

BELIZE

Social Security Board

**Actuarial Review of the Social Security Scheme
(as 31 December 2014)**

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Actuarial Consultant**

03 August, 2015

4 August 2015

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

Dear Mr. Flowers,

Attached is the final statutory actuarial valuation of the Social Security Board at 31 December 2014, including triennial projections of the long-term branch, and expanded sections dealing with the investments, and the memo requested by the Board on pension adjustments (Annex F). The valuation shows a significant improvement of the financial performance in 2014, which was reflected in a temporary postponement of the maturity process of the long-term branch and allowed the Board to restore the funded status of the short-term branch without impairing the overfunded situation of the employment injury branch. Key issues from 2015/16: a) The statutory valuation at 31 December 2015, b) Legal amendments (Act and Regulations), c) Related actuarial issues requested by the CEO or the Board.

Yours sincerely,

For: Consultores Actuariales, SRL

Hernando Pérez Montás

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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.

B E L I Z E
SOCIAL SECURITY BOARD
Actuarial Review of the Social Security Scheme
(2014)

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 2014, including the triennial actuarial projections of the long-term branch, updating the projections carried out as at 31 December 2011. As a by-product of the valuation, 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 and IV and V present the actuarial analysis of the short-term benefits branch, the employment injury branch, and the long-term branch. 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, and proposed legal amendments.

Attestation

The cost, liabilities and other bases utilized in the valuation have been determined using reasonable methods and generally accepted assumptions that, in our opinion, provide a reasonable estimate of the anticipated plan requirements and development. The report has also been formulated to the extent possible, according to preliminary guidelines issued by the International Actuarial Association for actuarial valuations of Social Security Programs.

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 review of the scheme was carried out as of 31 December 2014, 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 actuarial review required the assessment of the expected cost of each branch of benefits, and an update of the period of financial equilibrium of the long-term branch which could be sustained under the present level of financing, derived from actuarial projections carried out every three years, including the assessment of the funded status of the long-term branch. The analysis also comprises an assessment of the investment portfolio, the National Health Insurance Program, and the self-employed and Non-Contributory pension schemes.

2. Consolidated Financial Performance

The valuation shows a satisfactory financial performance due basically to a 7.8% increase in contributions (3.6% in 2013), 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 net income exceeding \$25 million (8.6% higher than in 2013), allowing the scheme to generate a steady accumulation of reserves and to improve the funded ratios of the benefit branches. Net income in 2014 reached to \$25.7 million, as compared to \$23.7 million in 2013 and an average of \$12 million in 2011/12, while consolidated reserves increased to \$479 million in 2014, as compared to \$456 millions in the previous year.

From an actuarial standpoint, the financial performance contributed to freeze, albeit temporarily, the reduction in the period of equilibrium of the long-term branch, as shown below, 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.

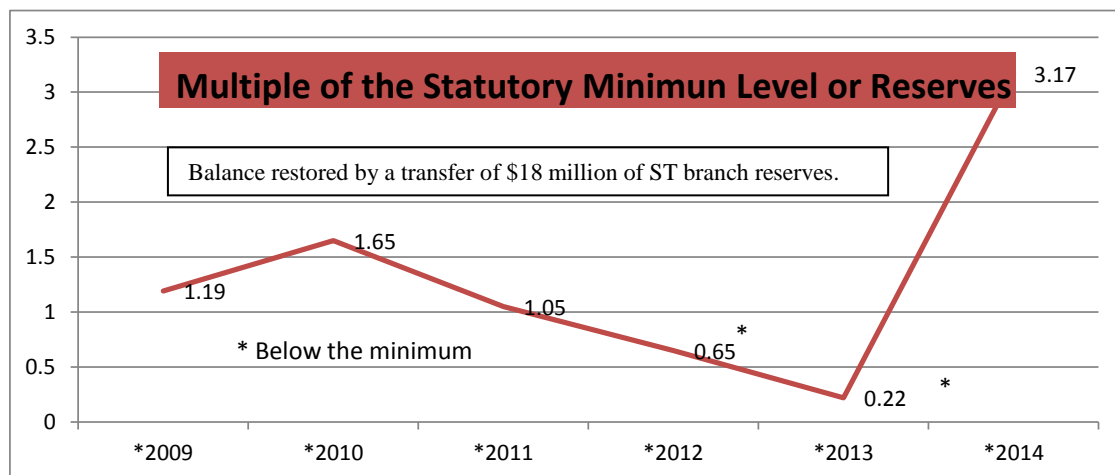
Monetary values are expressed in BZE dollars, equivalent to approximately 0.50 US\$.

The ceiling on contributions has remained since 2001, and the “replacement ratio” (pension amount divided by real earnings) are yielding irrelevant amounts to a significant segment of insured persons with earnings above the present ceiling. Therefore, the legislative agenda should prioritize a significant update of the obsolete ceiling, to be followed by more periodically adjustments.

3. Short-Term Branch

The Board’s decision to transfer excess funds of the Employment Injury to the Short-term branch, as recommended by the actuary, restored the funded status of the branch, as stipulated in the Benefit Regulations. As a result, as at 31 December 2014, the \$18.1 million short-term branch reserves were equivalent to 3.17 times the statutory minimum, as compared to non-material reserves below the minimum at the close of 2013.

Short-Term Branch



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 2014 will start to decrease gradually, although still remaining above the required minimum medium term. Sickness allowances accounted for almost two-thirds total benefit expenses, and should the high level of fertility decrease in the future, the amount of maternity benefit would tend to decrease.

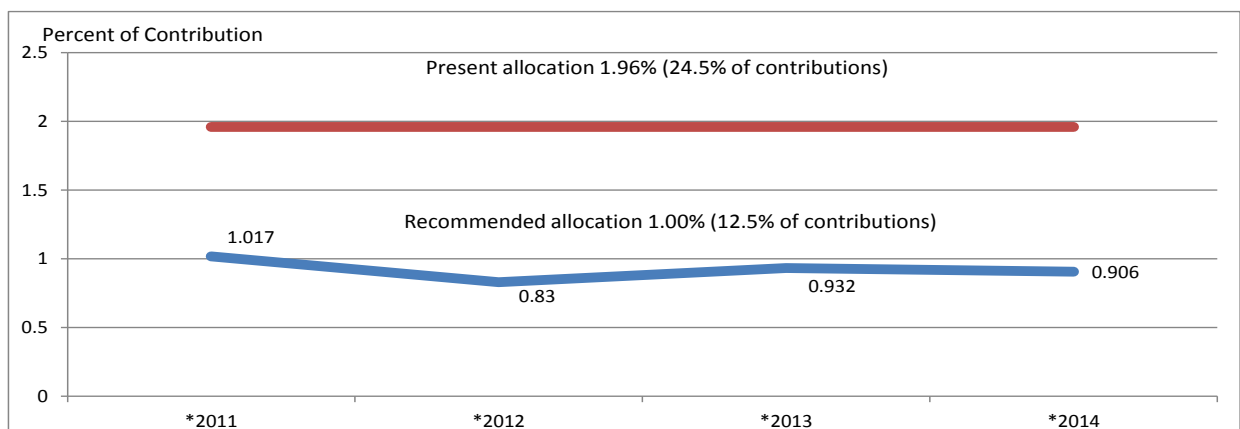
The restoration of 2/3 days waiting period and a replacement ratio of benefit of 70% rather than 80%, the latter exceeding accepted benchmarks, would reduce the actuarial cost of the branch and extend the level of sufficiency of the reserves.

4. Employment Injury Branch

a) Short-term Injury Benefits

Despite the 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, the reserves of the EI branch continues to exceed by far the actuarial requirements. Income less expenditure reached a record amount of \$15.8 million, and the actuarial valuation yielded projected 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 of \$98 million at 31 December 2014 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 2014, covers two thirds the present value of pensions in payment with a variability of minus or plus 12%, 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, as the unfunded amount is within accepted benchmarks.

5. Long-Term Branch

a) General Trend

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 million in 2014, as compared to a deficit of \$10.9 million the previous year, a temporary reduction due to the significant increase in contribution income in 2014. The operational surplus of \$12.5 million attained in 2014 was higher than in 2013, due to the incidence of \$19.5 million in investment income assigned to the branch.

In the period 2012/14, the analysis shows that 41% of retirement pensions were awarded at the minimum statutory age of 60 years, with only 26% claiming the pension as from the age of 65 years, despite to the fact that the regulations state that those retiring before age 65 can not engage in “substantial employment”. However, an average of 350 retirement pensions per year were awarded before age 65 in the last three years, making it difficult to verify compliance concerning the above provision. 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 Demographic Ratio (pensioners divided by active contributors), increased to 4.96% for retirement pensions and for 7.86% 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 gradual increase in the proportion of pensioners in comparison to the active contributors.

