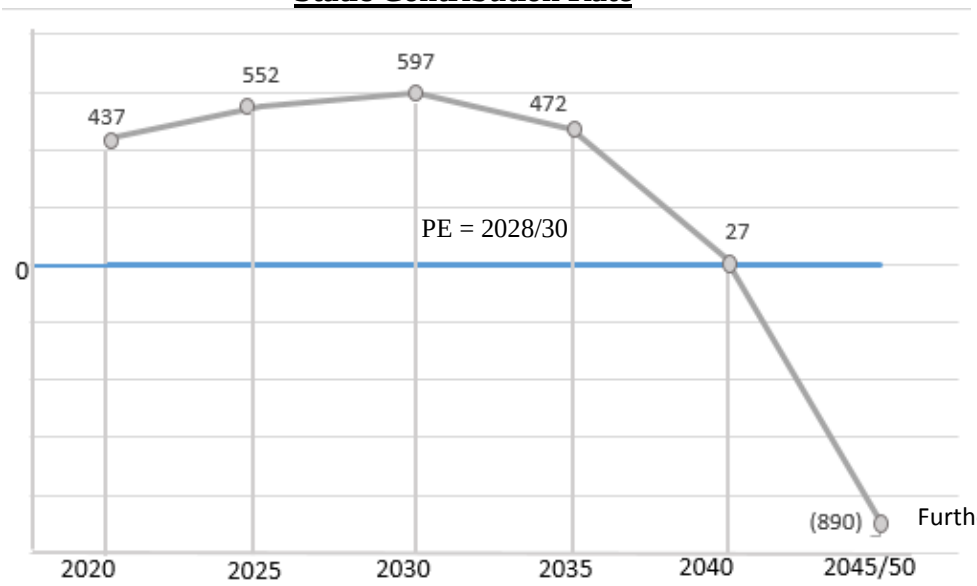
Alternative Projections of Reserves (2020/30)
(Amounts in millions of BZ$)

Subject to significant fluctuation due to the impact of COVID-19



A: Basic cost
B: Low cost

Trend of Actuarial Reserves. Long-term Branch (Average of Basic/Low Cost)
(Amounts in millions of BZ$)
Static Contribution Rate



6. Investments

The report 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 4.80% in 2020, above the 3.7% assessed in 2018/19, and also above the 3% actuarial rate. Due to an increase in receipts the last quarter rose, the total rose to $27.9 million, exceeding the $22.2 million budget estimate.**

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 in financial issues, **provided the adjusted return is more favorable than Central Government obligations yielding between 5% and 6.5% per annum.**

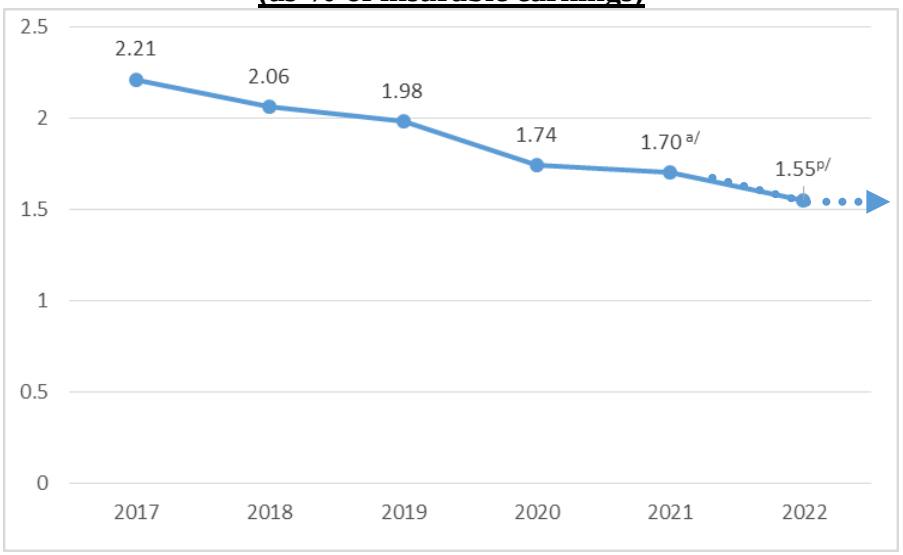
The analysis shows that diversification of the investment portfolio seems advisable, with fresh funds targeted to alternative investments, preceded by i) a sound risk/reward assessment, ii) a favorable anticipated risk-adjusted return, and iii) a careful evaluation of the collateral funds, to ensure full recovery of the unamortized portion of the investment in case of default.

7. Administrative Expenditure

The consolidated actuarial cost of administrative expenditure the last decade exceeds standard benchmarks but has started to decrease as the increase in contributions due to the legal amendments exceeded the secular increase of administrative expenditure.

Financial data shows a reduction in administrative expenditure of $21.6 million in 2020 ($24 million in 2019); which is equivalent to 1.74% of insurable earnings in 2020. Therefore, the legal amendments have gradually reduced the actuarial cost of administrative expenditure. **Once the 10% rate and the $520 ceiling on insurable earnings are activated as from 1 January 2022, the actuarial cost of administrative expenditure would decrease further, close to the target of 1.50% of insurable earnings, or 15% of contributions, in accordance with international benchmarks.**

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



a/ Contained due to postponement of the ceiling and the rate on contributions at 9%and $480 per week
p/ Projected, assuming a 10% rate and a $520 ceiling effective 1 January 2022.

8. Conversion of a Static into a Dynamic Scheme

After 37 years of operations only two comprehensive sets of legal amendments have taken place; the first one in 2003, when the ceiling on contributions was increased from $130 to $320 per week, and in 2019, when the ceiling and the rate of contributions were adjusted on a gradual basis. In between, several focal amendments were introduced, such as the introduction of the Self-Employed scheme, the Non-Contributory Pension provisions, a 1% increase in contributions to cover the cost of the amendments, and irregular adjustments to pensions in payment. Due to the maturity of the scheme, as measured by the number and rising amount of pensions in payment, a more dynamic approach is required going forward, including automatic "trigger points ", when key provisions dealing with the ceiling, the pension adjustments, and the rate of contributions would be semi-automatically updated, in correlation with the CPI or related financial indicators. Examples are shown below.

The legal amendments approved in 2019 are expected to ensure the long-term solvency of the Short-term branch and the Employment Injury branch. An internal reallocation of 72% of contributions to the Long-Term should generate a rising level of reserves of the branch by approximately 6 to 7 years, depending on the rate of return of the investment portfolio and the implementation of the third tranche of legal amendments early next year.

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 5-10 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.**

9. Schedule of Proposed Amendments

A) Short term (2021/2022)

a) Implement last tranche of legal amendments (10% rate and $520 ceiling)

b) Reallocate the contributions by branch, assigning 72% to the long-term branch

c) Delete the 172 wage bands of the SE scheme and substitute by 6 notional earnings from $120 to $320 per week, with a uniform spread of $40. For 1,200 SE active contributors, 6 nominal wages are sufficient.

d) Eliminate the first two wage bands

e) Establish limits to retirement and invalidity grants

B. Medium term (2023/25)

a) Restructure the SE branch (parametric or structural amendments, as recommended by the actuary and the ILO).

b) Establish contributions as a percent of insurable earnings, and eliminating the obsolete wage bands.

c) Increase gradually the qualifying conditions (number of contributions) to become eligible to age or invalidity pensions. 1000 and 250 weekly contributions respectively.

d) Equalize the minimum retirement age of females to that of males (67 years) in the Non-Contributory scheme

e) Update the Partial Retirement tables to address the longer life expectancy of disability and survivors´ EI pensioners (Ch. IV, section 15).

f) Restore a 2-days waiting period and a 70% replacement rate (ST Branch).

C) Long Term (2026/29)

a) 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 linked to the CPI, and the rate of contributions 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 than the PE method.

b) Establish a ceiling to the minimum pension, linked to the minimum insurable earnings.

d) Delete the first two wages-bands.

10. Self-Employed Scheme

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, and 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.

Most of the pensioners have opted to claim pensions before the statutory age of 65 years, with the SSB unable to verify whether the individuals continue to work, in the absence of an employer. Substantial actuarial deficits are emerging, to be subsidized by employers and employees in the general scheme, affecting negatively the financial situation of the long-term branch.

Rather than introducing "parametric adjustments" to the self-employed scheme, a study by the ILO has recommended a "structural adjustment", based on a new model. Specific recommendations by the Board would be advisable this fiscal year.

11. 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 0.12% of insurable earnings in 2020 (0.14% in 2019) and a further reduction of 0.10% of insurable earnings in the 2021/22 period.** The pending legal amendments will bring the cost of the NCP to non-material amounts. Specific details are shown in Annex B, as well as pending amendments to the eligibility regulations.

II

LEGAL BASES AND CONSOLIDATED FINANCIAL OPERATIONS

1. Legal Bases, Coverage, and Benefit Provisions

The social protection system in Belize, as regards to cash benefits, is composed of the national social security scheme administered by the Social Security Board (SSB), as the first pillar of pension protection, 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 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, including a National Health Insurance Scheme, the outdated ceiling on contributions were amended, as described below. On 1 January 2003, a voluntary self-employed scheme was introduced; in May 2003, non-contributory pensions to eligible females were introduced, and on 1 July 2003, the rate of contribution was increased from 7% to 8% of insurable earnings, to strengthen the actuarial situation of the long-term branch. Late in 2007 non-contributory pensions for males from 67 years of age were introduced and the amount of non-contributory pensions were increased to $100 per month, affecting negatively the actuarial situation of the long-term branch. 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 branch.

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. However, the minimum pension increased from $47 per week to $49.35 per week from April 2016 and represents a rather high percentage of the salary for low income or low-density workers.

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. Effective January 2019, the distribution of contributions by branch was amended as shown below.

2. Summary of the 2019 Legal Amendments

Amendments to the Regulations submitted by the Board were approved by the Minister responsible for Social Security in 2019. Several of the amendments have minor incidence on the actuarial situation of the scheme, such as amendments to Non-Contributory Pensions and Claims and Payments Regulations. Amendments to four other provisions has specific incidence on the financial trend of the benefits branches, as follows, as from January 2019:

a) **Redistributes the share of contributions by branch,** as per actuarial recommendations.

b) **Restores the maximum pension of 60% of the average weekly insurable earnings,** excluding the 5% erroneous adjustments to new pensions.

c) **Provides for the payment of invalidity pensions for life** upon the attainment of 60 years of age.

d) **Upgrades the qualifying conditions for pensions from 110 to 250 weekly contributions**.

3. Subsequent Financial Amendments (as of July 2019)

After intense exchanges with the social partners and countrywide information campaigns, key amendments to the financing provisions became effective as of 1 July 2019, establishing phased adjustments to the ceiling and the rate of contributions. Concurrently, amendments to the qualifying conditions were also implemented.

The following four tables showed a summary of the 2019 financial amendments.

Table 1
Allocations by Branch as a percent of Contributions

Branch	2009/2018	As of January 2019/ December 2020	As of 2021 (postponed to 2022)
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 / December 2020	$480	
As from 2021	$520	(postponed)

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 [a/]	2022 [b/]
Short-Term	1.54%	1.80%	1.912%	2.025%	1.71%	1.90%
Employment Injury	1.96	1.00	1.063	1.125	0.81	0.90
Long-Term	4.50	5.20	5.525	5.850	6.48 [a/]	7.20
Total	8.00%	8.00%	8.50%	9.00%	9.00%	10.00%

[a/] Recommended, with 72% allocated to the long-term branch.
[b/] Postponed from 2021

Table 4

Percent Adjustment to the Rate and the Ceiling of Contributions

Period	Rate Adjustments	Ceiling Adjustments
July / December 2019	8.5 / 8.0 = 6.25%	440/320 = 37.5%
2020	9.0 / 8.5 = 5.88%	480/440 = 9.09%
2021(postponed)	10.0 / 9.0 = 11.11%	520/480= 8.33%

4. 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 provided only in government installations 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 only $2.60 per week only for employment injury benefits, **a rate that should be adjusted due to the high cost of medical treatment of 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.

The original ceiling contribution of $130 per week has been increased only twice in 2001 when the ceiling was raised to $320 per week, and the skewed original bipartite contribution schedule (6:1 the employer/employee) was reset at one-half each for earnings above $130 per week and in 2019, as shown above. However, low-income workers are still eligible for a minimum pension of $49.35 per week and are still paying a minimum contribution of $0.83 per week, as the recent set of amendments **did not include the actuarial recommendation to phase out the first two wage bands**, which do not correlate with the minimal legal wages, resulting in the distortion specified above.

