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

BELIZE

Social Security Board

Actuarial Performance Analysis of the Social Security Scheme (as 31 December 2015)

5 July, 2016

César Nicolás Penson No. 116, Edificio "TPA" • Apartado Postal No. 20021 • Santo Domingo, D. N.
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5 July 2016

Mr. Richard Flowers
Chief Executive Officer
Social Security Board
Belmopan, Belize

Dear Mr. Flowers,

Attached is the actuarial performance analysis of the Social Security Board as at 31 December 2015, pursuant to the provisions of Section 45 of the Act, including the cost trend of each benefit branch, and an expanded sections dealing with risk adjusted investments.

A positive financial and actuarial performance was assessed in 2015, due to a satisfactory increase in contributions, a modest increase in benefits, and a stable level of administrative expenses, in an environment of low inflation and indications of a reactivation of the economy of Belize, with a consequent increase in employment activities.

Challenges of the Board going forward are focused on two main areas: i) the complex set of pending legal amendments, to address critical issues and distortions arising from the regulations, and ii) the diversification of the investment portfolio, a task to be more fully addressed by the new senior investment advisor, with quantitative guidance to be provided by the actuarial projections, and policy guidance by the Board.

Yours sincerely,

For: Consultores Actuariales, SRL

Hernando Pérez Montás

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SYNOPSIS OF THE ACTUARIAL PERFORMANCE ANALYSIS (2015)

- A positive financial and actuarial performance was assessed in 2015, due to a satisfactory increase in contributions, a modest increase in benefits, and a stable level of administrative expenses, in an environment of low inflation and indicators of a reactivation of the economy of Belize, causing an increase in employment.
- The short-term branch reserve position was restored by the internal transfer of $18 million in 2014, but reserves have started to decline in the absence of an increase in the rate of contributions, but are anticipated to remain above the minimum statutory level for an additional four to five years.
- The EI branch is overfunded, and reserves are rising again, with a balance far in excess of actuarial benchmarks, despite the transfer of $80 million to the Long-Term branch. The cost of the Non-Contributory pension scheme continues to decline, and could decline further if the minimum entitlement age of females is equalized to that of males, as recommended by the actuary.
- The Government approved early in 2016 the first tranche of Board's proposals to upgrade the purchasing power of pensions in payment, and to strengthen the reserve position of the long-term branch.
- The transfer of $80M from the EI to the long-term branch will extend the period of equilibrium of the LT branch (equalization of total income and expenditure of the LT branch) from 5 years to about 7 years.
- Several concerns are raised in the valuation, in particular, the need to control the spiraling of cost of the self-employed scheme, which now is higher than the general scheme, according to recent data provided by the statistical section.
- The long-term branch "demographic ratio" (pensioners ÷ active contributors, in percent) continues to increase and the "Fund Ratio" (reserve ÷ benefit expenses) continues to decrease. This is a normal process due to the gradual maturity of the pension.
- The analysis also shows that most insured persons are claiming pension as from the age 60 years, including the self-employed, with the SSB unable to detect or control working activity before age 65.

- Also the increase in the number of pensioners with two benefits, due to an unwarranted amendment several years ago, have increased steadily, with a negative incidence in the long-term branch.
- **The diversification of the investment portfolio** is a key task of the Board, and the report shows guidance on risk-adjusted analysis, as a supplement to nominal and real returns.
- Actuarial projections would allow the investment manager to deal with liquidity concerns and monitor the investment horizon, in a mature scheme with consolidated contributions lower than total expenditure as from 2016, with fresh funds for investments arising exclusively from investment income.

The Board is therefore urged to continue to deal with the priority set of legal amendments, a task that ideally should be concluded by mid-2017.

Summary of Key Parameters

	2015	2014
Consolidated increase in contributions	7.4%	7.8%
Investment income	(9.2)%	7.0%
Total benefits	7.4%	10.4%
Administrative expenses	0.0%	(0.1)%
Nominal return on investments		
Actuarial cost (as % of insurable earnings)		
Short-term branch (deficit)[a/](	1.78%	1.78%
EI branch [b/]	0.77%	0.91%
Long-term branch (increasing trend)	5.26%	5.28%
Reserve position		
Short-term branch (multiple of minimum)	2.78	3.17
EI branch (Fund ratio short-term)[c/]	15.3	12.0
Long-term branch (Fund ratio)	6.8	7.1
Period of equilibrium [d/]	7 Years	5 Years
Special programs		
Non-contributory pension		
Number of pensioners	2,098	2,440
Actuarial cost (declining)	0.29%	0.34%
Self-employed scheme		
Number of pensioners (20% of active SE / 2015)	216	174
Actuarial cost (updated)	70% higher than the general scheme	

[a/] Higher than the statutory contributions
[b/] Lower than the statutory contributions
[c/] Reserve ÷ total expenditure
[d/] Equalization of total income and expenditure, subject to fluctuation based on the performance of the investment portfolio (3% real / basic assumption). Increase in the ceiling will extend the period of equilibrium.

B e l i z e
Social Security Board
Actuarial Performance Analysis of the Social Security Scheme
(2015)

Introduction

Pursuant to the provisions of Section 45 of the Social Security Act (1979) an actuarial valuation of the scheme was carried as at 31 December 2015, including the triennial actuarial projections of the long-term branch, as required by the Act, attached is the annual performance analysis for 2015. As a by-product of the analysis, amendments to the benefit structure and the financing bases are set forth in the report, to ensure the adequate development and the financial sustainability of the scheme, in accordance with international standards and benchmarks.

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, respectively. Chapter VI assesses the National Health Insurance Scheme, as required by Part VI of the Act. Appendices 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. The review shows an improved financial and actuarial performance in 2015, as shown in the report. It is also noted that the Board has initiated a first set of statutory amendments, duly approved by the Government early in 2016, by adjusting pensions and transferring reserves to strengthen the actuarial position of the long-term branch and extend its period of equilibrium.

For Consultores Actuariales, SRL.

Hernando Pérez Montás
Consulting Actuary

I

SUMMARY AND RECOMMENDATIONS

1. Scope of the Analysis

In accordance with the provisions of Section 45 of the Social Security Act, an actuarial assessment of the scheme was carried out as at 31 December 2015, as a complement to the triennial valuation carried out the preceding year, to assess the performance of the benefit branches and the adequacy of the statutory contributions to support benefits. The review was based on the legislative provisions in force, including amendments introduced since the last review. 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.

2. Consolidated Financial Performance

The valuation shows a satisfactory financial performance due basically to a 7.4% increase in contributions (7.8% in 2014), despite a frozen ceiling on insurable earnings, a reflection of enhanced compliance procedures, and an improved normalization of the economy and the labour market in Belize, that were severely impacted by the incidence of the worldwide economic recession. These factors contributed to solid financial results, with an increase in expenditure of 5.5% and net income exceeding $24 million, allowing the scheme to continue to accumulate reserves that reached $478.8 million at 31 December 2015, equivalent to 14.6% of GDP, and to improve the funded ratios of the benefit branches.

From an actuarial standpoint, the financial performance contributed to freeze, albeit temporarily, the reduction in the period of equilibrium of the long-term branch, and allowed the Board to restore the funded status of the short-term branch by a transfer of employment injury (EI) reserves, without impairing the actuarial status of the EI branch. Early in 2016 the Government approved the Board's request for a transfer of $80 million to the Long-term branch from excess reserves of the EI branch, further strengthening the funded status of the long-term branch.

The ceiling on contributions has remained frozen since 2001. Therefore, the legislative agenda should prioritize a significant update of the obsolete ceiling, to be followed by more periodically adjustments.

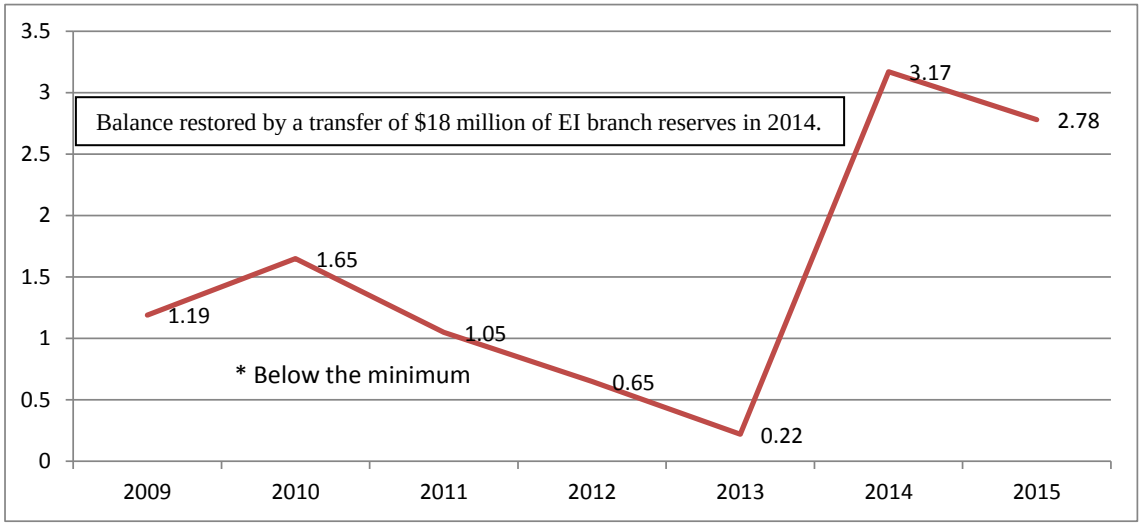
Monetary values are expressed in BZE dollars, equivalent to approximately 0.50 US$.

3. Short-Term Branch

The Board's decision to transfer excess funds of the Employment Injury to the Short-term branch in 2014, restored the funded status of the branch, as stipulated in the Benefit Regulations. As a result, as at 31 December 2015, the reserves were equivalent to 2.78 times the statutory minimum (3.17 in 2014).

Short-Term Branch

Multiple of the Statutory Minimum Level or Reserves



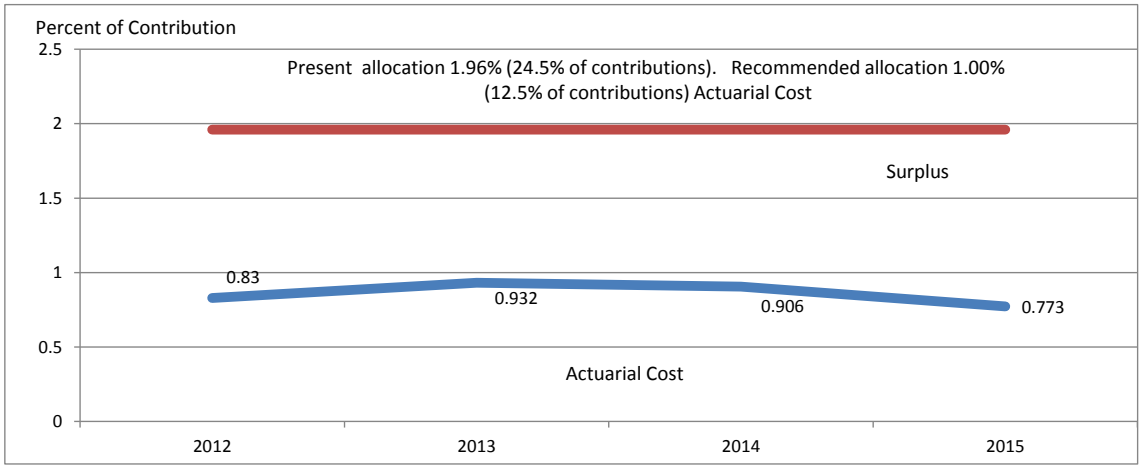
The actuarial valuation shows average actuarial costs, including the share of administrative expenditure, of 1.85% of insurable earnings medium-term, as compared to statutory contributions equivalent to 1.54% of insurable earnings (19.25% of contributions). Therefore, until the required amendments are enacted, increasing the share of contributions to the short-term branch to 25% of contributions from 19.25%, (by an equivalent reduction of the allocation to the employment injury branch), the accumulated reserves at 31 December 2015 will continue to decrease gradually, **although still remaining above the required minimum for approximately four to five additional years**. Sickness allowances accounted for almost two-thirds total benefit expenses, and should the high level of fertility decrease in the future, the rate amount of maternity benefit would tend to decrease. The restoration of 2/3 days waiting period and a replacement ratio of benefit of 70% rather than 80%, the latter exceeding accepted benchmarks, would reduce the actuarial cost of the branch and extend the level of sufficiency of the reserves.

4. Employment Injury Branch

a) Operational Performance and Reserves

The 2015 performance analysis shows total expenditure of 0.86% of insurable earnings as compared to an estimate of 1.00% for the period 2015/17. Despite the 2014 transfer of $18 million in excess reserves to restore the funded status of the short-term branch above the minimum level required by the financial regulations, and an additional transfer of $80 million to strengthen the funded status of the long-term branch early in 2016, as recommended by the actuary and the Board, the reserves of the EI branch continues to exceed the actuarial requirements. Income less expenditure reached a record amount of $16.8 million in 2015, and the actuarial valuation projects actuarial costs of 1% of insurable earnings (12.5% of contributions rather than 19.25% of contributions). **Even after the restructuring of the rate of contributions, as recommended above, the reserves are anticipated to continue to increase due to the interest income arising from the investment portfolio assigned to the branch**. A substantial portion of the EI reserves should be transferred in due course to the long-term branch, to strengthen its funded status.

Actuarial Cost (in % of Insurable Earnings)



b) Disablement and Death Reserve

The valuation shows that the Disablement and Death reserve of the EI branch of $16.5 million at 31 December 2015, covers approximately two thirds the present value of pensions in payment, with a variability of minus or plus 15%, depending on the discount rate. **New cases and the balance of the reserve are subject to significant fluctuations and, at present, there is no need for an internal transfer of reserves from the Short-term EI sub-branch to the Disablement and Death reserve.**

5. Long-Term Branch

a) General Trend and Actuarial Indicators

The actuarial maturity of the long-term branch continues to increase, as new pensions awarded exceed the rate of increase of contributions and investment income. The "current" operations (contributions less total expenditure) yielded a deficit of $7.4 million in 2015, as compared to a deficit of $7 million the previous year. The operational surplus declined to $10 million ($12.5 million in 2014) including a decreasing share of investment income.

The analysis shows that 42% of retirement pensions are awarded at the minimum statutory age of 60 years, with only 25% claiming the pension as from the age of 65 years, despite the fact that the regulations state that those retiring before age 65 can not engage in "substantial employment". A postponement of the minimum retirement age to 62 years, due to a longer life expectancy of the population, has been recommended in the matrix of legal amendments as from 2018, thus reducing the dual benefit of an early retirement pension and active employment.

The PAYG Ratio (expenditure as a percent of insurable earnings) of 5.26% of insurable earnings (5.28% in 2014) decreased marginally due to the significant increase in contributions. **The Fund Ratio** (reserves ÷ total expenditure) decreased to 6.8 times from 7.1 the preceding year, but will increase to 8.4 early in 2016 due to the transfer of $80 million to the reserve. **The Demographic Ratio** (pensioners divided by active contributors), increased to 5.2% for retirement pensions and 8.1% for all long-term pensions, indicative of the gradual maturity of the branch. Demographic projections show a gradual increase in the demographic ratios, due to the increase in the proportion of pensioners in comparison to the active contributors.

b) Pension Adjustment

With effect 1 April 2016 a 5% general increase of pensions in payment was approved, with the exception of non-contributory pensions. This would increase pension expenses by almost $1.5 million in 2016 and $2.1 million in 2017, including disablement and death pensions of the EI branch.

c) Financial Projections

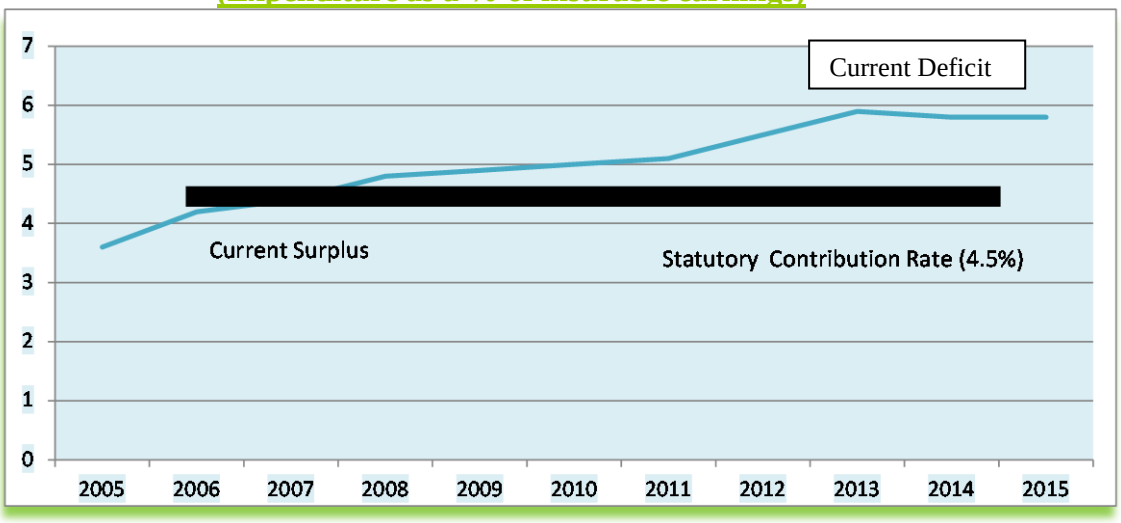
Financial projections are subject to a greater degree of variability than demographic projections, due to the sensitivity of financial forecasts to changes in economic assumptions, such as the level of salary trends, inflation and pending legal amendments concerning eligibility and financing provision. The financial projections

are based on the provisions in force, **but assuming a dynamic and gradual adjustment to the ceiling and pensions in force in correlation with inflation, an assumption which is uncertain due to the period elapsed since the ceiling was adjusted in 2001. Rather, a substantial increase in the present ceiling should be expected medium-term. For these reasons, the projections are subject to material variations depending on the timing and nature of the proposed set of legal amendments.**

The PAYG ratio (expenditure/insurable earnings) is now projected to increase steadily to 5.9% in 2017, 6.0% in 2020, assuming the ceiling would increase in 2017/18, reaching 20.4% in 2060, providing an indicator of the income that will be required in the future to ensure the financial sustainability of the long-term branch, after offsetting the incidence of investment income. Alternative projections with dynamic ceilings would yield lower PAYG ratios, but no statutory increase in the ceiling is anticipated before 2017, as per the actuary's perception of policy developments. **The analysis shows that the present statutory contribution rate of 4.5% of insurable earnings is not sufficient to cover the total expenditure, with a steadily rising gap between contributions and expenditure. The deficit is covered by a decreasing share of investment income, until a period of equilibrium is reached, when the investment income is not sufficient to cover the deficits. In the absence of adjustments to the contribution rate, reserves would then start declining as shown below.**

As from 2008, expenditure exceeds contributions of 4.5% of salaries on a sustainable basis. Deficits are covered by a share of investment income.

