

CONFIDENTIAL

**8th Actuarial Review of the
National Insurance Fund
as of 31 December 2006**

Grenada

June 2008



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Abbreviations and Acronyms

CSME	CARICOM Single Market & Economy
CSSA	CARICOM Social Security Agreement
ECCB	Eastern Caribbean Central Bank
EIB	Employment Injury Benefits
FPDA	Fixed Premium Deferred Annuity
GDP	Gross Domestic Product
ILO	International Labour Office
IPS	Investment Policy Statement
LTB	Long-term Benefits
NPF	National Provident Fund
PAYG	Pay-as-you-go
NI	National Insurance
NIB	National Insurance Board
NIF	National Insurance Fund
STB	Short-term Benefits
TFR	Total Fertility Rate

Introduction

The Grenada National Insurance Scheme (NIS) began operations in April 1983. The NIS currently covers all employed and self-employed persons and offers three main types of social security benefits – short-term benefits, long-term benefits or pensions and employment injury benefits. The system is financed by contributions which are levied on employment earnings up to a wage ceiling and are paid by employers, employees and self-employed persons. Surplus funds are invested locally and abroad in various types of securities.

This is the report of the 8th Actuarial Review of the National Insurance Fund as of December 31, 2006. Section 22 of the National Insurance Act requires that an actuarial review of the Fund be conducted triennially. This review is being conducted one year later than required given that several amendments emanating from the previous review were enacted in late 2006.

The main purpose of periodic actuarial reviews is to determine if the National Insurance system in Grenada operates on sound financial and actuarial bases and if it provides adequate and affordable levels of income protection. Where considered necessary, recommendations aimed at ensuring that these objectives can be achieved for current and future generations are made.

During discussions with the National Insurance Board and representatives of the Government and other stakeholders in October 2007, requests for analysis and discussion of specific issues were made. These and other matters are discussed throughout the report.

For this actuarial review, 60-year demographic and financial projections have been performed. It should be noted that these projections are dependent on the underlying data, methodology and assumptions concerning uncertain future events and that the outcomes and eventual experience will most likely differ, possibly materially, from that indicated in the projections. Therefore, in accordance with the National Insurance Act, periodic actuarial reviews should be conducted. The next actuarial review of the National Insurance Fund is due as at December 31, 2009.

This review has been conducted by Mr. Derek Osborne of Horizonow Consultants Ltd. The author wishes to thank Mr. Ashton Frame, Director, Mr. Dorset Cromwell, Statistics, Research and Planning Manager, and all other members of the National Insurance staff who assisted with this review.

Executive Summary

Actuarial reviews of the National Insurance Fund provide governments, workers, employers and pensioners with a comprehensive assessment of the current and projected state of Grenada's primary social security system. They also provide policy recommendations for changes designed to enhance overall system relevance and financial viability. With pension promises extending well into the future, it is important that proactive steps are taken to ensure that adequate responses to changing socio-economic conditions are made.

Following the passage of Hurricane Ivan in September 2004, the National Insurance Board introduced a short-term Unemployment Assistance benefit which provided temporary income for persons who became unemployed as a result of the hurricane. The Board and Government are complimented for so quickly making NIS funds available to displaced workers during a time of crisis and economic downturn. The enactment of another set of amendments in 2006 that made self-employed contributions mandatory, upgraded pensions and enhanced other benefit provisions was also a positive step toward enhancing the relevance of the NIS.

During the review period 2003 to 2006, contribution and investment income were both lower than projected in the 7th Actuarial Review while benefit and administrative expenditure were both higher than projected. However, significant unrealised gains in two equity holdings and a substantial profit on the sale of land led to total reserves at the end of 2006 reaching \$523 million, an amount slightly higher than projected. As expected, however, the gap between the contribution rate and the expenditure rate continues to narrow.

Continued population and economic growth for the next few decades form the basis for the *Best Estimate* 60-year projections made in this report. However, towards the end of the projection period, the ageing of the population is likely to result in slower economic growth as the number of working-age persons declines. Therefore, it is quite likely that a trend that sees more persons working well into their sixties and seventies will emerge thus providing support for the NIS to consider gradually increasing the age for receipt of a full Age pension from 60 to 65.

Main Findings

This report's assessment of policy and design indicators suggests that current contribution and benefit provisions provide an adequate level of income protection to most workers and pensioners. The main areas of concern are the level of the wage ceiling which has not been increased in almost 10 years, and the slightly low minimum pension. For these and other policy issues, reforms aimed at enhancing both system relevance and financial sustainability are discussed and recommended in this report.

For this review, three sets of 60-year projections of Grenada's population and National Insurance Fund finances have been performed so that a range of reasonable prospects for the

Fund may be assessed. These projections are based on there being no change to the current contribution rate or benefit rules. Given the uncertainty in projecting such an extended period the timing of certain events and the rates that will apply have been presented as ranges.

Expenditure exceeds contributions for first time	2016 to 2017
Expenditure first exceeds total income	2021 to 2025
Fund depleted	2031 to 2038
Average long-term cost of benefits over next 60 years (<i>General Average Premium</i>)	15.8% to 20.2%
Pay-As-You-Go contribution rate in 2066	27.1% to 36.3%
Number of contributors per pensioner in 2066	1.3 to 1.7

The outlook for the Fund under these projections is less optimistic than those of the 7th Actuarial Review. The main reasons for this are the smaller and older population projected for this review and changes to certain key assumptions.

A significant reduction in long-term costs and annual pay-as-you-go rates could be realised if the recommended increase to the age at which full Age pensions is payable is made.

Recommendations

1. Provide for a systematic approach to increasing the wage ceiling, pensions and all fixed-dollar rates. The proposed approach is for triennial increases that are recommended in periodic actuarial reviews. (Section 5.1)
2. Increase the wage ceiling to between \$3,500 and \$4,000 per month at the earliest opportunity. (Section 5.1)
3. Gradually increase the age at which a full Age pension is payable from 60 to 65 while keeping age 60 as the age at which reduced pensions are first payable. (Section 5.2)
4. Revise the accrual rate schedule for pensions so that pensions accrue more gradually over one's career (Section 5.3)
5. For Survivors pensions, increase the minimum rate for children and increase the age up to which dependant children can receive the benefit from 18 to 21. (Section 5.4)
6. Permit the payment of Invalidity pension together with a portion of a Survivors pension as recently introduced for Age and Survivors pensions. (Section 5.4)
7. Revise the eligibility requirements for Maternity grant so that more new mothers may qualify. (Section 5.5)
8. Consider alternative contribution payment methods for self-employed persons that provide greater flexibility and better reflect the nature of their employment and income flows. (Section 5.6)

9. Consider changes to various regulations aimed at enhancing the relevance and administration of certain provisions. (Section 5.9)
10. Conduct a comprehensive review of the NIS Act and Regulations so that they accurately reflect the Scheme's objectives and practices. (Section 5.9.8)
11. Revise the allocation of contribution income between the three benefit branches and transfer reserves from the Short-term and Employment Injury benefit branches to the Long-term benefits branch. (Section 5.10)
12. Given the recent debt restructuring by the Government of Grenada and the arrears positions of loans granted to some statutory bodies, there should be no further lending to institutions that are currently in default of any NIS obligations and the proportion of the Fund held in Government securities should be kept below 20%. Also, the Board should continue placing funds outside of Grenada with a medium-term target of 20% of total assets. (Chapter 6)

Enhancing long-term sustainability can be achieved by reducing long-term costs and/or increasing the contribution rate. While no contribution rate increase is being recommended at this time, steps aimed at reducing administrative costs, bringing greater diversification to Fund investments and changing several benefit provisions with a goal of reducing net long-term costs, should be taken first. If these changes can be made soon, a review of the contribution rate may be made when the next actuarial review is being conducted.

Unlike other government programs that provide goods and services for current consumption, some NIS promises will not be delivered until decades from now. As a result, the actions and decisions of policymakers today - both good and bad - will determine whether or not the National Insurance system will be relevant and sustainable for future generations. The most important ingredient for success of any social security system is honest and responsible government. For all public sector organisations, good governance should focus on two key requirements - performance as it relates to delivering on its promises and conformance with laws and public expectations. With growing expectations from insured persons and a huge fund that could be abused if not adequately safeguarded, the Board is encouraged to introduce an appropriate governance structure that promotes best practices at all levels. This will enhance the likelihood that the Board achieves its overall objectives in a manner that enhances public confidence in its decisions and actions.

Chapter 1 Activities & Experience Since Last Actuarial Review

1.1 Amendments To Act & Regulations

Since the 7th Actuarial Review of the National Insurance Fund was conducted, two sets of amendments to regulations were made. The first, which took place in late 2004, provided for Unemployment Assistance payments to persons who were involuntarily unemployed as a direct result of the devastation caused by Hurricane Ivan in September 2004. With such payments limited to 26 weeks, the regulations were deemed to have come into effect on September 8th, 2004 for a period of 39 weeks. A total of \$6.4 million was paid in Unemployment Assistance benefits. These payments were charged to the STB branch.