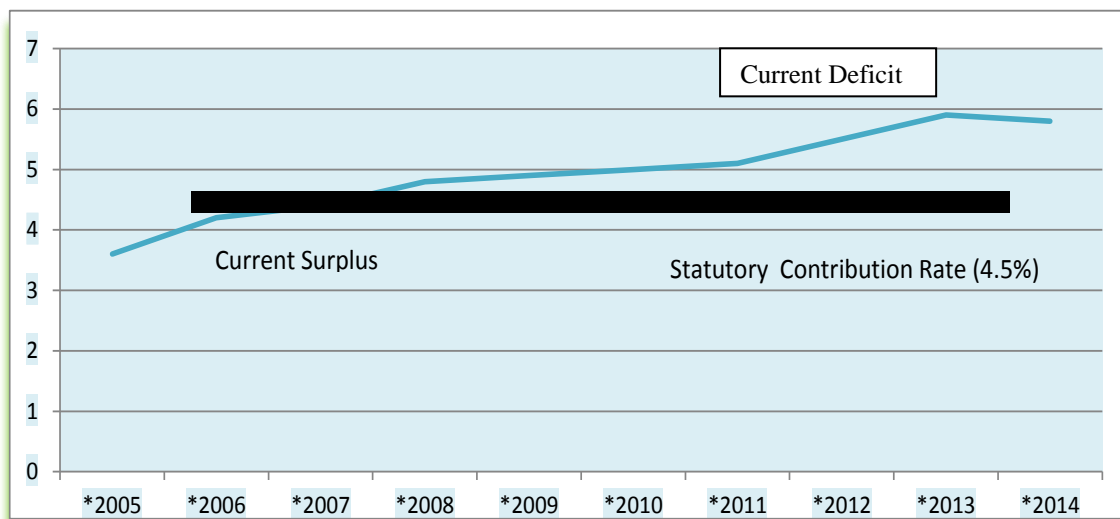
b) Financial Projections

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) 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, but no statutory increase in the ceiling is anticipated before 2017, as per the actuary 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.**

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



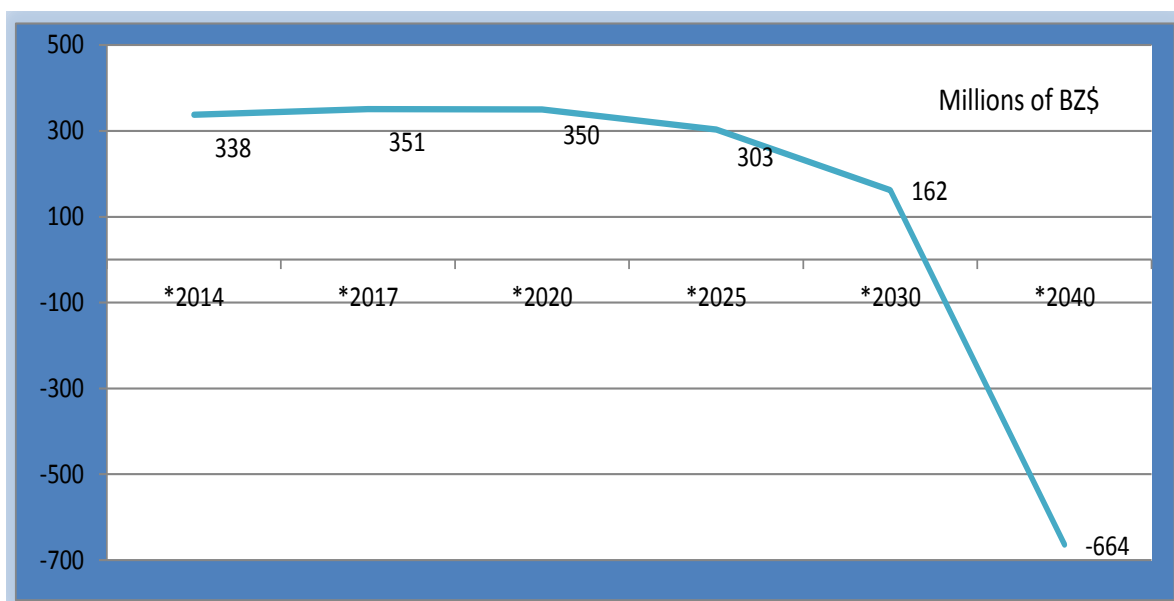
As from 2008, expenditure exceeds contributions of 4.5% of salaries on a sustainable basis. Deficits covered by a share of investment income.

c) **Projection of Reserves and Periods of Equilibrium and Sensitivities**

Periods of equilibrium range 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.

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 in the alternative projections.

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



Reserves reach a maximum of \$352 million in about 5 years (2019) (period of equilibrium) and then decrease steadily, becoming negative in 18 years (2032).

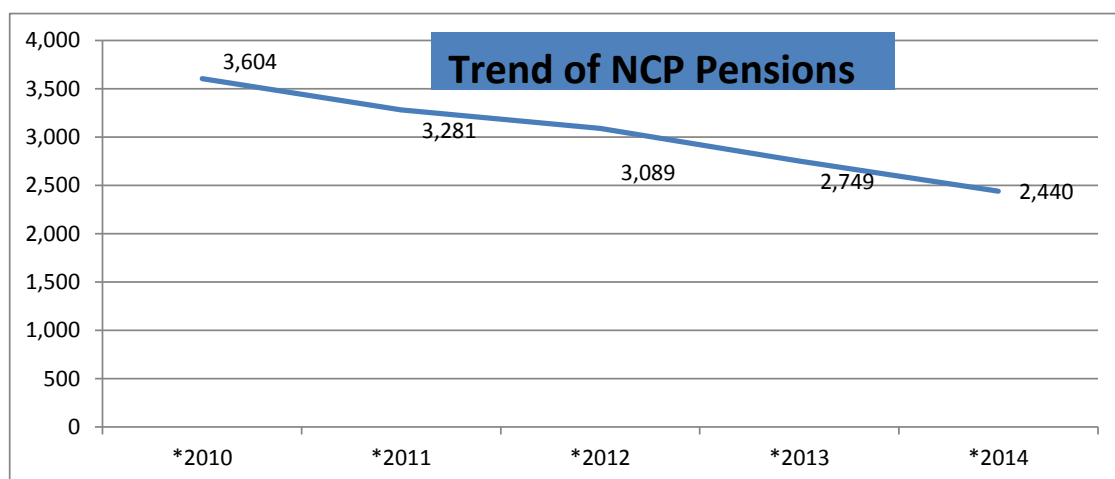
It is also reiterated that the projections are based on legal provisions in force, which are likely to be amended medium-term and long-term, such as the initial retirement age, which most countries are increasing gradually due to the longer life expectancy of populations and the added cost to national 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.

d) 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 45 shows scenarios of level premiums with alternative rates of return. As compared to the present statutory allocation of 4.5% of insurable earnings (56.25% of contributions), attaining full funding would require more than double the present rate of contributions.

7. 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 0.34% of insurable earnings, as compared to 0.41% in 2013 and 0.47% in 2012. 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.



8. 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 retirement 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 lower 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.

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 until the next triennial actuarial review, but with the following internal redistribution, as follows:

Branch	Percent of Contributions (2015)		Rationale
	Proposal (%)	Actual (%)	
Short-term branch	27.50	19.25	As per actuarial. Avoid decline in reserves.
Employment injury branch	12.50	24.50	Substantially overfunded
Long-term branch	60.00	56.25	Strengthen funded status
Total	100%	100%	-

However, elimination of the two minimum wage-bands and adjustments to the minimum amount of contributions by employees are advised before that date.

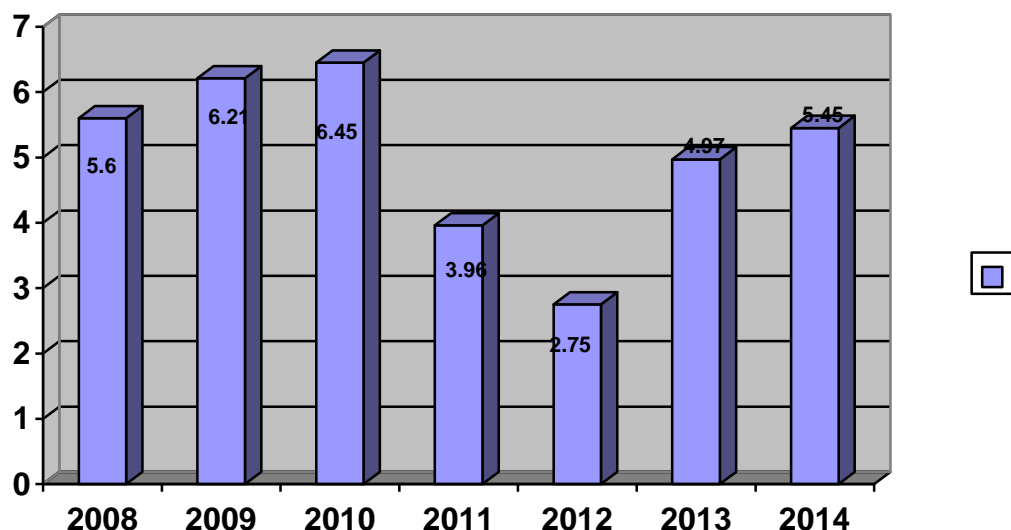
10. Investments

The analysis shows a substantial increase in investment income to \$26.2 million in 2014, as compared to \$24.5 million in 2013, before contingent accounting adjustments. The nominal rate of return on assets also increased to 5.65%, in a low inflation environment, from 4.97% in 2013.