Projected PAYG Premium – Long-Term Branch
(Expenditure as a % of insurable earnings)

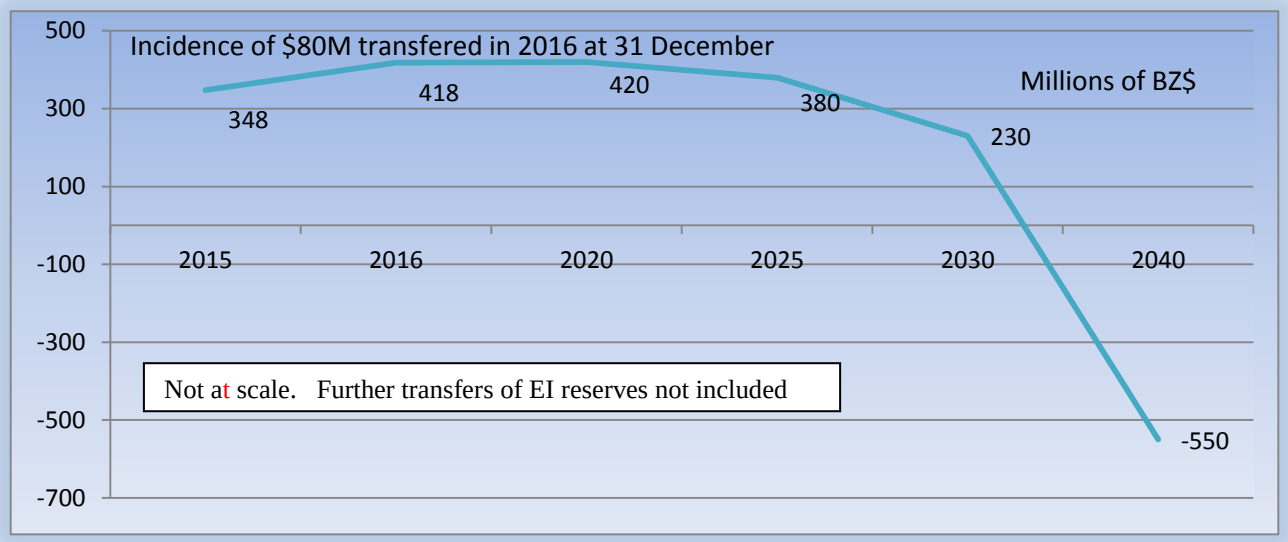


d) Projection of Long-Term Branch Reserves, Periods of Equilibrium and Sensitivities

At 31 December 2015 the period of equilibrium ranged from only 5 years with a 4% real rate of return on investments, 7 years with a 5% rate of return, and 3 years with a 3% return. The basic period of equilibrium of 5 years would have declined to only 4 years at 31 December 2015, but the satisfactory actuarial performance in the last two years froze the decline of the period of equilibrium. Early in 2016 $80 million of EI branch excess reserves were transferred to the long-term branch, increasing the period of equilibrium under the basic assumption to 7 years, with correlative increases in the alternative projections.

Projection of Long-Term Branch Reserves (4% Return)

(Present Provisions)

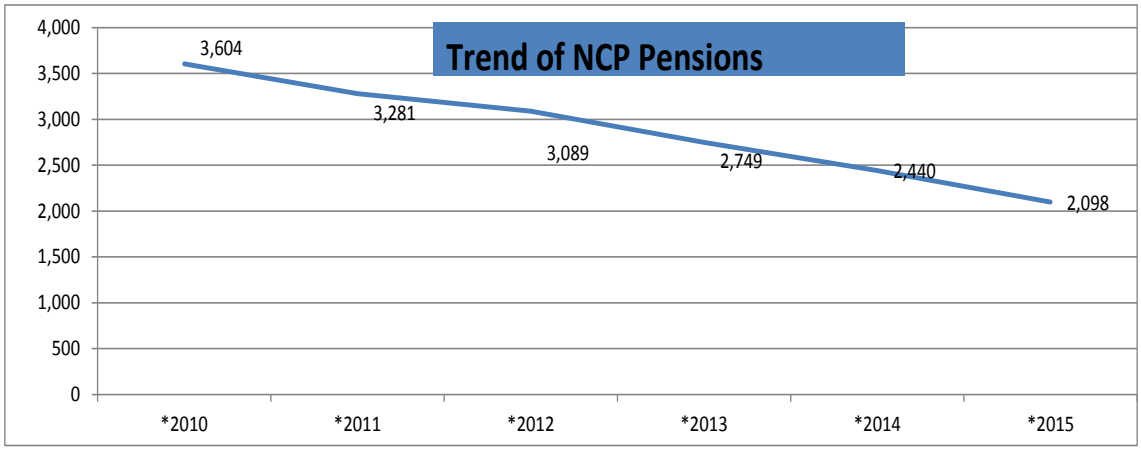


It is also reiterated that the projections are based on legal provisions in force, which are likely to be amended medium-term and long-term, such as the initial retirement age, which most countries are increasing gradually due to the longer life expectancy of populations and the added cost to national pension schemes. For these reasons, projections should be updated periodically. Nevertheless, the projections for the next 10 or 15 years do provide sufficient evidence of the need to introduce a series of amendments to the financing and benefit bases of the scheme.

6. Non-Contributory Pension Scheme (NCP)

The valuation shows a steady reduction of pensions in force, due to a high level of mortality and terminations due to other causes. Assuming a correlation between a long-delayed adjustment to the ceiling on contributions and adjustments to

pensions in payment, the long-term average actuarial cost of the scheme is now assessed at 0.32% of insurable earnings. The actuarial cost would decline further if the minimum retirement age of females is set at 67 years, the same as for males, in accordance with international benchmarks, setting the eligibility two years higher than the basic normal retirement age of 65 years for retirement pensions. Pending additional legal amendments would require a 20-year residence requirement for naturalized residents, and stricter eligibility provisions for beneficiaries in the same household and for beneficiaries of retirement grants.



7. Self-Employed Scheme

The analysis shows that already a significant proportion of self-employed persons have been able to qualify for pensions, with conclusive evidence of an intensive level of "adverse selection". Most of the pensioners have opted to claim pensions before the statutory age of 65 years, and therefore the SSB is unable to verify whether the individuals continue to work, in the absence of an employer. Substantial actuarial deficits are emerging, to be borne by the employers and employees in the standard scheme, impacting negatively on the already mature situation of the long-term branch. The actuarial assessment shows actuarial costs higher than the statutory contributions of 7% of insurable earnings.

The recommended set of amendments should be enhanced by additional provisions, eliminating the window for early retirement, the elimination of "employment injury" benefits (an unusual feature in a voluntary self-employed scheme), and the coverage of housewives (husbands). The actuary considers the proposed amendments to the self-employed scheme a top priority, as shown in Annex C of the report.

8. Subsequent Events. New Legal Amendments

a) Pension Adjustments

Effective 10 February 2016 the Minister responsible for social security approved a proposal by the Board increasing contributory pensions by 5%, and a transfer of $80 million from the EI branch to the Short-term branch, in order to strengthen the reserve position of the long-term branch, in effect since 2013. The minimum pension of $47 per week now increases to $49.35. The adjustment, effective 1 April 2016, will increase pension expenditure by approximately $1.5 million in fiscal year 2016 and by $2 million in 2017.

b) Joint Pensions

In addition to a series of amendments under consideration by the Board, the restoration of the original provision allowing a participant to be entitled to only one pension with the higher rate. Early in 2016 there were 157 pensioners collecting two pensions, a number that will increase steadily and have a negative incidence on the actuarial status of the long-term branch.

9. Redistribution of the Financing Structure

The analysis of the benefit branches shows the feasibility of maintaining the total average rate of contributions of 8% of insurable earnings to the general scheme medium-term, but with the following internal redistribution, as follows:

Branch	Percent of Contributions (2015)	
	Proposal (%)	Actual (%)
Short-term branch	27.50	19.25
Employment injury branch	12.50	24.50
Long-term branch	60.00	56.25
Total	100%	100%

10. Investments

The low inflation environment allowed real rates of return above the 3% actuarial benchmark. 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 long-term branch is not expected to face liquidity constraints in 2015/17, and the consolidated statements show operational surpluses for about a decade, due to the excess reserves of the EI branch. However, new asset allocations should be vested with high liquidity, as total contributions are lower than total expenditure, requiring a portion of investment income to cover the deficit, a gap that should widen

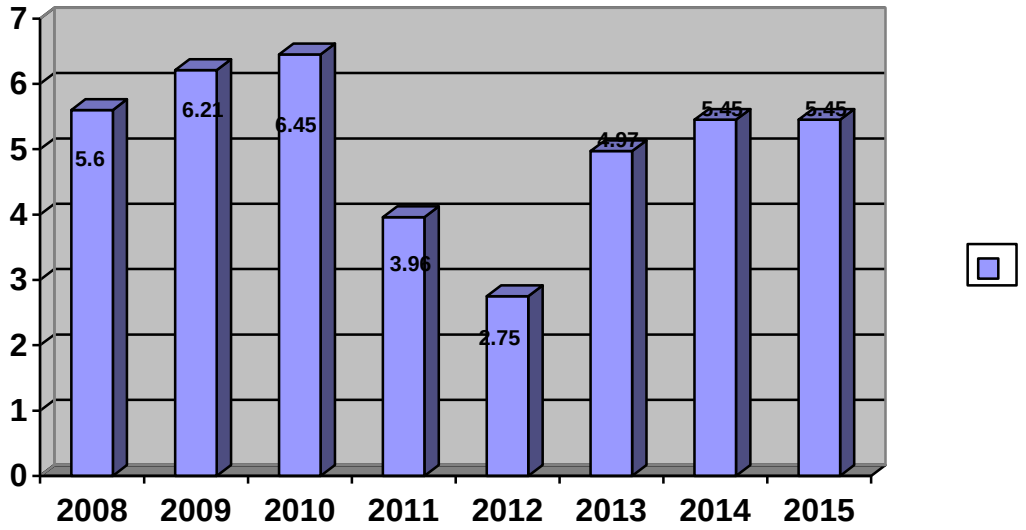
steadily on the basis of the legal provisions in force, until the outdated ceiling on insurable earnings is adjusted to reflect actual earnings more adequately.

The analysis show that a 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 guaranteeing the lower, to ensure a full recovery of the unamortized portion of the investment in case of default. Scenarios of risk-adjustment returns are shown in the report.**

The performance of the investment portfolio in 2015 was adequate, despite the continuation of deflated interest rates payable as term deposits by domestic financial institutions, although rates charged on commercial or personal loans have not declined by the same magnitude, yielding a spread between provisional active rates ensuring the banks an adequate level of profitability. The anticipated adjustments of interest rates by the US Federal Reserve as from 2016 and solid indications of a recovery of the Belize economy, should yield medium-term a gradual increase in the "passive" rates of interest payable by local financial entities, as liquidity declines and demand for loans increase. However, the turnout on financial markets due to the UK decision to leave the European Union, is adding uncertainties to the financial markets.

Nominal Rates of Return on Investments

(in percent)



The analysis also shows risk-adjusted returns more favourable in Associates and Statutory Bodies obligations than in deposits on financial institutions, despite a higher risk, an assessment that should be carried out on a sequential basis.

Annex A shows an assessment of the Investment Portfolio, pursuant to the provision of the Third Schedule of the Act, Section 17, including formulae to assess risk-adjusted returns, financial risk management, and concepts of liquidity.

11. National Health Insurance Scheme

The actuarial cost of the scheme, funded in its entirety by GOB's transfers is being expanded in 2016 to the Northern Districts. Reserves decreased from $3.36 million to $1.89 million in 2015, equivalent to 1.5 months of expenditure, as compared to 2.7 months the preceding year, below standard benchmarks. The rollover to Corozal is under way in 2016, requiring additional funding by the Government, which complements health care provisions to the population with the Ministry of Health and NGOs. The program is now cost-neutral to the SSB, as subsidies several years ago have been suspended due to actuarial constraints.

12. Administrative Expenditure

Administrative and related expenditure remained stable in 2015, with average actuarial cost of 2% of insurable earnings, exceeding accepted benchmarks, as more than a quarter of total contributions are assigned to cover an extensive administrative platform, including a large number of regional District Offices. No significant further declines are expected until the ceiling on insurable earnings is updated, as a frozen ceiling restricts the increase in contributions while expenditure evolves in accordance with inflation trends.

An increase in the ceiling to BZE$500, for example, would cause approximately a 10% reduction in the medium-term actuarial cost of administration, other factors being equal. An additional reduction would take place by the elimination of the two minimum wage-bands.

13. Legal Amendments

A set of legal amendments is still under consideration by the Board. The implementation of the first tranche of amendments will provide a more solid actuarial situation of each benefit band, and address unwarranted distortions and inequalities. In particular, it is noted that the frozen ceiling on insurable earnings for over a decade is rendering irrelevant the amount of prospective pensions to insured persons with earnings above the ceiling.

Below is a **priority list** of the amendments with a significant actuarial and operational incidence to the SSB, allowing the Board to deal with the complex set of adjustments on a gradual basis. The rationale for the amendments has been presented in detail in the respective reports.

PRIORITY LIST (See Annex E)

1. **Invalidity Grant**: Amend the Benefit Regulations to stipulate that only one Invalidity Grant is payable to an insured person. Also state that the accumulation of new age-pension credits would commence as from the date of payment of the Invalidity Grant.

2. **Reallocation of Contributions and Transfer of Reserves**: Reallocate the contribution rates between the short-term branch and the employment injury branch, in order to ensure long-term the funded status of the short-term branch, as required by the Financial Regulations.

3. **Non Contributory Pensions**: Equalize the retirement age for both males and females at 67 years, two years after the normal retirement age of the long-term branch, as per international standards (Items 11 of the long set of legal amendments).

4. **Self-Employed Scheme**: Exclude employment injury from the set of benefits and the coverage of housewives (sections 14 and 15 of the long list of amendments). Also, increase the eligibility condition to qualify for invalidity and retirement pensions from 150 and 500 contributions, to 300 and 1000 weekly contributions respectively, and to invalidity grants from 26 to 250 contributions.

5. **Wage Bands (Self-Employed):** Delete the 250 wage bands and utilize the income brackets specified in the Contributions Regulations. (Item 16 of the long list).

6. **Update of the Wage Bands**: Eliminate the first two wage-bands. The recent increase in the minimum wage from $3.00 to $3.30 per hour renders irrelevant these income brackets.

7. **Qualifying Conditions**: Increase the qualifying conditions for long-term branch pensions to 20 years (1000 weekly contributions) for retirement pensions and 10 years for invalidity pension, **on a gradual basis**. Over a 40/45 years working career (20 years to 60 or 65 years), most insured persons under 45 years of age, would be able to meet the new qualifying conditions. This measure would drastically reduce evasion of contributions, along with the adoption of a linear pension formula.

8. **Linear Pension Formula:** The skewed pension formula (3% per year the first 10 years of contributions and a lower rate thereafter) was justified at the inception of the scheme 30 + years ago, but not now. A linear formula of 1.67% per year would yield the same pension of 66.67% over a full working career.

9. **Sickness Benefit Rates**: As from 2014 set a 70% ceiling instead of 80%, and a 2-day waiting period, still more generous than the rest of the social security schemes in the CARICOM and Central American regions.

10. **Contribution Ceiling**: Only once in over 30 years of operation the ceiling on contributions has been increased, from $130 per week to $320 per week in 2001. Presently the ceiling has been exceeded by almost 40% of insured persons, rendering SSB pensions irrelevant for those earnings higher salaries. In view of the time elapsed since the last adjustment (2001), it would be advisable that it be followed by periodic adjustments at intervals no longer than three years (2017, 2020, etc.). This would increase the flow of contributions, defer the need to adjust the rate of contributions allocated to the long-term branch (4.50% of insurable earnings), and reduce the high relative cost of administrative expenditure, which at present exceeds one-fourth of total contribution income.

The ceiling for the self-employed scheme would remain as at present to avoid additional actuarial liabilities, keeping the self-employed scheme as a program to provide a “basic floor of protection”, rather than replacing income for the segment of self-employed individuals with higher earnings.

II

LEGAL BASES AND CONSOLIDATED FINANCIAL OPERATIONS

1. Legal Bases, Coverage and Benefit Provisions

The social protection system in Belize, as regards cash benefits, is composed of the national social security scheme administered by the Social Security Board (SSB), as a first pillar of pension protection, and 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. On 1st December 2007 non-contributory pensions for males as from 67 years of age were introduced and the amount of non-contributory pensions were increased to $100 per month, impacting negatively on 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.

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 prior to retirement. However, the minimum pension, increased from $47 per week to $49.35 per week as 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 domestic workers working less than 8 hours per week, persons in the military service and selected officials. Employed persons 65 years and over are covered only against employment injury. A summary of the benefit provisions is shown in Appendix D. Effective 1 January 2009, the distribution of contributions by branch was amended as shown below. A further adjustment is required as from 2015, apportioning to the short-term branch a higher level of contributions, to allow the recapitalization of the branch, and to strengthen the financial bases of the long-term branch.

Table 1

Distribution of Contributions by Benefit Branch

Branch	2016 (recommended)	2009	2008
Short-term	27.50 (2.20)	19.25(1.54)	18.75(1.50)
Employment injury	12.50 (1.00)	24.50(1.96)	25.00(2.00)
Long-term	60.00 (4.80)	56.25(4.50)	56.25(4.50)
Total	100 (8.00)	100 (8.00)	100 (8.00)

a/ In parenthesis: rates as % of insurable earnings

Further, as from 2009, allocations to the Social Development Fund have been charged to the Employment Injury Branch, but a limit should be stipulated in the Regulations.

2. Legal Amendments

A substantial proportion of the set of legal amendments is still under consideration by the Board. Proposed amendments would address a number of critical provisions dealing with the share of contributions among the benefit branches, the elimination of outdated contributory wage-bands, the provisions regarding eligibility for benefits, the non-duplication of invalidity grants and the self-employed scheme, among others.

Early in 2016, in addition to the transfer of reserves from the EI branch to the long-term branch, pensions in payment were adjusted by 5%, setting a minimum pension of $49.35 per week rather than $47 per week.

With retroactive effect as from 1 January 2011, the Benefit Regulations were amended by Statutory Instrument No. 89/2011 of 15 September 2011. The instrument amends sub-regulation (2) of Regulation 62, after the provision (d), adding a new paragraph as follows: "(e) survivor's benefit with retirement benefit".

The amendment allows a surviving spouse to receive, in addition to the retirement benefit earned on her own right, the survivor's benefit payable on the death of the spouse, a rather uncommon feature for pension plans funded on a PAYG basis, wherein the financing of the individual pension would be borne in part by future generations. Before the amendment, only the higher benefit would be payable to the surviving spouse, which is the usual provision of social security schemes funded on a PAYG basis worldwide. The amendment will increase the actuarial cost of the long-term branch, by allowing all age retirees entitled to survivors' pensions to continue to receive both pensions. Further, when both spouses are entitled to a retirement pensions, as the male usually would die before the female spouse, she will be the beneficiary of the joint pensions.

3. Macro-Economic Trends

After a stagnant period due to the worldwide economic recession, the economy of Belize has shown signs of a steady recovery as from 2013, in an environment of low inflation. Recent data by the Statistical Institute of Belize show steady GDP increases and a declining unemployment rate currently the last of 2010.

As from 2014 the active insured population has been increasing significantly, yielding a coverage rate of two thirds the employed labour force. The inception of a self-employed scheme as from 1 March 2003, although on a voluntary basis in the first phase, does not have a material incidence in the total active insured population, due to a stagnant level of voluntary participation.

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. Contributions are equivalent to approximately 2% of the Gross Domestic Product (GDP), and accumulated reserves are equivalent to 14% of GDP.

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 1.5% as from 2015, declining steadily there after. Family planning and higher educational standards should slow the intrinsic rate of fertility. From an actuarial standpoint, high fertility rates contribute to delay in the ageing 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 to 10.5%, indicative of the gradual incidence of ageing and its emerging incidence on pension costs in the future. However, the gross mortality rates have declined from 28 per thousand in 1990/95 to 15 per thousand, and the life expectancy at birth increased by three years in the last 15 years, reaching an average of 73.7 years at present, according to estimates of the Statistical Institute of Belize (SIB).

4. National Health Insurance Program

On the basis of recommendations of a National Health Sector Reform Committee, the Government amended the Social Security Act to include a new chapter in order 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 is focalized in two geographical areas (Belize City and South Belize) and is being expanded to Northern Districts as from 2015.

5. Financial Bases

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. Medical care for employment injury was provided only in government installations but as from 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.