The phased increase in the ceilings from July 2019 will provide a better alignment of benefit to actual earnings.

5. 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 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, 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 a positive impact on 85% of the population of Belize.

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 a National Health Insurance Scheme (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 was focalized initially in two geographical areas (Belize City and Southern Belize) and later expanded to the Corozal District.

7. Consolidated Trend of Income and Expenditure

Accounting standards and policies are outlined in Section 46 (1) of the Act and the report of the external auditors. Also, investment income is recorded on an accrual basis, and income from associates is accounted for by the equity method.

Table 5 shows the consolidated income and expenditure in the last four financial years, excluding NHI operations. The impact of COVID-19 caused a decline in contributions income to $110 million rather than the budget estimate of $130 million. Investment income was higher than anticipated, partly offsetting the decline in contributions, whereas benefit and administrative expenditure were lower than anticipated, yielding a net surplus of $32.4 million, in 2020, 93% higher than in 2019.

The 2020 financial performance is better visualized by showing the consolidated trend as a percent of insurable earnings, as shown in Table 6. The rate of contributions rose from 8.25% in 2019 to 9% in 2020, as stipulated in the legal amendments. The volatile investment income rose from 1.72% to 2.20% of insurable earnings, yielding a total income of 11.33% as compared to 10.14% of insurable earnings the previous year. Benefit payments increased by a marginal amount, and administrative expenditure declined substantially, yielding a total expenditure of 8.60%, almost the same rate as in 2019. The net income rose to 2.64% of insurable earnings, much higher than in 2019, whereas the important "current income" (contributions less expenditure), reverted to a surplus of 0.31% as compared to a deficit of 0.40% of insurable earnings in 2019.

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

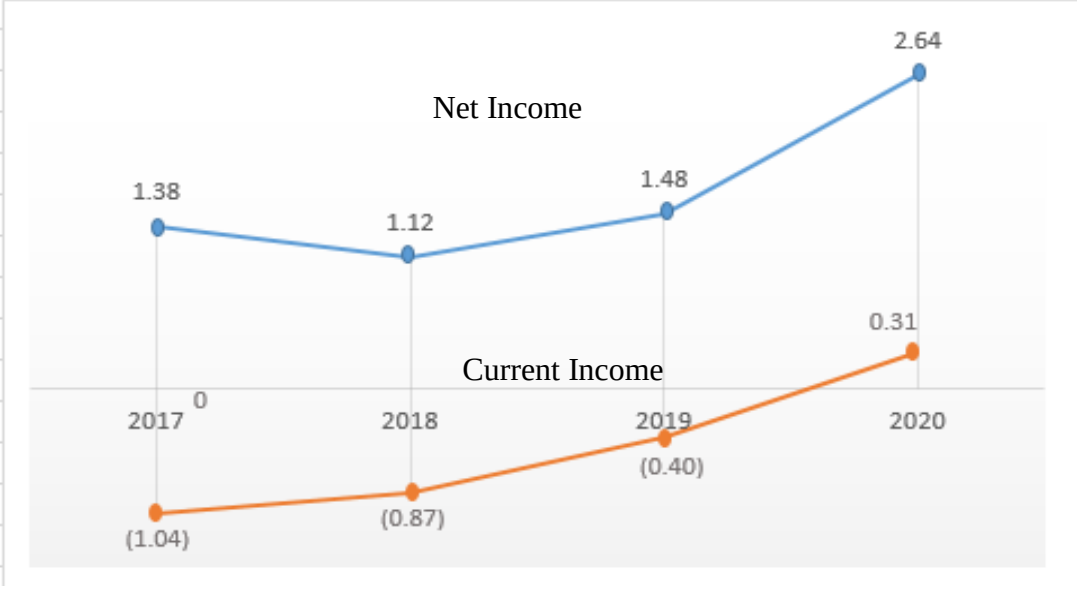
Income	2020	2019	2018	2017
Contributions [1/]	110,599	100,181	87,043	82,611
Investment income	27,900	20,880	20,453	23,889
Other income [2/]	1,519	2,022	1,263	1,084
Total Income	140,018	123,083	108,759	107,584
Benefits				
Short-term branch	15,342	15,567	14,357	15,233
Long-term branch [3/]	64,434	59,988	54,032	49,859
Employment injury branch	5,316	5,545	5,755	5,410
Benefit Expenditure	85,092	81,100	74,144	70,502
Administrative and other expenses	21,684	23,978	22,415	22,792
Total expenditure	106,776	105,078	96,559	93,294
Net income	33,242	18,005	12,200	14,290
Contributions less expenditure	3,823	(4,897)	(9,516)	(10,683)

[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.

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

	2020	2019	2018	2017
Contributions	9.00	8.25	8.00	8.00
Investment income	2.20	1.72	1.88	2.32
Other income	0.13	0.17	0.12	0.10
Total income	11.33	10.14	10.00	10.42
Benefit Expenditure	6.95	6.68	6.81	6.83
Administrative Expenditure	1.74	1.98	2.06	2.21
Total expenses	8.69	8.66	8.87	9.04
Net income	2.64	1.48	1.12	1.38
Current income	0.31	(0.40)	(0.87)	(1.04)

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 0.14% 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.

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

	2020 [b/]	2019	2018	2017
Cash and bank balance	73,379	30,667	35,934	30,943
Short-term investments	20,077	19,842	29,988	27,272
Long-term investments [a/]	421,508	444,717	416,106	428,201
Accounts Receivables and others	71,888	63,420	65,256	54,157
Total assets	586,852	558,646	547,284	540,573
Liabilities and deferred income	(13,615)	(13,511)	(13,913)	(13,804)
Net reserves and special funds	573,237	545,135	533,371	526,769

[a/]Includes investments in Associates and loans.
[b/]Unaudited

As to the distribution of reserves by branch, Table 8 shows increases in Long-term branch, Short-term, and EI branch reserves, the latter exceeding accepted benchmarks, whereas the Disablement and Death reserve has remained relatively stable.

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

Benefit Branch	2020	2019	2018	2017
Short-term	20,567	14,571	11,848	13,278
Long-term	437,534	427,146	424,738	431,200
Employment Injury	98,672	87,756	79,461	64,331
Disablement and Death	11,277	12,397	13,656	14,546
National Health Insurance Fund	3,781	2,774	2,543	2,206
Social Security Development Fund	2,895	2,614	2,176	1,502
Pension reserve [a/]	(1,489)	(931)	(991)	(294)
Total	573,237	546,327	533,371	526,769

[a/] Actuarial update

10. Reserves as a Percent of GDP

Table 9 shows the consolidated SSB reserves as a percent of GDP, slightly above 14% (current prices). However, GDP is projected to decline significantly in 2020 due to COVID-19, while the SSB reserves would increase due to the incidence of legal amendments.

Table 9
SSB Reserves as Percent of Gross Domestic Product (GDP)

	2020	2019	2018	2017
		(amounts in millions of BZ$)		
GDP [1/]	3552 [2/]	3,779	3,742	3,673
SSB Reserves	573	558	512	527
As % of GDP	16.1%	14.8%	13.7%	14.3%

[1/] Current prices.
[2/] Assumes a 6% GDP decline due to COVID-19, subject to adjustment.

11. Rate of Return on Investments

Table 10 shows the **Rate of Return on Assets (ROA). The nominal rate of return increased to 4.80% in 2020, and the real (inflation-adjusted) return to 4.38% due to unexpected receipts in the last quarter of 2020. The actuarial rates might differ from the financial rates computed by the financial areas, due to different methodology. Due to the low inflation rate, the real rate of return has exceeded the 3% actuarial assumption utilized for the projection of the long-term branch.**

Table 10
Rates of Return on Financial Investments (net assets)
(Amounts in millions of BZ$)

	2020	2019	2018	2017
Net investment income	27.1	20,880	19,749	23,889
Nominal rate of return [1/]	4.80	3.88%	3.72%	4.60%
Average inflation rate	0.04	0.20%	0.30%	1.10%
Real return [2/]	4.38%	3.67%	3.41%	3.46%

[1/] According to the formula $i = 2I/(R_0 + R_1 - I)$, where I is the return on investments and R 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.

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.

12. Integrity of the Reserves and Non-Performing Investments

The Board has strengthened compliance procedures with debtors and it is expected that the risk of potential losses on investment will be reduced gradually. In view of the above, the external auditors have strengthened the status of non-performing investments, to determine any material incidence on the actuarial reserves, yielding a substantial increase in the provision for losses on investment and providing the SSB with a more realistic picture of the financial situation of the scheme.

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. Table 11 shows the trend in the administrative expenditure of the basic scheme.

The bottom part of Table 11 shows the performance ratios of administrative expenditure, which are applicable for budgeting purposes, with a decline in the ratio of administrative expenditure over the last three years, as compared to contributions and benefits.

Table 11
Distribution of Administrative Expenditure (amounts in thousands of BZ$)

	2020	2019	2018	2017
Net operating expenses	21,392	23,978	20,985	21,361
Actuarial cost (total) [1/]	1.74%	2.06%	2.06%	2.20%
Budget Performance Indicators				
as % of contributions	19.3%	23.9%	25.7%	27.6%
as % of contributions + benefits	10.9%	13.2%	13.9%	14.8%

[1/]As percent of insurable earnings

The distribution by a branch of the total actuarial costs is shown in Table 12.

Table 12
Administrative Expenditure by Branch, as a percent of insurable earnings

	2020	2019	2018	2017
Short-term branch	0.38%	0.43%	0.41%	0.47%
EI branch	0.18%	0.20%	0.35%	0.36%
Long-term branch	1.20%	1.35%	1.30%	1.37%
Total	1.76%	1.98%	2.06%	2.20%

[a/]Includes retroactive salary adjustments and restoration of contributions to the staff pension plan.

As the ceiling and the rates of contributions have been updated, raising the level of insurable earnings and contributions, **the relative cost of administrative expenditure has declined, but reaching a standard benchmark of 1.50% of insurable earnings requires the implementation of the 10% rate of contributions and the $520 ceiling as from 1 January 2022, jointly with cost-containment administrative expenses.** Nominal costs are not comparable, as the Belize scheme operates nine Branch Offices and one sub-office, which is not the case in smaller schemes in the Caribbean. The workload arising from the reduction of the "waiting period" for short-term claims has required additional clerical staff to process the increase in the number of sickness claims lasting less than three days.

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 13

Reserves of the Social Development of Disaster Funds

	2020	2019	2018
	(Amounts in thousands of BZ$)		
Social Development Fund	841	814	625
Natural Disaster Fund	2,051	1,801	1,551
Total	2,892	2,615	2,176

15. Trend of NHI Parameters

The NHI financial trend is shown in Table 14, with the improved reserve ratio on 31 December 2020.

Table 14

	2020	2019	2018
	(Amounts in thousands of BZ$)		
(GOB contributions	16,265	17,950	17,600
Benefit expenses [a/]	(14,544)	(16,706)	(16,305)
Administrative expenditure	(873)	1,013	(958)
Surplus	848	231	337
Reserve	3,623	2,774	2,543
In benefit months [b/]	2.99	1.97	1.87

[a/] Excludes outstanding claims
[b/] Minimum desirable reserve: 6-months benefit expenditure

16. Trend of Active Insured Persons and Insurable Earnings

The trend of insured pensions, insurable earnings, and contributions is shown in Tables 15 and 16. The data shows the impact of the legal amendments on the income from contributions, a 15.1% increase in 2019, but the impact of the pandemic had a negative incidence in 2020.

Table 15
Trend of Insured Pensions and Earnings

	2020 [a/]	2019	2018	2017
Insured persons	104,483	110,937	108,269	104,683
Contributions	110,494	100,181	87,043	82,611
Insurable earnings	1,230,212	1,216,456	1,088.037	1,032.637

[a/]Data impacted by COVID-19

Table 16
Rates of Increase of Insured Pensions, Contributions, and Earnings

	2020	2019
Insured persons		2.5%
Contributions	10.3%	15.1%
Insurable earnings	1.13%	11.8%

III
ANALYSIS OF THE SHORT-TERM BENEFIT BRANCH

1. Financial Operations

Table 17 shows the financial operations of the short-term benefit branch. Deficits in the period 2016/18 were reversed due to the legal amendments, with a $2.7 million surplus in 2020. The steady decline of the reserves was also reversed, with a $20.6 million surplus at the close of the fiscal year.