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.

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, experienced a 10% increase in benefit and static administrative expenditure. Reserves increased from \$2.75 million to \$3.36 million, in 2014, equivalent to 2.7 months of expenditure, as compared to 2.4 months the preceding year, but still below standard benchmarks. A rollover to additional regions in the north of Belize is under way in 2015, requiring additional funding by the Government, but improving the equity and accessibility of the scheme, which complements health care provisions to the population with the Ministry of Health and NGOs.

12. Administrative Expenditure

Administrative and related expenditure remained stable in 2014, with actuarial cost declining 2.07% of insurable earnings (2.26% in 2013). The cost of administrative

expenditure exceeds accepted benchmarks, with more than a quarter of total contributions assigned to cover an extensive administrative platform, including a regional District Office. 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. Risk Factors

a) Short-term and EI branches

Higher rates of morbidity and work-related accidents, causing higher incidence and anticipated actuarial costs.

b) Long-term branch

- A resumption of high inflation reducing the real return of the investment portfolio below the actuarial assumptions.
- Loss of assets due to investment impairments on write-offs.
- Incidence of adverse selection of the self-employed scheme yielding higher actuarial pension costs.

14. Comparison with the Preceding Triennial Valuation

The analysis shows actuarial cost of the short-term branch and the Employment Injury Branch that do not differ materially from the assessment of the valuation at 31 December 2011 and the 2012/13 performance analyses. The number of active insured persons at 31 December 2014 exceeds the previous assessment, due to a sudden reactivation of the economy and the labour market as from 2013. The level of average insurable earnings has remained constrained by a frozen ceiling insurable earnings, and the actuarial rate of return on assets, on the average, has performed in accordance with the previous actuarial estimates, declining materially in 2012 but a restoration of satisfactory rates in 2013 and 2014, due to a low inflation environment and satisfactory rates of return of obligations in public entities and statutory bodies.

The long-term branch has continued its maturity process, as envisaged in the preceding triennial valuation with accumulated reserves slightly higher than anticipated in the preceding triennial valuation (\$338 million versus \$325 million), due to the adequate performance of the investment portfolio.

15. 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, and also restricts the revaluation of pensions in force to compensate for the loss of purchasing power.

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. Late in 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 of \$47 per week could represent a higher percentage of the last 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	2015 (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 set of legal amendments submitted by the actuary 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.

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 usually 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 the last of 2010.

In 2014 the active insured population grew significantly, yielding a coverage rate 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 frozen 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 will be expanded to a region in the north in 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 cuasi-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. As from 2012 contributions have increased at a fast rate, increased by 5.9% in 2014, 7.78% in 2014, with Net Income exceeding the level of the preceding three years. Total expenditure was increasing at a slower pace but accelerated in 2014.

Table 2

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

Income	2014 ^{4/}	2013	2012 ^{v/}	2011 ^{v/}
Contributions ^{1/}	72,070	66,866	64,525	60,913
Investment income	26,186	24,476	11,743	16,226
Other income ^{2/}	1,106	982	1,052	876
Total Income	99,362	92,324	77,320	78,015
<u>Benefits</u>				
Short-term branch	11,987	11,540	10,751	10,975
Long-term branch ^{3/}	36,367	34,003	31,564	28,638
Employment injury branch	6,614	4,232	5,278	5,877
Benefit Expenditure	54,968	49,775	47,593	45,490
Administrative and other expenses	18,666	18,869	18,869	19,242
Total expenditure	73,634	68,644	66,462	64,732
Net income	25,728	23,686	10,858	13,283

^{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 2015.

^{v/} Restated in 2013

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 viceversa.

9. **Balance Sheet and Reserves by Branch**

Table 3 shows the balance sheet as at 31 December 2014 and the preceding three years, with an increase in reserves of \$21 million in 2014, and \$20 million in 2013, as compared to \$27 million in 2012 and \$13.6 million in 2011.

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

	2014	2013	2012	2011
Cash and bank balance	24,300	20,673	17,710	13,492
Short-term investments	114,795	127,243	121,580	125,841
Long-term investments ^{a/}	306,601	272,208	256,551	232,506
Accounts receivable and others	14,249	15,269	19,983	18,831
Fixed assets (net)	26,742	27,528	28,632	29,576
Total assets	486,687	462,921	444,456^{v/}	420,246^{v/}
Liabilities and deferred income	(7,897)	(6,102)	(7,136)	(10,022)
Net reserves and special funds	478,790	456,819	437,320	410,224

^{a/} Includes investment in Associates

^{v/} Restated to \$441.3 million and \$434.5 million in 2012 and 2011 respectively.

As to the distribution of reserves by branch, Table 4 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 4
Distribution of Reserves by Branch
(as at 31 December, in thousands of BZ\$)

Benefit Branch	2014	2013	2012 ^{1/}	2011 ^{1/}
Short-term	18,109	1,226	3,492	5,662
Long-term	338,333	328,218	317,288	315,298
Employment Injury	99,003	102,813	89,947	79,744
Disablement and Death	16,468	16,716	16,386	17,192
National Health Insurance Fund	3,558	2,751	2,499	1,836
Social Security Development Fund	2,277	1,802	1,507	1,043
Pension reserve	1,042	3,291	3,291	3,426
Total	478,790	456,817	434,410	424,201

^{1/}Provisional

^{1/}Restated

10. Reserves as a Percent of GDP

Table 5 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 5
SSB Reserves as Percent Gross Domestic Product (GDP)

	2014	2013	2012	2011	2010
	(amounts in millions of BZ\$)				
GDP ^{1/}	3,332 ^{2/}	3,230	3,154	2,970	2,796
SSB Reserves	479	457	437	410	396
% of GDP	14.4%	14.1%	13.8%	13.8%	14.1%

^{1/}Current prices (SIB).

^{2/}Provisional data.

11. Rate of Return on Investments

As shown in Table 6 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 5.65% in 2014 (4.97% in 2013), was deflated by the CPI, yielding a real rate of return of 4.60% in 2014 (4.45% in 2013). The 2014/13 average real rate of return was equivalent to 4.52%, in an environment of low inflation.

Table 6
Rates of Return on Financial Investments (net assets)
(amounts in millions of BZ\$)

	2014	2013	2012	2011	2010
Net investment income	26,186	22,015	11,743	16,226	24,784
Nominal rate of return ^{1/}	5.65%	4.97%	2.75%	3.96%	6.45%
Average inflation rate	1.00	0.50	1.30%	1.50%	0.90%
Real return ^{2/}	4.60%	4.45%	1.43%	2.22%	5.50%

^{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 \underline{i} and \underline{s} represent the interest rate and the inflation rate.

Source: IMF / WEO. April 2015

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 2013.

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 7 shows the trend in administrative expenditure of the basic scheme, with a slight decline in 2014, due basically to a frozen level of remuneration.

Table 7
Distribution of Administrative Expenditure

	2014	2013	2012	2011
(Thousands of BZ\$)				
Total operating expenditure ^{1/}	18,666	18,869	18,869	18,869
Depreciation	n/a	(868)	(992)	(992)
Amortization Depreciation (establishment)	n/a	(610)	(542)	(542)
Net operating expenses	18,666	17,391	17,335	17,335
Actuarial cost (total) ^{2/}	2.07%	2.26%	2.33%	2.33%
Actuarial cost (net) ^{3/}	n/a	2.08%	2.14%	2.14%
Budget Performance Indicators				
as % of contributions	25.9%	28.2%	29.2%	29.2%
as % of contributions + benefits	14.7%	16.23%	16.8%	16.8%

^{1/}Excluding NHI expenses

^{2/}As percent of insurable earnings

^{3/}Excluding depreciation / amortization

The bottom part of Table 7 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 8.