At present, the rate of contributions paid by employers and employees is 8% of insurable earnings (7% for the self-insured), up to a contributory earnings ceiling of $320 per week, as follows:

Weekly earnings	Employee	Employer	Total
	(as % of insurable earnings)		
Up to $139.99	1.50%	6.50%	8.00%
$140/320	1.97% to 2.95%	5.63% to 5.02%	8.00%

If the insured person is over 65 years, the employer pays $2.60 per week only for employment injury benefits. 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 contribution ceiling of $130 per week has been increased only once, 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. However, low income workers are eligible for a minimum pension of $47 per week and are still paying a minimum contribution of $0.83 per week.

The present ceiling has become obsolete, and once the financial crisis and its negative incidence on employment ceases, the stakeholders should reach an agreement to update the ceiling in order to achieve a better correlation between actual earnings and SSB benefits, including provisions for quasi-automatic adjustments to the ceiling.

The amendments should also include phasing-out the obsolete wage-band system used to assess contributions, instead of payments based on actual earnings, which are easier to manage by enterprises in the formal sector of the economy.

The distribution by branch is as follows, with further adjustments still pending.

6. Actuarial Systems

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, since relative costs are expected to remain within a narrow range for long periods. Any adverse fluctuations or trend would be covered by a "contingency" reserve. The reserve is established in the regulations as the six months average benefit expenditure in 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 prior to 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.

7. Income and Expenditure

Accounting standards and policies are set forth 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 2 shows the consolidated income and expenditure in the last four financial years, excluding NHI operations. Total expenditure in 2015.

Table 2
Consolidated Statement of Income and Expenditure (ex-NHI Operations)
(amounts in thousands of BZ$)

Income	2015[4/]	2014	2013
Contributions [1/]	77,381	72,070	66,866
Investment income	23,775	26,186	24,476
Other income [2/]	1,069	1,106	982
Total Income	102,225	99,362	92,324
Benefits			
Short-term branch	13,195	11,987	11,540
Long-term branch [3/]	39,687	36,367	34,003
Employment injury branch	6,178	6,614	4,232
Benefit Expenditure	59,060	54,968	49,775
Administrative and other expenses	18,650	18,666	18,869
Total expenditure	77,710	73,634	68,644
Net income	24,515	25,728	23,686

[1/] Excludes GOB contribution to the NHI Fund and NHI operations. Unaudited data.
[2/] Includes interest on rental income, staff advances and surcharges for late contributions.
[3/] Includes non-contributory pensions.
[4/] Unaudited. Non-material adjustments to be reflected in 2016.

8. Other Income

The rate of other income has fluctuated between 0.11% and 0.15% of insurable earnings, including interest on late contributions, staff advances and rental income. The income is distributed in equal parts among the three benefit branches, pursuant to the provisions of Section 14(3) of the Financial Regulations, yielding 0.12% of insurable earnings in 2014, close to the rate assessed for the period 2012/14, to be adjusted based on future valuations if higher compliance by employers tends to reduce the penalties for late contributions, or vice versa.

9. Balance Sheet and Reserves by Branch

Table 3 shows the balance sheet as at 31 December 2015 and the preceding two years.

Table 3
Balance Sheet of the Social Security Board (as at 31 December)
(amounts in thousands of BZ$)

	2015	2014	2013
Cash and bank balance	17,913	24,300	20,673
Short-term investments	118,843	114,795	127,243
Long-term investments [a/]	331,598	306,601	272,208
Accounts receivable and others	12,696	14,249	15,269
Fixed assets (net)	26,138	26,742	27,528
Total assets	510,188	486,687	462,921
Liabilities and deferred income	(8,798)	(7,897)	(6,102)
Net reserves and special funds	501,388	478,790	456,819

[a/] Includes investment in Associates

The percent distribution of the investment portfolio at 31 December 2015 is as follows:

Table 4
Percent Distribution of the Investment

	2015	2014
Short-term & other	29.4	37.0
Associates	47.2	37.2
Long-term	23.4	25.8
Total	100%	100%

As to the distribution of reserves by branch, Table 5 shows an increase in both Long-term branch and EI branch reserves, the latter exceeding accepted benchmarks, whereas the Disablement and Death reserves has remained relatively stable.

The Short-term branch reserves increased in 2014 due to a transfer of $18 million from the EI Reserves, restoring the balance above the statutory level of the six-month average benefit expenditure in the last three years, required by Section 17(1) of the Financial Regulations).

Table 5
Distribution of Reserves by Branch
(as at 31 December, in thousands of BZ$)

Benefit Branch	2015	2014	2013
Short-term	17,029	18,109	1,226
Long-term	348,367	338,333	328,218
Employment Injury	114,517	99,003	102,813
Disablement and Death	16,474	16,468	16,716
National Health Insurance Fund	1,889	3,558	2,751
Social Security Development Fund	2,070	2,277	1,802
Pension reserve	1,042	1,042	3,291
Total	510,388	478,790	456,817

10. Reserves as a Percent of GDP

Table 6 shows the consolidated SSB reserves as a percent of GDP, with a balance slightly above 14% of GDP (current prices) 2013 in the preceding three years.

Table 6

SSB Reserves as Percent of Gross Domestic Product (GDP)

	2015	2014	2013	2012
	(amounts in millions of BZ$)			
GDP [1/]	3,500	3,398	3,230	3,154
SSB Reserves	510	479	457	437
As % of GDP	14.6	14.1%	14.1%	13.8%

[1/] Current prices. Extrapolated from World Bank data ($3,398M in 2014 + 3% increase in 2015).

11. Rate of Return on Investments

As shown in Table 7 the rate of return on investments has fluctuated significantly, and has been influenced by capital gains and provisions for non-performing investments. A nominal return of 4.89% in 2015 (5.65% in 2014), was deflated by a negative CPI, yielding a real rate of return of 5.94%.

Table 7

Rates of Return on Financial Investments (net assets)
(amounts in millions of BZ$)

	2015	2014	2013
Net investment income	23,775	26,186	24,476
Nominal rate of return [1/]	4.89%	5.65%	5.4%
Average inflation rate	(0.9)	1.00	1.57
Real return [2/]	5.94%	4.60%	4.42%

[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 at the end of the year, excluding $143,968 in financial expenses.
[2/] According to the formula: $[(1 + i) / (1 + s)] -1$ where i and s represent the interest rate and the inflation rate.
Source: Statistical Institute of Belize and Social Security Board

Due to the importance of the amount of reserves and of the investment return, it is imperative that a strategy 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, in conjunction with expert advice on investments, provide a platform for a long-term investment strategy as from 2016.

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. As to the housing mortgages, an agreement with the Government to re-assume responsibility for all mortgages that have been transferred to the SSB would eliminate from the balance sheet such investments. 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 8 shows the trend in administrative expenditure of the basic scheme, with a slight decline in 2015, due basically to a frozen level of remuneration.

Table 8
Distribution of Administrative Expenditure (amounts in thousands of BZ$)

	2015	2014	2013
Total operating expenditure [1/]	18,650	18,666	18,869
Depreciation (administration)	(700)[p/]	(788)	(868)
Amortization Depreciation (establishment)	(600)[p/]	(684)	(610)
Net operating expenses	17,350	17,194	17,391
Actuarial cost (total) [2/]	1.93%	2.07%	2.26%
Actuarial cost (net)[3/]	1.80	1.91%	2.08%
Budget Performance Indicators			
as % of contributions	24.1%	25.9%	28.2%
as % of contributions + benefits	13.7%	14.7%	16.23%

[1/] Excluding NHI expenses
[2/] As percent of insurable earnings
[3/] Excluding depreciation / amortization
[p/] Projection, subject to adjustment

The bottom part of Table 8 shows the performance ratios of administrative expenditure, which are applicable for budgeting purposes, with a decline in the rate of administrative expenditure over the last two years, as compared to contributions and benefits.

The distribution by branch of the total actuarial costs is shown in Table 9.

Table 9
Administrative Expenditure by Branch, as percent of insurable earnings

	2015	2014	2013
Short-term branch	0.42%	0.45%	0.41%
EI branch	0.35	0.39	0.43
Long-term branch	1.16	1.23	1.34
Total	1.93%	2.07%	2.18%

When salary adjustments become effective, the actuarial cost of administration would tend to increase further, reaching a level far in excess of standard benchmarks. When the ceiling on contributions is updated, raising the level of insurable earnings, the relative cost of administrative expenditure should decline, but reaching a competitive level of similar social security schemes in Central America and the Caribbean requires additional cost-curtailment measures. Costs are not compatible, as the Belize scheme operates several District Offices, which is not the case in smaller schemes in the Caribbean.

14. Social Development Fund and Disaster Fund

Pursuant to the provisions of statutory instrument No. 60 (1990), 0.15% of insurable earnings of the short-term branch had been assigned to a Social Development Account, reducing the effective financing of short-term branch benefits. As from 2009 the financing of those funds have been transferred to the EI branch, as recommended by the actuary. As at 31 December the accounts had the following balances:

Table 10

	2015	2014	2013
	(Amounts in thousands of BZ$)		
Social Development Fund	269	726	501
Disaster Fund	1,889	1,551	1,301
Total	2,158	2,277	1,802

15. Trend of Active Insured Persons

The following tables show the trend of active insured persons by sector, sex and wage-band income. In particular, the proportion receiving earnings in the top income bracket has increased from 33% in 2011 to 38% in 2015, (Table 11c) indicative that the ceiling of $330 per week should be updated, as otherwise the pension amount will become irrelevant to a significant proportion of insured persons.

Table 11 (a)
Trend of Active Insured Persons

Years	Males	Females	Total
2015	63,131	38,265	101,396
2014	61,577	37,031	98,608
2013	58,059	35,113	93,172

[p/]Provisional

Table 11 (b)
Percent Distribution by Age-Group
(31 December 2015)

	Males	Females
24 and less	25	24
25/34	32	34
35/44	21	23
45/54	14	14
55/64	6	4
65 and over	2	1
Total	100	100

The number of total active insured increased from 90,577 in 2012 to 93,172 in 2013 (2.86%), 97,790 in 2014 (4.95%), and 101,336 in 2015 (3.6%). These high rates are non-sustainable and indicative of a reactivation of the depressed labour market due to the recession. Employees in the private sector account for 80% of the total insured, but earnings are higher in the public sector and statutory agencies.

Table 11 (c)
Percent of Insured Persons by Earnings Bracket

Bracket (by week)	2015	2014	2013
Less than 110	13	15	15
110 < 300	49	49	50
300 and over	38	36	35
Total	100	100	100

Table 11 (d)

Percent Distribution of Insured Persons by Sex

Sectoral Distribution	2015	2014	2013
Private	80.7	80.3	80.2
Public	14.5	14.8	14.8
Statutory bodies	4.8	4.9	5.0
Total	100	100	100
Sex Distribution	2015	2014	2013
Males	62.3	62.6	62.4
Females	37.7	37.4	37.6
Total	100	100	100

16. Density of Contributions

The average density of contributions was of 36.9 weeks in 2014 (73% on the basis of a maximum of 50 weeks per year), and higher for females (37.6 weeks) than for males (35.9 weeks).

Table 12

Density of Contributions (2015)

	Active Insured	Weeks paid	Density (weeks)
Total	101,396	3,741,305	36.9
Males	63,131	2,293,921	36.3
Females	38,265	1,447,384	37.8

17. Summary of Statistical Data (SIB)

Population	370,000
GDP growth rate	0.6%
GDP (market prices)	3,500 million
CPI (2015 /2016) rising trends	-6.6%
Unemployment rate (September 2015)	10.2%
Labour Force (September)	156,383
Employee persons (September)	140,475
Life expectancy (years / at birth)	737
Labour force participation rate: males 79% / Females: 48%	

III
ANALYSIS OF THE SHORT-TERM BENEFIT BRANCH

1. Financial Operations

Table 14 shows the financial operations of the short-term benefit branch. Total expenditure has consistently exceeded total income, with a $1.66 million deficit in 2014 as compared to $2.27 million in 2013. A transfer of $15 million in reserves from the EI branch contributed to restore the reserves above the statutory minimum as at 31 December 2008, but at the end of 2013, the reserve again has fallen below the statutory minimum, prompting the Board to approve another transfer of $18 million early in 2014. The branch was severely penalized by subsidizing the NHI pilot project with about $25 million between 2001 and 2005, depleting the accumulated reserves of previous years, a process that was abetted by an excessive liberalization of the benefit provisions in 2001.

Table 14
Income and Expenditure of the Short-Term Benefits Branch
(Amounts in Thousands of Belize Dollars)

	2015	2014	2013
Contributions	14,895	13,874	12,872
Investment & other income	1,269	472	527
Total Income	16,164	14,346	13,399
Maternity allowances	3,516	3,146	3,342
Sickness benefits	8,575	7,882	7,233
Maternity grants	1,004	959	966
Total Benefits	13,195	11,987	11,541
Operational expenses	4,049	4,015	4,124
Total Expenditure	17,244	16,002	15,665
Income less Expenditure	(1,080)[b/]	(1,656)	(2,266)
Contingency Reserve	17,029	18,109[a/]	1,225

[a/] Includes transfer of $18 millions from the EI reserves. Otherwise, the balance would have been negative.
[b/] Lower deficit than in 2014 due to the incidence of the investment income arising from the transfer of reserves in 2014.

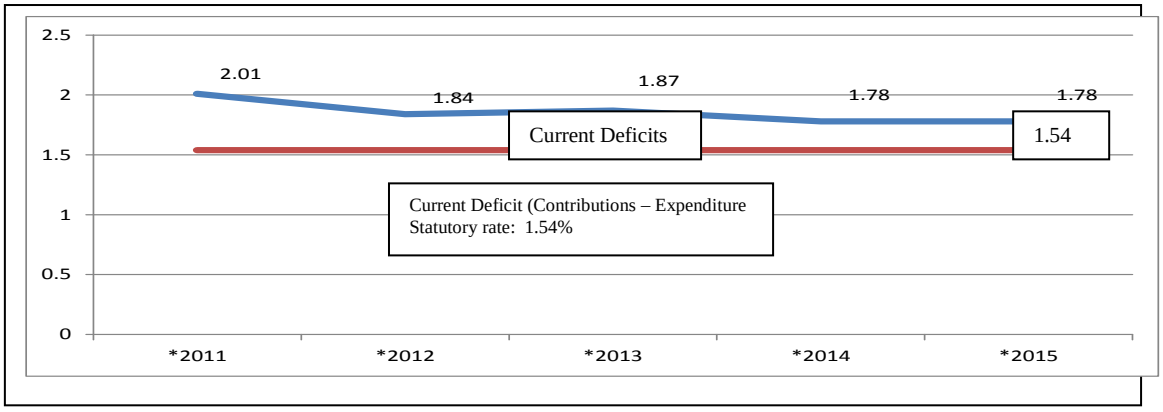
2. Income and Expenditure as a Percent of Insurable Earnings

Income and expenditure as a percentage of insurable earnings is shown in Table 15. Total cost (benefit and administrative expenditure) have consistently exceeded the contribution rate allocated to the branch. Investment income contributed to reduce the deficit, but as reserves have been declining, investment income also declined. The deficit rose to 0.38% of insurable earnings in 2011, but declined to 0.18% in 2014.

Table 15
Income and Expenditure of the Short-Term Branch as a Percent of Insurable Earnings

	2015	2014	2013
Contributions	1.540	1.540	1.540
Investment & other income	0.131	0.052	0.063
Total Income	1.671	1.592	1.603
Maternity allowances	0.364	0.349	0.400
Sickness benefits	0.886	0.875	0.864
Maternity grants	0.104	0.105	0.115
Total Benefits	1.364	1.330	1.380
Operating expenses	0.419	0.446	0.493
Total Expenditure	1.783	1.776	1.874
Income less Expenditure	(0.112)	(0.184)	(0.271)

Actuarial Cost of the Short-Term Branch
(% of insurable earnings)



3. Cost and Funding Ratios

Section 17 (1) of the Financial Regulations set a minimum level of reserves equivalent to six months the average benefit expenditure in the last three years. As shown in Table 16, at the end of 2014 the reserve was restored above the minimum stipulated in the regulations, and has started to decline as from 2015.

Table 16
Statutory Minimum Level of Reserves (31 December)

	2015	2014	2013
	(amounts in thousands of BZ$)		
Minimum statutory reserve [1/]	6,120	5,713	5,564
Actuarial reserve [2/]	17,029	18,109	1,225
Reserve ratio (actual / minimum)	2.78	3.17	0.22

[1/] Six months average benefit expenditure in the last three years.
[2/]Includes a $15 million transfer from the EI reserves in 2009 and $18 million in 2014.

Table 17 shows the cost and funding ratios of the short-term branch, with the following summary:

a) **The ratio of benefits divided by contributions** has been rather stable, with an 88% average in the last three years.

b) **Cost ratios (expenditure divided by contributions and total income) are higher than one, meaning sustainable "current deficits".** Even including investment income still yields sustainable deficits.

c) The Fund Ratio shows a steady decline, and at 31 December 2013 was equivalent to 0.13, less than two months projected expenditure, below the international accepted minimum of six months' total expenditure.

d) The transfer of reserves restored the reserve position above the minimum state in the regulations, but in the absents of an increase to the share of contributions, the reserves will start declining gradually and fall again below the statutory minimum in about four to five years.

Table 17
Cost and Fund Ratios of the Short-Term Branch

	2015	2014	2013
Benefits ÷ contributions	0.89	0.86	0.90
Total expenditure ÷ contributions	1.16	1.15	1.20
Total expenditure ÷ total income	1.07	1.12	1.15
Fund Ratio [a/]	0.99	1.13	0.08

[a/] Reserve ÷ total expenditure in the year

4. Frequency and Unit Cost of Sickness Benefit

The analysis for the period under review shows (Table 18):

a) An average duration of terminated sickness cases of 7.1 days, in 2014 and 9.20 days in 2015, with no discernible trend.

b) Average “morbidity rates” (days paid per insured per year) of 3.30 days in 2015/13, with a moderate rising trend.

c) **Morbidity rates for females significantly higher than for males**, an anomaly 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 10 days, higher than the duration of terminated cases, and average days per insured in a calendar year of 3.10 days.

Table 18
Matrix of Sickness Incidence and Duration

	2015	2014	2013
Insured Population		Exposed to Risk (Active Insured)	
Males	63,131	61,138	58,059
Females	38,265	36,612	35,113
Total	101,396	97,750	93,172
Duration of Terminated Cases			
Cases	3,658	3,472	3,285
Days paid	33,656	24,354	24,777
Average duration (days)	9.20	7.01	7.42
Total Days paid during the year			
Males	168,753	157,312	156,958
Females	173,423	159,063	142,017
Total	342,176	316,375	298,975
Morbidity Rates (Days paid per average insured terminated cases)			
Males	2.67	2.63	2.74
Females	4.90	4.44	4.10
Total Terminated Cases	3.44	3.31	3.16
Incidence of Sickness and Cost per Case and per Day			
New cases	30,929	28,973	27,754
Days paid	308,520	292,021	274,598
Days per case	9.98	10.08	9.89
Case per insured	31.1	30.3	23.1
Days per insured *	3.10	3.05	2.99
Amount paid (in thousands)	$8,575K	$7,882K	$7,112K
Cost per case	$277	$272	$260
Cost per day	$27.79	$26.99	$26.30

* Morbidity rate, all cases

5. Actuarial Cost of Sickness Benefit

Table 19 shows the actual and projected actuarial cost of sickness benefits of 0.89% of insurable earnings in 2015, **with alternative cost scenarios assuming a restoration of waiting periods and a moderation of the 80% benefit rate to 70%. The actuarial cost in 2015 was practically equivalent to the 0.90% rate assessed in the 2014 triennial valuation.**

The average key assumptions were as follows, for the period 2015/17.