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 2020.

Table 17
Income and Expenditure of the Short-Term Benefits Branch
(Amounts in Thousands of Belize Dollars)

	2020	2019	2018	2017
Contributions	24,885	22,541	16,756	15,903
Investment and other income	1,258	1,037	936	1,126
Total Income	26,143	23,578	17,692	17,029
Maternity allowances	4,049	4,081	4,013	3,604
Sickness benefits	10,513	10,537	9,348	10,658
Maternity grants	781	949	996	971
Total Benefits	15,342	15,567	14,357	15,233
Operational expenses	4,672	5,275	4,535	4,854
Total Expenditure	20,014	20,842	18,892	20,087
Income less Expenditure	6,129	2,736	(1,200)	(3,057)
Contingency Reserve	20,567	14,438	11,848	13,278

2. Income and Expenditure as a Percent of Insurable Earnings

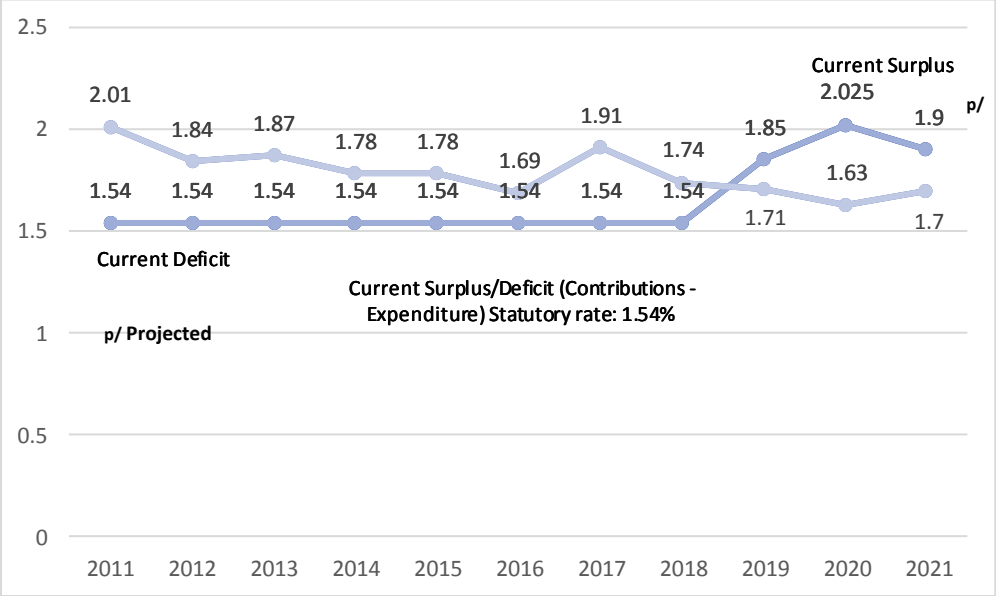
Income and expenditure as a percentage of insurable earnings are shown in Table 18. The average contribution rate allocated to the branch exceeded the total expenditure by a substantial margin, restoring a financial structure in accordance with actuarial requirements. Investment income contributed to augment the surplus.

Table 18
Income and Expenditure of the Short-Term Branch as a Percent of Insurable Earnings

	2020	2019	2018	2017
Contributions	2.025	1.853	1.540	1.540
Investment & other income	0.102	0.094	0.084	0.110
Total Income	2.127	1.947	1.624	1.650
Maternity allowances	0.329	0.335	0.368	0.346
Sickness benefits	0.856	0.867	0.860	1.007
Maternity grants	0.063	0.078	0.091	0.094
Total Benefits	1.248	1.280	1.319	1.447
Operating expenses	0.380	0.433	0.417	0.467
Total Expenditure	1.628	1.713	1.736	1.914
Income less Expenditure	0.499	0.234	(0.112)	(0.263)
Contributions less Expenditure	0.397	0.140	(0.196)	(0.374)

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 19, at the end of 2020 the reserve stands above the minimum stipulated in the regulations.

Table 19
Statutory Minimum Level of Reserves (31 December)

	2020	2019	2018	2017
	(amounts in thousands of BZ$)			
Minimum statutory reserve [1/]	7,544	7,526	7,072	6,878
Actuarial reserve	20,567	14,646	11,657	13,278
Reserve ratio (actual / minimum)	2.73	1.95	1.65	1.93

[1/] Six months average benefit expenditure in the last three years.

Trend of Reserve Ratios
(Multiple of Statutory Minimum)

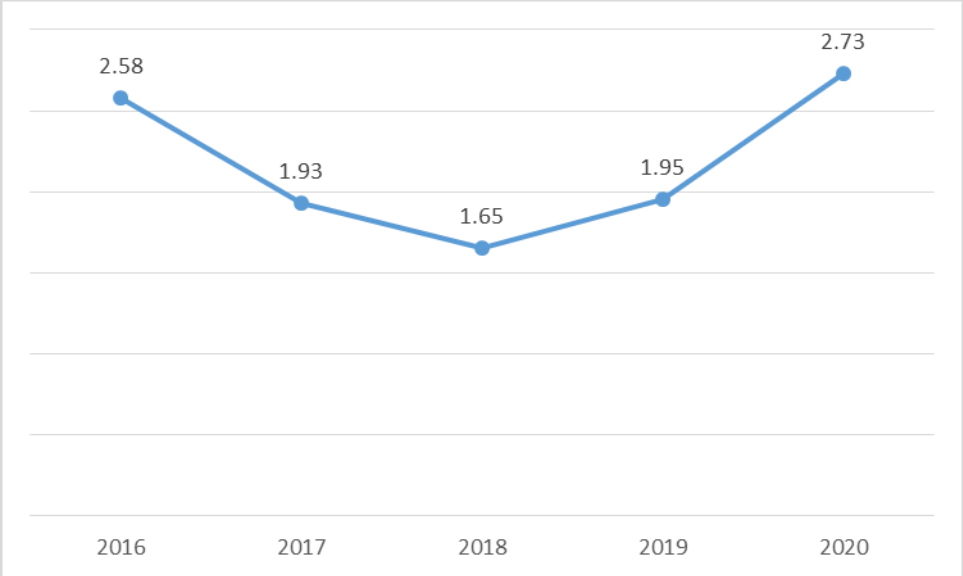


Table 20 shows the cost and funding ratios of the short-term branch, with the following summary:

a) **Declining ratio of benefits divided by contributions of** 87%.

b) Cost Ratios (expenditure divided by contributions and total income) declining to less than one, yielding a "current surplus".

c) The Fund Ratio increased to 0.70 or 8.4 months of expenditure, slightly above the internationally accepted minimum of six months' total expenditure.

Table 20
Cost and Fund Ratios of the Short-Term Branch

	2020	2019	2018	2017
Benefits ÷ contributions	0.69	0.69	0.86	0.93
Total expenditure ÷ contributions	0.87	0.92	1.13	1.24
Total expenditure ÷ total income	0.77	0.88	1.07	1.16
Fund Ratio [a/]	1.03	0.70	0.62	0.69

[a/]Reserve ÷ total expenditure in the year

4. Frequency and Unit Cost of Sickness Benefit

The analysis for the period under review shows (Tables 21 and 22):

a) **The average duration of terminated sickness cases of 7.9 days**, higher than in the preceding two years.

b) **Average "morbidity rates"** (days paid per insured per year) of 3.06 days, with a steady trend (all cases).

c) **Morbidity rates for females higher than for males**, that deserves an in-depth analysis by the Research Section, to determine causalities and introduce cost reduction strategies.

d) **An average duration per new cases** in a calendar year of 9.85 days, and the average days per insured of 3.06 days.

Table 21
Sickness Incidence of Terminate Cases

	2020	2019	2018	2017
Insured Population				
Males	63,173	67,089	65,837	64,265
Females	41,310	44,214	42,432	40,418
Total Active Insured	104,483	111,303	108,629	104,683
Terminated Cases				
Cases	2,267	3,474	3,827	4,499
Days paid	19,271	7,464	28,408	37,223
Average duration (days)	8.50	7.90	7.42	8.27

Table 22

Incidence of Sickness Claims Granted (New Cases)

Granted New Cases	2020	2019	2018	2017
No. of Cases	24,037	34,550	33,204	39,301
No. of Days	280,108	340,191	332,358	390,085
Active Insured	104,483	110,937	108,629	104,683
Average days per case	11.6	9.85	10.01	9.92
Average cases per insured	0.23	0.31	0.30	0.38
Average days per insured [a/]	2.68	3.06	3.06	3.72
Cases / Insured	0.23	0.31	0.31	0.37

[a/]Morbidity rate

5. Actuarial Cost of Sickness Benefit

Table 23 shows the actual actuarial cost of sickness benefits. For the intermediate period 2020/21, a rate of 0.90% of insurable earnings has been assessed, taking into consideration that the anticipated increase in the ceiling would reduce the incidence of sickness claims.

Table 23

Average	Actual				
	2021/22 p/	2020	2019	2018	2017
Cases per 100 insured	0.30	0.29	0.31	0.30	0.38
Days per insured (Morbidity rate)	3.00	2.68	3.06	3.08	3.36
Cost per case	$300	$430	$305	$282	$271
Cost per insured	$90	$101	$94	$86	$99
Actuarial cost a/	0.88%	0.86%	0.87%	0.86%	1.01%

a/ As a percent of insurable earnings.
p/ Projected

6. Trend of Maternity Benefits

The rates of maternity allowances were as follows:

Table 24
Actuarial Cost of Maternity Benefits

	2020	2019	2018	2017
Active contributors	104,483	110,937	108,629	104,683
Female contributors	41,310	44,055	42,432	40,418
Number of allowances paid	1,233	1,439	1,466	1,341
Number of grants paid	2,583	3,157	3,334	3,195
Allowance paid per 100 females	2.98	3.27	3.45	3.31
Grants paid per 100 females	6.25	7.16	7.85	7.90
Allowances by 100 average contributors	1.18	1.31	1.35	1.28
Grants per 100 average contributors	2.47	2.89	3.07	2.09

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 25). For the period 2020/21, the joint average cost was assessed at 0.43% of insurable earnings.

Table 25
Actuarial Cost of Maternity Benefit

	2020	2019	2018	2017
Actuarial cost (allowances)	0.33%	0.34%	0.37%	0.35%
Actuarial cost (grants)	0.06%	0.08%	0.10%	0.09%
Total	0.39%	0.42%	0.47%	0.44%

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 estimate of 10% of the population over 60 years of age, as compared to 8% in 2002, a ratio that should be monitored periodically.

The sequential experience is shown in Table 26, showing a steady reduction of the actuarial cost due to lower fertility rates:

Table 26

Year	Allowances	Grants	Total
	(as % of Insurable earnings)		
2020	0.33	0.06	0.39
2019	0.34	0.08	0.42
2018	0.37	0.09	0.46
2015/17	0.35	0.10	0.45
2012/14	0.38	0.08	0.46
2009/11	0.43	0.13	0.56

8. Actual versus Expected Experience and Projected Actuarial Cost

Table 27 shows a comparison between the actual and expected actuarial cost of the short-term branch benefits. The actuarial cost estimate for 2020/21 is assessed at 1.78% of insurable earnings, assuming stable morbidity and fertility rates. No significant reductions should be expected until a waiting period, or until the former benefit provisions, are restored on a partial basis. A current surplus of 0.36% is assessed for the biennia, subject to fluctuations arising in 2020 due to the impact of the COVID-19. The cost ratios for 2022/25, are expected to yield a steady surplus, to be assessed at the close of 2020.