Table 8
Administrative Expenditure by Branch, as percent of insurable earnings

	2014	2013	2012	2011
Short-term branch	0.45%	0.41%	0.51%	0.57%
EI branch	0.39%	0.43%	0.43%	0.48%
Long-term branch	1.23%	1.34%	1.39%	1.48%
Total	2.07%	2.18%	2.33%	2.53%

If salary adjustments become effective in 2015, the actuarial cost of administration would tend to increase further, reaching a level for 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-curtailement 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 9

	2014	2013	2012	2011
(Amounts in thousands of BZ\$)				
Social Development Fund	726	501	376	162
Disaster Fund	1,551	1,301	1,131	881
Total	2,277	1,802	1,507	1,043

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 36% in 2014, indicating that the maximum insurance earnings of \$330 per week should be updated, as otherwise the pension amount will become irrelevant to a significant proportion of insured persons. The number of persons in the top bracket is higher for females (38%) than for males (35%).

Table 10 (a)
Sectoral Distribution of Active Insured Persons and Contributions
(in thousands)

	Insured Persons	Contributions	Average per capita
Private sector	78,590	51,141	651
Public sector	14,456	14,355	993
Statutory agencies	4,744	4,681	987
Total	97,790	70,177^{al}	717
Males			
Private sector	51,616	33,732	654
Public sector	7,795	7,879	1,011
Statutory basis	1,767	1,756	994
Total males	61,178	43,367	709
Females			
Private sector	26,974	17,409	645
Public sector	6,661	6,477	972
Statutory basis	2,977	2,924	983
Total females	36,612	26,810	732

^{al}97.4% of contributions recorded in the financial statement (99.5% in 2013). Difference due to contributions in arrears recorded in the subsequent financial year.

The number of total active insured increased from \$90,577 in 2012, to \$93,172 in 2013 (2.86%), and 97,790 in 2014 (4.95%). These high rates are non-sustainable and indicative of an activation of the depressed labour market due to the recession.

Employees in the private sector accounts for 80% of the total insured, but earnings are higher in the public sector and statutory agencies.

Table 10 (b)
Percent of Insured Persons by Earnings Bracket

Bracket (by week)	2014	2013	2012
Less than 110	15	15	16
110 < 300	49	50	50
300 and over	36	35	34
Total	100	100	100

Table 10 (c)
Percent Distribution of Insured Persons by Sex

Sectoral Distribution	2014	2013	2012	2011
Private	80.3	80.2	78.8	78.9
Public	14.8	14.8	16.1	15.8
Statutory bodies	4.9	5.0	5.1	5.3
Total	100	100	100	100
Sex Distribution	2014	2013	2012	2011
Males	62.6	62.4	62.3	62.5
Females	37.4	37.6	37.7	37.5
Total	100	100	100	100

16. Density of Contributions

The average density of contributions was of 36.5 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).

III

ANALYSIS OF THE SHORT-TERM BENEFIT BRANCH

1. Financial Operations

Table 11 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 11
Income and Expenditure of the Short-Term Benefits Branch
(Amounts in Thousands of Belize Dollars)

	2014	2013	2012	2011
Contributions	13,874	12,872	12,421	11,785
Investment & other income	472	527	518	669
Total Income	14,346	13,399	12,939	12,454
Maternity allowances	3,146	3,342	3,047	3,335
Sickness benefits	7,882	7,233	6,757	6,628
Maternity grants	959	966	947	1,012
Total Benefits	11,987	11,541	10,751	10,975
Operational expenses	4,015	4,124	4,127	4,305
Total Expenditure	16,002	15,665	14,878	15,280
Income less Expenditure	(1,656)	(2,266)	(1,939)	(2,826)
Contingency Reserve	18,109^{a/}	1,225	3,492	5,663

^{a/}Includes transfer of \$18 millions from the EI reserves. Otherwise, the balance would have been practically zero.

2. Income and Expenditure as a Percent of Insurable Earnings

Income and expenditure as a percentage of insurable earnings is shown in Table 12. 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 12
Income and Expenditure of the Short-Term Branch as a Percent of
Insurable Earnings

	2014	2013	2012	2011
Contributions	1.540	1.540	1.540	1.540
Investment & other income	0.052	0.063	0.064	0.086
Total Income	1.592	1.603	1.604	1.626
Maternity allowances	0.349	0.400	0.378	0.438
Sickness benefits	0.875	0.864	0.837	0.870
Maternity grants	0.105	0.115	0.117	0.133
Total Benefits	1.330	1.380	1.332	1.441
Operating expenses	0.446	0.493	0.511	0.568
Total Expenditure	1.776	1.874	1.843	2.009
Income less Expenditure	(0.184)	(0.271)	(0.239)	(0.383)

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 13, at the end of 2014 the reserve was restored above the minimum stipulated in the regulations.

Table 13
Statutory Minimum Level of Reserves (31 December)

	2014	2013	2012	2011
	(amounts in thousands of BZ\$)			
Minimum statutory reserve ^{1/}	5,713	5,564	5,359	5,372
Actuarial reserve	18,109	1,225	3,492	5,663
Reserve ratio (actual / minimum)	3.17	0.22	0.65	1.05

^{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 14 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 in the period 2009/11, with a 90% 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.**

Table 14
Cost and Fund Ratios of the Short-Term Branch (excluding NHI and SSDA)

	2014	2013	2012	2011
Benefits / contributions	0.86	0.90	0.87	0.94
Cost ratios (expenditure) contributions	1.15	1.20	1.20	1.30
Expenditure / total income	1.12	1.15	1.15	1.24
Fund Ratio ^{a/}	1.13	0.08	0.23	0.35

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

4. Frequency and Unit Cost of Sickness Benefit

The analysis for the period under review shows (Table 15):

- a) An average duration of terminated sickness cases of 7.1 days, with no discernible trend.
- b) Average morbidity rates (days paid per insured per year) of 3.14 days in 2014/12, 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 2.93 days, 93% of the duration of terminated cases.
- e) An average cost per case of \$265 and an average cost per day of \$26.48

Table 15
Matrix of Sickness Incidence and Duration

	2014	2013	2012
Insured Population	Exposed to Risk (Active Insured)		
Males	61,138	58,059	56,487
Females	36,612	35,113	34,090
Total	97,750	93,172	90,577
Duration of Terminated Cases			
Cases	3,472	3,285	2,915
Days paid	24,354	24,777	20,009
Average duration (days)	7.01	7.42	6.86
Total Days paid during the year			
Males	157,312	156,958	145,749
Females	159,063	142,017	132,585
Total	316,375	298,975	278,334
Morbidity Rates (Days paid per average insured)			
Males	2.63	2.74	2.58
Females	4.44	4.10	3.89
Total	3.31	3.16	3.07
Incidence of Sickness and Cost per Case and per Day			
New cases	28,973	27,754	25,601
Days paid	292,021	274,598	258,325
Days per case	10.08	9.89	10.09
Case per insured	30.3	23.1	29.0
Days per insured *	3.05	2.99	2.92
Amount paid (thousands)	\$7,882	\$7,112	\$6,757
Cost per case	\$272	\$260	\$264
Cost per day	\$26.99	\$26.30	\$26.16

* Morbidity rate

5. Actuarial Cost of Sickness Benefit

Table 16 shows the actual and projected actuarial cost of sickness benefits of 0.90% of insurable earnings, **with alternative cost scenarios assuming a restoration of waiting periods and a moderation of the 80% benefit rate to 70%**. The actual cost of 0.86% in 2013 was slightly lower than anticipated, with the economic slowdown having a direct incidence on the incidence and duration of sickness claims.

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

Table 16

Average	2015/17
Cases per insured	0.30
Days per insured	3.10
Cost per case	\$2.80
Cost per day	\$27
Cost per insured	\$84
Earning per insured	\$9,210
Actuarial cost	0.90 ^{a/}

^{a/}Of insurable earning, adjusted from 0.91%, due to cost-containment and preventive measures.

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 17.

Table 17

	Insurable earnings
Actuarial cost percent legal provision	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 number of maternity allowances declined slightly in 2014, as well as the frequency of maternity grants, due to reduced employment levels, as shown in Table 18.

Table 18

Actuarial Cost of Maternity Benefits

	2014	2013	2012	2011
Active contributors	97,750	93,172	90,577	87,987
Female contributors	36,612	34,183	33,513	32,555
Number of allowances paid	1,264 ^{p/}	1,318	1,266	1,318
Number of grants paid	3,187 ^{p/}	3,212	3,142	3,357
Allowance paid per 100 females	3.45	3.86	3.78	4.05
Grants paid per 100 females	8.70	9.46	9.38	10.31

^{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 0.38% of insurable earnings. **The 2014 experience shows a slight decline, probably due to the provisional data for that year, subject to adjustment.**

For the period 2015/17 the following average parameters have been assessed.