Table 19

Average	Actual 2015	Projected 2015/17
Cases per 100 insured	0.31	0.30
Days per insured (Morbidity rate)	3.10	3.10
Cost per case	$277	$2.80
Cost per day	$28	$27
Cost per insured	$88	$84
Actuarial cost	0.89%[a/]	0.90[a/]

[a/]As percent of insurable earning.

6. Incidence of the Elimination of the Waiting Period

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 have almost doubled the number of claims processed, generating a significant increase in the administrative workload, while increasing the SSB cost of sickness benefits. **A restoration of the waiting period will have no material incidence in the direct cost to employers, but it will reduce the SSB administrative cost.**

It is also to be recalled that claiming sickness benefits payments for only one or two days, entailing additional lost hours of work, causes expenses for claimants and employers, and reduces productivity at the workplace, to the detriment of the cost of production of goods and services.

The morbidity rate (days paid per insured) should decrease by 25%, due to a high incidence of cases in the agricultural sector, usually prior to 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 schemes, also contributes to the high incidence and duration of sickness cases, particularly if the beneficiary is able to 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.

7. Incidence of Amendments to the Sickness Provisions

The application of the waiting period and a level replacement rate of 70% rather than 80% would reduce the actuarial cost is shown in Table 20.

Table 20

	Insurable earnings
Actuarial cost, present legal provisions	0.90%
With a 2-days waiting period and a 70% rate	0.76%
With a 3-days waiting period and a 70% rate	0.67%

8. Trend of Maternity Benefits

The rates of maternity allowances declined slightly in 2014/15, as well as the frequency of maternity grants, due to reduced employment levels, as shown in Table 21.

Table 21
Actuarial Cost of Maternity Benefits

	2015	2014	2013
Active contributors	101,396	97,750	93,172
Female contributors	38,265	36,612	34,183
Number of allowances paid	1,285	1,240	1,318
Number of grants paid	3,329	3,187	3,212
Allowance paid per 100 females	3.36	3.39	3.86
Grants paid per 100 females	8.70	8.70	9.40

p/ Provisional

9. Actuarial Cost of Maternity Benefits

The cost of maternity allowances has remained rather stable in the last three years, at an average of 0.37% of insurable earnings. For the period 2015/17 the following average parameters have been assessed, with 2015 rates rather close to the triennial estimate.

Table 22
Actuarial Cost of Maternity Benefit

	2015 (actual)	2015/17
Actuarial cost (allowances)	0.36%	0.38%
Actuarial cost (grants)	0.11%	0.12%
Total	0.47%	0.50%

The 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 will be monitored periodically.

The emerging experience is shown in Table 23:

Table 23

Year	Allowances as % of insurable earnings	Grants	Total
2015	0.30	0.11	0.47
2014	0.35	0.11	0.46
2013	0.40	0.12	0.52
2012	0.38	0.12	0.50
2011	0.44	0.13	0.57
2010	0.41	0.13	0.54
2009	0.43	0.14	0.57

10. Actual versus Expected Experience and Projected Actuarial Cost

Table 24 shows a comparison between the actual and expected actuarial cost of the short-term branch benefits, with total cost in 2014 of 1.78% of insurable earnings, lower than anticipated, due in part to the reduction of the share of administrative expenditure. The actuarial cost estimate for 2015/17 (1.85%) will be updated again at the next triennial actuarial valuation as at 31 December 2017**.** No significant reductions should be expected until the ceiling of insurable earnings is updated, or until the former benefit provisions are restored on a partial basis. **The actuarial cost is higher than the present statutory allocation of 1.54% of insurable earnings (or 19.25% of contributions), which is insufficient to restore the actuarial solvency of the branch.**

Table 24
Comparison between Actual and Expected Actuarial Cost of Benefits
(as % of insurable earnings)

	Actual 2015	Projection [a/] (2015/17)	Actual			
			2014	2013	2012	2011
Sickness allowance	0.89	0.90[b/]	0.88	0.86	0.86	0.87
Maternity allowance	0.36	0.38	0.35	0.40	0.38	0.44
Maternity grant	0.11	0.12	0.11	0.12	0.12	0.13
Total benefits	1.36	1.40	1.34	1.38	1.36	1.44
Administrative expenses	0.42	0.45[b/]	0.44	0.47	0.50	0.57
Total	1.78	1.85	1.78	1.85	1.86	2.01

[a/] Legal provisions in force
[b/] Declining 0.76% and 0.67% with the restoration of a 2-day or 3-day waiting period respectively and a ratio of benefit of 70% rather than 80%, as from 2017.
[c/] Subject to reduction when the ceiling is updated.

11. Sustainability of the Short-Term Branch

Early in 2014 the Board approved a transfer of $18 million from the EI branch to the Short-term branch, thus restoring, albeit temporarily, the level of reserves above the statutory minimum. An update of the share of contributions is still pending; otherwise the level of reserves of the short-term branch would start decreasing again, but the level would remain above the statutory minimum medium term, provided the transfer of funds from the EI branch does not require amortization. A permanent sustainable financing structure requires a higher allocation of the share of contributions, as recommended by the actuary.

IV
ANALYSIS OF THE EMPLOYMENT INJURY BRANCH

1. Financial Operations of the Employment Injury Branch

Table 25 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. Due to the transfer of $18 million to the short-term branch in 2014, the reserves declined from $102.8 million as at 31 December 2013 to $98 million at 31 December 2014, but increased again to $114.5 million at 31 December 2015. The analysis shows a steady surplus reaching $16.8 million in 2015, exceeding by for the current income from contributions.

Table 25

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

	2015	2014	2013
Contributions	18,958	17,657	16,382
Investment and other income	5,344	6,374	5,482
Total Income	24,302	24,031	21,864
Disablement grants	496	584	432
Employment injury (short-term)	2,322	3,098	2,319
Disablement benefits (actuarial value)	722	477	1,221
Death benefits (actuarial value)	543	486	253
Funeral grants	5	3	7
Total Benefits	4,088	4,648	4,232
Operating expenses	3,393	3,518	3,556
Total Expenditure	7,481	8,166	7,788
Income less Expenditure	16,821	15,865	14,075
Net Reserve (Short-term benefits)	114,517	98,003	102,813

2. Income and Expenditure as a Percent of Insurable Earnings

Income and expenditure as a percentage of insurable earnings are shown in table 26. Total benefits in 2015 were equivalent to 0.42% of insurable earnings or 0.51% including a pending case, (0.52% in 2014), yielding a substantial surplus, which shows that the financing of the branch exceeds actuarial requirements.

Table 26

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

	2015	2014	2013
Contributions	1.960	1.960	1.960
Investment and other income	0.552	0.707	0.656
Total Income	2.512	2.667	2.616
Disablement grants	0.051	0.065	0.052
Employment injury (short-term)	0.240	0.344	0.277
Disablement benefits (actuarial value)	0.075*	0.053	0.146
Death benefits (actuarial value)	0.056	0.054	0.030
Funeral grants	0.0000	0.000	0.001
Total Benefits	0.422*	0.516	0.506
Operating expenses	0.351	0.390	0.426
Total Expenditure	0.773	0.906	0.932
Income less Expenditure	1.739	1.761	1.684

* Excludes a pending case, increasing total expenditure to 0.510%

3 Statutory and Actual Reserves

Reserves of employment injury benefits have evolved as shown in table 27. 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 24.1 times higher than the stipulated minimum, a clear indication that the contribution rate assigned to the branch exceeds the actuarial requirements, and the level of reserves exceed by a wide margin the statutory requirements, despite the transfer of $18 million to the Short-Term branch in 2014 and $15 million in 2009.**

Table 27
Employment Injury Benefits
(amounts in thousands of BZ$)

31 December	Reserve	Statutory Minimum	Multiple Minimum Reserve
2015	114,517	4,322	26.5
2014	99,003	4,055	24.1
2013	102,813	3,848	26.7
2012	79,744[r/]	3,790	23.9
2011	89,646[r/]	4,403	18.2
2010	68,021	4,995	13.6
2009	57,020	5,149	11.1

[r/]Restated

4. Incidence of Short-Term Injury Benefits

Table 28 shows the incidence and cost ratios of employment injury benefit, and table 29 shows the actual and expected costs.

Table 28
Incidence of Employment Injury Short-Term Benefit)

	2015	2014	2013
Cases paid	1,922	1,888	1,804
Amount paid ($ thousands)	2,322	3,098	2,319
Average insured persons	100,002	95,461	92,108
Cases per 100 insured	1.92	1.98	1.96
Cost per case ($)	1,200	1,641	1,285
Cost per insured ($)	23.22	32.45	28.17
Actuarial cost (% of salaries)	0.240	0.344	0.277

The emerging trend shows that the anticipated incidence has been lower, as the impact of the economic crisis continues to cause high levels of unemployment, impacting low income seasonal workers, particularly in the agricultural sector, which has a high incidence of work accidents. **The estimated realized cost for 2015 was below to the assessed rate of 0.30% of insurable earnings,** but would have been close to the estimate adding anticipated expenses of a case to be shared with other entity**.**

Table 29
Actual and Expected Cost of Injury Benefits [a/]

	Projected 2015/17	Actual 2015	2014
Cases per 100 insured	2.00	1.92	1.98
Actuarial cost (% of salaries)	0.30%	0.24%*	0.344%

[a/]Excludes medical expenses
* 0.32% adding a pending case

5. Financial Trend of the Disablement & Death Benefits

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

Table 30 shows the income, expenditure, reserve and the Fund Ratio of the Disablement and Death benefits. The Disablement and Death Reserve, is of a different nature, representing the amounts required to pay pensions in payment until cessation of

payment due to death, recovery or termination of survivors' benefits, while the short-term branch contingency reserve is designed to cover adverse deviations in the experience.

Table 30
Income, Expenditure and Reserves Disablement & Death Benefits

	2015	2014	2013
APV disablement benefits	722,083	476,479	1,220,788
APV death benefits	543,257	486,394	253,734
Total APV	1,265,340	962,873	1,474,522
Net investment income	829,691	967,996	939,013
Total income	2,095,031	1,930,869	2,413,535
Expenditure			
Disablement pension	1,356,723	1,315,630	1,385,696
Death benefits	732,648	650,584	697,082
Total benefits	2,089,370	1,966,214	2,082,778
Excess of income over expenditures	5,660	(35,345)	330,757
Actuarial Reserve	16,474,646	16,468,895	16,716,703
		Key Indicators	
Actuarial cost (new cases) [a/]	0.13	0.11	0.09
Reserve ÷ benefit expenditure	8.02	8.36	7.97

[a/]APV of new cases ÷ insurable earnings (57% less disablement and 43% death in 2015).
[r/]Restated

6. Incidence of Disablement and Death Benefits

Table 31 shows the rates of accidents per 1000 insured persons due to EI accidents. The total accidents per year have averaged 22 cases per 1000 persons, of which 1.4 per thousand can be classified as entitling the individual to permanent incapacity status. The rest are only entitled to the grant, with a disability rate lower than 25%, as shown in Table 32.

Table 31
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
2015	1,922	127	3	19.2	1.27	0.04
2014	1,888	114	4	19.7	1.19	0.04
2013	1,804	286	1	19.6	3.18	0.01
2012	1,782	114	6	20.5	1.28	0.08
2011	2,150	127	7	23.3	1.47	0.08
2010	2,320	109	11	25.1	1.24	0.13
Average 2010/14	1,989	118	4	21.6	1.67	0.07

Table 32
Percent Distribution of New Cases of Permanent Incapacity by Degree of Incapacity (2014)

Year	60% and over	30/59%	Under 30%	Total
2015	2	3	95	100
2014	2	3	95	100
2013	1	12	87	100
2012	1	5	94	100
2011	4	4	92	100
2010	3	5	92	100
2009	2	9	89	100

7. Trend of Pensions in Payment

The statistics shown in Table 33 indicate a very gradual increase of pensions in payment, the balance of new pensions awarded and terminations due to death and other causes, and a decline of widows' pensions.

Table 33
EI Pensions in Course of Payment

	2015	2014	2013
Disability Pensions			
Number	463	459	456
Monthly amount ($)	$105,217	$102,343	102,595
Widows			
Number	87	101	94
Monthly amount ($)	$31,020	$32,650	$31,749
Orphans			
Number	191	198	211
Monthly amount ($)	$28,882	$28,561	$30,991

9. 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. **It is recommended that the financial statements show injury cash benefits and medical expenses separately.**

10. Expected Cost of the EI Branch

The triennial actuarial valuation at 31 December 2014 estimated total costs of 1% of insurable earnings for the period 2015/17. The estimated future cost of 1.00% of insurable earnings is equivalent to approximately one-half the present allocation to the branch of 1.96% of insurable earnings.

The experience of 0.86% of insurable earnings in 2015 has been lower than the triennial average but the rate is subject to fluctuation to be monitored before the next triennial valuation to be carried out in two years.

Table 34
Actuarial Cost of the EI Branch
(as % of insurable earnings)

Benefit	2015 (Actual)	2015/17 [p/] (Expected)	2014	2013
Employment Injury	0.32%	0.35%	0.34%	0.28%
Disablement & Death Benefits (APV)	0.13	0.15	0.11	0.17
Disablement Grants	0.05	0.06	0.07	0.05
Death and Funeral Grants	0.01	0.04	0.04	0.01
Total Benefits	0.51	0.60	0.52	0.51
Administrative Expenditure	0.35	0.40	0.39	0.42
Total	0.86%	1.00%	0.91%	0.93%

[p/] Projected at the 31 December 2014 triennial valuation.

11. Funded Status of the Disablement and Death Reserve

A direct analysis of the level of sufficiency of the Disablement and Death Reserve was performed at 31 December 2014 with a projection at 31 December 2015. The calculations were carried out according to the following bases.

Mortality Table: GAM-83

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: 4% (ad hoc pension adjustments)

Actuarial Reserve: $16.47 million (at 31 December 2014)

The present value of EI pensions in payment and the Fund Ratio is as follows assuming life pensions rather than conversion into age pensions at age 60.

Table 35
Funded Status of the EI/Disablement & Death Reserve
(at 31 December) [a/]

Discount rate	Present value	Fund Ratio	
	(in thousands $)	2014 [b/]	2015 [c/]
3%	$28,859	59%	48%
4% (basic)	$24,809	66%	53%
5%	$22,195	74%	60%

[a/] Reserve ÷ APV of benefits
[b/] Actuarial valuation
[c/] Estimate

It is estimated that the reserves are approximately equivalent to two thirds the actuarial present value of pensions in payment, with a variability of plus or

minus 15%. 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, such a transfer is not required at present.

13. Reallocation of the Contribution Rate

The recommended allocation of 1% of insurable earnings to the branch, rather than 1.96%, covers anticipated actuarial cost of the EI branch until the next triennial actuarial valuation, but reserves should continue to increase due to the material incidence of investment income. Therefore, even with a reduced allocation of contributions equivalent to almost one-half the present statutory allocation, the substantial reserve of the EI branch will continue to increase in the future. A transfer of additional reserves to the long-term branch is also deemed advisable, to strengthen the actuarial reserve of the branch.

12. Update of the EI Degree of Disablement Schedule

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 a minimum life pension of $47 per week, **and to continue in active 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. For an insured person with average earnings of $55 per week, the minimum pension would be equivalent to 85% of the salary.

A certain proportion of disablement pensioners might be in active employment, and also receiving a minimum pension of $47 per week, as the degree of disablement does not preclude active employment.

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 declining 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 is in Table 36, showing the expected increase in pension benefits, with new pensions awarded exceeding the cost reduction arising from the mortality of existing pensioners. Reserves increased by 2.97% in 2015, as compared to 3.1% in 2014. When the surplus decreases to zero (period of equilibrium), branch reserves would start to decrease unless an adjustment to the contribution rate restores a positive operational balance and reserves continue to increase.

As from 2008 total expenditure began to exceed contributions, with the future increase in reserves arising exclusively from a declining share of investment income, a situation that was accelerated by the addition of non-contributory pensions to males and the adjustment of the basic rate to $100 per month.

Operational surpluses are expected for a few more years, due exclusively to the incidence of investment income, and extending the growth of reserves until total expenditure exceeds total income, a process that could be delayed temporarily by adjustment to the ceiling on contributions and other amendments to the benefit provisions.

Table 36
Income and Expenditure of the Long-Term Branch
(Amounts in thousands of Belize Dollars)

	2015	2014	2013
Contributions	43,527	40,539	37,612
Investment & other income	17,401	19,478	18,510
Total Income	60,928	60,017	56,122
Retirement benefits	26,608	23,838	21,269
Invalidity benefits[2/]	3,509	3,073	3,106
Survivors' benefits	5,597	5,329	5,138
Funeral Grants	1,219	1,095	1,086
Non-contributory pensions	2,754	3,032	3,404
Total Benefits	39,687	36,367	34,003
Operating Expenses	11,207	11,132	11,188
Total Expenditure	50,894	47,499	45,191
Income less Expenditure	10,033	12,518	10,930
Actuarial Reserve	348,367	338,333	328,218
Fund Ratio [1/]	6.8	7.1	7.3

[1/] Reserves ÷ total expenditure
[2/] Approximately one forth of expenses are grants.
[r/] Restated

3. Income and Expenditure as a Percent of Insurable Earnings

Table 37 shows the financial experience as a percent of insurable earnings. Total benefits rose to 4.10%, and total expenditure to 5.26%, of insurable earnings, higher than the 4.5% allocated to the branch. The "current deficit" (contributions less expenditure) has been increasing steadily, reaching a negative rate of 0.76% of insurable earnings in 2015.

Table 37

Income and Expenditure as a Percent of Insurable Earnings

	2015	2014	2013
Contributions	4.50	4.50	4.50
Investment & other income	1.80	2.16	2.22
Total Income	6.30	6.66	6.72
Retirement benefits	2.75	2.65	2.55
Invalidity benefits	0.36	0.34	0.37
Survivors' benefits	0.58	0.59	0.61
Funeral Grants	0.13	0.12	0.13
Non-contributory pensions	0.28	0.34	0.41
Total Benefits	4.10	4.04	4.07
Operating Expenses	1.16	1.24	1.34
Total Expenditure	5.26	5.28	5.41
Income less Expenditure	1.04	1.38	1.31
Current Surplus (deficit)[a/]	(0.76)	(0.78)	(0.91)

[a/] Contributions less expenditure

4. Trend of Pensions in Payment

Table 38 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 38
Trend of Pensions in Payment (year-end)

	Retirement	Invalidity[a/]	Widows/ers	Orphans	Total Pensions	Rate of Increase (%)
2009	3,217	342	874	1,221	5,603	3.9%
2010	3,497	354	951	1,217	5,972	6.6%
2011	3,831	356	1,993	1,233	6,361	6.5%
2012	4,214	346	1,063	1,250	6,813	7.1%
2013	4,532	339	1,090	1,212	7,211	5.8%
2014	4,855	358	1,175	1,297	7,685	6.6%
2015	5,287	353	1,216	1,380	8,236	7.2%

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

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 death of the beneficiary and to "other causes", as many pensioners resume work and the pension is then suspended, or by reaching the maximum qualifying age in the case of orphans.

5. Frequency of Pensions Awarded

Table 39 shows the number and frequency of pensions awarded in 2015/13.

a) Retirement pensions: An average of 75% opts to claim the old-age pension before reaching age 65, and only 20% as from age 65. Note that the regulations state that insured persons retiring before age 65 should no longer be "substantially employed", as otherwise the pension shall not be payable (Sections 25 (1) (c) and 25 (5) (a) of the benefit regulations). This is a disturbing practice as most social security schemes are striving to increase the retirement ages due to a longer life expectancy, and the inability of many schemes to detect workers who become "substantial employed" in an economy characterized by a seasonal labour market.

The payroll includes invalidity pensions that are transferred to the category of retirement pensions upon the attainment of age 60. Therefore, actuarial liabilities include two groups with differential life expectancies, as disabled lives have a higher mortality than non-disabled lives. However, the distortion is not significant, as less than 5% of retirement pensions in force can be assigned to former invalidity pensioners.