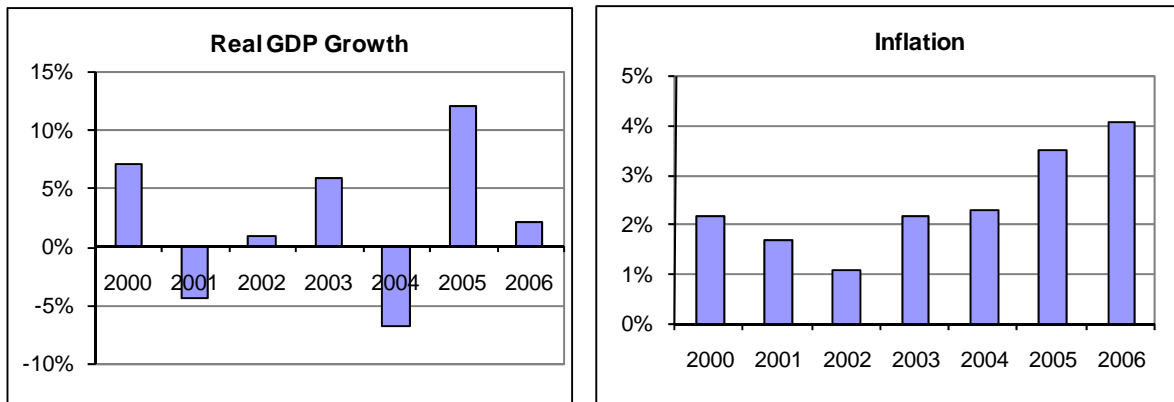
In late 2006, an extensive set of amendments that took effect on January 1st, 2007, except where stated, was enacted. The amendments which materially impact National Insurance finances were:

- Pension increases ranging from 2% to 16% based on the year of award or last increase took effect in January 2006. The minimum pension for adults was increased from \$40 to \$46.40 per week rate while the rate for a Survivors' child was increased from \$8.50 to \$9.90. The Provident Fund pension was increased from \$30 to \$33.60 per week.
- The Maternity grant was increased from \$450 to \$522.
- The Funeral grant for an insured was increased from \$2,000 to \$2,320. Adjustments were also made for grants for a spouse and the child of an insured.
- Provisions for employment injury coverage were introduced for workers 60 and over or under 16 with employer contributions of 1% of insurable wages.
- The qualifying conditions for a Survivors pension for a widower were made the same as those for widows.
- Persons entitled to both Age and Survivors pensions can now receive the full Age pension plus 50% of the Survivors pension instead of only the larger of the two pensions.
- Provision for parents to receive a Survivors pension where the spouse and/or children have not exhausted the maximum amount available were implemented.
- The number of years over which insurable wages are averaged for the purpose of calculating Age pensions was increased from 3 to 4 in 2007, and then to 5 in 2008.
- In determining the average weekly insurable wage for the purpose of calculating Sickness benefit, the sum of weekly insurable earnings is divided by the number of weeks worked instead of 13.
- Self-employed coverage was made mandatory and expanded to include all benefits. The contribution rate was increased from 6.75% to 9%.

1.2 Economic Experience

National Insurance finances are closely linked to economic performance and labour market changes. Economic growth during the period 2000 to 2006 was mixed with years of both positive and negative growth. The passage of Hurricane Ivan in 2004 led to a contraction in output but the economy rebounded quickly in 2005. Inflation for most of the period was quite low but increased gradually from 2002 to 2006. During the 7 years shown below, real GDP growth and inflation both averaged 2.4% per annum.

Figure 1.1 Key Economic Indicators, 2000 to 2006

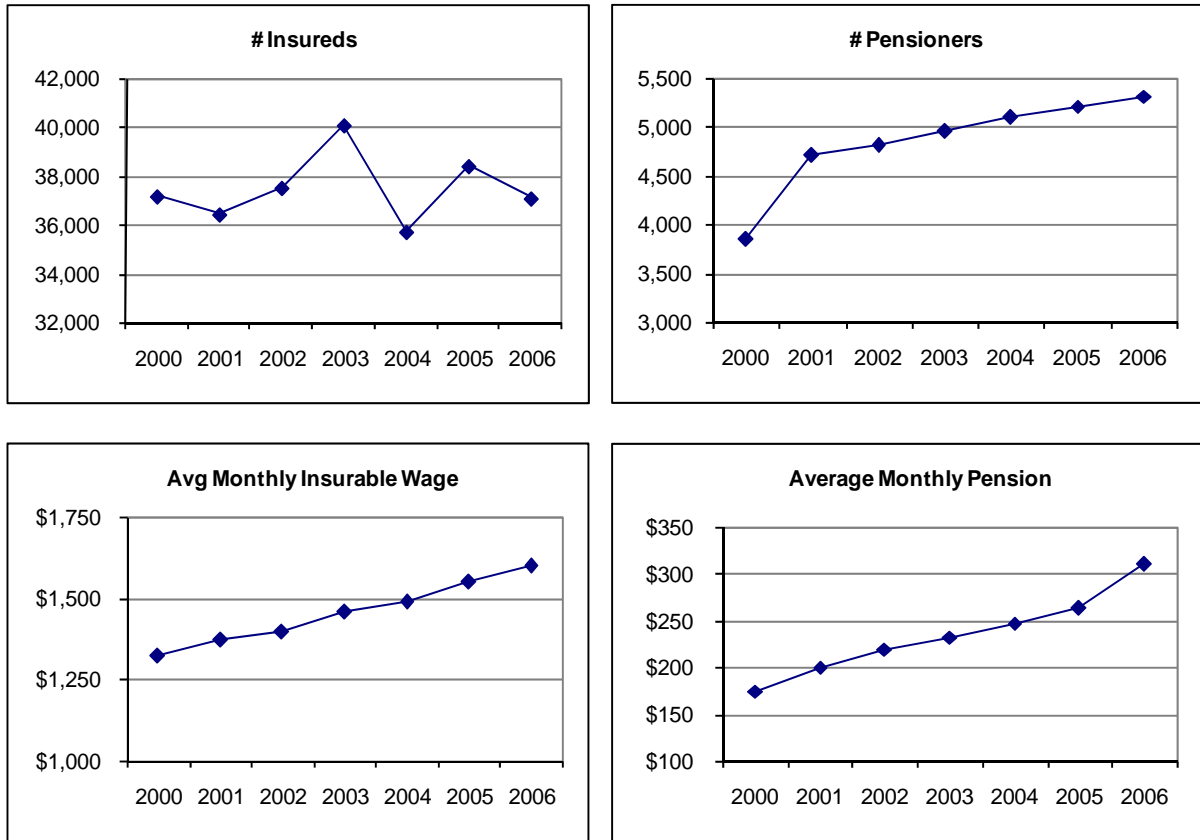


Source: ECCB

1.3 National Insurance Experience

Contribution income is directly related to employment and wage levels. Thus, in line with recent economic patterns, the number of insured persons making contributions fluctuated over the past few years. For pensions, which account for 80% of total benefit expenditure, gradual increases are expected with changes to the number of pensioners and their average pension having greatest influence on year-over-year changes to benefit expenditure. The charts in Figure 1.2 highlight recent changes in the number of contributors and their average insurable wage and the number of pensioners and average pensions. While there has been no adjustment to the wage ceiling for many years, pensions in payment were increased in 2006. The large increase in the number of pensioners in 2001 was due to the introduction of a pension to former Provident Fund contributors.

Figure 1.2 Contributors & Pensioners, 2000 to 2006



The following table provides summary income and expenditure amounts for years 2003 to 2006. A more detailed version of Fund finances may be found in Appendix D.

Table 1.1 Summary of NIF Finances, 2003 – 2006 (millions \$'s)

	2003	2004	2005	2006
Income				
Contributions	36.8	39.2	37.3	44.6
Investment	23.5	24.2	25.7	25.4
Other	0.2	0.4	0.3	0.3
Gain on Land Sale	-	-	-	11.8
Unrealised Gain on Equities	-	-	-	21.4
Total Income	60.5	63.8	63.4	103.5
Expenditure				
Benefits	18.2	19.6	27.6	24.6
Administrative	4.7	5.4	6.0	6.2
Total	22.9	24.9	33.6	30.7
Surplus	37.6	38.8	29.7	72.7
Reserves at Year-End	381.5	420.3	450.1	522.8

Notes: Totals may be off due to rounding.

1.4 Benefit Branch Experience & Reserves

National Insurance administers three major types of National Insurance benefits – long-term or pensions, short-term benefits and employment injury benefits. While the summary of National Insurance finances presented in the previous section shows total income and expenditure, internal accounting procedures separate finances into three branches. Since the three benefit types have different characteristics and financing mechanisms, the separation allows for better monitoring of experience. Each benefit is allocated to one of the three branches and each benefit branch is allocated a certain percentage of contribution income, investment income, and administrative costs.

For the Short-term benefit (STB) and Employment Injury benefit (EIB) branches, a pay-as-you-go method of financing is used. Under this method current contributions are expected to meet current benefits with only a small reserve. Therefore, the contribution rate allocated to these benefits should approximate expected expenditure and reserve levels should be small, relative to annual expenditure. As shown in the following table, the contribution rate allocated to the STB branch is appropriate while for the EIB branch the allocation is excessive. The high cost of short-term benefits in 2005 was due to the payment of Unemployment Assistance benefits while for Employment Injury benefits there was a larger than usual allocation of administrative expenses.

Long-term benefits are partially pre-funded with the portion of the contribution rate not allocated to Short-term and Employment Injury benefits. Given that National Insurance is still relatively young, expenditure remains below contribution income but the gap is gradually narrowing.

Table 1.2 Summary Branch Experience (% of Insurable Wages)

Benefit Branch	Contributions Allocated	Total Expenditure			
		2003	2004	2005	2006
Short-term	1.3%	1.2%	1.2%	2.6%	1.0%
Employment Injury	1.0%	0.2%	0.2%	0.5%	0.2%
Long-term	6.7%	4.4%	4.8%	4.8%	5.4%
All Branches	9.0%	5.7%	6.2%	7.9%	6.6%

The following table shows changes in total reserves and relative funding levels for each branch between 2002 and 2006. Also shown are suggested funding targets for the Short-term and Employment Injury Benefit branches.

Table 1.3 Benefit Reserves & Reserve-Expenditure Ratios, 2002 & 2006

Benefit Branch	Year-end Reserve (in millions)		Reserve-Expenditure Ratio		
	2002	2006	2002	2006	Suggested Target
Short-term	\$32.4	\$41.0	9.1	8.6	1.0
Employment Injury	\$26.0	\$50.1	32.1	56.5	2.0
Long-term	\$285.4	\$431.7	17.1	17.2	Not Applicable
Total Benefit Reserves	\$343.8	\$522.8	16.3	17.0	Not Applicable

Note: The Reserve-Expenditure ratio is the size of the year-end reserve relative to total expenditure in that year.

As shown in Table 1.3, funding levels decreased for the STB branch due mainly to the payment of Unemployment Assistance payments in 2005. For the EIB branch the large increase in reserve-expenditure ratio was due to contribution allocations being well in excess of expenditure. The increase in the overall funding level and the small rise for the LTB branch, while not anticipated, were due to the large unrealised gain on equities and realised gain on sale of land.

With actual funding ratios for the Short-term and Employment Injury benefit branches well in excess of target funding ratios, reserve transfers out of these branches to the Long-term branch and a reallocation of the contribution rate between branches are justified. (See Section 5.9)

Additional benefit and branch experience details for years 2003 to 2006 may be found in Appendix E.