Table 27
Actual and Expected Actuarial Cost of Benefits (as % of insurable earnings)

	Actual	Projected
	2020	2021/2023
Sickness allowance	0.86	0.88
Maternity allowance	0.37	0.34
Maternity grant	0.06	0.10
Total benefits	1.25	1.32
Administrative expenses	0.38	0.40
Total	1.63%	1.72%
Contribution rate	2.03 [a/]	1.94 [b/]
Surplus deficit	0.40%	0.22%

[a/] To be reduced to 1.90% as of January 2021
[b/] Average 2021/23

9. Amendments to the Short-Term Branch (as of 2022/23)

a) Elimination of the Waiting Period and adjustment to the Replacement Ratio

Statistics on sickness claims show that approximately 45% of the total 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 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 a waiting period and a benefit rate of 70%, rather than 80% for sickness and maternity benefits, would align the SSB legal provisions with other schemes, and reduce further the cost of the Short-Term Branch. Restoration of the waiting period would also contribute to reducing the workload involved in processing the number of claims and the cost of the SSB.

b) Actuarial Incidence of Amendments

The restoration of the waiting period and a replacement rate of 70% rather than 80% would reduce the actuarial cost to 1.65% of insurable earnings yielding a study surplus of the short-term branch.

10. Summary of the Actuarial Projections
ST Branch

The analysis shows that the 2019 legal amendments contributed to restore a positive actuarial performance of the short-term branch. The cost ratios as a percent of insurable earnings were negative in 2017 and 2018 but reverted to a positive performance from 2019.

Projections up to 2030 are shown below. A substantial surplus took place in 2020, as the pandemic reduced the demand for sickness claims, while investment income also exceeded expectations. A smaller increase is forecast for 2021. As of 2022, the 10% rate of contributions should become effective and the allocation to the short-term branch of 19% of contributions rather than 20.25%.

The projections show:

- A steady increase of the contingency reserve from $20.6 million to $27 million in ten years.
- Benefits equivalent to 75% of total expenditure.
- Current surplus (contribution less expenditures) increases until 2023, but interest income causes a positive surplus until 2027.

The **branch reserves** exceed the minimum statutory amount stated in Section 17 (1) of the Financial Regulations, declining from approximately 2.7 times the minimum reserve in 2020 to twice the minimum reserve in 2030, still a comfortable safety ratio to cover an unexpected increase in demand arising from seasonal epidemics.

The Fund Ratio (Reserve ÷ Total Expenditure), declines gradually from 1.00 in 2020 to 0.75 in 2030, the latter equivalent to almost 9 months total expenditure, within the range of international benchmarks.

Assumptions

- Insurable earnings increase at a 3% compounded ratio from 2023.
- The increase in claims causes a reduction of the incidence of sickness claims due to lower morbidity of insured persons with earnings above $320 per week.

- The proportion of maternity allowances and grants tends to decrease, due to a gradual reduction of the fertility ratio, which is usually related to higher educational standards.
- The contribution rate increases to 10% of insurable earnings and the ceiling to $520 per week, as from 1 January 2022.
- The allocation of contributions to the short-term made decrease to 19% as from 2021 (2.025% in 2020/2021).
- The actuarial cost of the branch increases gradually from 1.80% of insurable earnings to 2.00% of insurable earnings during the decade, due to the aging of the insured population, (demographic transition).

Table 27 [1]
Projection of Cost and Reserves of the Short-Term Branch
(Amounts in thousands of BZ$)

Year	Insurable Earnings	Total Contributions	Actuarial (Cost % of salaries)	Total Expenses	Current Surplus/ déficit	Interest-Other Income	Annual Surplus/ deficit	Reserve at year end	Fund Ratio a/
2018	1,088	16,756	1.74	18,892	(2,136)	936	(1,200)	11,848	0.63
2019	1,116	22,541	1.71	20,841	1,700	1,036	2,736	14,438	0.69
2020	1,230	24,884	1.63	20,014	4,870	1,258	6,128	20,567	1.03
2021	1,254	25,935	1.80	22,572	3,363	667	4,030	24,593	1.09
2022	1,434	27,246	1.82	26,100	1,146	739	1,885	25,478	0.98
2023	1,497	28,443	1.85	27,694	749	794	1,543	28,021	1.01
2024	1,542	29,298	1.88	28,989	(309)	840	937	28,858	1.00
2025	1,588	30,172	1.91	30,331	(159)	866	751	29,609	0.98
2026	1,635	31,065	1.93	31,555	(490)	888	398	30,007	0.95
2027	1,685	32,015	1.95	32,857	(542)	900	58	30,065	0.92
2028	1,435	32,961	1.97	34,150	(1,215)	902	(313)	29,751	0.87
2029	1,707	33,953	1.99	35,561	(1,608)	892	(716)	28,035	0.78
2030	1,841	34,979	2.00	36,820	(1,842)	871	(971)	27,064	0.74

*In Millions
a/ Reserve/Total Expenses

IV
ANALYSIS OF THE EMPLOYMENT INJURY BRANCH

1. Financial Operations of the Employment Injury Branch

Table 28 shows the operations of the employment injury branch, which records as expenses the actuarial present value of disablement and survivor' pensions, in accordance with the actuarial method of "terminal reserves" or "assessment of constituent capital" applied to the scheme. The transfer of $80 million in 2016 to the long-term branch reduced the reserve to $49.9 million at 31 December 2016, but it increased steadily again to $87.5 million at 31 December 2019. Due to a significant decline in benefits claims in 2019. Therefore, the reduced contribution rate earmarked to the branch is still in excess of actuarial requirements, with investment income on the reserves augmenting the financial surplus. The reduction in the rate of contribution as from January 2019, also reduced sharply the 2019 surplus, to $10.5 million ($16.8 million in 2018), augmenting the branch reserve to $87.0 million at year-end.

Table 28
Income and Expenditure of the Employment Injury Branch
(Amounts in thousands of BZ$ Dollars)

	2020	2019	2018	2017
Contributions	13,825	12,523	21,326	20,240
Investment and other income	5,028	3,809	2,948	2,699
Total Income	18,853	16,332	24,275	22,939
Disablement grants	331	414	484	518
Employment injury (short-term) [a/]	2,081	2,436	2,348	2,468
Disablement benefits (actuarial value)	608	296	599	109
Death benefits (actuarial value)	40	213	223	212
Funeral grants	4	9	9	2
Total Benefits	3,064	3,368	3,663	3,309
Operating expenses	2,212	2,456	3,727	3,769
Total Expenditure	5,276	5,824	7,390	7,078
Income less Expenditure	13,577	10,508	16,885	15,860
Net Reserve (Short-term benefits)	98,672	87,586	79,401	64,330

[a/] Includes medical expenses

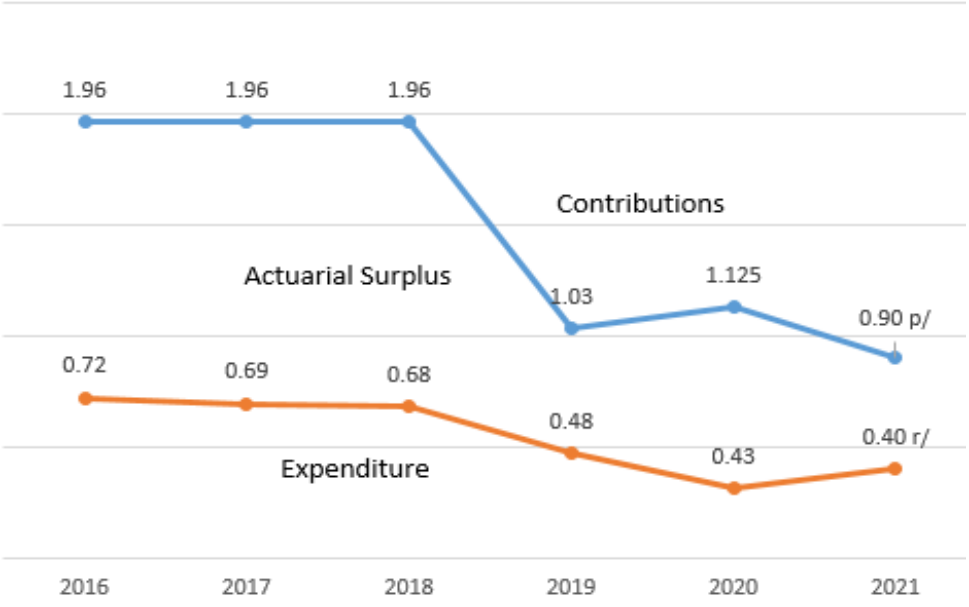
2. Income and Expenditure as a Percent of Insurable Earnings

Income and expenditure as a percentage of insurable earnings are shown in table 29. Total benefits in 2019 were equivalent to 0.28% of insurable earnings (0.34% in 2018). The relative rate of contribution, which was reduced by almost one-half in 2019, still yielded a current surplus in 2019.

Table 29
Income and Expenditure as a Percent of Insurable Earnings (EI Branch)

	2020	2019	2018	2017
Contributions	1.125	1.030	1.960	1.960
Investment and other income	0.409	0.313	0.263	0.262
Total Income	1.534	1.343	2.223	2.222
Disablement grants	0.027	0.034	0.044	0.050
Employment injury (short-term)	0.169	0.200	0.216	0.240
Disablement benefits (actuarial value)	0.049	0.024	0.056	0.011
Death benefits (actuarial value)	0.003	0.018	0.020	0.020
Funeral grants	0.001	0.001	0.001	0.000
Total Benefits	0.249	0.277	0.337	0.321
Operating expenses	0.180	0.202	0.342	0.365
Total Expenditure	0.429	0.479	0.677	0.686
Income less Expenditure	1.105	0.864	1.546	1.274
Contributions less expenditure	0.696	0.551	1.283	1.274

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



P/ Projected
R/ Recommended

3. Statutory and Actual Reserves

Reserves of employment injury benefits have evolved as shown in table 30. 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 29.3 times higher than the stipulated minimum, a clear indication that the contribution rate assigned to the branch exceeds the actuarial requirements.**

Table 30
Employment Injury Benefit Reserve
(Amounts in thousands of BZ$)

31 December	Reserve	Statutory Minimum	Multiple Minimum Reserve
2020	98,672	3,365	29.3
2019	86,804	3,447	25.2
2018	78,266	3,595	21.7
2017	64,330	3,736	17.2

4. Incidence of Short-Term Injury Benefits

Table 31 shows the incidence and cost ratios of employment injury benefit.

Table 31
Incidence of Employment Injury Short-Term Benefit

	2020[b/]	**2019**	**2018**	**2017**
Cases paid	1,250	1,492	1,745	1,789
Amount paid (in thousands)	$2,054	$2,436	$2,348	$2,468
Active insured persons	104,483	110,937	108,629	104,683
Cases per 100 insured	1.20	1.34	1.61	1.70
Cost per case	$1,640	$1,632	$1,344	$1,385
Cost per insured	$19.66	$21.96	$21.61	$23.64
Actuarial cost (% of salaries)	0.169	0.200	0.216	0.240

[a/] Financial Statement
[b/] Preliminary

The emerging trend shows that the anticipated incidence has been slightly lower to the actuarial expectations, as shown in Table 31. 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 32 shows the income, expenditure, reserve, and the Fund Ratio of the Disablement and Death benefits. The Disablement and Death Reserve is different to 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 32

Income, Expenditure, and Reserves of Disablement & Death Benefits

	2020	2019	2018	2017
APV disablement benefits	608,569	296,056	599,349	108,717
APV death benefits	40,138	212,662	222,682	211,772
Total APV	648,707	508,718	822,031	320,489
Net investment income	637,389	538,354	566,959	727,152
Total income	1,286,096	1,047,072	1,388,991	1,047,641
Expenditure				
Disablement pension	1,603,175	1,547,487	1,446,074	1,453,450
Death benefits	649,024	629,253	646,540	647,438
Total benefits	2,252,199	2,176,740	2,092,614	2,100,888
Excess of income over expenditures	(966,103)	(1,129,668)	(703,623)	(1,053,247)
Actuarial Reserve	11,277,345	12,305,656	13,655,200	14,541,268
			Key Indicators	
Actuarial cost (new cases) [a/]		0.04%[b/]	0.08%	0.03%
Fund Ratio Reserve ÷ benefit expenditure		5.65	6.41	6.92

[a/] APV of new cases ÷ insurable earnings

[b/] Reduction due to lower disablement claims in 2019.

6. Incidence of Disablement and Death Benefits

Table 33 shows the rates of accidents per 1000 insured persons due to EI accidents. The incidence of accidents shows significant volatility, according to preliminary data, but the cases of permanent incapacity tend to increase.