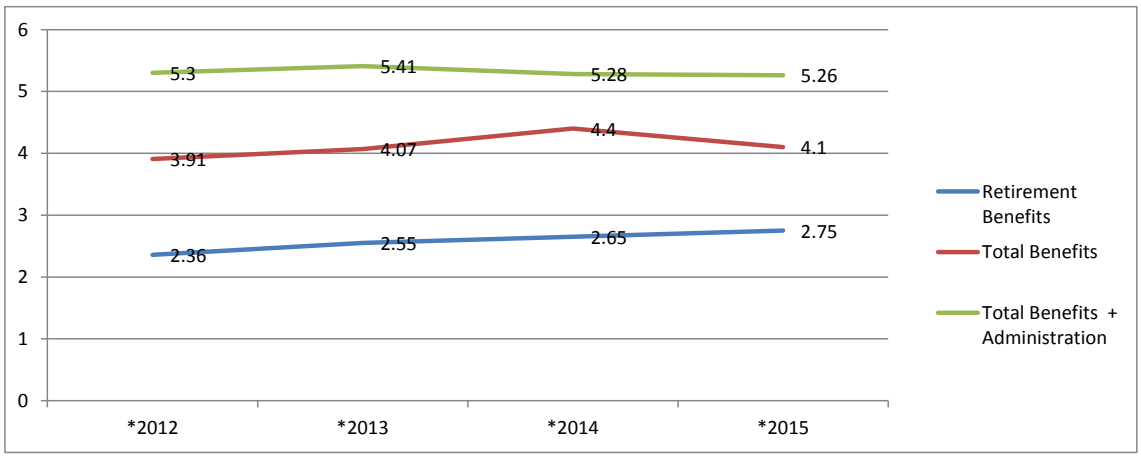
Table 39

Frequency of Pensions Awarded by Age-Group

Number of Retirement pensions awarded					
Age group	Percent increase 2015	Total 2015/13	2015	2014	2013
60	42%	635	261	193	181
61/64	33	500	198	139	163
65 +	25	371	113	135	123
Total	100%	1,506	572	467	467
	Number of Widows' Pensions Awarded				
59	63%	232	72	83	77
60/64	11	40	18	12	10
65 +	26	98	35	40	23
Total	100%	370	125	135	110
	Number of Invalidity Pensions Awarded				
50/59	55%	86	24	35	27
40/49	34	53	24	19	10
39 -	11	17	8	3	6
Total	100%	156	56	57	43

Long-Term Branch

Income & Expenditure (% of insurable earnings)



b) Widows Pensions

37% of new widows' pensions are awarded as from 60 years of age, basically on the death of a male pensioner. Less than 2% of survivor's pensions have been awarded to widowers, mostly for death in service. The rest are awarded to survivors for death in service, with a higher incidence of female survivors.

c) Invalidity Pensions

The data shows that 55% of awards at ages 50/59, while 45% are awarded to insured persons with less than 40 years of age. This yields a rate per 1000 insured as shown in Table 40. Pensions are transferred to the category of retirement pensions at age 60, despite the provision of Section 18 (2) of the Benefit Regulations.

Table 40

Invalidity Rates by Age Group (2014 Valuation)

	Rates per thousand
50/59	2.45
40/49	0.65
39 and under	0.07
Average	0.42

6. Invalidity Grants

The number and cost of invalidity grants have been increasing steadily. In 2009, invalidity grants represented only 14% of the total invalidity benefits, a proportion that has increased substantially to 27% in 2015, as shown in Table 41.

It is noted that at large proportion of invalidity grants are due to Diabetes Mellitus, a disease that at young or middle age usually does not cause total incapacity for work. Research also shows multiple cases of invalidity grants in the pre-retirement period, an anomaly the scheme is planning to address in the set of legal amendments under consideration by the Board.

Table 41

Invalidity Grants

Year	Number allowed	Percent of total invalidity payments	Amount paid
2015	57	27%	$930
2014	41	21%	$660
2013	53	26%	813
2012	47	32%	933
2011	53	24%	610
2010	42	15%	358
2009	31	14%	302

7. Performance of the Non-Contributory Pension Scheme (NCP)

As shown in attachment B the cost of NCP has been decreasing steadily with new awards more than offset by the mortality and termination of pensioners. The 2008 peak in actuarial cost of 0.69% of insurable earnings has decreased to 0.55% in 2011 and to 0.29% in 2015.

8. Trend of Demographic Ratios

Table 42 shows the trend of demographic ratios between 2010 and 2015. The higher rate of increase took place for retirement pensions, with 5.21 pensioners per 100 active contributors in 2015. The consolidated ratio increased to 8.00.

Table 42
Trend of Demographic Ratios
(At 31 December)

	2015	2014	2013	2010
Demographic Ratios (Pensioners ÷ active contributors, in %)				
Retirement [a/]	5.21	4.96	4.58	3.98
Invalidity [b]	0.35	0.37	0.39	0.41
Survivors [c/]	2.44	2.53	2.86	2.19
Total (actual)	8.00	7.86	7.83	6.58

[a/] Excludes NC pensions
[b/] Pension transferred to old-age category at age 60
[c/] Includes orphans (51% of total)

9. Distribution of Statutory Contributions

The gross share of contributions allocated to the long-term branch is equivalent to 4.50% of insurable earnings as from 1 July 2003. Deducting the estimated costs of grants, the non-contributory scheme, and administrative and other expenditure, yields an updated net rate of 2.77% for 2014, and 2.90% in 2015, as shown in Table 43.

Table 43
Distribution of the Statutory Contributions (Long-Term Benefits)
(excluding investment income)

	2015	2014	2013
Gross rate	4.50	4.50	4.50%
Other income	0.04	0.04	0.04
Total contributions	4.54	4.54	4.54
Administrative expenditure	(1.16)	(1.23)	(1.34)
Grants [a/]	(0.20)	(0.20)	(0.19)
Non-contributory pensions	(0.28)	(0.34)	(0.41)
Net rate for contributory pension benefits	2.90%	2.77%	2.60%

[a/] Includes all grants

10. Extract from the 2014 Triennial Valuation

a) Comparison of Mortality Tables

Table 44 shows a comparison of mortality rates of the Table GAM-83 (USA) and the Barbados Life Tables, with higher rates of the latter both in 2010 and projected for 2032. Having regarded of the "select" (lower) mortality of active insured person's vis-à-vis the general population, the present valuation is based on the GAM-83 mortality table.

Table 44
Comparison of Mortality Rates (Males)
(Rates per thousand)

Age	GAM-83 (USA)	Barbados Life Tables	
		2010	2032
35	0.86	2.7	1.6
45	2.18	5.0	3.3
55	6.13	9.8	7.1
65	15.59	19.5	15.2
75	44.60	49.2	41.4
85	114.83	137.2	124.4
Life Expectancy (at birth)	-	69.9	74.8
At age 60	22.9	18.3	20.0

b) Invalidity Rates

The rates of entry into invalidity have been as expected, along with low continuation rates, due to high termination rates. Further, invalidity pensions are converted into age pensions at age 60. The mean rate of invalidity in 2010/13 was about 1.05 per thousand, at a mean age of 40 years, lower than the rate of 1.30 per thousand in the last review, yielding around a net increase of 7 new pensions in payment per year, medium term, with a significant variability due to seasonal factors and terminations. The recovery rates (or voluntary suspensions) have restricted further the number of active cases.

c. Salaries and Contributions

A dynamic approach has been assumed, with insured persons increasing at an average rate of 1.2% per annum, and salaries increasing at an average compound rate of 25% per annum, in an environment of low inflation. To assess the total amount of contributions, the product of total insurable earnings by the net allocation rate of 8.15% of insurable earnings, as stated in Section 9, yields total contributions for regular pensions and administration.

d) Inflation

Average inflation is assumed at a rate of 2%.

	Nominal rate	Real rate (inflation adjusted)
High	5%	3%
Medium	4%	2%
Low	3%	1%

e) Pensions Adjustments

Pensions are assumed to be adjusted periodically at a rate equivalent to the inflation rate, but in practice pensions have been adjusted on an "ad hoc" multi-year basis, focused only on the minimum pensions.

f) Replacement Ratios and Survivor's Entitlement

Replacement ratios are expected as follows, as a percent of the last insurable earnings, reflected by the dual incidence of density of employment and pensionable earnings. A 44% net rate of replacement is equivalent to 55% of salary with an 80% density of contributions. This is reflected, jointly with inflation and the revaluation of pensions, in an increase to the average amount of pensions in payment of 5% per annum on a compounded basis, although no pension adjustments are foreseen short-term.

Table 45

Projected Replacement Ratios (New Pensioners)

Year	Age Pensions	Invalidity Pensions	Survivors Pensions[a/]
2015	0.36	0.28	0.25
2020	0.34	0.34	0.30
2030	0.44	0.36	0.32

[a/]Includes (children / orphans)

It is also assumed that 80% of widows of active or retired males are entitled to widows' pensions. In practice, more than 90% of female pensioners are assumed to die after males, leaving few entitlements to widowers' pensions.

g) Demographic Projections

Table 46 shows a summary of the demographic projection, based on legal provisions in force, with the last two columns showing the ratios of retirements and total pensioners to the active insured (demographic ratios). The 2011 valuation reflected an economic and employment environment impacted by the economic recession, with a significant recovery in the number of contributors at the close of 2014.

Table 46

Summary of the Basic Demographic Projections (2014 Triennial Valuation)

Year	Number of Pensioners					Demographic Ratios [3/]	
	Number of Contributors	Retirement	Invalidity [1/]	Survivors [2/]	Total	Retirement Pensions (%)	All Pensions (%)
2011	86,551	3,799	340	2,292	6,361	4.4	7.4
2014	97,790	4,855	358	2,472	7,685	5.01	7.8
2017	102,257	5,604	330	2,701	8,685	5.5	8.9
2020	106,928	6,469	103	2,952	9,824	6.1	9.8
2025	122,152	8,217	445	3,422	12,084	7.2	12.1
2030	113,949	10,438	491	3,967	14,896	8.5	16.7
2040	136,817	16,840	599	5,531	22,771	12.3	35.1
2050	150,243	27,171	730	7,165	35,066	18.1	14.9
2060	154,553	43,839	890	9,629	54,358	28.4	35.2

[1/] Invalidity pensions are converted into age pensions at age 60.
[2/] Widows and orphans.
[3/] Ratio of pensioners to active insured, in percent, excluding non-contributory pension

h) Financial Projections

Financial projections are subject to a greater degree of variability than demographic projections, due to the sensitivity of financial forecasts to changes in economic assumptions, such as the level of salary trends, inflation and pending legal amendments concerning eligibility and financing provision. The financial projections are based on the provisions in force, **but assuming a dynamic and gradual adjustment to the ceiling and pensions in force in correlation with inflation, an assumption which is uncertain due to the period elapsed since the ceiling was adjusted in 2001. Rather, a substantial increase in the present ceiling should be expected. For these reasons, the projections are subject to material variations depending on the timing and nature of the proposed set of legal amendments.**

Table 47 presents a summary of the financial projections, with the last line showing the ratio of total expenditure to insurable earnings in percent, an indicator of the "pay-as-you-go" (PAYG) premium of the branch. The funding requirements of the branch are naturally lower, since investment income provides additional resources, albeit at a decreasing rate, as shown below in the projection of reserves. With a static ceiling on insurable earnings, a scenario (which is not sustainable medium-term), the negative gap between income and expenditure tends to expand steadily, yielding a current deficit that increases from $7 million in 2014 to $11 million in 2017, $16 million in 2020 and substantive larger amounts thereafter.

The PAYG ratio (expenditure/insurable earnings) also increases steadily from 4.9% in 2014 (higher than the statutory contribution rate of 4.5% of insurable earnings), to 5.6% in 2017, 6.0% in 2020, reaching 20.4% in 2060, providing an indicator of the income that will be required in the future to ensure the financial sustainability of the long-term branch, after offsetting the incidence of investment income.

Alternative projections with dynamic ceilings would yield lower PAYG ratios, although but no increase in the ceilings is expected before 2017. However, the scenarios present a statutory contribution rate of 4.5% of insurable earnings is not sufficient to cover the total expenditure, with a steadily rising gap between contributions and expenditure. The deficit is covered by a decreasing share of investment income, until a **period of equilibrium** is reached, when the investment income is not sufficient to cover the deficits. In the absence of adjustments to the contribution rate, reserves would then start declining as shown below.

Table 47

Summary of the Financial Projection (Present ceiling)
(Amounts in millions of BZ$)

Year	Contributions	Total expenditure	Current surplus (deficit) [1/]	PAYG [2/] Ratio (4%)
2014	40.5	47.5	(7.0)	4.9
2015	41.91	50.2	(8.3)	5.3 (5.1 expected)
2017	44.7	55.7	(11.0)	5.6
2020	49.3	65.5	(11.1)	6.0
2030	67.4	113.3	(45.9)	7.6
2040	90.2	200.3	(110.1)	10.0
2050	118.4	361.2	(242.8)	13.7
2060	145.6	660.8	(515.2)	20.4

[1/] Excludes investment income
[2/] Ratio of total expenditure ÷ insurable earnings, in percent

i) Projection of Reserves and Periods of Equilibrium and Sensitivities

Table 48 shows a basic projection of actuarial reserves, as a by-product of the statutory contribution rate and the financial projections, with a rate of return on investment of 4% per annum, rather than 5% as assumed in 2011, and also sensitivity tests of reserves and periods of equilibrium under alternative rates of interest of 3% and 5%, up to the year 2060. Periods of equilibrium range from only 5 years with a 4% rate of return to 7 years with a 5% rate of return and 3 years with a 3% return. It is also noted that once the reserves become negative, the higher the negative rate of return the higher would be the deficit.

The basic period of equilibrium of 5 years would have been declined to only 4 years, at 31 December 2014, but the satisfactory actuarial performance in 2013/14 froze the decline in the period of equilibrium. Assuming $80 million of EI branch excess reserves are transferred to the long-term branch, the period of equilibrium under the basic assumption would increase from 5 to 7 years, with correlative increases on the alternative projections.

Table 48
Summary of the Projection of Reserves and Period of Equilibrium
(Present of Equilibrium (Present ceiling)
(amounts in million of BZ$)

Year end	Rate of Return on Investments		
	3%	4%	5%
2014	338	338	338
2017	340	351	362
2020	327	350	373
2025	258	303	351
2030	97	162	239
2040	(738)	(664)	(552)
2050	(2,965)	(3,037)	(3,038)
2060	(8,234)	(8,918)	(9,553)
Period of equilibrium[1/]	3 years	5 years	7 years
Period of equilibrium adding $80 million of excess EI Reserves	5 years	7 years	10 years

[1/]Number of years when reserves start declining (as from 2014).

j) Level Premium (Discounted Average Premium)

Average premium rates would theoretically generate a quasi-fully funded scheme, a model which is not very common in social security schemes. Table 49 shows scenarios of level premiums with alternative rates of return.

Table 49
Average Premium Rates (60-year projection)

Discount Premium Rate	Average Premium Rate (Actual: 4.5%)
3%	10.48%
4%	9.63%
5%	8.80%

To compare to the present statutory allocation of 4.5% of insurable earnings (56.25% of contributions), attaining full funding would require to more than double the present rate of contributions.

k) Actuarial Present Value of Obligations and Assets

As required by IAS-19/26, Table 50 shows the actuarial present value of pensions in payment, and Table 47 the obligations including the active staff, with a Funding Ratio of 34% at the valuation date. The difference between the obligations and the assets will be compensated with future adjustments to the joint contribution rates, in accordance with the "scaled premium" system of finance, as stipulated in Sections 45 and 50 of the Act, and Sections 17 (3) and 17 (4) of the Financial Regulations. It is noted that the SSB qualifies as a **State Plan,** according to international accounting standards. The data of table 51 therefore is shown only for information purposes and should not be disclosed in the accounting statements, as customary in National Social Security Schemes.

Table 50
Actuarial Present Value of Pensions in Payment (31 December 2014)
(Amounts in thousands of EC$)

	Discount Rate		
Present Value	3%	4% (basic)	5%
Retirement pensions	269,086	246,656	227,324
Invalidity pensions	38,222	33,986	30,424
Survivors pensions	67,077	59,712	41,964
Sub-Total	374,385	340,354	299,712
Future widows	25,349	23,303	21,536
Total Obligations	399,734	363,657	321,248
Reserves (LT Branch)	338,333	338,333	338,333
A) Surplus (deficit)	(61,401)	(25,324)	17,085
B) Surplus (deficit), inc. $80M EI Surplus	18,599	54,678	97,085

Table 51
IAS 19R Accounting Disclosures Actuarial Present Value of Projected Obligation
(31 December 2014)
(Amounts in thousands of BZ$)

Present value of projected obligations (PBO)	2014
Active insured	830,370
Pensions in payment	363,654
Total obligations (PBO)	1,194,024
Fair value of assets	418,333[a/]
Fund Ratio	35%
Mortality Table	GAM-83
Discount rate	4%
Inflation Rate	2%
Salary Scale	2%
Density contributions	70%

[a/]Including $80 million in EI branch excess reserves.

VI

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 and in the Southern Region (Stann Creek and Toledo Districts). The government is implementing a gradual rollover of the program to additional Districts as from 2015.

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 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 funded 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 millions. 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 from 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

Table 52 shows the income expenditure and reserves of the NHI scheme, with GOB transfers increased at a lower rate than expenditure yields a $1.67 million deficit in fiscal years 2015, and a reduction in the reserve to only $1.8 million, or only 1.2 months, a critical level. Benefit expenses rose by 25% in 2015, which included consultancies, the rollover to the north Belize, and non-recurring items.

Table 52
Financial Trends of the National Health Insurance Fund
Amounts in thousands of BZ$

	2015	2014	2013
Total contributions (GOB)	17,025	15,834	14,000
Benefits	17,937	14,299	13,016
Operating expenses	757	729	731
Total expenditure	18,694	15,028	13,747
Excess of income over expenditure	(1,669)	806	252
NHI Reserves	1,891	3,358	2,751

[a/]Unaudited financial statements.

6. Financial Ratios

Key financial ratios have evolved as shown in Table 53.

Table 53
Key Financial Ratios (2014 Valuation)

	2015	2014	2013
Benefits as % of contributions	105.4%	90.0%	93.0%
Total expenses as % of contributions	109.8%	94.9%	98.2%
Operating expenses as % of benefit	4.2%	5.1%	5.6%
Fund ratio (reserves ÷ total expenditure)	0.10	0.22	0.20
* In months	1.2	2.7	2.4

The analysis shows a level of reserves equivalent to only 1.2 months of expenditure, which is below the minimum international accepted benchmarks of six months expenditure. The ratio would decline further if outstanding claims were deducted from the reserves. Therefore, 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 or the need for additional GOB funding.

If outstanding claims are equivalent to 5% the average monthly benefit expenditure, a rather liberal ratio, about almost $1 million would be deducted from the gross reserve, practically erasing the reserve registered in the accounts.

7. Summary of Financial Operations by Region

Table 54 shows a summary of the financial operations by region, according to the NHI activity reports. Expenses in Southside Belize are equivalent to 39% of the total, as several services are provided only in Belize City, and they increased by 10% in the Southern Region.

Table 54
Financial Operations by Region
(percent distribution)

	2015	2014	2013	2012
South Side Belize City	56%	53%	56%	54%
Southern Region	39	42	39	40
Northern Region	6	-	-	-
Total purchasing expenses	95	95	95	94
Administrative expenses	5	5	5	6
Total expense	100%	100%	100%	100%

8. Cost of Benefits by Type of Service

Table 55 shows the cost of benefits by type of service and region. Services in the Southern Region are limited to PCP, Ophthalmology and hospital deliveries. PCP accounted for 70% of total benefits expenditure, pharmaceuticals at 14%, and Lab tests 9% in 2015, with non-material variations as compared to the previous year.