1.5 Experience Compared With Projections of The 7th Actuarial Review

In the 7th Actuarial Review projections were prepared for the entire Fund under three scenarios. When compared with the *Intermediate* Scenario, actual experience during 2003 to 2006 was slightly below expectations with both key income items lower than projected and both key expenditure items higher than projected. Most of the negative variance for contributions and benefits can be attributed to the economic downturn following Hurricane Ivan and the payment of a temporary Unemployment Assistance benefit out of the Fund. Although overall income was less than projected and expenditure more than projected, a significant realised gain on the sale of property and another significant unrealised gain on equities boosted reserves well above what was projected.

Table 1.4 Projections From 7th Actuarial Review Compared With Actual Experience

	2003 - 2006 Projected (millions of \$'s)	2003 - 2006 Actual (millions of \$'s)	Difference
Contribution Income	163.0	158.0	3% lower than projected
Investment Income (excludes extraordinary gains)	99.5	98.7	1% lower than projected
Benefit Expenditure	84.2	89.9	7% higher than projected
Administrative Expenditure	20.3	22.3	10% higher than projected
2006 Year-end Reserves	504.2	522.8	4% higher than projected

1.6 Investments

At the end of 2006, National Insurance investments stood at \$504.6 million, up from \$314.1 million at the end of 2002. During this period the average yield on investments (excluding extraordinary gains) was 6.9%. With inflation averaging 3.0%, the real rate of return over the 4-year period was 3.9%. At the end of 2006, total investments were approximately 33% of GDP. Investments as a percentage of reserves increased from 88% in 2002 to 97% in 2006 mainly due to the conversion to bonds of receivables that were due from the Government of Grenada.

The following table provides a summary of the investment mix of the National Insurance Fund at year-end 2006 and 2002. As shown, the proportions held in Government securities and fixed deposits declined while the proportions of the Fund held in loans, bonds and equities increased.

Table 1.6 Summary of Investments, Year-end 2006 & 2002

Investment Category	2006		2002	
	millions of \$'s	%	millions of \$'s	%
Gov't Securities	94.0	18.6%	79.6	25.3%
Fixed Deposits & FPDA's	120.2	23.8%	93.0	29.6%
Originated Loans	186.5	37.0%	100.8	32.1%
Bonds	63.7	12.6%	26.1	8.3%
Equities	33.5	6.6%	8.0	2.6%
Real Estate	6.6	1.3%	6.6	2.1%
Total	504.6	100.0%	314.1	100.0%

In September 2005 the Government of Grenada as part of a debt restructuring strategy, exchanged newly issued bonds for amounts owed to the NIF. The investments and receivables that were impacted were:

- i. \$55 million of 6% Government of Grenada bonds with maturity dates ranging from 2008 to 2018;
- ii. \$21.56 million of 6% Government of Grenada bonds for which the maturity date had passed but for which repayment had not been received by the NIF, plus \$15.12 million in accrued interest;
- iii. EC\$275,632 representing unpaid interest on Government of Grenada bonds purchased through Citibank Trinidad & Tobago Ltd. in June 2000.

The total amount exchanged was \$91,959,226. The newly issued bonds all have a maturity date of September 15, 2025, but interest rates that increase over time from 1% per annum to 9% per annum.

Although the face amount of the debt exchange is unaffected (EC\$91.96 million) the changes in the interest rate offered and the timing of principal repayments affected the National Insurance Fund as follows:- smaller cash flows in earlier years due to lower interest rates and no payment of principal, and an extension in the date that the total face amount will be paid to 2025. Overall, there was an 11.3% reduction in the present value of the amounts due from Government. Since the exchanged bonds represented around 22% of the total investable assets as at December 2004, the overall reduction in present value of the NIF portfolio was approximately 2.5%.

It should be noted that from an accounting standpoint, there has been no loss to the Fund as the book value of the exchanged bonds is unchanged. However, investment income in the years immediately after the exchange were lower given the 5% drop in interest rate on EC\$91.96 million. (“Old Bonds” were paying 6% interest and “New Bonds” paying only 1% up to September 2008)

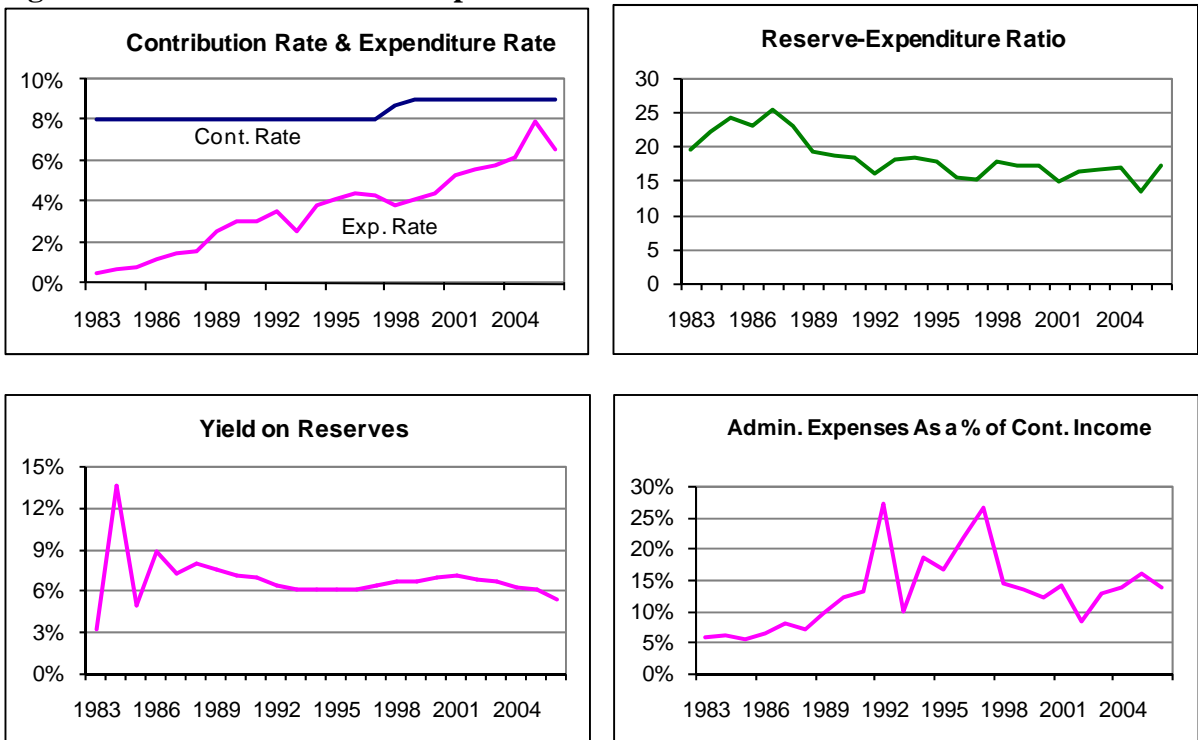
From a cash-flow perspective, the extension of the repayment of the bonds’ face amount to 2025 may in fact be a positive for the NIS. With net cash flows from current income and expenditure forecasted to remain positive through the mid-2020’s, securing a long-term investment at fixed interest rates should be viewed as beneficial for the Fund. In summary therefore, it may be concluded that if there are no other impacts on NI investments, and the Government is able to meet its revised obligations on time, the exchange of Government of Grenada bonds will not have a significant impact on the Fund’s ability to meet its obligations in both the short and long-terms.

Chapter 2 Assessment Of Performance & System Design

2.1 Historical Performance, 1983 – 2006

National Insurance systems have long-term horizons – workers may contribute for over 40 years and then receive pensions for over 30 years. Therefore, an assessment of performance should not be limited to one or two years, but instead entail a review of experience over a long period and an understanding of why changes over shorter periods have occurred. Experience for key financial factors from 1983 to 2006 is presented in the following charts:

Figure 2.1 National Insurance Experience



As a social security system matures it is expected that expenditure would grow at a faster pace than income and reserves, leading to a reducing gap between contributions and expenditure and a gradual deterioration in funding levels if the contribution rate is not increased. This expectation has generally held true for the National Insurance Fund as illustrated in the above charts which show that total expenditure as a percentage of insurable earnings (expenditure rate) is gradually increasing while the reserve-expenditure ratio is slowly decreasing. The two main factors that drive current expenditure are the number of pensioners per contributor (the demographic ratio), and the average pension compared with the average insurable wage (the replacement ratio). Both of these ratios are gradually increasing.

While the yield on reserves has been at or above 6% for over 20 years, the debt restructuring exercise by the Government of Grenada, which saw a reduction in yields on government

securities, has resulted in Fund returns falling in 2005 and 2006. Administrative expenses, meantime, have increased in recent years when measured against contributions collected.

Following are values for several key indicators as of the dates of December 2006 and the previous two actuarial reviews along with a brief analysis of the changes that have occurred over the past few years.

Table 2.1 National Insurance Performance Indicators

	1999	2002	2006	Comments
1. Contribution Rate	9.0%	9.0%	9.0%	No change since EI benefits added in 1998.
2. Expenditure Rate	4.1%	5.5%	6.6%	Gradual increase expected.
3. Reserve-Expenditure Ratio	17.1	16.3	17.0	Gradual decline expected. Gains on equities & land in 2006 led to substantial increase in reserves.
4. Benefits as % of GDP	0.9%	1.4%	1.6%	Gradual increase expected.
5. Reserves as % of GDP	21%	29%	34%	Reserves growing at a faster rate than the economy.
6. 3-year average yield on reserves	6.5%	6.9%	5.9%	Decline in 2006 due in large part to Government debt restructuring.
7. 3-year average real yield on investments (net of inflation)	5.3%	5.3%	2.6%	Higher inflation and lower returns in recent years.
8. Administrative Expenses as a % of Insurable Wages	1.0%	1.2%	1.3%	Operating costs rising faster than insurable wages.
9. # of Pensioners Per 100 Contributors	6.3	12.8	14.3	Gradual increase expected. Increase between 1999 and 2002 due to introduction of Provident Fund pension.
10. Average Pension as % of Average Insurable Wage	19%	16%	19%	Gradual increases expected. Decline in 2002 due to addition of Provident Fund pensions in 2001.