Table 33

Number of Accidents by Consequence and Rates per 1000 insured

	Number of Cases			Rates for 1000 insured		
Year	Medical Care only	Permanent incapacity	Deaths	Medical care only	Permanent incapacity	Death
2020	977	231	3	9.4	2.4	0.03
2019	1,492	197	8	13.4	1.78	0.07
2018	1,745	226	13	16.2	2.09	0.15
2017	1,789	165	12	17.1	1.59	0.12

7. Trend of Pensions in Payment

The statistics shown in Table 34 indicate a gradual increase in pensions in payment.

Table 34

EI Pensions in Course of Payment

	2020	2019	2018	2017
Disablement Pensions				
Number	510	489	478	472
Monthly amount	$126,857	$117,824	$115,123	$113,378
Widows				
Number	101	87	86	86
Monthly amount	$35,786	$33,342	$32,045	$32,180
Orphans				
Number	127	151	164	170
Monthly amount	$21,194	$24,602	$25,886	$27,461

8. Medical Expenses

Medical expenses are budgeted as a separate item but are shown on a consolidated basis with employment injury benefits in the financial statements, as noted above.

9. Expected Cost of the EI Branch

The assessed emerging actuarial cost for 2020/21 is equivalent to 1% of insurable earnings, which includes a safety factor to account for catastrophic cases causing substantial medical expenses. However, due to the significant accumulated reserve, the EI branch is projected to continue to show a material actuarial surplus.

Table 35
Actuarial Cost of the EI Branch
(as % of insurable earnings)

Benefit	2021/22	2020	2019/2020
	Projected		Actual
Employment Injury	0.25	0.17	0.20
Disablement & Death Benefits (APV)	0.08	0.05	0.05
Grants & Medical	0.07	0.03	0.04
Total Benefits	0.40	0.25	0.29
Administrative Expenditure	0.40	0.18	0.20
Total	0.80	0.43	0.49
Contributions	0.90	1.13	1.03
Current Surplus (deficit)[a/]	0.10	0.70	0.54

[a/] Contributions less Expenditure

10. Funded Status of the Disablement and Death Reserve

A direct valuation of the level of sufficiency of the Disablement and Death Reserve was performed on 31 December 2020. The sequential 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 = 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) / 4% in 2019

Actuarial Reserve: $11.277 million (at 31 December 2020)

The analysis of the Disablement and Death Reserve also shows an actuarial deficit, as shown in Table 37, but the balance of the joint programs still yields an actuarial surplus of $76.078 million at 31 December 2020.

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.

Table 36 shows a consolidated assessment of the EI branch. The surplus reserves of short-term benefits, assessed at 29 times the statutory minimum, compensates by a wide margin the deficit of the Disablement and Death Obligations, still yielding a consolidated surplus of $76.078 million on 31 December 2020.

Table 36
Funded Status of the EI/Disablement & Death Reserve
(at 31 December)
(Amounts in millions of BZ$)

	2020	2019	2018	2017
Present value of pensions in payments	30,506	30,967	31,540	31,661
Reserve	(11,277)	(12,306)	(13,655)	(14,541)
Net Liability	19,229	18,661	17,885	17,120

Table 37
Consolidated Actuarial Assessment of the Employment Injury Brand (at 31 December 2020)

	Reserve	Actuarial Liabilities	Surplus (Deficit)
	(amounts in millions of BZ$)		
Short-term benefits [a/]	98,672	(3,365)	95,307
Disablement death benefits [b/]	11,277	(30,506)	(19,229)
Total	109,949	33,871	76,078

[a/] Statutory reserve (PAYG basis)
[b/] Actuarial reserve (present value of pensions in payment)

11. Update of the EI Degree of Disablement Provisions

The First Schedule of the Financial and Accounting Regulation should be updated to increase the actuarial present value of Disablement Death Benefits. This would restore gradually the amount of reserves close to the actuarial obligations. A 15% increase to the appropriate factors is recommended as of 2020.

The Second Schedule of the Benefit Regulation 43 should be updated by the SSB. For example, Item 15 (loss of one thumb) stipulates a 30% degree of disablement, allowing the insured person to the minimum pension, (**and to continue in active self-employment).** However, Item 25 (loss of all toes of both feet) stipulates a 20 degree of disablement, allowing the insured person to only a lump-sum grant.

Measures are being implemented to avoid the payment of disablement pensions to individuals who return to work as self-employed, thus avoiding detection by the SSB compliance services.

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 as from 2019, reversing the $2.4 million loss of 2018 into a $6.2 million surplus in 2019.

The increase in benefits was focused basically on retirement benefits, due to an acceleration in the number of early retirement pensions at ages 60 to 64 years, including the self-employed. The increase in the ceiling as of July 2019 will be reflected gradually over the next 36 months.

COVID-19 will cause a temporary negative impact on 2020 contributions, but the medium-term trend (2020/25) is expected to show a positive performance, due to the impact of the first set of legal amendments. Therefore, more precise financial trends should be quantified at the close of the present financial year.

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

	2020	2019	2018	2017
Contributions	71,889	65,117	48,962	46,468
Investment and other income	22,496	17,416	17,264	20,417
Total Income	94,385	82,533	66,226	66,885
Retirement benefits	49,385	44,997	39,405	35,453
Invalidity benefits	4,058	4,004	3,631	3,588
Survivors' benefits	8,095	7,900	7,627	7,160
Funeral Grants	1,371	1,333	1,361	1,361
Non-contributory pensions	1,525	1,754	2,009	2,297
Total Benefits	64,434	59,988	54,033	49,859
Operating Expenses	14,800	16,314	14,031	14,164
Total Expenditure	79,234	76,302	68,064	64,023
Contributions less expenditure (current deficit)	(7,345)	(11,185)	(19,102)	(17,555)
Income less Expenditure	15,151	6,231	(1,837)	2,862
Actuarial Reserve	437,533	426,238	424,737	431,199
Fund Ratio [a/]	5.5	5.6	6.1	6.7

[a/] Reserves ÷ total expenditure

3. Income and Expenditure as a Percent of Insurable Earnings

Table 39 shows the financial experience as a percent of insurable earnings. Total benefits and administrative expenditure were quasi-stable, but the higher rate of contributions caused a reversal of the 2018 loss into a surplus of 0.51% of insurable earnings in 2019 and 1.23% in 2020. The "current deficit" (contributions less expenditure) also decreased and might yield a minor surplus from 2021. However, the investment income on the substantial reserve should be the main contributor to the financial performance of the long-term branch.

Table 39
Income and Expenditure as a Percent of Insurable Earnings

	2020	**2019**	**2018**	**2017**
Contributions	5.85	5.35	4.50	4.50
Investment & other income	1.83	1.43	1.54	1.97
Total Income	7.68	6.78	6.04	6.47
Retirement benefits	4.02	3.70	3.62	3.43
Invalidity benefits	0.33	0.33	0.33	0.35
Survivors' benefits	0.66	0.65	0.70	0.69
Funeral Grants	0.11	0.11	0.12	0.13
Non-contributory pensions	0.12	0.14	0.19	0.22
Total Benefits[a/]	5.24	4.93	4.96	4.82
Operating Expenses	1.20	1.34	1.29	1.37
Total Expenditure	6.44	6.27	6.25	6.19
Income less Expenditure	1.23	0.51	(0.21)	0.28
Current surplus (deficit)[b/]	(0.60)	(0.92)	(1.75)	(1.69)

[a/] PAYG rate (pay-as-you-go)
[b/]Contributions less expenditure

4. Trend of Pensions in Payment

Table 40 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 40
Number of Pensions in Payment (year-end)

	Retirement	Invalidity[a/]	Survivors	Total Pensions	Rate of Increase (%)
2015	5,309	413	2,596	8,236	7.2
2016	5,827	449	2,807	8,967	8.8
2017	6,446	480	2,931	9,632	7.4
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

[a/]Pensions transferred to the category of retirement pensions at age 60, up to 2018.

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 as 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.

5. Invalidity Pensions and Grants

Table 41 shows the incidence of invalidity pensions awarded and of invalidity grants.

Table 41

Number and Frequency of Invalidity Pensions Awarded

	Number awarded	Incidence Rate (per thousand)
2020	79	0.76
2019	61	0.55
2018	52	0.48
2017	58	0.54

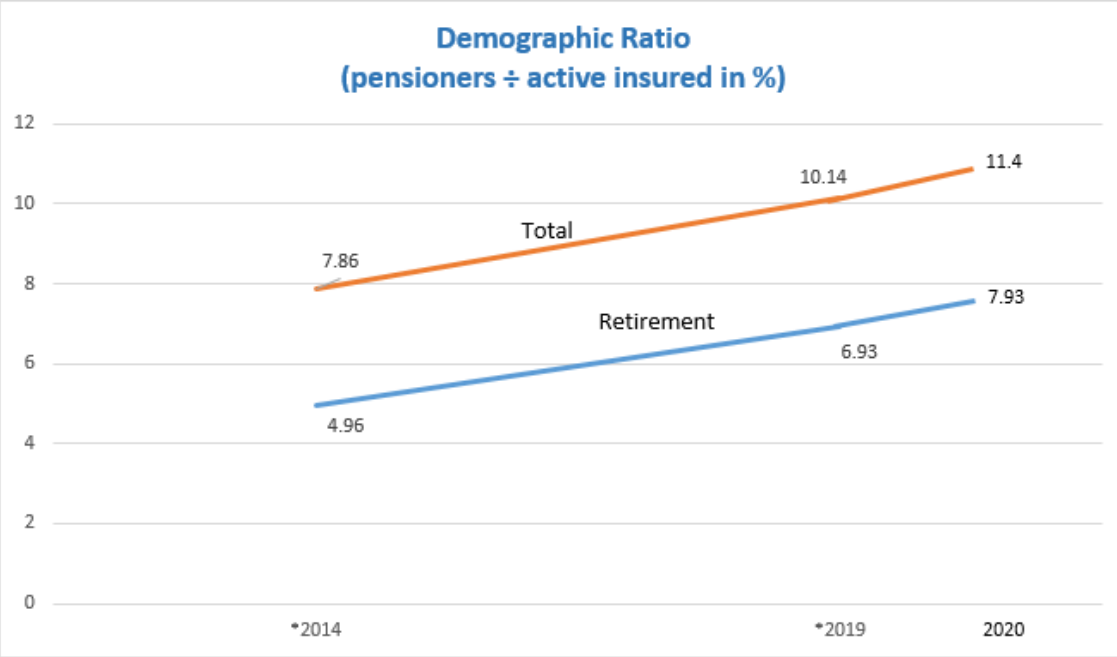
6. Trend of Demographic Ratios (Pensioners ÷ active insured)

Table 42 shows the trend of demographic ratios. The higher rate of the increase took place for retirement pensions, with 7.93 pensioners per 100 active contributors in 2020. A trend that should continue for several decades.

Table 42
Trend of Demographic Ratios
(At 31 December)

	2020	2018	2016	2014
	Demographic Ratios (Pensioners ÷ active contributors, in %)			
Retirement [a/]	7.93	6.44	5.62	4.96
Invalidity [b]	0.55	0.46	0.37	0.37
Survivors [c/]	2.93	2.81	2.71	2.53
Total	11.41	9.71	8.70	7.86

[a/] Excludes NC pensions
[b/] Pensions transferred to an old-age category at age 60, up to 2018 only.
[c/] Includes orphans



7. Distribution of Statutory Contributions

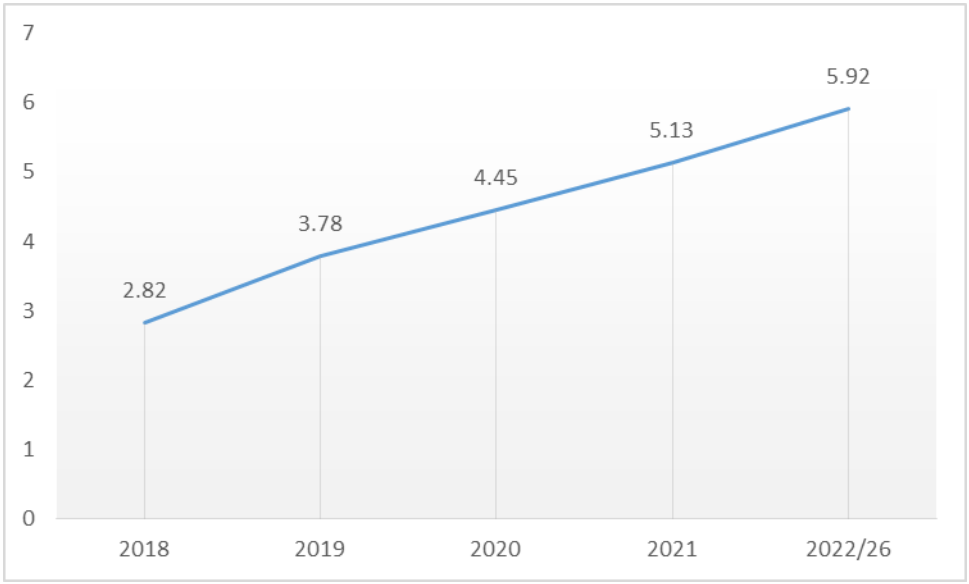
Deducting from the new gross share of contributions allocated to the long-term branch the estimated costs of grants, non-contributory pensions, and administrative expenditures, yields a net rate of contributions to cover the cost of retirement, invalidity, and survivor's pensions of 2.82% in 2018, 3.78% in 2019, 4.45% in 2020, and an average of 5.52% in 2021/22, as shown in Table 43.