Table 19

Actuarial Cost of Maternity Benefit (2015/17)

	2015/17
Average cost per case	\$2,500
Frequency (females)	0.038
Frequency (total)	0.014
Average cost per female	\$95
Cost per insured	\$35
Average insurable earnings	\$9,212
Expected actuarial cost (allowances)	0.38%
Expected actuarial cost (grants)	0.12%
Total	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 20:

Table 20

Year	Allowances as % of insurable earnings	Grants	Total
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 21 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 21
Comparison between Actual and Expected Actuarial Cost of Benefits
(as % of insurable earnings)

	Projection ^{a/} (2015/17)	Actual			
		2014	2013	2012	2011
Sickness allowance	0.90 ^{b/}	0.88	0.86	0.86	0.87
Maternity allowance	0.38	0.35	0.40	0.38	0.44
Maternity grant	0.12	0.11	0.12	0.12	0.13
Total benefits	1.40	1.34	1.38	1.36	1.44
Administrative expenses	0.45 ^{b/}	0.44	0.47	0.50	0.57
Total	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 terms, 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 22 shows the operations of the employment injury branch, which records as expenses the actuarial present value of disablement and survivor' pensions, in accordance with the actuarial method of "terminal reserves" or "assessment of constituent capital" applied to the scheme. The investment income apportioned to the branch as from 2013 has increased substantially, while benefit expenditure increased materially in 2014, yielding a record surplus of \$15.6 million. 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. Otherwise, Reserves would have increased by \$14 million, the same amount as in 2013, indicative that the accumulations of excess of reserves have continued unabatedly.

Table 22

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

	2014	2013	2012	2011
Contributions	17,657	16,382	15,809	14,999
Investment and other income	6,374	5,482	2,594	3,204
Total Income	24,031	21,864	18,403	18,203
Disablement grants	584	432	412	527
Employment injuries (short-term)	3,098	2,319	2,160	2,160
Disablement benefits (actuarial value)	477	1,221	427	859
Death benefits (actuarial value)	486	253	278	475
Funeral grants	3	7	9	5
Total Benefits	4,648	4,232	3,286	4,026
Operating expenses	3,518	3,556	3,477	3,667
Total Expenditure	8,166	7,788	6,763	7,693
Income less Expenditure	15,865	14,075	11,640	10,510
Net Reserve (Short-term benefits)	98,003	102,813	89,947	79,744

2. Income and Expenditure as a Percent of Insurable Earnings

Income and expenditure as a percentage of insurable earnings are shown in table 23. Total benefits were equivalent to 0.52% of insurable earnings, yielding a substantial surplus of 1.73% of insurable earnings, the highest ratio of the past four years, which shows that the financing of the branch exceeds actuarial requirements.

Table 23
Income and Expenditure as a Percent of Insurable Earnings (EI Branch)

	2014	2013	2012	2011
Contributions	1.960	1.960	1.960	1.960
Investment and other income	0.707	0.656	0.322	0.410
Total Income	2.667	2.616	2.282	2.370
Disablement grants	0.065	0.052	0.051	0.069
Employment injury (short-term)	0.344	0.277	0.268	0.288
Disablement benefits (actuarial value)	0.053	0.146	0.053	0.113
Death benefits (actuarial value)	0.054	0.030	0.034	0.063
Funeral grants	0.000	0.001	0.000	0.000
Total Benefits	0.516	0.506	0.406	0.533
Operating expenses	0.390	0.426	0.430	0.484
Total Expenditure	0.906	0.932	0.836	1.017
Income less Expenditure	1.761	1.684	1.446	1.353

3 Statutory and Actual Reserves

Reserves of employment injury benefits have evolved as shown in table 24. 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, or \$4.055 million as at 31 December 2014. **Therefore, at year-end, the reserve is 24.1 times higher than the stipulated minimum, as compared to 26.7 times in 2013, 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.**

Table 24
Employment Injury Benefits
(amounts in thousands of BZ\$)

31 December	Reserve	Statutory Minimum	Multiple Minimum Reserve
2014	99,002	4,055	24.1
2013	102,813	3,848	26.7
2012	79,744 ^{v/}	3,790	23.9
2011	89,646 ^{v/}	4,403	18.2
2010	68,021	4,995	13.6
2009	57,020	5,149	11.1

^{v/}Restated

4. Incidence of Short-Term Injury Benefits

Table 25 shows the incidence and cost ratios of employment injury benefit, and table 26 shows the actual and expected costs.

Table 25
Incidence of Employment Injury Benefit)

	2014	2013	2012	2011
Cases paid	1,888	1,804	1,782	1,761
Amount paid (\$ thousands)	\$3,098	\$2,319	\$2,160	\$2,100
Average insured persons	95,461	92,108	90,577	87,987
Cases per 100 insured	1.98	1.96	1.97	2.23
Cost per case	1,641	1,285	1,212	1,070
Cost per insured	32.45	28.17	23.85	23.83
Actuarial cost (% of salaries)	0.344	0.277	0.268	0.288

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, who have a high incidence of work accidents. **The estimated cost for 2014 was close to the assessed rate of 0.35% of insurable earnings.**

Table 26
Actual and Expected Cost of Injury Benefits^{a/}

	Projected	Actual		
	2015/17	2014	2013	2012
Cases per 100 insured	2.00	1.98	1.96	1.97
Actuarial cost (% of salaries)	0.30%	0.344%	0.277%	0.268%

^{a/}Excludes medical expenses

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 27 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 27
Income, Expenditure and Reserves Disablement & Death Benefits

	2014	2013	2012	2011
APV disablement benefits	476,479	1,220,788	\$426,524	\$858,843
APV death benefits	486,394	253,734	277,959	475,953
Total APV	962,873	1,474,522	704,483	1,334,796
Net investment income	967,996	939,013	431,770	694,656
Total income	1,930,869	2,413,535	1,136,253	2,029,452
Expenditure				
Disablement pension	1,315,630	1,385,696	1,314,974	1,194,679
Death benefits	650,584	697,082	676,573	621,247
Total benefits	1,966,214	2,082,778	1,991,547	1,815,926
Excess of income over expenditures	(35,345)	330,757	(885,284)	213,526
Actuarial Reserve	16,468,895	16,716,703	16,385,946 ^{v/}	17,191,883 ^{v/}
		Key Indicators		
Actuarial cost (new cases) ^{a/}	0.11	0.09	0.17	0.13
Reserve ÷ benefit expenditure	8.36	7.97	9.12	8.46

^{a/}APV of new cases ÷ insurable earnings (49% disablement and 51% death in 2014).

^{v/}Restated

6. **Incidence of Disablement and Death Benefits**

Table 28 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 3 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 29.

Table 28
Number of Accidents by Consequence and Rates per 1000 insured

Year	Number of Cases			Rates for 1000 insured		
	Medical Care only	Permanent incapacity	Deaths	Medical care only	Permanent incapacity	Death
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 29
Percent Distribution of New Cases of Permanent
Incapacity by Degree of Incapacity (2014)

Year	60% and over	30/59%	Under 30%	Total
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 30 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 30
EI Pensions in Course of Payment

	2014	2013	2012	2011
<u>Disability Pensions</u>				
Number	459 ^{a/}	456	446	442
Monthly amount	\$102,343	102,595	100,222	99,443
<u>Widows</u>				
Number	101	94	104	109
Monthly amount	\$32,650	\$31,749	\$34,759	\$37,550
<u>Orphans^{b/}</u>				
Number	198	211	213	227
Monthly amount	\$28,561	\$30,991	\$30,139	\$31,144

^{a/}26 females (5.7%)

^{b/}Temporary pensions, except if disables

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**

Based on the 2012/14 trend, the expected cost of the EI branch is assessed as shown in Table 31, although the experience in the last two years has yielded lower costs. The estimated future cost of 1.00% of insurable earnings is equivalent to 51% the present allocation to the branch of 1.96% of insurable earnings.

Table 31
Actuarial Cost of the EI Branch
(as % of insurable earnings)

Benefit	2015/17 ^{p/}	2014	2013	2012
Employment Injury	0.35%	0.34%	0.28%	0.29%
Disablement & Death Benefits (APV)	0.15	0.11	0.17	0.20
Disablement Grants	0.06	0.07	0.05	0.07
Death and Funeral Grants	0.04	0.04	0.01	0.06
Total Benefits	0.60	0.52	0.51	0.54%
Administrative Expenditure	0.40	0.39	0.42	0.48%
Total	1.00%	0.91%	0.93%	1.02%

^{p/}Projected

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. 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: \$16,468,895 (at 31 December 2014)

The present value of EI pensions in payment and the Fund Ratio assessed as follows (at 31 December 2014):

Discount rate	Present value	Fund Ratio
(in thousands \$)		
3%	28,859	59%
4% (basic)	24,809	66%
5%	22,195	74%

^{a/}Reserve ÷ APV of benefits

It is estimated that the reserves are approximately equivalent to two thirds the actuarial present value of pensions in payment, within a variability of plus or minus 12%. 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.