Note: Extraordinary gains on investment have been excluded from return calculations.

In general, National Insurance demographic and financial experience has been consistent with external influences and Scheme changes and in line with reasonable expectations.

2.2 Design & Policy Indicators

National Insurance systems have wide-ranging objectives such as the provision of adequate income coverage for all workers which lead to the provision of adequate lifetime pensions for

the retired, invalid and survivors of insured persons. Given that the NIS has a large pool of assets which together with future contributions will meet future expenditure, ensuring that these assets realise market rates of return without exposure to excessive risk is also an important objective.

While assessing whether or not these objectives are being met can be somewhat subjective, by setting dollar values to certain key parameters such as the earnings ceiling and minimum pension, or through policy guidance issued to the National Insurance Board, policymakers influence to a large extent how well such objectives are achieved. The following table provides an analysis of a few key design parameters and indicators of coverage, benefit levels and investment prudence, by reviewing current levels and changes between 1999 and 2006.

Table 2.2 Assessment of Key Design Parameters & Achievement of Policy Objectives

Policy	Measured By	1999	2002	2006	Comments
1. Level of Insurance Coverage	Ratio of Ceiling to Average Insurable Wage	2.5	2.2	1.9	Gradual decline since 1998. Ceiling now at low end of acceptable range.
2. Minimum Floor of Income Protection	Minimum Age Pension as a % of Average Insurable Wage	14%	12%	13%	Slightly low.
	Minimum Age Pension as a % of Poverty Line	64%	61%	63%	
3. Coverage For All Employed Persons	% of Employed Persons Contributing	>90%			Very good.
	% of Self-employed Persons Contributing	Not available			# of self-employed persons not published. But rate likely less than 25%.
4. Investment Diversification	% of Assets held in Government Securities	38%	25%	19%	Acceptable.
	% of Assets held in short-term deposits	25%	30%	24%	Slightly high.
	% of Assets held locally	98%	89%	89%	High.

Notes: Poverty line taken from 1999 Poverty Assessment Report and adjusted by inflation for 2000 to 2006.

Chapter 3 Best-Estimate Projections

Many demographic and economic factors, such as changes in the size and age structure of the population, economic growth, employment and wage levels and inflation, influence National Insurance finances. Therefore, to best assess the Fund's long-term sustainability, projections of Grenada's total population and the economy are required. For this review 60-year projections have been performed.

In developing all of the assumptions used for the projections, historical trends and reasonable future expectations, as well as the interrelationships between the various assumptions, have been taken into account. Core projections have been performed using assumptions that reflect best estimates. As a result, the set of demographic and financial projection results based on this assumption set is referred to throughout this report as "*Best Estimate*."

Given the significant uncertainty inherent in forecasting such a long period, projections have also been performed using two additional sets of assumptions. These alternative projection sets, which encompass assumptions that are generally more optimistic and more pessimistic than best-estimate assumptions, are presented in Chapter 4.

3.1 Population Projections

3.1.1 Assumptions

Projections of Grenada's population begin with the results of the 2001 census and in each projection year thereafter, fertility, mortality and migration assumptions are applied. Fertility rates are used to estimate the number of births each year while mortality rates determine how many, and at what ages, people are expected to die. Net migration represents the difference between the number of persons who permanently enter and leave Grenada and is the most volatile of the three factors.

The 2001 population census placed Grenada's population at 103,143, an increase of 7,546 over the 1991 census count of 95,597. With births exceeding deaths by 14,102, there was implied net out-migration of some 6,556 persons, an average of just over 650 persons per year over the 10-year period. It is expected that net-outward migration will continue, perhaps at a declining rate as the population ages.

The total fertility rate (TFR) represents the average number of live births per female of childbearing age in a particular year. If there is no migration, a TFR of 2.1 is required for each generation to replace itself. Grenada's TFR is estimated at around 2.3 in 2006. For these projections it is assumed that TFR's will gradually decline to below replacement level, falling to an ultimate rate of 1.85 in 2020.

Given that there is no published Grenada mortality table, mortality rates from the 1999-2001 Bahamas Life Table have been used for these projections. Current population estimates and the number of deaths in the past few years suggest life expectancy at birth in 2006 of around 71 for males and 77 for females. Further increases in life expectancy are expected and thus improvements in mortality are assumed to occur in accordance with UN estimates. While deaths due to HIV and AIDS have not been explicitly accounted for, the rate of mortality improvements chosen considers the effects of the HIV/AIDS pandemic.

The economic assumptions used for this report assume stable and positive economic growth and labour productivity in all years. Although simplistic, they approximate usual economic cycles and volatility that encompass periods of expansion and recession. They also account for projected changes in the population and labour force that will provide the capacity for additional output through more workers and increased productivity (real wages).

The following table indicates the principal demographic and economic best-estimate assumptions. Further details may be found in Appendix B.

Table 3.1 Principal Demographic & Economic Assumptions

Ultimate Total Fertility Rate (from 2.3 in 2001)		1.85
Mortality Improvements [^]		Slow
Net Outward-Migration Per Annum		600 between 2001 and 2006 declining to 300 in 2025 and then to 200 in 2045, constant thereafter.
Real GDP Growth Rates	Short-term	3.0%
	Med.-term	2.5%
	Long-term	1.25%
Real Increase in Wages		1.0%
Inflation		2.75%

[^] UN mortality improvement rates

3.1.2 Projection Results

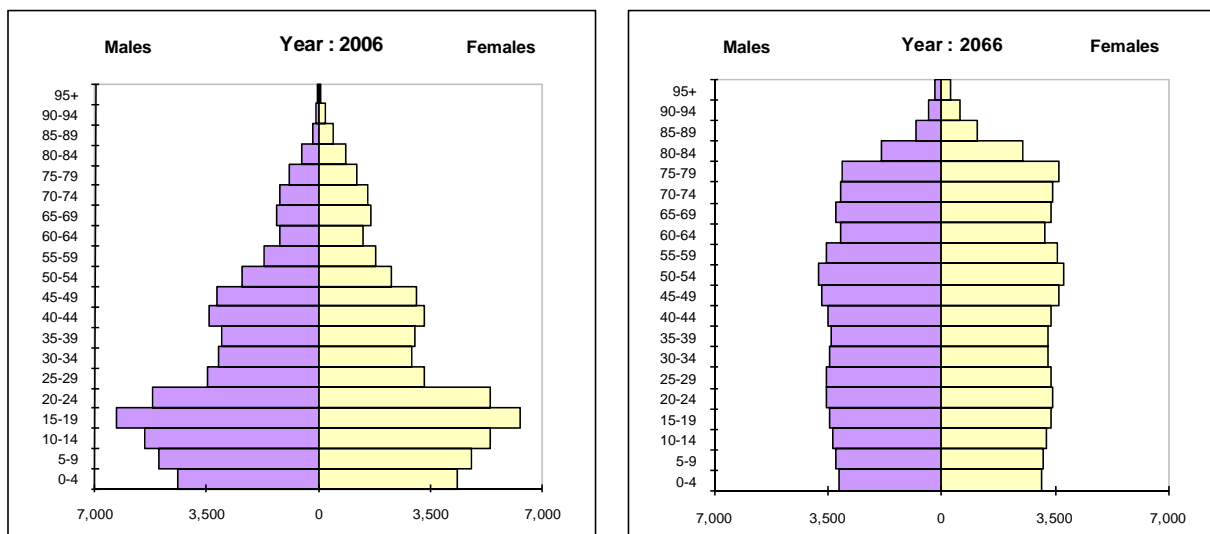
From the 2001 Census population of 103,143, Grenada's population is projected to increase to around 120,000 in the mid-2040's, declining slightly thereafter. While projected future population size is important, the age distribution of the population is more critical for National Insurance, as pensions to the elderly represent the bulk of expenditure. For the projections under these best-estimate assumptions, the anticipated ageing pattern is highlighted in the last two columns of Table 3.2 which show the ratio of the number of working-age people for each person of pension age using two different pension ages – 60 and 65. As may be seen, the ratio of workers to pensions falls considerably under both measures but is higher if working ages are assumed to be 16 to 64 as opposed to 16 to 59.

The projected ageing of the population is also illustrated in Figure 3.1 through the use of population pyramids. In 2006 (left chart) the decreasing number of births in the last 15 years is evidenced by shorter bars for the three 5-year age groups below age 15. However, the current population may still be considered relatively young as there are very few persons in the 5-year groups above age 25. In 2066 (right chart), it is expected that the number of people in 5-year age groups among pensioners will be almost as large as the younger age groups. The median age of the population is projected to increase from 31 in 2006 to 43 in 2066.

Table 3.2 Projected Bahamas Population (*Best-Estimate* scenario)

Year	Total	Age 0 - 15	Age 16 - 59	Age 60 & over	Ratio of Persons 16-59 To 60 & Over	Ratio of Persons 16-64 To 65 & Over
2001	103,143	35,911	54,521	12,711	4.3	6.1
2006	105,363	31,761	60,734	12,868	4.7	6.2
2011	107,991	29,562	64,882	13,547	4.8	6.6
2016	110,947	28,899	67,104	14,944	4.5	6.6
2021	113,518	28,765	67,369	17,384	3.9	6.1
2026	115,625	27,888	67,936	19,801	3.4	5.2
2031	117,261	26,228	69,901	21,133	3.3	4.6
2036	118,600	24,889	71,824	21,887	3.3	4.4
2046	120,162	23,729	70,815	25,618	2.8	4.3
2056	119,220	22,255	64,759	32,207	2.0	3.0
2066	116,249	20,583	61,747	33,919	1.8	2.5

Figure 3.1 Population Pyramids, 2006 and 2066



3.2 National Insurance Projections

Building on the population and economic projections presented in the previous section, National Insurance demographic and financial projections have been modelled under best-estimate assumptions. These projections encompass several National Insurance specific assumptions and the contribution and benefit provisions in place on January 1, 2007. While increases to the contribution ceiling and pensions in payment are not legislated, periodic adjustments are expected, and thus have been assumed.

3.2.1 Assumptions

Key National Insurance assumptions are shown below.