Table 43
Distribution of the Statutory Contribution Rate as a percent of Insurable Earnings
(Excluding investment income)

	2022[p/]	2021[p/]	2020	2019	2018
Gross rate	7.20%	6.48%	5.85%	5.35%	4.50%
Other income	0.02	0.03	0.04	0.02	0.02
Total contributions	7.22	6.51	5.89	5.37	4.52
Administrative expenditure [a/]	(1.10)	(1.18)	(1.22)	(1.34)	(1.29)
Grants	(0.10)	(0.10)	(0.12)	(0.11)	(0.12)
Non-contributory pensions	(0.10)	(0.10)	(0.12)	(0.14)	(0.19)
Net rate for contributory pension benefits	5.92%	5.13%	4.45%	3.78%	2.82%

[p/] Projected. Assumes implementation of the 10% rate in 2022 and 72% allocation to the long-term branch.

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



8. Macro-Economic Trends

The active insured population has been increasing steadily yielding a coverage rate of two-thirds of the total employed labour force, with a level of compliance estimated at 90% by the SSB, excluding the self-employed. However, COVID-19 might cause a sharp reduction in 2020. The inception of a self-employed scheme as from 1 March 2003, although voluntarily, does not have a material incidence in the total active insured population, due to a stagnant level of "voluntary" participation. Statistical data show 45,000 persons categorized as "own business", of which only 3.8% are voluntarily contributing to the self-employed scheme, most of them on an irregular basis.

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.

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, from an average of 2.7% in 2000/2010 to 1.2% as from 2020. 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 has increased steadily.

9. 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 x Ṗ, where DR is the ultimate demographic ratio and Ṗ 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.

10. Actuarial Projections (2020/30)

Structural legal amendments to the financing bases were implemented in 2019. These amendments would have a material incidence on the cash flows of the SSB as a whole.

Due to COVID-19, the economy and the employment pattern in Belize have suffered a decline in 2020. Therefore, any projection without a closer assessment of the impact of COVID-19 on key segments of the economy can cause abnormal variations. Scenarios for 2021/2030 are shown below:

Medium-Term Projections

Table 44
Preliminary Medium Term Projection
(Amounts in millions of BZ$)

A. Basic Cost

Year	C	Ex	CS	I	S	R
2022	102	94	8	23	31	448
2023	105	100	5	31	36	479
2024	107	108	(1)	24	23	481
2025	110	115	(5)	24	19	500
2026	113	123	(10)	25	15	515
2027	116	132	(16)	25	9	524
2028	118	141	(23)	26	3	527
2029	121	151	(30)	26	(4)	523
2030	125	162	(37)	26	(11)	512

B. Low Cost

Year	C	Ex	CS	I	S	R
2022	102	88	15	16	31	489
2023	105	93	17	14	34	523
2024	107	199	12	18	30	533
2025	110	105	10	19	29	562
2026	113	111	8	20	28	590
2027	116	118	6	20	26	616
2028	118	125	3	21	24	640
2029	121	132	0	22	22	662
2030	125	140	(2)	23	21	683

C: Contributions (Salaries: 2%)

Ex: Expenditure (Basic: 7%. Low cost: 6%)

CS: Current surplus (deficit)

I: Investment income (ROA = 5%)

S: Total Surplus (deficit)

R: Accumulated reserve

The following tables show projections of the long-term branch, assuming a rate of return on investments of 5% and 3.5%. The analysis shows that, under the recommended financing bases of the long-term branch, no additional adjustment to the contribution rate is required for the rest of the present decade. It is noted however that the performance depends to a higher degree on the rate of return on investments rather than current operations. Between 2018 and 2022 the contribution rate allocated to the long-term branch would have increased by more than 100% from 2.82% to 5.92%, strengthening the capitalization rate of the branch, as shown in table 45.

Table 45
Actuarial Projection of Reserves (High Cost Scenario)
(Amount in millions of BZ$)

Year	Current income [a/]	Investment income	Total income	Reserve (at year end)
2020	(7)	22	15	437
2022	8	23	31	448
2024	(1)	24	23	481
2026	(10)	25	15	515
2028	(23)	26	3	527
2030	(37)	26	(11)	512

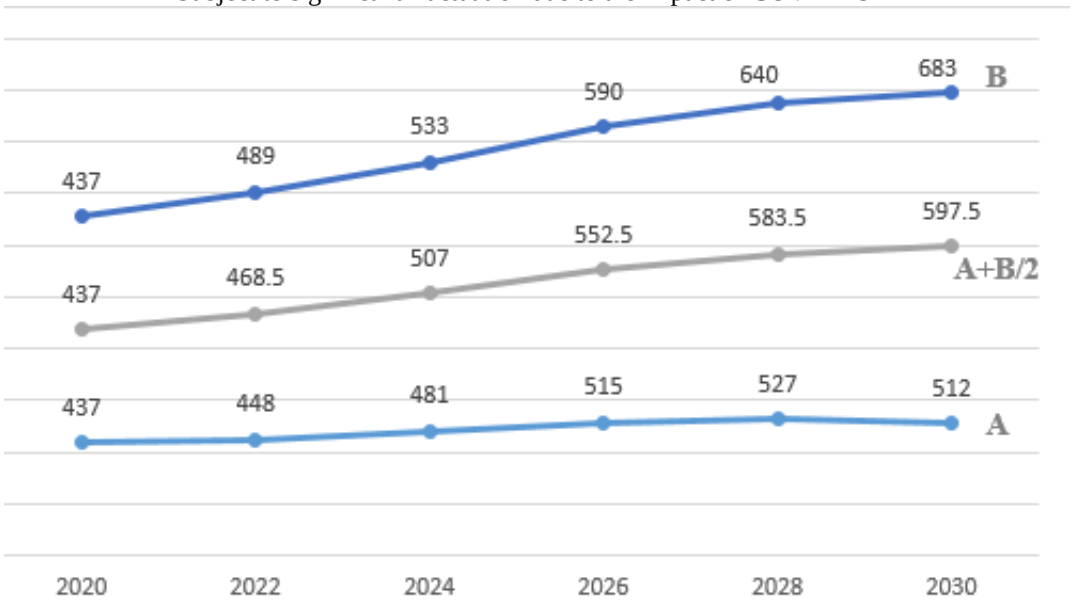
[a/]Contributions less expenditure

Table 46
Reserve Sensitivities (2020/30)
(Amounts in millions of BZ$)

Year-end	Basic Cost	Low Cost
2020	437	437
2022	448	489
2024	481	533
2026	515	590
2028	527	640
2030	512	683

Alternative Projections of Reserves (2020/30)
(Amounts in millions of BZ$)

Subject to significant fluctuation due to the impact of COVID-19



A: Basic cost

B: Low cost

11. Long-Term Projections

Long-Term projections are subject to less reliability than medium-term projections. Key parameters of the 50-year projection until 2070 are shown in Table 47. As expected, the **Demographic Ratio** continues to increase steadily, due to the actuarial maturity of the scheme (the ratio between 2014/2020 is shown in Section 6), which is expected to more than double by 2040.

The PAYG ratio (benefit expenses as a percent of insurable earnings), also increases steadily, exceeding the 7.2% contribution rate allocated to the branch close to 2030, while the **Period of Equilibrium** is reached also close to the end of the decade, plus or less 1.5 years, depending on the investment performance and the approval of pending legal amendments the rest of the present decade. Adjustments to the financing bases will be required thereafter to avoid the decapitalization of the reserve.

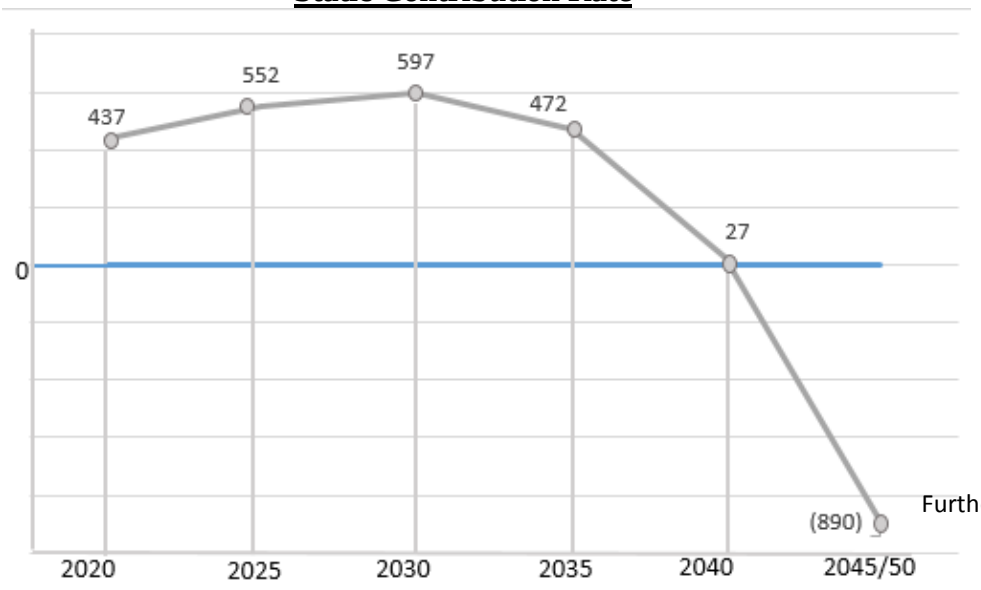
Table 47

Summary of the Long-Term Projections (2020/2070)

	Demographic Ratios	PAYG	Reserve (Millions BZ$) [a/]
2020	11.4	5.2	437
2025	14.0	6.3	527
2030	17.5	7.7	596
2035	21.7	9.5	472
2040	26.8	11.6	27
2050	31.2	13.4	Negative
2060	36.4	15.4	Negative
2070	43.8	18.3	Negative

[a/] Average of Basic Cost and Low Cost

Trend of Actuarial Reserves. Long-term Branch (Average of Basic/Low Cost)
(Amounts in millions of BZ$)
Static Contribution Rate



Further deficits (2050/70)

12. Average Premium Rates

The Average Premium Rate for the 50-year projection is shown below, which is equivalent to only 54.8% of the allocation to the branch as of 2022, according to the basic assumptions. In accordance with the scaled-premium model applied to the scheme, gradual adjustments to the contribution rate will be required close or before the Period of Equilibrium is reached, to avoid a depletion of reserves, but the ultimate rate would be higher than the average premium rate shown below:

Table 48
Average Premium Rates (50 years period)

Rate of Return on Investments	Average Premium Rate (A)	Actual Rate (B)	Percent (B/A)
4%	14.19%	7.20	50.7%
5% (basic)	13.14%	7.20	54.8%
6%	12.11%	7.20	59.4%

13. Present Value of Obligations

The present value of pensions in payment represents the reserve, at the valuation date, that would be sufficient to pay benefits until the termination of the entitlement. At a 5% discount rate and annuities derived from the GAM-83 mortality table, the amounts are shown in Table 49. As compared to the LT branch reserves of $437 million, it only covers 70% of pensions in payment and 18% of the total accrued liabilities.