VACTUARIAL 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 32, 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 3.44% in 2013, as compared to 0.6% in 2012 and 6.1% in 2011. 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 32
Income and Expenditure of the Long-Term Branch
(Amounts in thousands of Belize Dollars)

	2014	2013	2012
Contributions	40,539	37,612	36,295
Investment & other income	19,478	18,510	9,201
Total Income	60,017	56,122	45,496
Retirement benefits	23,838	21,269	19,097
Invalidity benefits	3,073	3,106	2,956
Survivors' benefits	5,329	5,138	4,707
Funeral Grants	1,095	1,086	1,023
Non-contributory pensions	3,032	3,404	3,781
Total Benefits	36,367	34,003	31,564
Operating Expenses	11,132	11,188	11,265
Total Expenditure	47,499	45,191	42,829
Income less Expenditure	12,518	10,930	2,667
Actuarial Reserve	338,333	328,218	317,288^{v/}
Fund Ratio^{u/}	7.1	7.3	7.4

^{u/} Reserves ÷ total expenditure

^{v/} Restated

3. Income and Expenditure as a Percent of Insurable Earnings

Table 33 shows the financial experience as a percent of insurable earnings. Total benefits rose to 4.07% of salaries, and total expenditure to 5.41% of insurable earnings in 2013, higher than the 4.5% allocated to the branch. The current surplus (contributions less expenditure) has been declining steadily, reaching a negative ratio of 0.91% of insurable earnings in 2013, as compared to 0.81% in 2012.

Table 33
Income and Expenditure as a Percent of Insurable Earnings

	2014	2013	2012	2011
Contributions	4.50	4.50	4.50	4.50
Investment & other income	2.16	2.22	1.14	1.66
Total Income	6.66	6.72	5.64	6.16
Retirement benefits	2.65	2.55	2.36	2.19
Invalidity benefits	0.34	0.37	0.37	0.34
Survivors' benefits	0.59	0.61	0.58	0.56
Funeral Grants	0.12	0.13	0.13	0.12
Non-contributory pensions	0.34	0.41	0.47	0.55
Total Benefits	4.04	4.07	3.91	3.76
Operating Expenses	1.24	1.34	1.40	1.48
Total Expenditure	5.28	5.41	5.31	5.24
Income less Expenditure	1.38	1.31	0.33	0.92
Current Surplus (deficit)	(0.78)	(0.91)	(0.81)	(0.74)

4. **Trend of Pensions in Payment**

Table 34 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 34
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%

^{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 35 shows the number and frequency of pensions awarded in 2014/12. The last column shows:

a) **Retirement pensions:** An average of 41% opts to claim the old-age pension before reaching age 60, and only 26% 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.

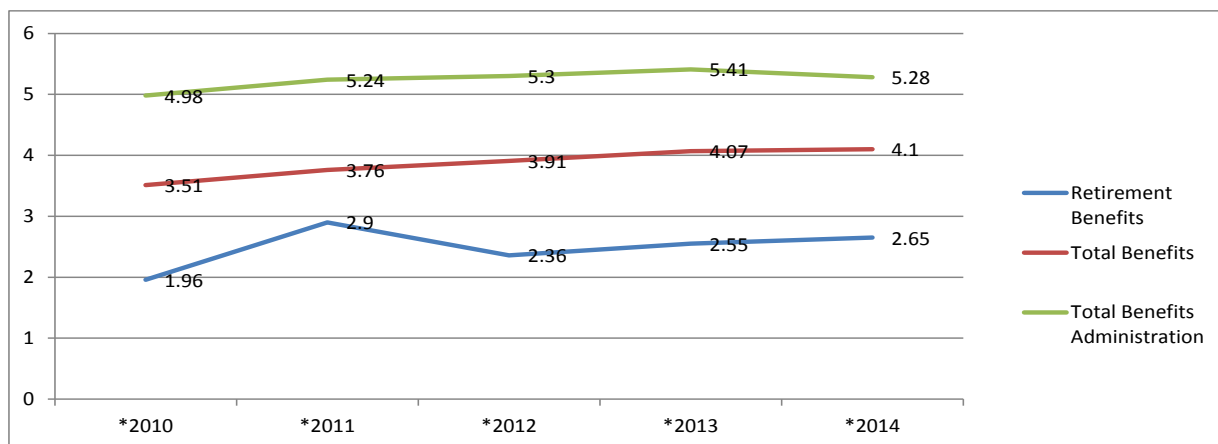
The payroll includes invalidity pensions that are transferred to the category of retirement pensions upon the attainment of age 60. Therefore, actuarial liabilities include two groups with differential life expectancies, as disabled lives have a higher mortality than non-disabled lives. However, the distortion is not significant, as less than 5% of retirement pensions in force at 31 December 2014 can be assigned to former invalidity pensioners.

Table 35
Frequency of Pensions Awarded by Age-Group

Number of Retirement pensions awarded					
Age group	2014	2013	2012	Total 2014/12	Percent
60	193	181	201	575	41
61/64	139	163	171	473	33
65 +	135	123	113	371	26
Total	467	467	485	1,419	100
Number of Widows' Pensions Award					
60	52	33	51	136	37
61/64	40	27	24	91	25
65 +	43	50	48	141	38
Total	135	110	123	368	100
Number of Invalidation Pensions Awarded					
50/59	35	27	9	71	49
40/49	19	10	23	52	36
39 -	3	6	12	21	15
Total	57	43	44	144	100

Long-Term Branch

Income & Expenditure (% of insurable earnings)



b) Invalidity Pensions

The data shows that 49% of awards occur at ages 50/59, which comprises only 10% of active insured persons, while 15% are awarded to insured persons with less than 40 years of age, that comprises 71% of active insured persons. This yields a rate per 1000 insured as shown in Table 36. Pensions are transferred to the category of retirement pensions at age 60, despite the provision of Section 18 (2) of the Benefit Regulations.

Table 36
Invalidity Rates by Age Group

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

c) **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 survivors 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.

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.

It is noted that at large proportion of invalidity grants are due to Diabetes Mellitus, a disease that at youth or middle age usually does not cause total incapacity for work. Research also shows several 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 37
Invalidity Grants

Year	Number allowed	Percent of total invalidity payments	Amount paid
2014 ^{a/}	48	22%	\$780
2013	53	26%	813
2012	47	32%	933
2011	53	24%	610
2010	42	15%	358
2009	31	14%	302

^{a/}Provisional data

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 sustainability pensioners. The 2008 peak in actuarial cost of 0.69% of insurable earnings has decreased to 0.55% in 2011 and to 0.34% in 2014, based on legal provisions in force.

8. Trend of Demographic Ratios

Table 38 shows the trend of demographic ratios between 2007 and 2013. The higher rate of increase took place for retirement pensions, with 4.58 pensioners per 100 active contributors, lower than the ratio projected in 2011 (4.90 per 100 active contributors). The consolidated ratio increased to 7.83, also lower than ratio projected in the last triennial valuation (7.97). As at 31 December 2014 updated projections will be carried out, but the slower development of the demographic ratios means that the number of pension claims allowed has been slightly lower than anticipated.

Table 38
Trend of Demographic Ratios
(At 31 December)

	2014	2013	2010
Demographic Ratios (Pensioners active contributors) in %			
Retirement ^{a/}	4.96	4.58	3.98
Invalidity ^{b/}	0.37	0.39	0.41
Survivors ^{c/}	2.53	2.86	2.19
Total (actual)	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 (2.68% in 2013), as shown in Table 39.

Table 39
Distribution of the Statutory Contributions (Long-Term Benefits)
(excluding investment income)

	2014	2013	2012	2011
Gross rate	4.50	4.50%	4.50%	4.50%
Other income	0.04	0.04	0.04	0.04
Total contributions	4.54	4.54	4.54%	4.54%
Administrative expenditure	(1.23)	(1.34)	(1.40)	(1.48)
Grants ^{a/}	(0.20)	(0.19)	(0.19)	(0.19)
Non-contributory pensions	(0.34)	(0.41)	(0.47)	(0.55)
Net rate for contributory pension benefits	2.77%	2.60%	2.48%	2.32%

^{a/}Includes all grants

10. Basic Actuarial Assumptions

a) Comparison of Mortality Tables

Table 40 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 regard of the “select” (lower) mortality of active insured persons vis-à-vis the general population, the present valuation is based on the GAM-83 mortality table.

Table 40
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, although no short-term adjustments are envisaged due to the stagnant economic environment.

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 41**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.

11. Demographic Projections

Table 42 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 42
Summary of the Basic Demographic Projections

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	5.04	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

12. 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 43 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 43

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
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

13. Projection of Reserves and Periods of Equilibrium and Sensitivities

Table 44 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 44
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).

14. Level Premium (Discounted Average Premium)

Average premium rates would theoretically generate a cuasi fully funded scheme, a model which is not very common in social security schemes. Table 45 shows scenarios of level premiums with alternative rates of return.