Table 3.3 National Insurance *Best Estimate* Assumptions

Avg. Contribution Rate	9% in all years
Insurable Wage Ceiling	Increases to \$4,000 in 2009 and then annually thereafter by 1% more than the change in the Retail Price Index.
Short-term Benefits	Increases from 0.9% to 1.0% of insurable earnings over 60 years
Employment Injury Benefits	Increases from 0.13% to 0.2% of insurable earnings over 60 years
Pension Increases	5% in 2009 then annually by the change in the Retail Price Index less ¼% (2.5%)
Long-term Yield on Reserves	5.0%
Admin. Expenses as a % of Insurable Wages	Decrease from 1.2% to 1.0% over 20 years
New Provident Fund Pensions	427 in 2007 and none thereafter.

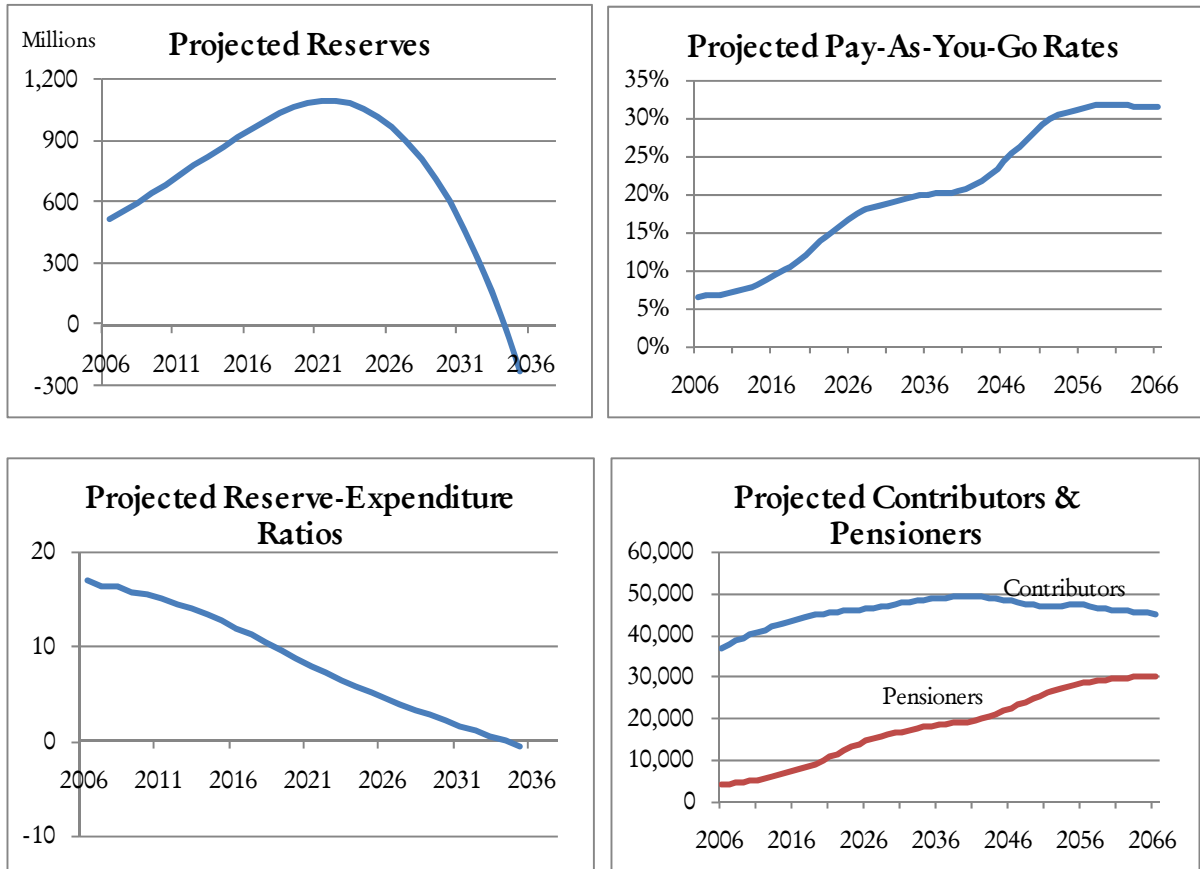
With these assumptions it is being assumed that the ceiling will be increased soon, and then thereafter, the prevailing level of coverage and income security made possible by the wage ceiling and minimum pension will be generally maintained throughout the projection period.

3.2.2 Projection Results

For accounting purposes, National Insurance finances are separated into the Short-term, Employment Injury and Long-term Benefit Branches. However, provisions exist for transferring reserves between branches and changing income allocations. Therefore, shortfalls in one branch may be met from surplus reserves of another. For this report, the projections for all branches have been consolidated so that the complete financial picture may be shown. The December 2006 reserve total was \$523 million.

The charts in Figure 3.2 highlight the key projection results of the *Best Estimate* scenario assuming that the contribution rate is not increased and that there are no changes to benefit rules.

Figure 3.2 Projection Results – Best Estimate Scenario



The key results of these projections are summarised as follows:

1. Contributions will be sufficient to meet expenditure until 2015.
2. Reserves are projected to continue growing through 2023 reaching around \$1.1 billion.
3. Reserves are projected to be exhausted in 2034.
4. While actual reserves will increase for many more years, the size of these reserves relative to annual expenditure (reserve-expenditure ratio) will gradually decline.
5. Annual expenditure relative to insurable wages is commonly referred to as the pay-as-you-go rate. This rate is projected to increase to just over 31% at the end of the projection period.
6. The general average premium, or the average level contribution rate required over the next 60 years to fully cover total expenditure during that period is 18.1%
7. While the number of pensioners is projected to more than quadruple over the 60-year projection period, surpassing 30,000, the number of insured persons will only increase by around 35%. The number of contributors for each pensioner is expected to fall from 7.1 in 2006 to 1.5 in 2066.

Numerical details of the financial and demographic projections for the *Best Estimate* scenario are provided in Tables 3.4 to 3.6.

Table 3.4 Projected Income, Expenditure & Reserves - Best Estimate (millions of \$'s)

Year	Cash Inflows				Cash Outflows			Reserves		
	Contribution Income	Investment Income	Other Income	Total	Benefits	Admin. Expenses	Total	Surplus/ (Deficit)	End of Year	# of times current year's expenditure
2006	44.6	25.4	33.5	103.5	24.6	6.2	30.7	72.7	523	17.0
2007	45.4	27.0	0.3	72.7	28.3	6.0	34.4	38.3	561	16.3
2008	48.3	28.3	0.3	77.0	30.5	6.3	36.8	40.1	601	16.3
2009	53.0	30.4	0.3	83.7	33.9	6.9	40.8	42.9	644	15.8
2010	56.4	32.5	0.4	89.3	37.4	7.3	44.7	44.6	689	15.4
2011	60.0	34.7	0.4	95.1	41.3	7.7	49.0	46.1	735	15.0
2012	63.1	37.0	0.4	100.5	45.7	8.0	53.7	46.8	782	14.5
2016	77.0	46.0	0.5	123.5	70.9	9.5	80.4	43.1	964	12.0
2026	116.0	48.6	0.8	165.4	206.1	13.4	219.5	(54.2)	968	4.4
2036	173.3	(16.5)	1.1	157.9	364.1	20.1	384.2	(226.3)	(453)	(1.2)
2046	241.9	(201.7)	1.6	41.8	625.5	28.0	653.5	(611.6)	(4,443)	(6.8)
2056	331.0	(705.4)	2.2	(372.3)	1,111.9	38.3	1,150.2	(1,522.5)	(15,227)	(13.2)
2066	488.6	(1,773.6)	3.2	(1,281.8)	1,643.3	56.6	1,699.9	(2,981.6)	(37,856)	(22.3)

Negative reserves indicate the indebtedness of the Fund and negative investment income is the current cost of servicing that debt.

Table 3.5 Projected Benefit Expenditure - Best Estimate (millions of \$'s)

Year	Pensions, Grants & Benefits						Benefits as a % of:	
	Age	Invalidity	Survivors	Provident Fund	Short-term	Emp. Injury	Insurable Wages	GDP
2006	14.7	1.6	1.5	2.2	3.8	0.7	5.3%	1.6%
2007	17.3	1.7	1.8	2.3	4.5	0.8	5.4%	1.8%
2008	18.7	1.8	2.0	2.4	4.8	0.8	5.5%	1.8%
2009	21.5	2.0	2.1	2.2	5.3	0.9	5.5%	1.9%
2010	24.3	2.2	2.3	2.1	5.6	1.0	5.7%	2.0%
2011	27.5	2.4	2.5	1.8	6.0	1.1	6.0%	2.1%
2012	31.2	2.7	2.8	1.6	6.3	1.1	6.3%	2.2%
2016	52.7	4.0	4.0	1.0	7.8	1.5	8.0%	2.9%
2026	173.7	8.0	9.8	0.2	11.9	2.6	15.3%	5.3%
2036	307.4	13.0	21.2	0.0	18.2	4.3	18.2%	6.4%
2046	528.6	24.4	39.7	0.0	25.9	6.9	22.3%	7.6%
2056	960.7	37.3	67.3	-	36.1	10.5	29.0%	9.4%
2066	1,416.1	50.8	106.0	-	54.3	16.2	29.1%	9.6%

Table 3.6 Projected Contributors & Pensioners at Year-end - *Best Estimate*

Year	# of Contributors	# of Pensioners					Total # of Pensioners	Ratio of Contributors to Pensioners
		Age	Invalidity	Survivors	Provident Fund	Death & Disablement		
2006	36,665	2,660	369	860	1,236	18	5,143	7.1
2007	37,523	2,795	382	833	1,588	20	5,618	6.7
2008	38,402	2,950	395	851	1,402	21	5,618	6.8
2009	39,297	3,151	414	880	1,236	22	5,703	6.9
2010	39,994	3,387	441	924	1,086	23	5,859	6.8
2011	40,678	3,640	471	968	950	24	6,054	6.7
2012	41,340	3,912	503	1,008	828	26	6,278	6.6
2016	43,695	5,278	632	1,135	453	31	7,529	5.8
2026	46,396	11,945	873	1,562	56	43	14,479	3.2
2036	48,988	15,255	1,014	2,027	2	52	18,349	2.7
2046	48,365	18,610	1,322	2,441	0	66	22,438	2.2
2056	47,271	24,244	1,459	2,807	-	74	28,583	1.7
2066	45,102	25,671	1,404	3,042	-	73	30,191	1.5

For National Insurance systems that are partially funded and designed to be perpetual, costs are usually presented in terms of the pay-as-you-go-rate, which represents annual expenditure as a percentage of covered wages. For private pension plans, however, where full funding is the financing objective, there are other measures of the system's cost that may be useful for National Insurance policy makers to be aware of.