Table 55
Benefit NHI Expenditure by Specific Service, (in thousands of BZ$)

	2015	2014
Primary Care (PCP)	11,226	9,802
Pharmacy	2,221	1,989
Imaging	686	533
Lab tests	1,450	1,213
Ophthalmology	240	213
Hospitalization	301	291
Total (both regions)	16,125	14,041

9. Membership Data

Table 56 shows the membership (beneficiaries) data for the last four years, with a 3.3% increase in the number of beneficiaries in 2014, lower than the rate of increase in expenditure, implicit of an increase in the actuarial cost, as shown below.

Table 56
NHI Membership Southside Belize and Southern Region (December)

	2014	2013	2012
BFLA	13,031	12,573	11,880
BMA	12,986	12,690	12,000
Integral	13,863	13,791	12,000
M. Roberts	13,669	13,526	12,000
Sub-total	53,549	52,580	47,880
Dangriga	16,988	15,436	14,000
Independence	13,637	13,499	12,732
Punta Gorda	13,164	12,669	11,500
San Antonio	10,102	9,936	9,470
Mercy Clinic	1,229	1,066	399
Sub-total	55,120	52,606	48,101
Total	108,669	105,186	95,981
Average for the year	106,927	100,583	95,150

10. Actuarial Cost of the Program

Table 57 shows the actuarial costs as a percent of the wage-base, showing estimated actuarial costs of 5.56% in 2014, as compared to 5.48% in 2013, assuming a "notional" wage base of 30% the total SSB insurable earnings.

Table 57
Estimated Actuarial Cost of Benefits (2014 valuation)
(Amounts in thousands of BZ$)

	2014	2013	2012
SSB wage base	900,866	835,827	807,060
NHI beneficiaries (average)	106,927	100,583	95,981
NHI wage-base (30%)[1/]	270,260	250,748	242,100
NHI benefit expenditure ($)	14,299	13,016	12,598
Administrative expenditure ($)	729	731	731
Total expenditure	15,028	13,747	13,329
Cost as % of wage-base	5.56%	5.48%	5.60%
Cost per member per year	$140	$133	$139

[1/]Estimated average wages of the low income and indigent segment of the NHI target population.

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

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

11. Cost Estimates of the Rollover

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

12. Conclusions and Recommendations

The GOB has in place a program for residents of a section of Belize City and the Southern Region, financed by budget transfers. The reserve ratio decreased in 2015, and represents only 1.2 months of expenditure as at 31 December 2015, below accepted benchmarks of six months' average expenditure. The ratio may fall substantially taking into account outstanding liabilities not reflected yet in the financial statements.

The estimated actuarial cost is assessed at 5.51% the notional wage base of the targeted population and the unit cost per beneficiary is assessed at $140 per year. Primary health services account for about 60% of total benefit expenditure, and 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, and more comprehensive actuarial assessments should be carried out once policy decisions in this respect are adopted.

ANNEX A

ASSESSMENT OF THE INVESTMENT PORTFOLIO

(Third Schedule of the Act, Section 17)

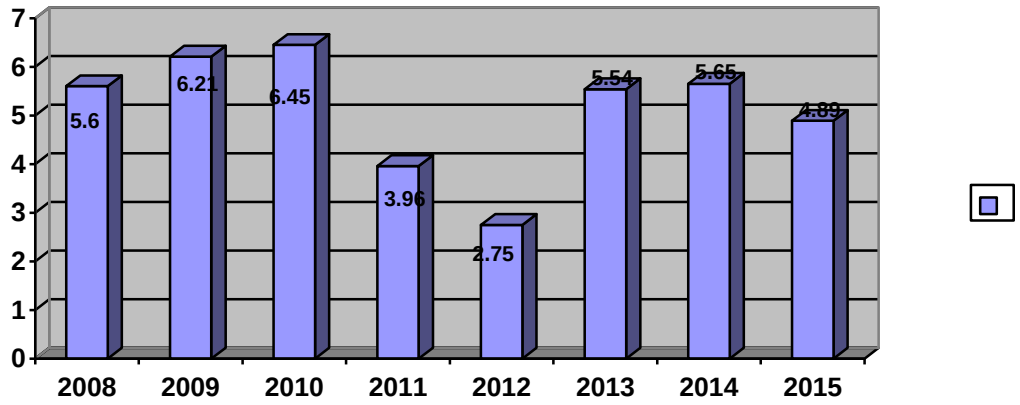
Pursuant to the legal provisions, an analysis, from an actuarial standpoint is presented below of the investments, the strategic assets allocation, and related technical issues, as required by the Third Schedule of the Social Security Act, as a supplement to the statutory actuarial valuation.

The analysis shows a nominal rate of return of 4.89% in 2015 (5.61% in 2014) as shown in Table 6, Chapter 2, a satisfactory performance arising basically from the allocations to domestic entities (BEL and BTL) yielding dividends substantially higher than the interest payable by financial institutions and governments obligations. The analysis also shows that investments in BEL, including $10 million in preferred shares, exceed by a slim margin the 20% ceiling stipulated in the SSB investment policy statement, having reached 21.2% of the reserves (net assets).

The analysis also includes: i) the trend of local passive interest rates payable to investors on savings and term deposits, ii) an illustration of Risk Adjusted Return, with a Sharp Ratio showing that investment in entities are providing higher risk-adjusted returns than financial obligation, despite a higher risk, and iii) guidelines on Financial Risk Management, with specific recommendations to manage future allocations.

Nominal Rates of Return on Investments

(in percent)



1. Balance Sheet

The consolidated sheet of the SSB shows $124 million in short-term investments and $236.6 million in long-term investments, including associates, for a total of $360.6 million, a marginal increase as compared to $358.4 million the preceding year. This is equivalent to 83% of total assets, with the remainder on fixed assets and accounts receivable.

The small increase shows the incidence of the higher actuarial maturity of the scheme, jointly with the incidence of the economic recession on the labour market, contributions and the rate of capitalization of reserves.

Table 1
Balance Sheet of the Social Security Board (as at 31 December)
(amounts in thousands of BZ$)

	2015	2014	2013
Cash and bank balance	17,913	24,300	20,673
Short-term investments	118,843	114,795	127,243
Long-term investments [a/]	331,598	306,601 [a/]	272,208
Accounts receivable and others	12,696	14,249	15,269
Fixed assets (net)	26,138	26,742	27,527
Total assets	510,188	486,687	462,920
Liabilities and deferred income	(8,798)	(7,897)	(6,102)
Net reserves and special funds	501,388	478,790	456,818

[a/] Includes investment in Associates
[r/]Restated to $441.5 million and $434.4 million in 2012 and 2011 respectively.

2. Sectoral Distribution of the Investments

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 two fiscal years the Board increased the allocation in Associates and reduced the proportion in mortgages and short-term loans. **The focus on term deposits (long and short-term) is in accordance with the actuarial recommendation to increase the liquidity of the portfolio, due to the maturity of the scheme and the requirement of liquid returns to compensate the deficit between contributions and expenditure, as shown in Chapter II.**

Table 2
Percent Distribution of the Investments (at 31 December)

	2015	2014[a/]	2013
Short-term & other	29.4	37.0	31.7
Associates	47.2	37.2	39.1
Long-term	23.4	25.8	29.2
Total	100	100	100

[a/]Includes fixed and intangible assets

3. Trend of Interest Rates

SSB data shows the following average rates by the banking sector, with a sharp decline in passive rates as from 2011.

Table 4
Domestic Banks. Weighted Average. Interest Rates

	December 2015	December 2014
Demand	0.10	0.29
Songs / checking	2.56	2.57
Savings	2.40	2.35
Term deposits	2.42	2.72
Weighted deposits	1.46	1.73
Personal	11.68	12.44
Commercial	10.06	10.69
Residential / Construction	7.88	8.80
Other	7.80	8.48
Weight average	10.07	10.66

Source: Central Bank of Belize

4. Distribution of Investments in the Financial Sector

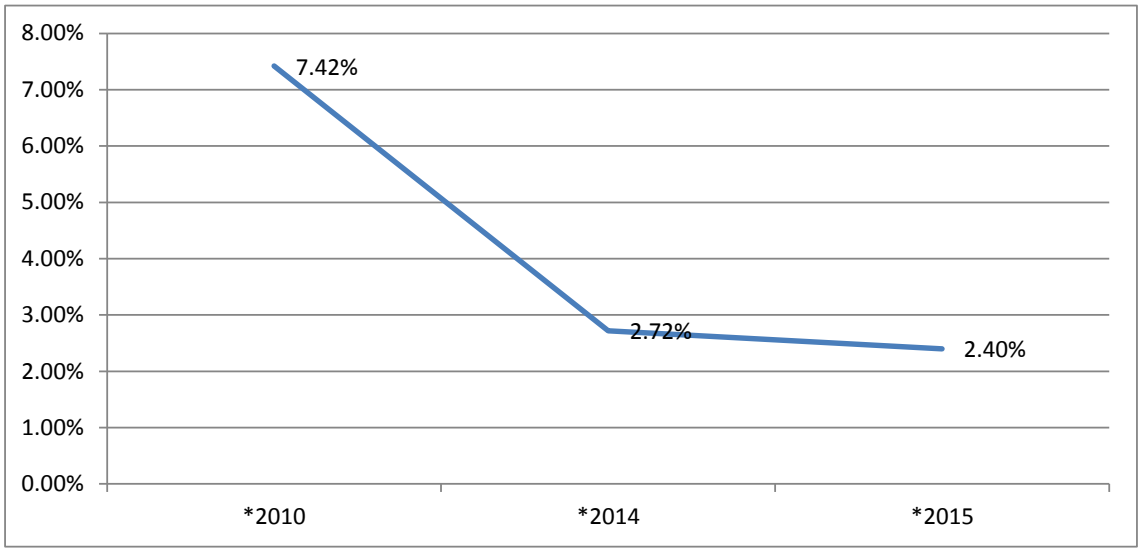
Table 5 shows the investments in the commercial banks and the central bank, the latter yielding a higher return, as the allocation took place before the decline in the interest rates, as shown in the attached graph.

Table 5
Distribution of Short-Term Investments

	Percent (%)	Interest Rate (%)
Heritage Bank	29.1	2.01
Belize Bank	26.6	2.0 / 3.56
Atlantic Bank	30.2	3.85 / 4.35
St. John's Credit	6.0	3.25
Central Bank of Belize	8.1	7.5 / 3.25
Total	100	3.42[a/]

[a/]Average return

Yield of Time Deposits (Central Bank)



With latent inflation rates of 1% to 2% for 2015/16, the real (inflation adjusted) rates of return on time deposits would yield between 1% and 1.3%, lower than the actuarial 3% assumed long-term rate of return.

Therefore, rates of return on financial obligation are not attractive at present from a financial standpoint, apart from the fact that the supply of medium-term deposits (3 + years) is very limited at present by the banking sector.

5. Scenario of Risk Adjusted Returns

The SSB nominal return on assets was 5.94% in 2015 (4.60% in 2014). The distribution of the investment portfolio is as follows:

Table 8

Category	Percent	Standard Deviation	Nominal return (RP)	Risk free return	Excess return
Term deposits	37%	5%	3%	2%	1.0%
Associates & loans	63%	15%	6.5%	2%	4.5%
Total	100%	12.4%	4.5%	2%	3.2%

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 2.5%, the Sharpe Measure yields the following risk-adjusted return for each category.

S=Rp – r / SD, where **Rp**=Return of the investment, **r**. Risk from return
SD= Standard deviation

Sharpe Ratios

Term deposits = (0.03 – 0.02) / 0.05 = **0.20**
Associates & loans= (0.065 – 0.020) / 0.15 = **0.30**
Total portfolio = (0.052 – 0.020) / 0.134 = **0.24**

The ex - ante example, based on expected returns show that high risk investment in Associates and loans (with higher returns) perform better than low-risk bank deposits.

Assuming that the SSB opts to allocate funds to Residential / Construction loans or Commercial Loans, with a standard deviation of 20% and 25% respectively, the Sharpe Ratio would be as follows, using the Central Bank indicators:

Residential Construction: (0.0788 – 0.02) / 0.20 = **0.29**
Commercial Loans: (0.1066 – 0.62 / 0.25) = **0.35**

The average Sharpe Ratio of the portfolio would be useful also to assess variations in the ratio arising from a restructuring of the portfolio, when a different asset allocation is undertaken by the Board. The actual assessment requires periodic computations of the standard deviation of the nominal rates of return by asset class.

6. Comments on the Contingent Risk and Liquidity Levels of the Investments

a) Short-Term Investments

Term deposits at local banks are considered a "liquid" investment, subject to the financial health of the banks. The performance or the Credit Union investment should be monitored.

b) Investments in Associates (Shares & Debentures)

- **Belize Electricity Ltd. (BEL):** As a shareholder, the SSB risk level is higher than as a bondholder. However, as a regulated utility, the annual return can fluctuate but the intrinsic risk is low due to the nature of the investment. The SSB also has a position in debentures.
- **Belize Telemedia Ltd. (BTL):** The investment in **shares** have a higher ranking than BEL shares, as the potential for profit (dividends and capital gains) has a better profile.
- **Belize Water Services:** The SSB holds $4,000,000 **shares,** with a variable return potential due to the social nature of this regulated utility. It also awarded a **loan** of $20.5 million at 8.5% interest. **Liquidity Level: Low.**

c) Other Investments (Private Sector Loans)

- High risk is latent in several private sector loans, as well as the remaining mortgages. The external auditors have already registered provisions associated to these investments. Policy regarding "direct" private sector loans should be reviewed.

d) Offshore Investments

- **The Board is advised to consider potential investments in top quality financial issues (shares or bonds) on international financial markets, as the risk / return profile is higher than on domestic allocations.**

7. Investment Policy and Strategic Asset Allocation

The SSB manages risks in accordance with the provisions of the Social Security Act. The investment policy is determined by the Board, based on recommendations by the Investment Committee. The investment policy should comply with the ISSA investment guidelines, by limiting a single investment to a ceiling of 20% of the reserves.

The Board is advised to avoid additional allocations on specific ventures in 2013/14 that would reduce further the proportion of short-term investments and the liquidity of the Fund. **Therefore, as a general guideline, the actuary advises to keep the allocation on fixed deposits at one-third of the investment portfolio, in order to ensure an adequate liquidity position for the period 2014/15, and to maintain a cash position at a minimum of three months' average total expenditure.**

8. Benchmarks and Investment Performance

Benchmarks for pension and investment funds in industrialized economies have been developed to measure the actuarial performance of an investment portfolio. A common index for equities offshore could be the SP500, and for bonds (fixed income), Corporate or Government obligations or a similar indicator developed for a diversified portfolio of bonds on a national or regional basis. No similar benchmarks are available in Belize, where no established stock market is in operation, although the SSB has periodically purchased shares of private companies or statutory bodies.

To assess the performance of the Fund, the most representative comparison in Belize at present are a combined ratio of the rates payable in Government Bonds and Term Deposits in financial institutions. However, the rates payable by the Central Bank seems to be dependant on monetary policy rather than market trends.

9. Financial Risk Management

As requested by the SSB, the actuary hereby is providing initial guidance on Financial Risk Management, as well as limited comments on Administrative Risks. The analysis from the 2013 financial statements provides an initial input on this strategic issue. The analysis also shows the advisability of setting up a formal Internal Risk Management Committee, to assess quarterly developments and design specific evaluation procedures. As the scheme matures from an actuarial standpoint and the investment horizon becomes more constrained, specific risks, such as liquidity risk, would become rather sensitive, providing also a framework for the asset allocation strategy.

Financial Risk Management Guidelines

a) **Objective:** Analyze, control and assess potential credit, market and liquidity risks, as well as non-market related financial risks.

b) **SSB Management of Financial Risks:** By the Investment Senior Manager under policies approved by the Investment Committee and the Board, and the GM Finance. Investment limits of 20% of reserves tend to mitigate risks.

Basic Risks (SSB)

a. **Operational Risk**
   Control financial risks by monitoring internal controls and the performance of the portfolio.

b. **Non-Financial Risk:** Arising due to the misinterpretation of the Regulations (e.g. See actuary's comments on the conversion of invalidity pensions into retirement pensions).

c. **Liquidity Risk:** To be assessed as a by-product of: i) the portfolio invested or **liquid** investments yielding current returns, ii) the actuarial projections of income and expenditure, and iii) by monitoring non-performing assets. Current liquidity by risk is quantifiable by the "liquidity gap".

9. Diversification

The diversification of the portfolio in other asset classes should be preceded by a risk – return assessment (Sharpe formula or similar formulae). The scenarios shown in Section 5 provide an indication of potential risk-adjusted returns.

10. Summary

In view of the increased actuarial maturity of the scheme, the Board is advised to seek an adequate level of liquidity on new investments, and to maintain the share of allocations with actuarial liquidity in the portfolio at or above 18 months total expenditure, excluding NHI operations. Actuarial liquidity means that the investment could be realized in cash when actuarially required, with an investment horizon which, at present, is less than 10 years.

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. Earmarking deposits on financial banks as a special window for commercial loans, is a preferable alternative to a direct loan between the SSB and the borrower, with the Bank responsible to the SSB for the safety of the investment.

The actuary further advises to avoid additional purchases of local shares, as there is no active securities market in Belize, and thus there are a potential medium term 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, as a diversification policy of the investment portfolio.

The significant reduction on the rates of interest payable by the local banks, due to excess liquidity and restrained demand by personal and institutional borrowers, will have a negative incidence in 2014. 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 could assess the feasibility or 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, on a periodic basis, 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, when available, are deemed a more secure investment than private sector obligations. **This is**

also applicable to investments in a new Bank, under consideration by the Government.

The actuary reiterates that the SSB is in the midst of a second-phase of actuarial maturity, with contributions lower than expenditure by a steadily wider margin, as shown in the actuarial valuation. As a result, the availability of cash for new investments arises exclusively from a decreasing share of investment income, and allocations to instruments that do not provide liquid cash returns. This would restrict the availability of funds to meet current obligations, requiring the potential liquidation of deposits to pay benefits, unless legal amendments are enacted to increase the level of contributions to the long-term branch.

ANNEX B

ASSESSMENT OF THE NON-CONTRIBUTORY PENSION SCHEME

1. Background

The payment of Non-Contributory Pensions (NCP) was transferred from the Ministry of Social Services to the SSB in July 2003, without a compensatory transfer of funds, impacting negatively on the actuarial situation of the Long-Term branch. Although the contribution rate was increased by 1% of insurable earnings and assigned in its entirety to the long-term branch, which henceforth has been allocated 4.5% of insurable earnings. This increase has been recommended in previous actuarial valuations as part of the scaled-premium system of finance, to guarantee the long-term solvency of the long-term branch, and not specifically to finance the NCP scheme.

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 thorough review as from March 2008 to address unwarranted NCP and to introduce enhanced evaluation procedures has resulted in a steady reduction in the number of NCPs, as shown below. At present, the basic pension of $100 per month is equivalent to 49% the minimum age pension of $47 per week.

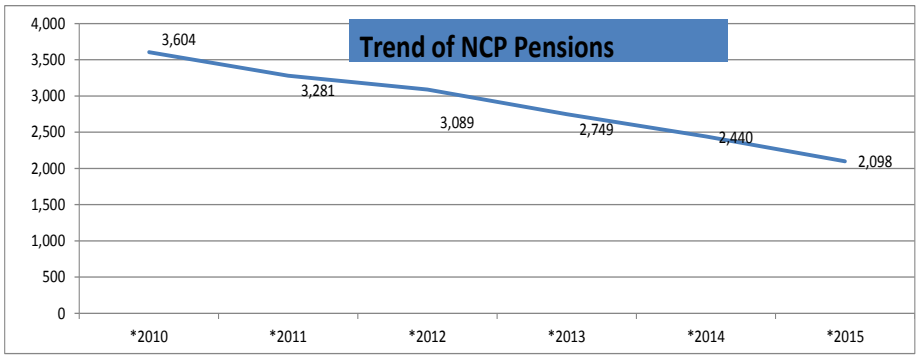
2. Trend of Pensions in Payment

The total number of NCPs has declined steadily from a peak of 4,934 early in 2008 to 2,098 pensions in payment at December 2015. The mortality of pensioners and more thorough evaluation procedures contributed to offset the abnormal surge of pensions awarded during the initial phase of operations.