Table 45
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.

15. Actuarial Present Value of Obligations and Assets

As required by IAS-19/26, Table 46 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 45 therefore is shown only for information purposes and should not be disclosed in the accounting statements, as customary in National Social Security Schemes.

Table 46
Actuarial Present Value of Pensions in Payment (31 December 2014)
(Amounts in thousands of EC\$)

Present Value	Discount Rate		
	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 47
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 more recently in the Southern Region (Stann Creek and Toledo Districts). The government is planning a rollover of the program to the additional Districts in 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 48 shows the income expenditure and reserves of the NHI scheme. GOB transfers have remained static as from 2011. Benefit expenditure increased by 20% in 2010 (18% in 2009), remained static in 2011 and declined by 6% in 2012. Benefit expenses rose by 3.3% in 2013, still lower than the amount spent in 2007 and 2008, which included consultancies and non-recurring items. Overall, NHI expenses in 2013 increased by 3.1%. Reserves increased from \$2.5 million to \$2.7 million, but no assessment is available of outstanding liabilities, which would reduce further the net amount of reserves.

Table 48
Financial Trends of the National Health Insurance Fund
Amounts in thousands of BZ\$

	2014	2013	2012
Government of Belize	15,834	14,000	14,000
Total contributions	15,834	14,000	14,000
Benefits	14,299	13,016	12,597
Operating expenses	729	731	740
Total expenditure	15,028	13,747	13,337
Excess of income over expenditure	806	252	663
NHI Reserves	3,358	2,751	2,499

6. Financial Ratios

Key financial ratios have evolved as shown in Table 49.

Table 49
Key Financial Ratios

	2014	2013	2012
Benefits as % of contributions	90.0%	93.0%	90.0%
Total expenses as % of contributions	94.9	98.2	95.2
Operating expenses as % of benefit	5.1	5.6	5.9
Fund ratio (reserves ÷ total expenditure)	0.22	0.20	0.19
* In months	2.7	2.4	2.3

The analysis shows a level of reserves equivalent to only 2.4 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 7% the average monthly benefit expenditure, a rather liberal ratio, about \$1 million would be deducted from the gross reserve, or about one-half the reserve registered in the accounts, reducing the actuarial sufficiency of the reserve to a lower level.

7. Summary of Financial Operations by Region

Table 50 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 50
Financial Operations by Region
(percent distribution)

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

8. Cost of Benefits by Type of Service

Table 51 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 2014, with non-material variations as compared to the previous year.

Table 51
Benefit NHI Expenditure by Specific Service, (in thousands of BZ\$ and in percent)

	Amount in %				
	2014	2013	2014	2013	2012
Primary Care (PCP)	9,802	8,641	70	69	69
Pharmacy	1,989	1,816	14	14	14
Imaging	533	462	4	4	4
Lab tests	1,213	1,106	9	9	8
Ophthalmology	213	192	1	1	2
Hospitalization	291	317	2	3	3
Total (both regions)	14,041	12,534	100	100	100

9. Membership Data

Table 52 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 52
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 53 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 53
Estimated Actuarial Cost of Benefits
(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 increased in 2014, and represents only 2.7 months of expenditure as at 31 December 2014, 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)

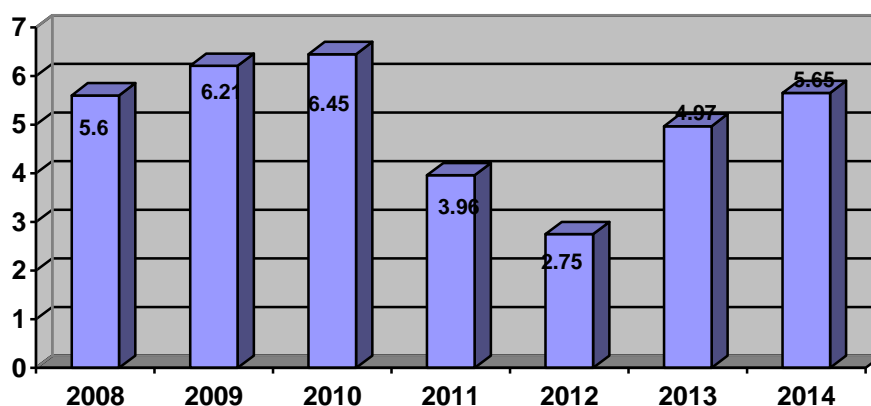
Pursuant to the legal provisions, an analysis, from an actuarial standpoint, is presented below of the investments, the strategic assets allocation, and related technical issues, as required by the Third Schedule of the Social Security Act, as a supplement to the statutory actuarial valuation.

The analysis shows a nominal rate of return of 5.65% in 2014 (4.97% in 2013) 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 the 20% ceiling stipulated in the SSB investment policy statement, having reached 21.2% of the reserves (net assets). Therefore, the Board might wish to refrain further BEL allocations with the 2015 increase in reserves, thus reducing the allocation to the statutory ceiling.

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\$)

	2014	2013	2012	2011
Cash and bank balance	24,300	20,673	17,710	13,492
Short-term investments	114,795	127,243	121,580	125,841
Long-term investments ^{a/}	306,601 ^{a/}	272,208	256,501	232,506
Accounts receivable and others	14,249	15,269	19,983	18,831
Fixed assets (net)	26,742	27,527	28,632	29,576
Total assets	486,687	462,920	444,456 ^{v/}	420,246 ^{v/}
Liabilities and deferred income	(7,897)	(6,102)	(7,136)	(10,022)
Net reserves and special funds	478,790	456,818	437,320	410,224

^{a/} Includes investment in Associates

^{v/} Restated to \$441.5 million and \$434.4 million in 2012 and 2011 respectively.

2. 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)

	2014 ^{a/}	2013	2012	2011
Short-term & other	37.0	31.7	32.2	35.1
Associates	37.2 ^{b/}	39.1	40.6	35.9
Long-term	25.8 ^{c/}	29.2	27.2	29.0
Total	100	100	100	100

^{a/}Includes fixed and intangible assets

^{b/}\$180.8 million (including \$9.2 million in Citrus G. Assocs.)

^{c/}125.7 million

3. Distribution of the Investments by Asset Class (31 December)

The distribution of investments by asset class is shown below.

Table 3

	2014	2013
Debentures	1.3	1.5
Government & municipal	1.6	4.2
Shares	1.3	1.6
Treasury Notes	2.2	2.7
Real Estate	2.5	3.2
Mortgage & Housing	1.5	2.0
Private Sector Loans	15.4	15.3
Investments in Associates	37.2	38.8
Short-term investments	37.0	30.7
Total	100%	100%

4. Distribution of Reserves by Branch

The distribution of reserves by branch is shown below, with the long-term branch accounting for 73% of the total reserves. The EI branch accounts for 21% of the total, a share that would be reduced significantly when formal approval to the transfer of excess EI branch reserves to the short-term branch and the long-term branch are formally enacted.

Table 4
Distribution of Reserves by Branch
(as at 31 December, in thousands of BZ\$)

Benefit Branch	2014	2013	2012 ^{v/}	2011 ^{v/}
Short-term	18,109	1,226	3,492	5,662
Long-term	338,333	328,218	317,288	315,298
Employment Injury	99,003	102,813	89,947	79,744
Disablement and Death	16,468	16,716	16,386	17,192
National Health Insurance Fund	3,558	2,751	2,499	1,836
Social Security Development Fund	2,277	1,802	1,507	1,043
Pension reserve	1,042	3,291	3,291	3,426
Total	478,790	456,817	434,410	424,201

^{pv}Provisional

^{v/}Restated

The short-term branch reserve has declined from 3% of the total in 2009 to less than 0.3% at year end 2013, and a recapitalization is urgently needed, as provided by the financial regulations, as the reserve has fallen below the minimum legal requirements.