3.2.3 General Average Premium

The general average premium is the average level contribution rate required over the next 60 years to fully cover total expenditure during that period. This rate may be looked at as the average long-term cost of the complete National Insurance benefits package. For the *Best Estimate* projections, the general average premium is 18.1%, slightly more than twice the current contribution rate.

3.2.4 Actuarial Balance

Another measure of the financial sustainability of a National Insurance system is called "actuarial balance." For a given period, the actuarial balance (as a percent of insurable wages) can be defined as the difference between:

- a) the sum of the beginning reserves and the present value of future contributions (money available to meet expenditure), and
- b) the present value of future expenditure,

divided by the present value of future insurable earnings. This formula produces a rate that indicates the adequacy or insufficiency of the present contribution rate for a given period. For the National Insurance Fund, the deficiency expressed in dollars and as a percent of GDP is shown in Table 3.7.

Table 3.7 Actuarial Balance 2007 – 2066 (\$'s are in millions)

	2006 Year-end Reserves	523
Plus	PV of Future Contributions	2,444
Minus	PV of Future Expenditure	4,909
Equal	PV of Surplus/(Shortfall)	(1,942)
	Actuarial Balance (% of Insurable Earnings)	(7.2%)
	Actuarial Balance (% of GDP)	123%

Consistent with previous discussions, the negative actuarial balance indicates that together with reserves, the current contribution rate is insufficient to meet future expenditure for the next 60 years. The shortfall of 7.2% indicates that the contribution rate would have to be increased to 16.2% for the entire period in order for reserves to last up to 2066.

3.3 Comparison With Results Of 7th Actuarial Reviews

The projection results presented above suggest a less optimistic outlook for the Fund than those of the 7th Actuarial Review. The reasons for this are:

- (i) Smaller and older projected population: The final results of the 2001 census indicted a larger percent of the population that is already 60 and over than was available in the preliminary census results used for the 7th Actuarial Review. Also, lower ultimate fertility rates and larger outward migration have been assumed for this report given recent experience and revised outlook for Grenada and the Caribbean.
- (ii) Lower long-term projected yield on reserves – 5% instead of 5.5%. This is due mainly to the recent Government debt restructuring and global trends of declining interest rates.

3.4 Sensitivity Analysis

Given the extensive set of assumptions required for projecting National Insurance finances and the length of the projection period, future experience will certainly differ from that projected under best estimate assumptions. To illustrate a reasonable range for the Fund's outlook, projections using two different sets of population, economic and National Insurance assumptions are presented in the following chapter. However, certain National Insurance

factors such as the yield on reserves and how much pensions are increased by will also impact the Fund's outlook. The change in long-term costs for differences in these factors is shown in the following table.

Table 3.8 Sensitivity Tests – National Insurance Factors

Assumption	Differs From Best Estimate	General Average Premium
Best Estimate		18.1%
Long-term Yield on Reserves (5.0% assumed)	+0.5%	17.5%
	-0.5%	18.7%
Annual Pension Increases (2.5% assumed)	+0.5%	18.9%
	-0.5%	17.3%

As shown above, the long-term costs of NIS benefits could vary by a few percentage points depending on the yield on reserves and by how much pensions are increased.

3.5 Financing Future National Insurance Benefits

By design, National Insurance pension obligations are only partially funded – that is, assets on hand are not sufficient to meet total liabilities if all payments were due on a particular date. This funding mechanism is considered suitable for national pension systems. With funding levels expected to gradually deteriorate and pay-as-you-go rates projected to increase to around 30%, reforms aimed at reducing long-term costs and increasing the contribution rate should be considered. These changes will serve to reduce the level of contributions that will have to be levied on future generations of workers.

There is no right or wrong time to increase the contribution rate. Instead, factors such as projected short-term finances, investment opportunities and whether or not advanced funding is considered superior to higher contribution rates later should guide this decision. However, adopting explicit funding objectives that could help guide the decision on whether or not to increase the contribution rate may prove beneficial.

Suitable financing and funding objectives for a system that is almost 25 years old are:

- a) Income from contributions will exceed expenditure for at least the next 10 years;
- b) Total income will exceed total expenditure for the next 20 years.
- c) Reserves of 2 to 3 times annual expenditure in 2043, the year NIS would have existed for 60 years.

The projections presented in earlier sections do not meet any of these objectives and in order to meet all three targets, a contribution rate increase of up to 3.3% would be required.

Given the difficulty in finding suitable investments and the Government's recent debt restructuring a contribution rate increase is not recommended at this time. Instead, it is recommended that changes aimed at reducing current and long-term costs and increasing current revenues be adopted first. The Board should therefore seek to:

- Increase the wage ceiling,
- Reduce administrative costs, and
- Implement the changes to benefit provisions suggested in Chapter 5, especially the increase in the age at which full Age pensions are payable.

Chapter 4 Sensitivity Analysis

Best Estimate projections up to 2066 presented in the previous chapter provide estimates of future National Insurance demographics and finances under best-estimate assumptions. Given the uncertainty in forecasting such a long period, two alternative scenarios that highlight the sensitivity of the results to differences in assumptions regarding future outlook have been performed. These alternative projection sets encompass assumptions that are generally more optimistic and more pessimistic than those of the *Best Estimate* projections. However, since National Insurance long-term financial sustainability will likely be more sensitive to future population growth and economic development than National Insurance specific factors such as compliance rates and operating costs, the basis for the alternative scenarios focus on differences in the projected dependency ratios - population 60 and over to population 16 to 59 or the ratio of retirement-age persons to working-age persons. The scenario which may be considered more optimistic will have fewer retirees per worker and thus is referred to as the *Low Dependency* scenario. Conversely, the more pessimistic scenario will have a larger number of retirees per worker and is referred to as the *High Dependency* scenario.

Following is a summary of the main assumptions for the three projection scenarios. The values for all other assumptions are similar across scenarios.

Table 4.1 Principal Demographic, Economic & National Insurance Assumptions

	<i>Low Dependency</i>	<i>Best Estimate</i>	<i>High Dependency</i>
Ultimate Total Fertility Rate (from 2.3 in 2006)	2.0	1.85	1.7
Mortality Improvements[^]	Very Slow	Slow	Medium
Net Outward Migration Per Annum (out less in)	60% of <i>Best Estimate</i>	600 between 2001 and 2006 declining to 300 in 2025 and then to 200 in 2045, constant thereafter.	140% of <i>Best Estimate</i>
Ultimate Real GDP Growth	Short-term	3.5%	3.0%
	Med.-term	2.5%	2.0%
	Long-term	1.5%	1.25%
Real Increase In Wages (p.a)	1.2%	1.0%	0.8%
Inflation (p.a.)	2.5%	2.75%	3.0%
Adjustments to Wage Ceiling	Inflation +1%	Inflation +1%	Inflation +1%
Adjustments to Pensions	2.0% p.a.	2.5% p.a.	3.0% p.a.
Long-term Yield on Reserves	5.5%	5.0%	4.5%
Admin. Cost as % of Insurable Earnings after 10 years (after 20 yrs)	0.8%	1.0%	1.2%

[^] UN mortality improvement rates

The main population and National Insurance demographic and financial results of the three projection sets are presented in Figure 4.1 and Table 4.2. As expected, the outlook for National Insurance finances is closely linked to the size and age distribution of the general population and National Insurance performance indicators.