The proportion of males continues to represent approximately one-third the total numbers of pensioners, while the proportion of pensions in force in the Districts of Orange Walk and Belize represent 35% of the total, while San Pedro shows very few beneficiaries.

Table 1
Trend of NCP Pensions (at 31 December)

	2015	2014	2013
Number of pensions in payment			
Males	713	835	927
Females	1,385	1,605	1,822
Total	2,098	2,440	2,749



3. Financial Trends

Table 2 shows the trend of benefit expenditure on 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 millions of BZ$)

Year	Expenditure[a/]	Rate of Increase (decrease) (in %)
2010	4.201	(10.7)
2011	4,189	(1.3)
2012	3,781	(8.8)
2013	3,404	(10.0)
2014	3,032	(10.9)
2015	2,754	(9.2)

[a/] Financial statements

4. Actuarial Cost of the Scheme

The actuarial cost of benefits has evolved as follows, excluding management expenses:

Table 3
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%

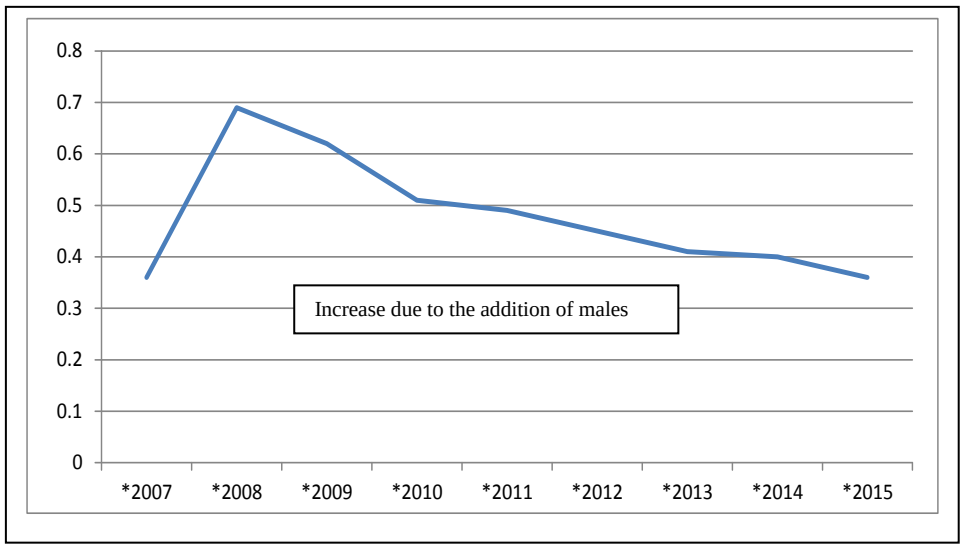
* Increase due to the addition of males

At the 2011 triennial actuarial valuation the PAYG cost of NCP was projected at an average of 0.50% of insurable earnings, with mortality of pensioners

offsetting the award of new pensions to a significant extent. **The 2014 triennial valuation anticipated lower long-term actuarial cost, due to a steady reduction in the number of NCP in force,** assessed at an average of 0.38% of insurable earnings. Assuming a moderate pace of revaluation of pensions in payment, jointly with a long-delayed adjustment to the ceiling of insurable earnings, the updated long-term trend would be lower. Raising the initial eligibility age to 67 years for females would reduce the medium term cost average further, to 0.32% of insurable earnings. The 2015 experience shows actuarial costs of 0.29% insurable earnings, close to the projected 2015/17 ratio.

Actuarial Cost of NCP Scheme

(% of insurable earnings



5. Projected Benefit Expenditure and Extension of the Period of Equilibrium

In the event the Government agrees to assume the cost of NCP as from 1 January 2017 the period of equilibrium of the long-term branch would be extended by 1.3 years, thus postponing the need to increase the contribution rate of employees and employers by a similar period.

An alternative option would be to freeze the awarding of NCPs by the SSB, with the Government responsible for covering the cost of future pensions by financial transfers to the SSB. Under this scenario the NCP expense borne directly by the SSB would decline steadily and become non-material in fewer than 10 years, due to the advanced age of those receiving pensions in payment.

In the event that the SSB is unable to transfer the payment of NCPs to the Government, cost containment strategies should continue to be applied by the Committee, in order to lessen its financial incidence on the scheme, including the

enactment of the legal amendments to the NCP scheme; in particular, the increase to 67 years as the initial eligibility age for females, and the 20 year residency requirement for naturalized persons**.**

6. Rates of Award and Terminations

Table 4 shows the rates of terminations and awards in the past three years. A gross death rate of 12.3% for terminations in 2014 has exceeded the 1.1% rate of new awards, thus yielding a 11.2% reduction in the number of pensions in force.

Table 4
Rates of Award and Terminations of NCP
(in percent)

	2015 p/	2014	2013	2012	2011
Death	(7.3)	(6.0)	(5.6)	(5.2)	(6.3)
Other	(10.0)	(6.3)	(6.9)	(4.6)	(5.0)
Sub-total	(17.3)	(12.3)	(12.5)	(9.8)	(11.3)
New awards	3.4	1.1	1.7	2.2	2.4
Net increase (decrease) a/	(13.9)	(11.2)%	(10.8)%	(7.6)%	(8.9)%
Balance at 31 December	2,099	2,440	2,749	3,089	3,281

a/ Related to the balance at the beginning of each year
p/ Provisional

7. Amendments to the Non-Contributory Scheme

The actuary concurs with the recommendation of the NCP Committee to increase to 67 years the minimum entitlement age of females, in accordance with international guidelines, setting the eligibility age two years higher than the SSB normal retirement age; to increase to 20 years the residency requirement for naturalized residents; to allow only one NCP to spouses or persons in the same household, and the non-entitlement to a NCP if the individual has opted for the SSB grant.

Jointly with the re-allocation of contributions between the Short-term branch and the EI branch, and amendments to the Self-employed scheme, the proposals set forth above should be included in the set of legal amendments required by the SSB in the first phase. Transferring to the Government the financing of NCP would require only deleting the NCP Regulations but keeping the Committee as the management entity of the NCP scheme.

Section 18 of the regulations stipulates an **option** between the Grant and the NCP. As insured persons are allowed to claim the grant of ages of **60 to 65 years,** the Committee should verify if claimants have previously received the grant, and if so, to disallow the NCP claim.

ANNEX C

PERFORMANCE ANALYSIS OF THE SELF-EMPLOYED SCHEME

1. Registered and Active Contributors

The voluntary self-employed scheme started on 1 January 2003 and the numbers of active contributors have remained stable in the period under review with an effective coverage of three percent of the number of self-employed persons in the country. **This is a rather 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 most legislation are not considered as self-employed.**

Table 1 show that the coverage rate has been decreasing steadily, from 26% of registered self-employed persons as active contributors in 2010 to only 21% in 2014. An assessment of why such a large proportion of registered self-employed persons are not on active status should be carried out by the SSB.

Global statistics show 33,000 eligible self-employed persons in Belize, of which 97% are not actively making contributions in the SSB's voluntary self-employed scheme.

Table 1
Registered Self-Employed and Active Contributors by Year

Year	Active Insured Self-employed	New Registrations	Cumulative Registrations	Coverage Rate (Active / Registered) In percent
2010	934	438	3566	26%
2011	949	402	3968	24%
2012	1043	441	4409	23%
2013	1,032	391	4,800	22%
2014	1,094	396	5,196	21%
2015	1,197[p/]	400	5,596	21%

[p/]Provisional

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 a rather high proportion of self-employed persons have declared low notional earnings, as compared to the active employed persons, while at the high income range the situation is reversed, with the proportion of employed persons exceeding by far that of the self-employed.

The differences specified above confirm that a high proportion of active self-employed persons have opted to declare unrealistically low notional earnings, in the expectation of obtaining a minimum life pension of $47 per week, plus short-term benefits, with contributions of only $4 to $6 per week, resulting in a negative incidence on the actuarial situation of the scheme.

Table 2
Percent Distribution of Active Insured by Wage-Group (31 December 2014)

Income Range	Weekly Wage-group	Percent Distribution	
		Self-employed	Employed
Low	160 and less	48	37
Middle	161/299	30	27
High	300 and over	22	36
	Total	100%	100%

3.

Distribution of the Self-Employed by Age-Group

Table 3 shows that **20% of the active self-employed are 55 years and over, as compared to only 7% in the general scheme, an indicator of "adverse selection" by many self-employed persons in order to obtain a "financial gain" by participating in the self-employed scheme. If "registered" self-employed persons who have ceased to make contributions re-activate their participation before reaching the normal retirement age and qualify for a pension, the number of potential future self-employed age pensioners might be substantially higher than the expected number based on their active contributions, with a potential significant increase in costs and actuarial liabilities.**

Table 3
Proportion of Active Self-employed by Age Group (at 31 December)

Age-Group	2014	2013
Under 34	20%	24%
35/54	61%	57%
55 and over	19%	19%
Total	100%	100%]
Males	47%	47%
Females	53%	53%
Married[a/]	64%	65%
Non-married[b/]	36%	35%

[a/] Includes common law unions
[b/] Single, divorced, widow, legally separated

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

Table 4 shows the frequency of short-term benefit claims by the active self-employed persons, while table 5 shows the distribution of claims by type of benefit. The data show that:

a) One out of every five contributors submitted a short-term claim per year in the period 2012/14, a lower ratio than between 2009/2011.

b) Maternity and sickness benefits account for 86% of all claims.

Table 4
Frequency of Claims by the Self-Employed. Short-Term Benefits

Year	Number of Claims (Short-term)	Number of Active Self-Employed *	Incidence Rate
2009	246	972	25.3%
2010	225	934	24.1%
2011	250	949	26.3%
2012	212	1,043	20.3%
2013	208	1,032	20.2%
2014	170	1,091	15.6%
2015	184	1,197	15.4%

*Note: Active Self-Employed includes Housewives and Househusbands.

Table 5
Percent Distribution of Self-Employed Claims by Benefit Type (Short-term Branch)
Short-Term benefits (2014)

Benefit Type	2015	2014
Funeral Grant	1.1	-
Injury Benefit	2.2	7.1
Maternity Benefit	4.9	5.2
Maternity Grant	3.8	7.1
Sickness Benefit	88.0	80.9
Short-term	100	100

5. Pension Benefits to the Self-Employed

Table 6 shows the number of pensions awarded to the self-employed, with a ratio much higher than for employed persons. In only 12 years of operation 174 retirement pensions have been awarded to the self-employed, equivalent to 17% of the total population of active self employed, whereas in more than 30 years of operation less than 5% of employed persons have been awarded retirement pensions. It is also noted that in the general scheme only 32% of retirees are females, while the self-employed statistic shows 49% of females, and, even more relevant, **a high proportion of retirees opted to claim the pension before reaching the age of 65 years, with the**

SSB unable to determine whether the beneficiary continues in active work, as the individual has no employer.

The aforementioned experience shows conclusively that self-employed persons are actively taking advantage of the faulty design of the self-employed scheme, obtaining life pensions after having paid contributions for a minimal number of years, at lower notional earnings, qualifying for the minimum pension of $200 per month, with actuarial liabilities for pensions in payment estimated at $2.6 million, and more than double that amount for the active insured self-employed, having paid a fraction of that (after discounting short-term benefits), yielding a substantial actuarial deficit to be borne by the general scheme.

In view of the above, in addition to previous former legislative amendments, it would be advisable at least to require the attainment of 65 years of age to qualify for a retirement pension by the self-employed.

Table 6
Cumulative Pensions Awarded, by Category

	2015			2014			2013		
	Males	Female	Total	Males	Females	Total	Males	Female	Total
Retirement	100	77	177	81	60	141[a/]	65	49	114
Invalidity	4	8	12	4	5	9	4	4	8
Disablement	13	0	12	11	-	11	11	0	11
Survivors	10	5	15	8	5	13	9	4	9
Total	127	90	216	104	70	174	89	57	142

[a/] 97 (69%) opted before age 65.

6. Differential Indicators of the Self-Employed and the General Schemes

Table 7 shows that more females than males are active contributors to the SE scheme, due to the anomalous inclusion of housewives as SE. Further, almost one-fifth of the SE have 55 and more years of age, and the incidence of Short-term benefits are lower than in the general scheme

Percent of	General scheme	Self-employed scheme
Males	62%	47%
Age 55 years & over	7%	19%
Claim short-term benefits	38%	15%
Early retirement (60/61 years)	Medium	High

7. 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 7. Such deficits are funded by internal transfers from the general scheme, that over time will worsen the actuarial situation of the long-term branch.

Table 7
Actuarial Cost of the Self -Employed Scheme
(in percent of insurable earnings)

Contributions	7.0%
Short-term benefits	1.3
Long-term benefits	10.8
Administrative expenditure	1.5
Total expenditure	13.64%
Surplus (deficit)	(6.64)%

Table 8 shows the differential cost of the general scheme and the self-employed scheme.

Table 8

Updated Actuarial Cost of Self-Employed and the General Schemes (2015)

(Amounts in thousands of BZE$)

	General scheme (8% rate)	Self-employed scheme (7% rate)	Total
Number of participants	101,396	1,197	102,593
Average earnings (per week)	182	134	181
Contributions	76,796	584	77,381
In percent	99.2453%	0.7547%	100%
Insurable earnings	959,950	8,342	968,292
Benefits	57,670	1,007[a/]	58,777
Administrative expenditure	17,213	131	17,344
Total expenses	76,572	1,138	77,710
Actuarial cost (% of earnings)	7.98%	13.64%[b/]	8.03%

[a/] $108,000 short-term and $899,000 pensions, including disability pensions
[b/] $70% higher than the general scheme

The actuarial cost of the SE scheme is almost higher than the cost of the general scheme, basically due to the cost of pensions and a static number of active contributors.

8. Future Scenario of the Self-Employed Scheme

The projection shows a significant increase in the number of Self-employed pensioners, and a quasi-static number of active contributors. Should this trend

continue, the demographic ratio (pensioner ÷ active contributors), will increase from 16.9% in the close of 2015, to 37.6% in three years, and rising to over 50% in only 12 years.

Assuming an average pension of 40% of average insurable earnings, the cost of long-term benefits in 12 years would be equivalent to 20% of salary. Adding 1% for short-term benefits and 2% for administrative expenses, yields total costs of 23% salaries as compared to voluntary selective contributions of only 7% of salary. The substantial deficit would be compensated by cross-subsidies by the general scheme.

Year	Active contributors	Total pensioners	Demographic rate (year end)
2012	1,043	113	10.8%
2013	1,032	142	13.7
2014	1,091	175	15.9
2015	1,100[a/]	218[c/]	16.9
2018	1,167	331	19.8
2021	1,238	465	37.6
2024	1,314	602	45.8
2027	1,395	717	51.4
2030	1,480[b/]	783	52.9

[a/] 1.8% rate of increase (2012/15)
[b/] 2% rate of increase (2015 / 30)
[c/] 24% rate of increase (2012/15). Include credits as employed person
[d/] 15% rate of increase (2015/18), decreasing by 1% per year as from 2018 (?)

9. Conclusions and Recommendations

The analysis shows that the performance of the self-employed scheme has been deficient, **due to faulty design, including the voluntary feature of the scheme**, which is conducive to **adverse selection** of individuals with a higher risk for short-term benefits and who can qualify for a minimum age 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" as self-employed; requiring a higher number of self-employed contributions to qualify for pensions, and establishing "compliance" standards once they become voluntarily insured.**

The emerging experience shows an average for the full range of short-term benefits as part of the scheme, including pensions earned on a dual basis (employed and self-employed), and "employment injury" benefits that cannot be attested by an employer or verified by the SSB, that already might exceed the 7% rate of

contributions, which is lower than the 8% rate payable by and on behalf of employed persons.

The analysis also shows an unusually high proportion of females (54%) as compared to the proportion of females in the general scheme (37%); a higher proportion of self-employed close to the retirement age, and average "notional" earnings lower than for employed persons, although both categories are eligible for a minimum pension of $47 per week, indicative of adverse selection with a negative actuarial incidence on the long-term branch.

10. Summary of Research Analysis of the Self-Employed Scheme

a) Short-Term Benefits

The analysis shows a skewed distribution of active contributors of the self-employed scheme, with 19% of participants with 55 years of age and over, almost three times the proportion of employed persons. This is a clear indication of "adverse selection" by the Self-Employed, with active participants close to retirement ages in the expectation of obtaining a life pension lasting 25 or more years, after meeting the minimum eligibility period of 10 years of contributions. Despite the skewed participation by the self-employed, the statistical data shows that the incidence of sickness claims is lower than in the general scheme, as measured by the number of sickness claims allowed in relation to the population at risk, but the average amount per claim paid is much higher than for employed persons. This is another indicator of "adverse selection" by the self-employed, and might be due to the joint incidence of a higher **duration** of benefit days paid, and a higher demand by self-employed persons with higher notional income.

The assumptions above are confirmed by the analysis of the duration of sickness claims, with an average duration for the self-employed more than twice the duration for employed persons.

The analysis of the duration of sickness claims by age-group shows that 70% of cases lasting 6 or more days were paid for the self-employed, as compared to only 35% for employed persons. The percent differential is higher for cases lasting 10 or more days.

As to the actuarial cost, the analysis show a minor deficit for the sub-group of employed persons, but much higher for the sub-group of self-employed persons, as compared to the statutory allocation of funds to the short-term branch.

Cost-containment policies are therefore required to reduce the actuarial cost of the Self-Employed short-term benefits. A reduction of the skewed distribution of active participants would be the first step, but this is hampered by the "voluntary" feature of the scheme. Another option would be to increase the eligibility requirements and to re-instate a 3-day waiting period to qualify for sickness benefit by the self-employed.

The matrix of legal amendments also shows the need to restructure specific provisions of self-employed scheme, such as: i) the elimination of employment injury benefits, an anomaly as there is no employer to attest that the injury occurred at the workplace, and ii) the exclusion of housewives as self-employed persons.

The assessment indicates that the "voluntary" feature of the self-employed scheme, with notional selective earnings lower than for employed persons, implicit adverse selection, and a 7% contribution rate, would not suffice to cover the actuarial cost of the self-employed scheme, with cross-subsidies by the general scheme to cover the deficit.

b) <u>Pension Benefits</u>

Unlike in the short-term branch, where no accumulation of rights (liabilities) take place over time, in the long-term branch active insured persons do accumulate deferred rights, based on the sequential increase in contribution credits. The analysis so far is limited to **pensions in payment to the self-employed**. The inclusion of deferred liabilities by **active self-employed persons** is estimated to increase the "actuarial deficit" by 70% to 80%.

The analysis shows a temporary operational surplus, up to 2014, and rising deficit as 2016. The "actuarial cost", derived from the present value of pensions awarded, also yields a substantial deficit substantial actuarial deficit, to be compensated by employed persons in the general scheme, and ultimately, by requiring adjustments to the contribution rates sooner than anticipated.

Recommendations to update the eligibility provisions of the **voluntary self-employed** scheme have been submitted to the SSB, **curtailing extensive adverse selection, compliance issues, and liberal qualifying conditions.**

ANNEX D
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 from 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 actually 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 to an husband on the occasion of his wife's confinement if his wife is not entitled to the grant.