Table 5
Investment Listing (at 31 December)
(amounts in thousands of BZ\$)

	2014	2013	2012
Term deposits & other	114,795	119,326	103,774
Loan (Citrus Grocers Assoc.)	9,219	6,916	7,306
Treasury Notes	0	0	10,500
Sub-total	124,014	126,242	121,580
Associates (BEL/BTL)	161,652	150,714	143,750
Debentures (BEL)	6,200	5,700	5,700
Shares	10,000	6,230	6,217
Term Deposits	-	-	9,691
Treasury Notes	10,500	10,500	0
Private sector loans	75,125	57,386	54,871
Loss provision	^a	(1,788)	(1,028)
Mortgages & housing	7,253	10,445	13,498
Loss provision	^a	(2,686)	(4,338)
Real estate	12,413	12,422	12,480
GOB loan	193	1,245	2,221
Belize City Council	7,802	8,040	3,440
Sub-Total Long-Term	291,138	258,208	246,502
Total	415,152	384,151	368,082
Percent of net assets	86.5%	87.2%	87.0%

^a Included in the total

5. Trend of Interest Rates

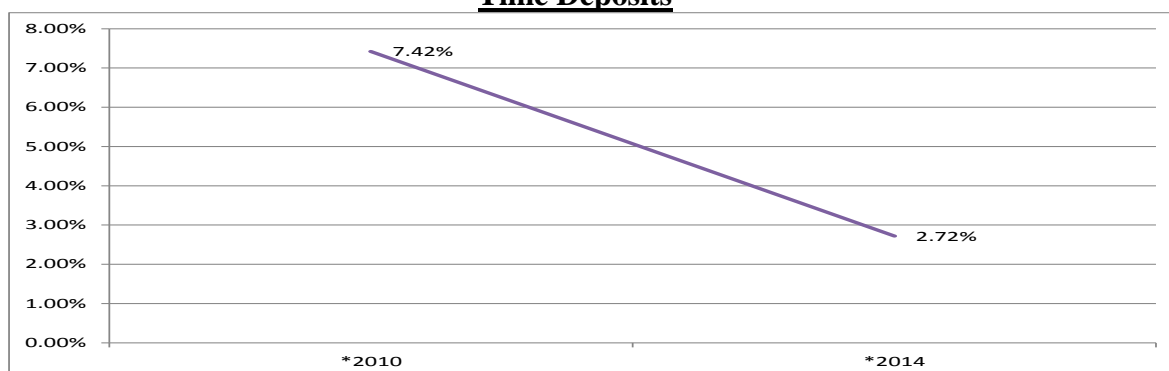
Central Bank statistics show the following average rates by the banking sector, with a sharp decline in passive rates as from 2011.

Table 7

December	Saving	Time deposits
2014	2.25	2.72
2013	2.56	3.35
2012	2.85	3.95
2011	2.98	5.37
2010	5.00	7.42

Source: Central Bank of Belize

Time Deposits



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.

7. Scenario of Risk Adjusted Returns

The SSB nominal return on assets has averaged about 5.2% in 2013/14. 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%	5.2%

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

$$S = (R_p - r) / SD$$

$$\text{Term deposits} = (0.03 - 0.02) / 0.05 = 0.20$$

$$\text{Associates \& loans} = (0.065 - 0.020) / 0.15 = 0.30$$

$$\text{Total portfolio} = (0.052 - 0.020) / 0.134 = 0.24$$

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. 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.

8. 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 of 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.**

9. **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.**

10. **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.

11. 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 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 (eg. 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".

Financial Status (at 31 December 2014 / provisional)

Total current assets: \$150M

Total current liabilities: \$6.1 million (favourable ratio).

Schedule of “Loans” at 31 December (Millions of BZC\$)

	2014	2013
Citrus Growers	9.2	6.9
Private sector	75.1	61.4
BEL loan	10.0	10.0
Mortgages	7.3	10.5
GOB loan	0.2	1.2
Total	\$101.8	\$90
Less provision	4.5 ^{a/}	4.5
Net	\$97.3	\$85.5

^{a/}Provisional

Investment in Associates (millions of BZ\$) at 31 December 2014

BEL: \$91.77 million (22.1% of the portfolio), plus \$10 million in loans

BTL: \$69.88 million (16.8% of the portfolio)

Loan: The concentration of investments in BEL and BTL, representing 39% of the \$415 million investment portfolio should be frozen as from 2015, with a gradual decline to the 20% ceiling established in the financial regulations.

Financial Risk by Type of Investment

Type	Risk
Shares ^{a/}	High
Bonds ^{b/}	Medium high
Loans	Medium

^{a/}Allocations exceeds 20% ceiling. No further investments desirable.

^{b/}Curtail further investments due to low liquidity

Recommendation

Establish a Risk Management Committee: Chaired by the CEO, with participation of the GM Financial Services, Manager Investment Services, Manager Financial Services, the Internal Audit Services.

12. 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.

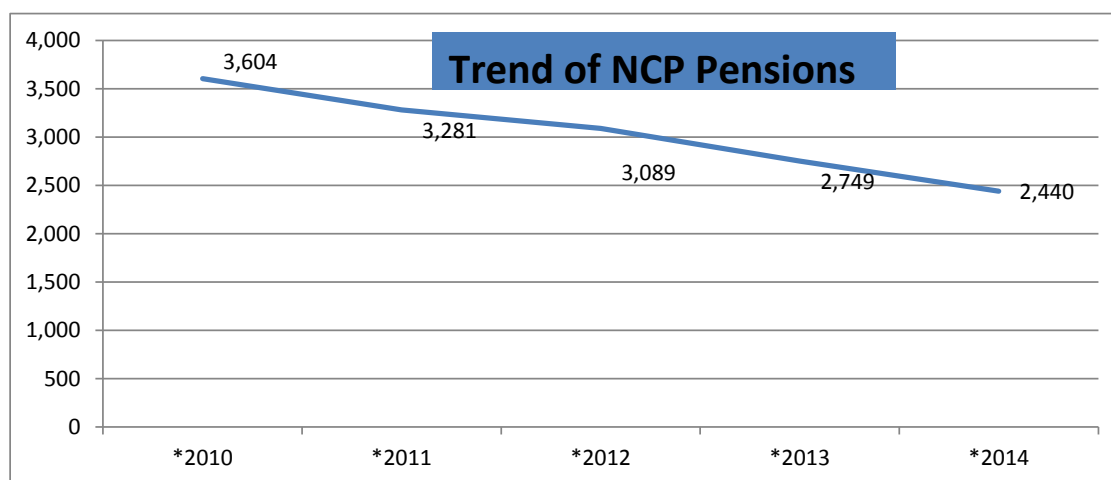
2. Trend of Pensions in Payment

The total number of NCPs has declined steadily from a peak of 4,934 early in 2008 to 2,440 pensions in payment at December 2014. The high 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 only 12 beneficiaries.

Table 1
Trend of NCP Pensions (at 31 December)

	2014	2013	2012	2011	2010
<u>Number of pensions in payment</u>					
Males	835	927	1,040	1,117	1,201
Females	1,605	1,822	2,049	2,164	2,403
Total	2,440	2,749	3,089	3,281	3,604



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)

^{a/} Financial

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%

* 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 anticipates lower long-term actuarial cost, due to a steady reduction in the number of NCP in force.** 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, assessed at an average of 0.38% of insurable earnings. Raising the initial eligibility age to 67 years for females would reduce the medium term cost average further, to 0.32% 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 2016 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)

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

^{a/} Related to the balance at the beginning of each year

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 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	1,091	396	5,196	21%

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	53	17
Middle	161/299	26	50
High	300 and over	21	33
	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	60%	57%
55 and over	20%	19%
Total	100%	100%
Males	47%	47%
Females	53%	53%
Married ^{a/}	63%	65%
Non-married ^{b/}	37%	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

*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	2012/14	2011
Funeral Grant	0.5	0.9
Injury Benefit	4.1	5.8
Maternity Benefit	9.0	8.4
Maternity Grant	8.6	7.9
Sickness Benefit	77.8	77.0
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

	2014			2013			2012		
	Males	Female	Total	Males	Females	Total	Males	Female	Total
Retirement	81	60	141 ^{a/}	65	49	114	50	40	90
Invalidity	4	5	9	4	4	8	2	5	7
Disablement	11	-	11	11	0	11	9	0	9
Survivors	8	5	13	9	4	9	4	3	7
Total	104	70	174	85	57	142	65	48	113

^{a/} 97 (69%) opted before age 65.

6. 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. An assessment by the Research Division would allow a more precise analysis of actuarial costs.

Table 7
Actuarial Cost of the Self -Employed Scheme (Preliminary Assessment)^{a/}
(in percent of insurable earnings)

Contributions	7.0%
Short-term benefits	1.1
Long-term benefits	6.4
Administrative expenditure	0.5
Total expenditure	8.0%
Surplus (deficit)	(1.0)%^{b/}

^{a/} Subject to adjustment once a research project is concluded.

^{b/} Pay-as-you go model

7. 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.

8. 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) Pension Benefits

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-employee persons** is estimated to increase the “actuarial deficit” by 70% to 80%.

The analysis shows a temporary operational surplus, but the “actuarial cost”, derived from the present value of pensions awarded, yields a substantial deficit: as well as in the short-term branch, the scheme for self-employed persons yielding a 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: \$47 per week.

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: \$47 per week.

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: \$47 per week.

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

(b) Survivor's Grant

Payable to beneficiaries if they are not entitled to pensions on the death of an insured person who satisfied the contribution conditions for 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: \$47 per week.

Disablement benefit

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

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

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

Funeral grant: \$1,500.

H. Non-Contributory Pensions

As from age 65 females, and age 67 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. 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 "

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 than 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		
		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 GoA 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, 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.**