Figure 4.1 Projection Results – All Scenarios

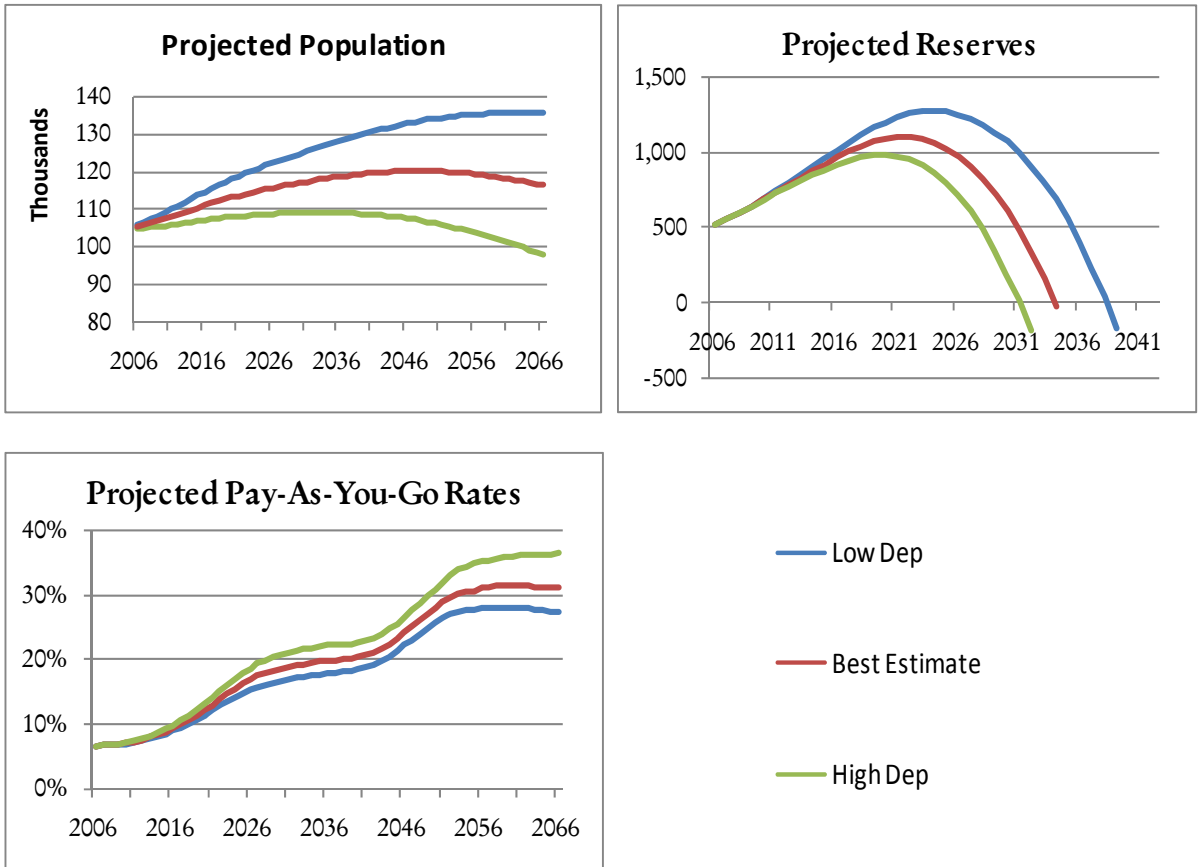


Table 4.2 Summary Results – All Scenarios

	<i>Low Dependency</i>	<i>Best Estimate</i>	<i>High Dependency</i>
Expenditure First Exceeds Contributions	2017	2016	2016
Expenditure First Exceeds Total Income	2025	2023	2021
Reserves Depleted	2038	2034	2031
General Average Premium	15.8%	18.1%	20.2%
Pay-as-you-go rate in 2036	17.8%	20.0%	22.0%
Pay-as-you-go rate in 2066	27.1%	31.3%	36.3%
# of Contributors per pensioner in 2066	1.7	1.5	1.3
Actuarial Balance (% of Ins. Earnings)	(5.0%)	(7.2%)	(9.7%)
Actuarial Balance (% of GDP)	(94%)	(128%)	(212%)

Chapter 5 Reform Considerations

For the National Insurance Scheme to meet its core objectives well into the future, coverage, contribution and benefit rules must together provide adequate protection from income loss for workers with the prospect of affordable contributions for future generations. As seen in the previous chapters, the National Insurance Fund is unsustainable for the long-term.

The previous two chapters dealt with the projected financial state of the Fund. Another important component of the actuarial review process is the assessment of the many provisions that together shape the adequacy and relevance of the Fund from a social perspective. An analysis of several key policy indicators was presented in Chapter 2. The following sections present a discussion of issues for which change is considered appropriate to enhance the level of income protection offered by the Fund.

No change to the NIS's general design structure is being recommended. That is, the traditional mandatory, partially funded, defined benefit and publicly managed system of social security that exists throughout the English-speaking Caribbean should be maintained. However, even though many amendments to benefit provisions were made in 2006 additional changes aimed at enhancing income protection and others that either increase revenue or reduce the rate of growth of future expenditure should be considered. Such changes, however, should provide a suitable balance between the Fund's social objectives regarding benefit relevance and the financial objectives of long-term sustainability.

5.1 Ceiling & Pension Increases

Although periodic adjustments to pensions, grants and the earnings ceiling have taken place, they have not occurred at regular intervals with a consistent basis for each adjustment. While minimum pensions were last increased in 2006, the wage ceiling has been fixed at \$3,000 per month since 1998. Not increasing the wage ceiling for such a long time has resulted in a reduction in NIS's relevance for higher income earners. Also, not adjusting pensions regularly could lead to a gradual deterioration in pensioners' standard of living.

National Insurance regulations are silent as to when and how the earnings ceiling and pensions should be increased and thus adjustments that have been made can be described as ad hoc. Ideally, the law should prescribe the procedure, mechanism and degree of adjustment so that all dollar indexes, as well as all pensions above the minimum pension, can be upgraded regularly. Frequent adjustments will ensure that the social security system remains relevant to both workers and pensioners.

The three general approaches to adjusting the earnings ceiling and benefit payment rates such as the minimum pension rate, Funeral and Maternity grants are described in Table 5.1.

Table 5.1 Ceiling & Pension Adjustment Approaches

Adjustment Type	Description
1. Ad Hoc Adjustments	Law does not contain any provisions for periodic review.
2. Adjustment in Principle	Law provides for periodic review without specifying procedure, mechanism or degree of adjustment.
3. Systematic or Automatic Adjustment	Law prescribes the procedure, mechanism and degree of adjustment

While a systematic approach to adjusting parameters is preferred, it is strongly recommended that at a minimum, regulations be amended to provide for adjustments in principle for all fixed dollar indexes and pensions in payment. Annual adjustments to the wage ceiling, minimum pension rates and all other fixed-dollar payment rate are preferred but the Board may wish to consider instead triennial increases that are recommended in each actuarial review. Such increases should be guided by the following principles:

1. The adjustment for pensions in payment should be based on cumulative price inflation since the last increase.
2. Given that Grenada does not have a wage index which would be a more suitable basis from which to adjust the wage ceiling, cumulative price inflation plus 1% for each year since the last adjustment would be appropriate.

Independent of these changes it is also recommended that the wage ceiling be increased to between \$3,500 and \$4,000 per month. The ceiling which now stands at \$3,000 per month was last adjusted in 1998. Since then average insurable wages have increased by cumulative amounts of 31% and 54% for males and females, respectively. In 2006, it is estimated that around 7% of contributors had wages above the ceiling leaving 93% of workforce fully covered. However, given that most private sector workers in Grenada are not covered by pension plans, a higher wage ceiling of up to \$4,000 per month could be considered as it would provide greater replacement rates for highly paid workers.

Although the minimum pension was last increased in 2006 to \$46.40 per week or \$201 per month, it remains slightly low relative to average wages and the poverty line. In 2007, the minimum wages in the public and private sector were estimated to be around \$675 and \$400 per month, respectively. Therefore, during the next round of pension adjustments, an increase of slightly more than cumulative inflation could be made to the minimum pension.

In summary, it is recommended that the wage ceiling be increased at the earliest opportunity and that pensions and all fixed dollar benefits rates such as Funeral and Maternity grants be increased at regular intervals using a prescribed formula each time.

5.2 Pension Age To 65

One very effective means of reducing long-term costs and thus extending the life of the Fund that is also consistent with employment and living patterns is to increase the pensionable age. Such increases are occurring worldwide, including the Caribbean, with increases from 60 to 65 taking place in Dominica and St. Lucia and from 65 to 67 in Barbados. Several other Caribbean countries, namely Anguilla, The Bahamas and the BVI, already have their normal pension age set at 65. For the NIS, delaying the payment of pensions has the overall impact of persons contributing for a longer period and some receiving pensions for a slightly shorter period. Increasing the pension age could also prove beneficial to the labour market as many skilled persons will likely remain in the workforce for a longer period.

Since increasing the first age at which pensions are payable to 65 may be considered extreme, reduced pensions may be awarded from age 60 with the age for full pensions increasing gradually to 65. Therefore, persons who stop working prior to reaching normal pension age can elect to apply for a reduced pension at a younger age. (The rationale behind the payment of reduced pensions is that the choice between taking a smaller pension earlier or waiting to take a larger pension later should be cost neutral to both the pensioner and the Fund.)

If the normal pension age is increased to 65, it should take place gradually, so that those who are nearing age 60 when the change is made are not severely disadvantaged. Two reasonable options for increasing the normal pension age from 60 to 65 are:

- one year increase in pension age every three years so transition takes 12 years;
- 6 months increase in pension age every year so transition takes only 9 years.

Increasing the age at which full pensions are payable from 60 to 65 (with reduced pensions payable from 60) will produce significant savings. However, the length of the transition period (5 to 12 years) produces only minor difference in long-term finances. Below is a summary of the estimated financial impact for transition periods of between 9 and 12 years.

- General average premium reduced from 18.1% to 15.1%.
- Pay-as-you-go rates in 2066 may be as much as 5% lower reaching highs of just over 26%.
- First year that total expenditure exceeds total income would be 2027 instead of 2023 and reserves projected to be depleted in 2041 instead of 2034.

The following charts show how the normal pension age would increase over time as well as what the normal pension age would be for persons who are in their fifties when the age is first adjusted. For the purpose of these charts it is assumed that the adjustment in pension age would occur on January 1, 2010.

Figure 5.1 Normal Pensionable Age Assuming First Adjustment in 2010

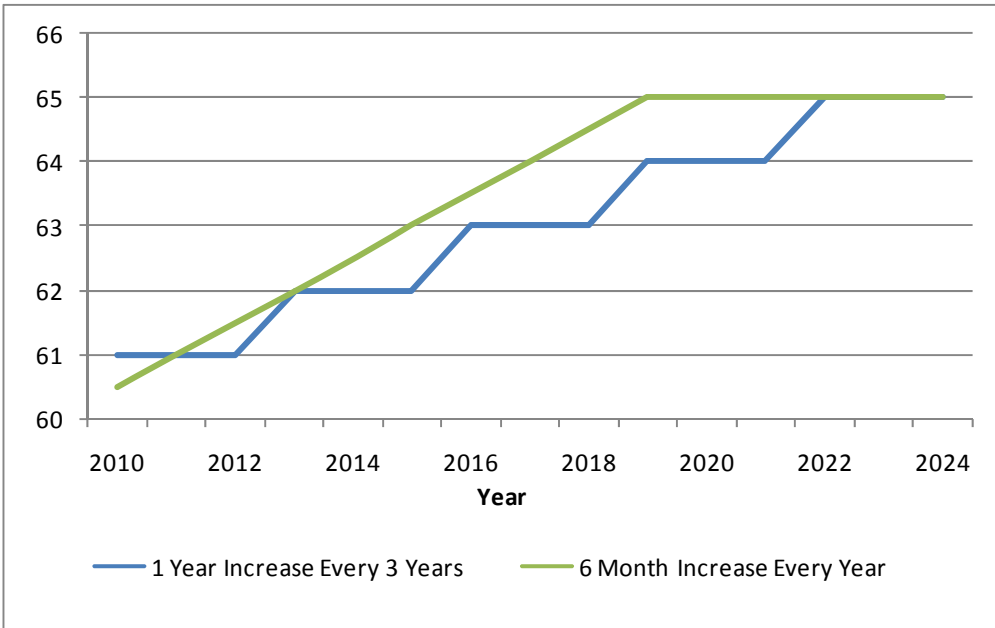
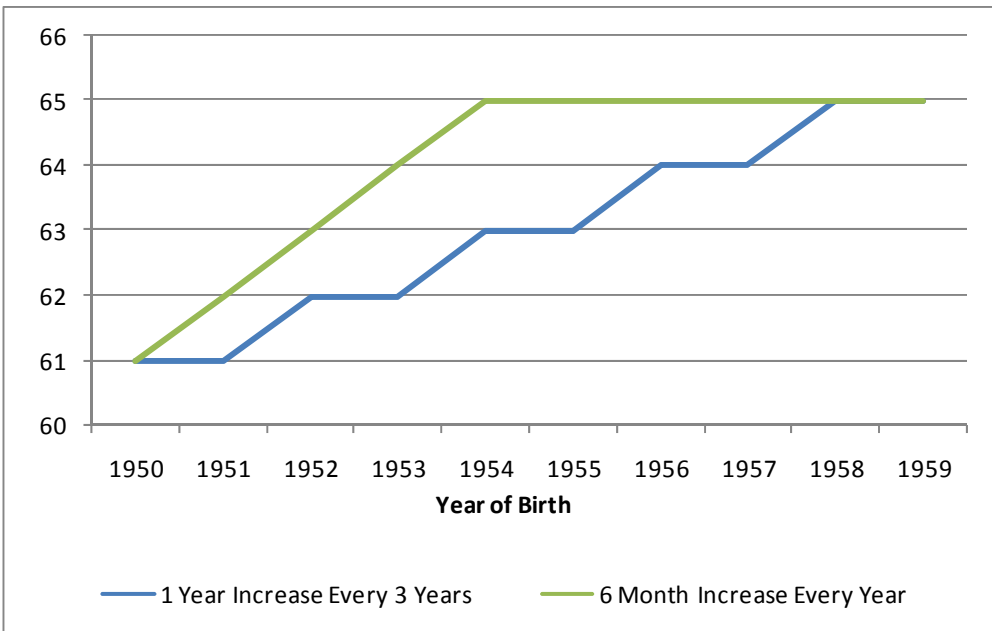