Conditions for 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 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 each 50 contributions (excluding special credits) in excess of 500 up to 750; and 1% for each 50 contributions in excess of 750.

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 from 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 each 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 5 contributions paid in the last 13 weeks.

Special credits: Claimant satisfying contribution conditions is 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 each 50 contributions in excess of 299 up to 499.

Minimum pension: $49.35 per week as from 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 was in receipt of 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 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 as from April 2016.

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 a 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.

7 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 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 maximum of 26 weeks.

Minimum pension: $49.35 per week as from April 2016.

Disablement benefit

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

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

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

Funeral grant: $1,500.

H. Non-Contributory Pensions

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

ANNEX E

MATRIX OF PARAMETRIC AMENDMENTS TO THE LEGAL AND OPERATIONAL BASES

A. SHORT-TERM BRANCH
1. Establish financing of 2% of insurable earnings (25% of contributions).
2. Restore waiting period of 2 or 3 days as from 2016/17.
3. Adjust income replacement from 80% to 70% of insurable earnings, as from 2016/17.
4. Grants to be adjusted (maternity, death) when the ceiling is also adjusted.
B. EMPLOYMENT INJURY BRANCH
1. Establish financing of 1.0% of insurable earnings (12.5% of contributions).
2. Update the Partial Disablement Tables (Section 15, Ch IV of the Actuarial Report).
3. Transfer $80 million in reserves to the long-term branch
C. NON-CONTRIBUTORY PENSIONS (NCP)
(Applicable only if funding by the GOB is not attainable)
1. Increase minimum retirement age for females to 67 years
2. Specify in the regulations: i) a 20-year continuous residency condition to qualify, and ii) only one spouse or common – law partner can qualify.
D. SELF-EMPLOYED SCHEME
1. Eliminate coverage of employment injury benefits
2. Increase the qualifying conditions for self-employed "active" contributors to 500 weekly contributions per year to qualify for a retirement pension, and 100 additional and contributions, up to 1000 weekly contributions as from 2020.
3. Increase qualifying conditions for "new entrants" (except former insured persons becoming self-employed on the voluntary insurance program), to 1000 weekly contributions to qualify for a retirement pension immediately
4. Limit the amount of the age grant to a maximum of 500 weekly contributions
5. Raise the minimum retirement age by 0.5 years per annum reaching 65 years over four years.
6. Establish a mandatory self-employed scheme
7. Establish a linear pension formula of 1.5% per year of service, on a prospective basis, except for those with 750 or more contributions paid (rather than 3% / 2% / 1% up to 10 years, 10/15 years and more than 15 years respectively).
8. Eliminate the Schedule of contributions establishing "notional" earnings categories of $80, $160, $240, and $320 per week.
9. Adjust the required minimum contributions to qualify for an invalidity pension from 150 to 250 weeks.
10. Establish a minimum of 500 weekly contributions to qualify for the invalidity grant.

E. LONG-TERM BRANCH
1. Increase the qualifying conditions for contributors from 500 weekly contributions by 100 weekly contributions per year to qualify for a retirement pension, up to 1000 weekly contributions as from 2020.
2. Increase qualifying conditions for "new entrants" (except former insured persons becoming self-employed on the voluntary insurance program), to 1000 weekly contributions to qualify for a retirement pension.
3. Limit the amount of the age grant to a maximum of 500 weekly contributions.
4. Raise the minimum retirement age by 0.5 years for annum as from 2010, reaching 62 years over four years (Idem for the SE Scheme).
5. Establish a linear pension formula of 1.5% per year of service, on a prospective basis, except for those with 750 or more contributions paid (rather than 3% / 2% / 1% up to 10 years, 10/15 years and more than 15 years respectively). For discussion.
6. Adjust the required minimum contributions to qualify for an invalidity pension from 150 to 250 weeks, and a minimum of 180 weekly contributions in the last five years preceding the onset of invalidity.
7. Establish a minimum of 250 weekly contributions to qualify for the age or invalidity grant.
8. Stipulate only one Invalidity Grant for active insured persons.
9. Establish a ceiling to the Invalidity Grant
F. OTHER GENERAL PROVISIONS
1. **Ceiling on Contributions:** Increase from $320 to $500 per week over three years. Rates of contribution above the present ceiling to be shared between employer / employees.
2. Substitute the wage-bands system for contributions and benefits based on actual earnings.
3. Delete the band of contributions for earnings under $70 per week / $100 per week.
4. Adjust minimum contributions by insured persons from $1.35 per week to $4.80 per week gradually.
5. Special credits to be deleted
6. Adjust the pension formula (until a linear formula is approved) from 1% to 1.25% per each 50 contributions for retirement between 60 – 64 years * (until the minimum retirement age is adjusted), and to 1.50% for retirement beyond 65 years.
7. Pension Adjustments: Keep the "ad hoc" provisions with adjustments to pensions in force based on a proportion of the CPI (usually CPI less 2%), **provided the ceiling is also adjusted**. Keep the minimum pension of $47 per week constant, until advised by the actuary.
8. Increase the rate of contributions from 8% to 10%, subject to the 2017 actuarial review (to increase by 2% the allocation to the LT Branch).
9. Increase the maximum normal retirement age from 65 to 67 years.
10. Actuarial Report (Section 45 of the Act): Amend to "not later than 60 days after the completion of the audited financial statements" rather than "before 31 March of the following year".

ANNEX F

INCIDENCE ON THE FUNDED STATUS OF THE LONG-TERM BRANCH DUE TO ADJUSTMENTS TO PENSIONS IN PAYMENT

Attached is the analysis requested by the Board regarding the incidence on the funded status (period of equilibrium) of the long-term branch, —with alternative scenarios regarding adjustments to pensions in payment to compensate for the loss of purchasing power due to inflation.

The report also includes additional comments regarding the benefit structure of the long-term branch, the relationship between the ceiling on contributions and general pension adjustments, and scenarios including a transfer of excess reserve of the employment injury branch to the long-term branch.

The importance of the issues involved require a comprehensive assessment, in particular, the linkage between the outdated ceiling on contributions and adjustments to pensions in payment, although both factors do not necessarily have to be adjusted simultaneously but on a short-term sequential basis. The dichotomy between the minimum wage bands and the minimum pension, the qualifying conditions, and the prevalence of retirement pensions at age 60 should also be assessed by the Board.

Synopsis of the Actuarial Analysis

1. Pension adjustments should be **correlated** with other amendments, such as:
   - Increase the minimum contributions to qualify for a retirement pension from 500 to 1000 weekly contributions over 5 years (2016/20).
   - Adjust provisions of the Self-Employed scheme (2016).
   - An increase in the ceiling on contributions (preferably not later than one year after the adjustment), with the adjustment to the **rate** of contribution to be in place before the end of the present decade.
   - Other amendments (see priority list of amendments).
2. The Board can opt for different methodologies to adjust persons. Due to the time elapsed, adjustments based on the period elapsed since the award of the pension seems to be the most equitable one, based on the COLA principle ("cost-of-living related adjustment"), although the frozen ceiling distorts the formulae.

3. The Board is advised to address the anomalous level of excess reserves of the EI branch, by the transfer of $80M to the long-term branch. Otherwise, the accounts of the long-term branch would be materially impacted by the adjustment, as shown below. The remaining assets of the EI branch comply with international benchmarks.

4. The actuarial development of long-term reserves would depend on:

- The real return on investment (inflation adjusted), which is heavily influenced by the return on the investment in Associated (BTL/BEL).
- The full recovery of the economy and the labour market.
- The adjustment to the ceiling and, later, the rate of contributions.

5. The issue of dual pensions to Public Officers should be addressed either by the GoB or the SSB.

6. <u>Scenarios of Period of Equilibrium</u>

	No. EI Transfer	With $80 M EI transfer
Rate of Pension Adjustment	PE: 4% Real Rate of Return	
5%	3 years	7 years
10%	2 ”	4 ”
15%	1 ”	2 ”
	PE: 5% Real Rate of Return	
5%	5 years	9 years
10%	4 ”	6 ”
15%	3”	4 ”

7. The Board will select, based on the above, a set of gradual adjustments over a period of one to three years.

Belize

Social Security Board

Schedule of Potential Amendments to the Benefit Provisions of the

Long-Term Branch

1. Rationale for the Proposed Amendments

Key provisions of the scheme have remained unaltered for many years, with a negative incidence on the effectiveness of the long-term benefits branch. As a by-product of the statutory actuarial valuations as at 31 December 2014, submitted recently for consideration by the Board, the Board has requested an analysis of the incidence of adjustments to pensions in payment on the funded status of the long-term branch.

The matrix of legal amendments includes key recommendations regarding the qualifying conditions, the retirement age, the ceiling on contributions, and the wage-bands. Additional comments are set forth below concerning the scenarios requested by the Board concerning plan design issues.

2. Pension Adjustments

The policy followed in the past by the Board was based on **adjustments to the minimum pension**, rather than general increases in pension. Due to the time elapsed since the inception of the scheme, such a policy benefited the majority of pensions in force. Only in the past five years, did new pensions awarded exceed by a significant margin the minimum pension. Data for 2014 shows an average retirement pension of $5,083 per annum (or $98 per week), substantially higher than the minimum of $47 per week. On the other hand, the minimum pension is not correlated with the minimum wage-band, as shown below, allowing a low income insured person to attain a minimum pension equivalent to 85.5% the minimum insurable earnings (47/55) with only three years of contributions. Therefore, the present minimum pension seems to be correlated with the first wage-band, and any increase should also deal with the qualifying condition and the upgrade of the wage bands.

3. Pension Adjustment Methodology

The objective of revaluations is to allow, to a certain extent, the maintenance of the purchasing power of the pension. Some schemes in developing countries apply adjustments based on the Consumer Price Index (CPI), **or a proportion thereof.** Others utilize the salary dynamics or a combination of both indicators. Schemes that adjust pensions on an automatic annual basis apply a uniform adjustment to all

pensions. This is not the case of Belize, where pensions are adjusted on an "ad hoc" or discretionary basis.

In view of the above, the Board could opt for a uniform factor applied to all pensions (with an exception applied to the minimum amount), or a scale based on the period elapsed since the award of the pension. For example, pensions awarded in 2014 would be adjusted by a lower percent than pensions awarded three years ago, the latter having lost a higher rate of purchasing power then pensions awarded in the last year, which were based on higher insurable earnings (assuming salaries are also adjusted on a periodic basis, which, again, is not the case of Belize).

4. Sensitivity of the Actuarial Funded Status and Period of Equilibrium

The long-term branch "current" operations (contributions less expenditure) have evolved as follows:

	Contributions	Expenditure	Surplus (deficit)
	(Millions of BZ$)		
2012	36.3	42.8	(6.5)
2013	37.6	45.2	(7.6)
2014	40.5	47.5	(7.0)

Reserves have been increasing due exclusively to the incidence of investment income. **It follows therefore that the financial performance of the branch is highly sensitive to the investment return,** until a **period of equilibrium** is reached when the net investment income does not suffice to cover the current deficit. Reserves would then start decreasing unless the rate of contributions is adjusted upwards.

5. Financial Incidence of Pensions Adjustments

As at 31 December 2014 the total amount of pensions in payment was of $36.4 million per annum, plus $11.2 million in administrative expenditure, for a total of $47.5 million. Assuming both pension and administration (staff salaries) increase (the latter under negotiations) at the same rate, the annual incidence of the adjustments would be as follows:

Rate of Adjustment	Additional annual benefit expenditure[a/]
5%	2,517,000
10%	5,035,000
15%	7,552,000

[a/] As from late 2015 or early 2016.

6. EI Reserves of the Employment Injury Branch

Benchmarks of EI Short-Term Reserves range between 0.5 to 1.5 years of expenditure. Assuming the higher range, yields a reserve of $12 million at 31

December 2014, as compared to $99 million (after deducting $18 million transferred to the short-term branch in 2014. As from 31 December 2015 an internal transfer of $80 million of excess EI Reserve to the Long-Term branch seems feasible, to strengthen the funded status of the long-term branch, and to ameliorate the incidence of a general increase in pensions.

7. Scenarios of Period of Equilibrium with Pension Adjustments [a/]

The following scenarios assess the incidence on the accumulation of the long-term branch reserves (in millions of BZ$):

Year	Surplus	A): Surplus with a % adjustment of:			B): A plus $80M EI Transfer		
	Actual	5%	10%	15%[b/]	5%	10%	15%[b/]
2015	5.3	5.3	5.3	5.3	5.3	5.3	5.3
2016	4.0	1.5	(1.0)	(3.5)	5.1	2.6	0.1
2017	2.8	0.3	(2.2)	(4.7)	4.0	1.9	(1.0)
2018	1.4	(1.1)	(3.6)	(5.1)	2.8	0.3	(2.2)
2019	0.2	(2.3)	(4.8)	(7.3)	1.8	(0.7)	(3.2)
				Reserves			
2015	343.6	343.6	343.6	343.6	432.6	433.6	433.6
2016	347.6	345.1	342.6	340.1	436.7	436.2	433.7*
2017	350.4	345.4*	340.4	335.4	442.7	438.1	432.7
2018	351.8	344.3	336.8	329.3	445.5	438.4*	430.5
2019	352.0*	342.0	332.0	322.0	447.3	437.7	427.5

* Period of equilibrium
[a/] As from 2016
[b/] Limit of $50 to $52 to the minimum pension.

8. Sensitivity to Rates of Return on Investments

As stated in the actuarial valuation, the basic scenarios of a 4% long-term real rate of return on investments yields a period of equilibrium of 5 years, that would increase to 7 years on the assumption of a 5% real rate of return, (inflation adjusted), an optimistic assumption on the present investment climate in Belize. The analysis of the investment shows significant volatility in the investment performance, which at present is heavily dependent of the asset allocation in Associates (BEL/BTL).

The analysis with a 5% real rate of return yields an additional 2 years in the period of equilibrium, as follows:

Scenarios of Period of Equilibrium

	No EI Transfer	With $80 M EI transfer
Rate of Pension Adjustment	PE: 4% Real Rate of Return	
5%	3 years	7 years
10%	2 ”	4 ”
15%	1 ”	2 ”
	PE: 5% Real Rate of Return	
5%	5 years	9 years
10%	4 ”	6 ”
15%	3”	4 ”

An increase in the ceiling to ± 500 pw. would yield a further increase of approximately 1.5 years.

9. Wage Bands

The minimum wage band seems to be outdated, particularly, after the GOB increased the minimum wage to $3.30 per hour. **The first wage band allows an insured person to a life pension of $47 per week (increased to $49.35 as from 1 April 2016), with contributions of $0.83 per week,** with only three years of contributions. An increase of the minimum pension will expand this impressive gap. **The matrix of legal amendments** includes either the elimination of the first two wage bands or a minimum contribution requirement by employed persons **(applicable also to the self-employed scheme).**

10. Option to Strengthen the Fund Status of the Long-Term Branch

Apart from a substantial transfer of surplus EI reserves to the long-term branch, available options are as follows:

a) Increase the ceiling (presently $320 per week) and the floor (wage-bands).

b) Increase the qualifying conditions (presently 500 weeks) with a gradual increase to 1000 (10 years) of contributions, over the next 5 years.

c) Increase the rate of contribution assigned to the long-term branch.

d) Increase the minimum retirement age.

11. Prioritizing Amendments to the Benefit Structure

In view of the above, **an increase in the ceiling should be the first option for reform**, with a significant first increase to address the lag of the present ceiling, and a gradual mechanism, thereafter, for example, every three years. This also allows for an improved balance of the anomalous employee / employer share contribution, which is heavily weighed on the employer. **The second option has been recommended,** as the requirement of a minimum 500 weekly contributions might have been reasonable at the

inception of the scheme but not after 30 years of operation. An insured person entering the labor force between 18 and 30 years of age should be able to complete a minimum of 20 years of contributions (1000 weekly contributions) upon attaining 60 to 65 years of age.

The third option, an increase in the rate of contribution, could be deferred for a few years, as shown in the actuarial review, unless a higher capitalization of reserves is desirable and the labour market allows for such an increase at present.

The fourth option (minimum retirement age) should increase to 62 years, except for certain employment categories, but 65 years for the self-employed.

12. Incidence of an Increase in the Ceiling

An increase in the ceiling, which is overdue, generates an increase in contributions, followed also by an increase in pension expense as new pensioners exceeding the old ceiling qualify for higher pensions. Therefore, the salutary effect of an increase in the ceiling is temporary, although it aligns more closely the amount of pensions to actual earnings.

13. Public Officers

Public Service officers can also obtain non-contributory pensions based on full earnings from the Government. An increase in the ceiling would expand the proportion of public officers who that can obtain joint pensions exceeding 100% of salaries, an anomaly that would only be addressed by a structural reform to the Government's pension scheme, an issue still pending final recommendations by the Ministry of Finance.

14. Frozen Ceiling

From the standpoint of **social equity,** the maintenance of the frozen ceiling at $320 per week for over a decade means that many insured persons with earnings exceeding the ceiling will accrue pensions lower than the ILO minimum standard of 40% of insurable earnings. It is also noted that, due to the averaging process, any increase in the ceiling will have a full impact on the pension amount after three years.

15. Conclusion and Recommendations

- A general increase in pensions, other things being equal, would reduce the period of equilibrium to 3 years (5% increase) to 2 years (10% increase), and 1 year 15% increase, assuming the adjustment takes effect at the close of 2015.

- Assuming that $80 million in excess EI branch reserves are transferred to the long-term branch, as recommended by the actuary, the period of equilibrium increases to approximately 7 years with a 5% increase, 4 years with a 10% increase, and 2 years with a 15% increase.
- The analysis assuming a 5% real rate of return (inflation adjusted) rather than the baseline scenarios of 4% increases the period of equilibrium by an additional 2 years, as shown in Section 12.
- A general increase in pension without an adjustment to the ceiling in contributions would continue to maintain the social inequity of the pension system in Belize, as almost 40% of the active insured persons who exceed the outdated ceiling of $320 per week would receive pensions unrelated to their real income. Assuming that the ceiling is adjusted to about $500 per week, the additional income from the segment of insured persons exceeding the ceiling would contribute to a temporary increase in the period of equilibrium by 1.5 years. As shown in the report, this is considered a critical amendment, jointly with an update to the outdated qualifying conditions of only 150 contributions (13 years) to qualify for a life pension lasting 20 to 25 years. Additional required amendments are set forth in the Matrix of Legal Amendments under consideration by the Board.
- The valuation shows that, despite the transfer of $18M of reserves to the short-term branch, the EI branch continues to accumulate reserves far in excess of actual requirements. Therefore, the actuary considers an assessment of the funded status of the long-term branch would be more realistic under a scenario comprising a suitable level of EI excess reserves.
- The concept of dynamic pensions adjusted for the cost of living is usually associated by concomitant adjustments to the ceiling on contributions, as general inflation is usually correlated to salary inflation. In the economic environment of Belize, it appears also that rather than automatic adjustments predetermined by legal provisions, the SSB should continue the policy of “ad hoc” adjustments to pensions and the ceiling, although with a higher frequency than in the past, subject to

actuarial considerations and specific policy issues related to the labour market and the economy, as the scheme enters an advanced phase of maturity.

- Adjustments to the rate of contributions allocated to the long-term branch, presently 4.5% of insurable earnings, should take place before the period of equilibrium is reached for the SSB, expected to be required before the end of the present decade. An additional increase of 2.0% of insurable earnings shared equally between employer and insured persons seems advisable.
- SSB statistics shows that 41% of pensioners opt to retired at age 60, with only 26% claiming pensions at age 65. A postponement of early retirement would also contribute to extend the period of equilibrium. **For the self-employed, the SSB is unable to verify if the pensioner continues in active self-employment at age 60. The retirement age should increase immediately to age 65 for the self-employed.**

ANNEX G
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 on the amount of insurable earnings.

Defined-contributions 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 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 "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 benefit 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.