Table 49
Present Value of Obligations and Funded Status
(at 31 December 2020)

	Number	Monthly pension **(BZ$)**	Present value **(BZ$)**
Retirement	8,290	3,798,252	489,656,887
Invalidity	570	297,001	50,294,371
Survivors	3,060	631,927	86,033,311
Sub Total (A)	10,540	4,727,180	625,984,569
Active Staff	104,483	102,405,982	1,772,015,569
Total (B)	115,023	107,133,162	2,398,000,511
Reserve (R)			437,000,000
Funded Ratios (pensions in payment) R/A			70%
Funded Ratios (liabilities) R/B			18%

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. The majority of active self-employed are females, an anomalous situation as it would be expected that most eligible self-employed would be males. This might be due to the inclusion of housewives among the "self-employed," a category which in many legislations is not considered as self-employed.

Global statistics show that more than 40,000 self-employed persons in Belize, of which only a fraction is actively contributing in 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
(Amounts in thousands of BZ$)

Year	Active Insured Self-employed	Rate of Increase	New Registrations
2017	1,460	5.4%	451
2018	1,564	6.6%	515
2019	1,742	11.6%	598
2020	1,625	(6.7%)	333

2. Distribution of the Self-Employed by Wage-Group

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, could contribute them to access a higher pensions at retirement.

Table 2
Percent Distribution of Active Insured by Wage-Group (2020)

Income Range	Weekly Wage-group	Percent Distribution	
		Self-employed	Employed
Low	Less than 110	24	8
Middle	110/300	49	44
High	300 and over	27	48 [a/]
	Total	100%	100%

[a/] 42% in 2019. Increase due to expansion of the ceiling

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

Table 3 shows that 23% of the active self-employed are 55 years and over, as compared to only 8% 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 Person by Age Group

Age-Group	Self-Employed	Employed
15/34	16%	54%
35/54	61%	38%
55 +	23%	8%
Total	100%	100%

4. Statistic of Benefits to the Self-Employed

Table 4 shows the number of benefits awarded to the self-employed, with a higher frequency than for employed persons in case of age pensions.

Table 4
Benefits Awarded to Self Employed Insured Persons

Benefit Type	Number of Claims Allowed		
	2020	2019	2018
Total	**255**	**287**	**325**
Short Term	**164**	**211**	**233**
Sickness Benefit	132	192	208
Maternity Benefit	14	13	12
Maternity Grant	18	6	13
Long Term	**84**	**66**	**76**
Funeral Grant (NC)	5	6	5
Invalidity	3	3	4
Retirement	69	51	60
Survivor's	7	6	7
Employment Injury	**7**	**10**	**16**
Injury Benefit	5	9	16
Disablement	2	1	0
Death	0	0	0

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

Table 5 shows the frequency of short-term benefits by the 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.

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

Year	Averaged Insured	Total Claims	Incidence Rate	Sickness Claims	Incidence Rate
2017	1,460	243	16.6%	213	14.6%
2018	1,564	233	15.0%	208	13.3%
2019	1,742	211	12.1%	192	11.0%
2020	1,625	164	10.1%	132	8.1%

Table 6

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

	Employed	Self-Employed
2017	0.44	0.18
2018	0.38	0.16
2019	0.38	0.13
2020	0.29	0.11

Table 7 shows that in only 16 years, the maturity of the self-employed scheme as measured by the ratio of pensioners to active contributions is much higher than the maturity of pensioners in the general scheme. Although a proportion of 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

Comparative Demographic Ratios (General Scheme and Self-Employed Scheme)

Pensions	General Scheme		Self-Employed Scheme	
	(Pensioners ÷ active contributors), in %			
	2019	2020	2018	2020
Retirement	6.9	8.0	21.7	28.4
Invalidity	0.5	0.5	1.3	1.8
Survivors	2.8	2.9	2.1	2.7
Total	10.2	10.4	25.2	37.9

6. Retirement Age of Self-Employed Persons

A total of 69 retirement pensions were awarded to the self-employed in 2020, of which 52 (75%) were awarded at age 60, 14 (28%), at ages 61/64, and only two pensions awarded at age 65. This clearly shows that most self-employed persons opt to retire before the "normal" retirement age of 65 years, and having no employer, the SSB is unable to determine whether they continue as active self-employed before reaching the statutory age of 65 years.

7. Financial Performance

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

Table 8

Financial Performance of the Self-employed Scheme

	2020	2019	2018	2017
Contributions	755,127	939,340	807,273	742,676
Benefit Expenditure	(2,100,000) [a/]	(1,931,490)	(1,638,458)	(1,498,120)
Share of administrative expenditure	(200,000)	(200,000)	(200,000)	(200,000)
Total expenses	(2,300,000)	(2,131,490)	(1,838,458)	(1,698,120)
Net surplus (deficit)	(1,544,873)	(1,192,149)	(1,031,784)	(955,444)

[a/]Preliminary

8. Actuarial Cost of the Self-Employed Scheme

The scheme is financed by 7% of insurable earnings, and already is confronting financial deficits, as shown in Table 9. 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)

	2020	2019	2018	2015
Contributions	7.0%	7.0%	7.0%	7.0%
Short-term benefits	1.1	0.9	1.4	1.3
Long-term benefits	14.5	13.5	12.4	10.8
Administrative expenditure [a/]	1.3	1.5	1.7	1.5
Total expenditure	16.9	15.9	15.5	13.6%
Surplus (deficit)	(9.9%)	(8.9)%	(8.5)%	(6.6)%

[a/]Macro-estimate

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

1. Background

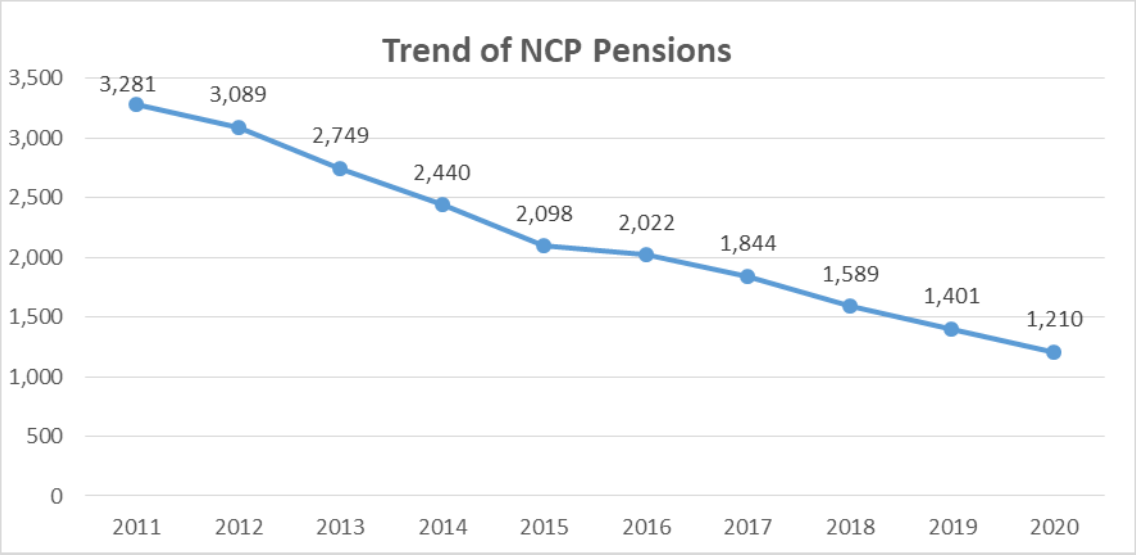
The payment of Non-Contributory Pensions (NCP) was transferred from the Ministry of Social Services to the SSB in July 2003. In December 2007, the Government decided to add eligible males as beneficiaries of NCP and increased the payment to $100 per month, which caused a significant increase in the number 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. The trend of Pensions in Payment

The total number of NCPs has declined steadily from a peak of 4,934 early in 2008 to 1,210 pensions in payment in December 2020. The mortality of pensioners and more thorough evaluation procedures contributed to offset the abnormal surge of pensions awarded during the initial phase of operations.

Table 1
The trend of NCP Pensions (at 31 December)

	2020	2019	2018	2017
Number of pensions in payment				
Males	416	457	525	614
Females	872	944	1,064	1,230
Total	1,210	1,401	1,589	1,844



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 %
2017	2,297	(9.3)
2018	2,009	(12.5)
2019	1,820	(9.4)
2020	1,502*	(17.5)

*Sharp reduction/COVID-19

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)

	2020	2019	2018	2017
Death	(8.5)	(7.9)	(8.5)	(7.1)
Other	(5.8)	(3.2)	(5.8)	(4.1)
Sub-total	(14.3)	(11.0)	(14.3)	(11.2)
New awards	0.8	0.3	1.7	2.6
Net increase (decrease)	(13.5)	(10.8)	(12.6)	(8.5)

5. Actuarial Cost of the Scheme

The actuarial cost of benefits has evolved as follows, excluding management expenses. The anticipated actuarial cost as of 2021 is non-material, estimated at less than 2% of total benefit expenditure of the long-term branch.

Table 4

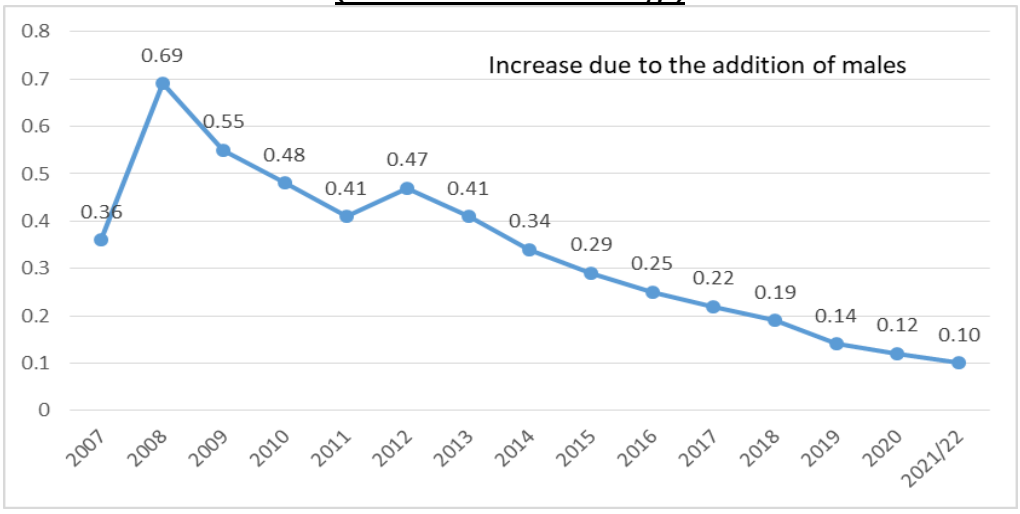
Actuarial Cost of NCP Benefits

Year	Percent of insurable earnings
2007	0.36%
2008	0.69%*
2009	0.62%
2010	0.55%
2011	0.55%
2012	0.47%
2013	0.41%
2014	0.34%
2015	029%
2016	0.25%
2017	0.22%
2018	0.19%
2019	0.14%
2020	0.12%
2021/22	0.10% p/

* Increase due to the addition of males
p/Projected

More strict evaluation procedures and the mortality of pensioners have exceeded the award of new pensions to a significant extent, with actuarial cost declining to only 0.12% on 31 December 2020 (0.14% in 2019). Assuming a restricted pace of revaluation of pensions in payment, the long-term trend of the scheme is assessed at 0.10% of insurable earnings, 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)



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 as from 2021 due to the impact of legal amendments. The actuarial cost of benefits is assessed at 0.10% of insurable earnings for the period 2021/22, or 1 cent for each dollar in contributions as from 2021.

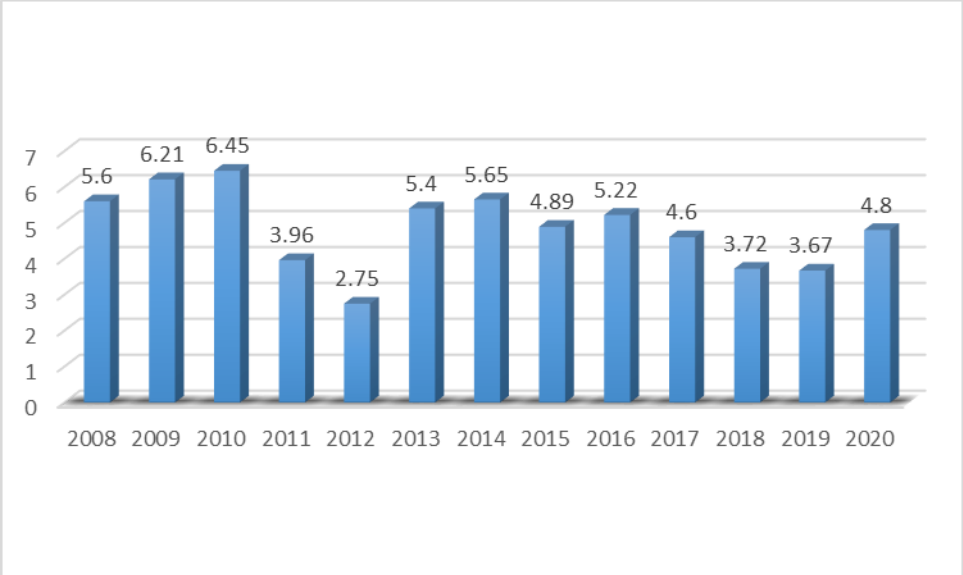
ANNEX C
ASSESSMENT OF THE INVESTMENT PORTFOLIO
(Third Schedule of the Act, Section 17)

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. Chapter II of the report shows the rate of return on assets both on a nominal basis and an inflation-adjusted basis.

Nominal Rate of Return on Investments

(In percentages)



2. Investment Portfolio

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. In the last fiscal year, the Board increased the allocation in Associates and long-term investments and reduced the proportion in other categories.

It is also noted that a comprehensive assessment was carried out recently by a consulting firm, with recommendations undervaluation by the Board. Therefore, the present report is focused on key specific issues dealing with the performance of the investment portfolio.

Table 1

Percent Distribution of the Assets (at 31 December)

	2020	2019
Cash equivalents	12.5%	5.5%
Short-term investments	3.4	3.6
Long-term investments	38.2	34.1
Investment in Associates [a/]	33.6	45.5
Sub-Total	87.7	8.87
Other assets	12.3	11.3
Total	100%	100%

[a/]Includes utilities

3. Public Sector Investments

As the short-term bank deposits are below the actuarial rate of 3% to 3.5% real, net of inflation, an increase in allocations in Central Bank obligations would enhance the SSB ability to obtain a real rate of return on the investment portfolio in accordance with the actuarial recommendations, a strategy under consideration by the SSB, as well as a higher asset allocation to "development" investments rather than "financial" investments, as shown below.

The amendments setting a 10% contribution rate and a $520 per week ceiling allows a long horizon of the investment portfolio, with rising cash flows until mid-2020. An expansion of the investment portfolio, including additional allocations to the agricultural sector, would then become feasible. However, it is reiterated:

i) Offshore investment in US Dollars will be constrained by the monetary situation, and

ii) 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 which is probably higher than loans to private enterprises or utilities.

The purchase of additional shares issued by statutory bodies or private enterprises is no longer advisable, to meet diversification and liquidity principles.

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 dividend and interest in cash, as no recapitalization of shares are feasible due to the SSB need for liquid returns. Avoiding allocation in a single entity above 20% of assets should also be required, in compliance with ISSA guidelines.

14. <u>Enhancement of Development Issues</u>

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. In view of the above, the CEO provided the actuary with specific models to attain a more adequate balance, in accordance with recognized diversification principles and Board's policies, to enhance the development of the agricultural sector of Belize, as discussed at a special meeting in the Investment and the Strategic Committees of the Board.

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 Agricultural and related sectors, to enhance the rate of return on investments (bonds), and the value of exports, employment creation.
- Fresh funds would become available to target funds to development issues, although the distribution at the specific dates would depend on market conditions and the impact of COVID-19. The Board might modify the anticipated distribution if, for example, GOB bonds offer a better "risk/reward" ratio than agricultural loans.
- The analysis also shows that the financial statements on 31 December 2019 adequately meet the Cash Working Balance outlined in Section 19 of the Financial Regulations, as well as the Liquidity Position. However, COVID-19 might have a significant impact on the cash flow in FY2020.

15. <u>Liquidity of the Investment Portfolio</u>

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, with an investment horizon, which, at present is rather time-limited, including Central Bank obligations.

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 ever be lower for collateral such as land.

The actuary further advises avoiding additional purchases of local shares, as there is no active securities market in Belize due to liquidity concerns, as well as the higher risk of a shareholder as compared to a bondholder or depositor. Allocations on 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. It is not possible to ascertain for how long this cycle will persist, but as the economic slowdown subsides, the demand for loans, and thus the "passive" rates of interest, should again move upward.

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 on-going 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.**

The actuary reiterates that the SSB is amid a second phase of actuarial maturity, with contributions lower than expenditure by a steadily wider margin, as shown in the actuarial valuations. **As a result, the availability of cash for new investments would be restricted to the potential liquidation of deposits to pay benefits.**

6. Scenarios of Risk-Adjusted Returns

The Sharpe Ratio is a risk-adjusted measure of the excess return of a portfolio and how efficient the asset allocation is on a risk/reward basis. **The higher the ratio the better the performance.**

Assuming a risk-free return of 5%, the Sharpe Measure yields the following risk-adjusted return for each category.

S=Rp – r / SD, where **Rp**=Return of the investment, **r=** Risk-Free return (Central Bank Notes).

SD= Standard deviation

The higher the Sharpe Ratios the better the risk-adjusted return on the investments.

Sharpe Ratios (Post -ante)

Term deposits = (0.025 – 0.050) / 0.05 = **-0.50**
Associates & loans= (0.065 – 0.050) / 0.10 **= 0.15**
Total portfolio = (0.0462 – 0.050) / 0.06 = **- 0.03**
Central Bank = (0.070 – 0.050) / 0.05 = **0.40**

The post-ante examples, based on actual returns, show that high-risk investments in Associates and loans (with higher nominal returns and risks) performed better than low-risk bank deposits. The assessment shows the advisability of reducing the high proportion of assets in Bank CDs, avoiding further allocations in shares, while increasing the positions in Notes at the Central Bank. The formulae show that with issues at the Central Bank yielding 5.25% risk-free (plus contingent CPI "long-term" adjustments), would yield expected returns of 7%. Therefore, rates payable on new commercial loans should exceed rates payable by the Central Bank, to yield a "risk-adjusted" return compatible with the Central Bank Notes.

7. Allocations to Development Issues

The Board wishes to evaluate alternative investment goals, to restore a more adequate balance of the investment portfolio **between Financial Issues and Development Issues.**

Table 2 shows a scenario increasing the proportion of **Development allocations** to 28%. Conversely, the proportion of **Financial Issues** would decline to 72%, with a balance of the portfolio more in accordance with diversification guidelines.

It is noted however that allocations to Central Bank Bonds offer a risk/return profit higher than development issues. Therefore, a more restricted approach is advisable concerning the diversification of the portfolio, limiting the proportion of development issues.

Table 2
Proposed Medium-Term Investment Limits by Category

Item	2021/22	2025
GOB and financial obligations	16%	24%
Investments in utilities	53	40
Certificates of Deposits	4	4
Other (municipal, loans, etc.)	2	4
Sub-Total (Financial Issues)	75%	72%
DFC	5	2
Agriculture	13	20
Mortgages / Land / Tourism	7	6
Sub-Total Development Issues	25%	28%
Total	100.0	100.0

8. 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 2019, the unaudited financial statements show a cash position in excess of the statutory minimum. However, COVID-19 might restrict the cash working balance in 2020.

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 and the impact of COVID-19 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 Program (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 from 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 as 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 from 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:

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

	2020	2019	2018	2017
Total contributions (GOB)	16,265	17,950	17,800	17,000
Payments to providers (benefits)	14,544	16,706	16,305	15,937
Operating expenses	873[a/]	1,013	957	801
Total expenditure	(15,417)	(17,719)	(17,262)	(16,738)
Excess of income over expenditure	848	231	538	262
NHI Reserves	3,613	2,774	2,543	2,206

[a/]Excludes claims pending payment

6. Financial Ratios

Key financial ratios have evolved as shown in Table 2.

Table 2
Key Financial Ratios

	2020	2019	2018	2017
Benefits as % of contributions	89.4%	93.1%	92.6%	93.7%
Total expenses as % of contributions	94.8%	98.7%	98.1%	98.5%
Operating expenses as % of benefits	6.0%	6.1%	5.9%	5.0%
Fund ratio (reserves ÷ total expenditure)	0.23	0.15	0.15	0.13
* In months	2.8	1.7	1.7	1.6

The analysis shows a Fund Ratio equivalent that increased substantially on 31 December 2020, but which is still below the international accepted benchmarks of six months' expenditure. **The ratio would decline further if outstanding claims were deducted from the reserves**. Therefore, the scheme is operating under a PAYG (pay-as-you-go) actuarial system with funds equivalent to operational expenses. A key task of the NHI is to strengthen the Fund Ratio with contingency reserves equivalent to six months' average expenditure, to cover potential increases in claims, **a strategy that would require a higher level of public funding, which is not an option in 2021 due to the impact of the pandemic or public finances.**

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 (8% in 2019), which might increase in correlation with the expansion of services in that area.

Table 3
Financial Operations by Region
(percent distribution)

	2020	2019	2018	2017
South Side Belize City	47	44	47	47
Southern Region	36	39	38	39
Northern Region	11	11	9	8
Total purchasing expenses	94	94	94	94
Administrative expenses	6	6	6	6
Total expense	100	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. PCP accounts for 71% of total benefits expenditure. Pharmaceuticals, Imaging, and Lab tests expenditure declined in 2020 due to the pandemic, with a normal pattern to be restored in 2021.

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

	2020	2019	2018	2017
Primary Care (PCP)	11,453	12,152	11,655	10,993
Pharmacy	886	1,069	1,246	1,748
Imaging	389	633	636	579
Lab tests	862	1,469	1,378	1,299
Ophthalmology	67	271	222	236
Hospital and KPI	65[a/]	635	780	804
Total	13,722	16,229	15,917	15,659

[a/]Excludes KPI

9. Membership Data

Table 5 shows the membership (beneficiaries) data, with a static number of beneficiaries in 2019/20.

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

	2020	2019	2018	2017
BFLA	13,122	13,162	12,775	13,693
BMA	12,413	12,438	11,997	13,293
Integral	12,265	12,295	11,909	13,795
M. Roberts	11,997	12,037	10,526	12,363
Sub-total	49,797	49,932	47,207	53,144
Dangriga	16,369	16,401	15,790	16,336
Independence	15,721	15,752	14,524	14,147
Punta Gorda	13,336	13,373	12,594	12,477
San Antonio	10,056	10,107	9,611	9,498
Mercy Clinic	3,156	3,156	2,842	1,758
Corozal +	21,201	21,215	18,105	-
Sub-total	79,839	80,004	73,466	54,216
Total	129,636	129,936	120,673	107,360

10. Actuarial Cost of the Program

Table 6 shows the actuarial costs as a percent of the wage-base, showing estimated actuarial costs of 4.18 (4.86% in 2019), 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$)

	2020	2019	2018
SSB wage base	1,230,212	1,216,456	1,088,300
NHI beneficiaries	129,636	129,936	120,673
NHI wage-base (30%)[1/]	369,063	364,937	326,490
NHI benefit expenditure ($)	14,544	16,706	16,305
Administrative expenditure ($)	873	1,013	957
Total expenditure	15,417	17,719	17,262
Cost as % of NHI wage-base	4.18%	4.86%	5.29%
Cost per member per year	$119	$136	$143

[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 rather limited range of benefits, excluding key services such as general hospitalization, surgery, drugs to 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 ensuring 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 southern Region and the Corozal District, financed by budget transfers. The reserve ratio increased to 2.8 months of expenditure as of 31 December 2020, but still the benchmarks of six months' average expenditure. The ratio may fall further taking into account outstanding claims not reflected yet in the financial statements. **The analysis shows that the NHI has been able to expand services to the Corozal District with static funds, generating a reduction in actuarial costs.**

The estimated average actuarial cost has declined to 4.18% of the national wage base of the targeted population, and the unit cost per beneficiary declined to $119 in 2020. 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 have not yet adopted a decision on the remaining roll-out strategy or the financing of the scheme for 2021/24, and more comprehensive actuarial assessments should be carried out once policy decisions in this respect are adopted. The administrative cost of the scheme of 6% of benefits is lower than 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 if, 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:	$49.35 per week as of April 2016.
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: Claimant 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 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 to give 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 from 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 which 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.