Figure 5.2 Normal Pensionable Age For Specific Years of Birth



When the normal pension age is increased above 60, reduction factors should be applied to the pension calculations of persons who claim at an age below the then existing normal pension age. An appropriate reduction of the pension is 1/2% per month, or 6% per annum. The following examples illustrate how reduction factors would apply to Age pension calculations for various normal pension ages.

Table 5.2 Examples Of Age Pension Calculations At Ages Below Pensionable Age

Normal Pension Age	Age at Award	Reduction Factor Calculation	Full Pension (at Normal Pension Age)	Reduced Pension
61	60	1 year x 6% = 6%	\$1,000	\$1,000 x [1 - 6%] = \$940
63	60	3 years x 6% = 18%	\$1,000	\$1,000 x [1 - 18%] = \$820
65	63	2 years x 6% = 12%	\$1,000	\$1,000 x [1 - 12%] = \$880
65	60	5 years x 6% = 30%	\$1,000	\$1,000 x [1 - 30%] = \$700

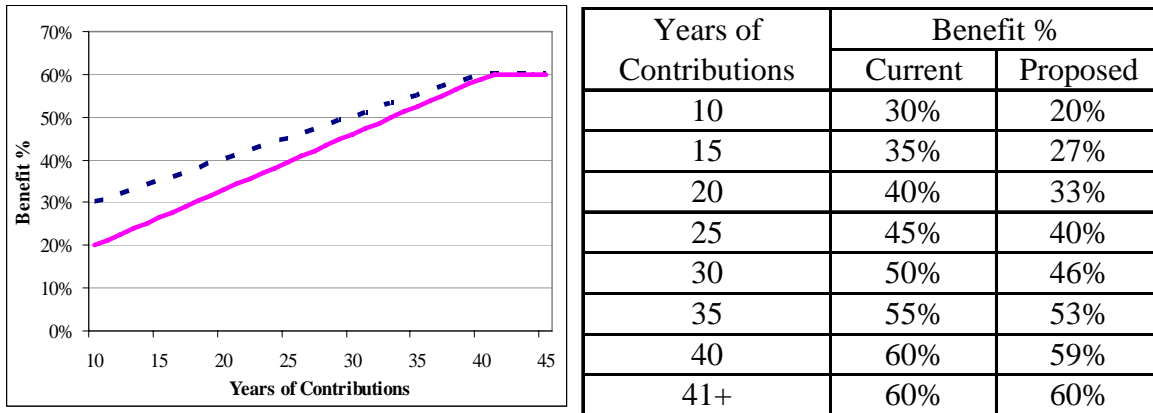
Simultaneous changes to the civil service retirement age as well as changes to the labour laws should also be made so that there is some consistency between the labour market and NIS benefit rules.

5.3 Pension Accrual Rates

For someone who works and contributes to the NIS for 30 years, the Age pension is 50% of average wages in the three years with highest insurable wages. For another who works only 10 years, the pension would be 30% of best three years' average wages. This indicates that pension replacement rates are highly skewed to those with shorter service – 3% per year for the first 10 years, and only 1% per year thereafter. This front-loading of benefits was appropriate when the scheme was first established to ensure that early retirees received adequate pensions. However, after 25years, a more gradual accrual of benefits should be considered as a way of decreasing long-term costs, as well as providing pensions that are more closely related to contributions.

In the following chart, the dotted line represents the pattern of existing benefit accrual rates – 30% after 10 years of contributions, increasing by 1% for each additional year up to a maximum of 60%. To reduce the heavy weighting for the first 10 years as well as make pensions slightly less generous, the pattern of accrual rates depicted by the solid line should be considered. This pattern has benefit accrual rates of 20% after 10 years of contributions, increasing by 1.3% for each additional year up to a maximum of 60%.

Figure 5.3 Current and Recommended Pattern of Benefit Accrual Rates



While this recommended pattern of accrual rates produces slightly lower pensions for almost all insured persons, if the minimum pension is set at a reasonable level, then the most vulnerable pensioners would be adequately protected.

If a new accrual rate schedule is adopted, there should be a gradual transition from the existing to the new schedule. A reasonable timeframe and approach for this is five years with a gradual (linear) move from the old to the new rate that is as outlined below:

Accrual Rate in year 1 = Accrual Rate (old) x 80% + Accrual rate (new) x 20%

Accrual Rate in year 2 = Accrual Rate (old) x 60% + Accrual rate (new) x 40%

Accrual Rate in year 3 = Accrual Rate (old) x 40% + Accrual rate (new) x 60%

Accrual Rate in year 4 = Accrual Rate (old) x 20% + Accrual rate (new) x 80%

Accrual Rate in year 5 = New Accrual rate

5.4 Survivors Pension

The minimum pension rates for Survivors pensions are as follows:

- \$46.40 for a widow or widower,
- \$9.90 for a child,
- \$19.70 for an orphan

The percentage rates applied to the spouse minimum pension is the same as applied to larger pensions. However, it is felt that a weekly pension of only \$9.90 for each child is low given the current cost of living. The Board may therefore wish to consider increasing the minimum pension rates for children to an amount closer or equal to the amount paid for orphans.

The Board may also wish to consider increasing the age for which the pension to surviving children is paid. Given that many children now pursue post-secondary education, an increase from 18 to 21 if the dependant is still in school is suggested.

Effective January 2007, a widow or widower who may also be entitled to an Age pension could receive 100% of the Age pension plus 50% of the Survivors pensions. Prior to 2007, only the higher of the two pensions was payable. The Board may wish to consider also permitting Survivor pensioners who may be entitled to an Invalidity benefit to receive 100% of the Invalidity plus 50% of the Survivors pension.

The long-term cost implications of these changes to the Fund are minimal given that pensions to dependant children represent a very small portion of overall Fund expenditure and that the age increase will only result in a modest increase in the number of eligible dependant children. The change would however be deemed significant by those individuals who are directly impacted. If the maximum age is increased, children above 18 who have their pension reinstated should only be paid the pension from the effective date of the amendment.

5.5 Maternity Grant

A Maternity grant is only paid if the Maternity Allowance is not paid and if the (legal) husband of the mother meets the Maternity Allowance qualifying conditions. Recent claims experience shows that Maternity Allowance is paid for between 25% and 30% of births while a grant is paid following around 3% of births. Therefore, no National Insurance benefit is paid for more than two-thirds of births.

While the Maternity Allowance, which is a weekly benefit, is designed to replace the income lost while on maternity leave, the objective of the grant is to assist the mother with the additional expenses related to the birth of a child. In many other Caribbean social security schemes, Maternity grants are payable along with the weekly Allowance. Also, the qualifying conditions for the grant are often minimal – in some cases only 50 weekly contributions. As a result, most mothers are able to qualify, even if they were not recently employed.

To provide more new mothers with some financial assistance following the birth of a child as well as allow inactive insureds to receive nominal benefits, the eligibility conditions for a Maternity grant should be relaxed. Two reasonable options for revised qualifying conditions for a Maternity Grant are:

1. 50 contributions by either the mother or her husband (same definition for husband as for Survivors benefits), or
2. 50 contributions in the last 3 years by either the mother or her husband (same definition for husband as for Survivors benefits)

More persons would qualify under option 1 than under option 2. If the grant were to be paid together with an Allowance a reasonable estimate of the number of grants that would be paid for the above two options is 60% to 75% of all births. Therefore, the extra costs associated with relaxing the Maternity grant conditions as suggested above would be in the range of \$550,000 to \$700,000 per annum.

5.6 Enhancing Self-employed Participation

Beginning January 2007, self-employed coverage was made mandatory. Experience elsewhere in the Caribbean indicates that even where mandatory, compliance rate for self-employed persons remain below 25%. Therefore, even with the new mandatory system, strict enforcement and ongoing public education will be required to realise a significant increase in coverage rates.

The current contribution system works well for the largest group of contributors – formal sector workers. However, the employment nature and income pattern of self-employed persons is quite different. Therefore, a new approach that provides for increased flexibility and reduced paperwork should be considered.

An approach to determining insurable wages and thus contributions due by self-employed persons that appears to work in several other regional schemes is the “band” system. Under this system, the self-employed person selects the income band which best reflects his usual income and thus contributes the same amount each month regardless of what actual earnings are in that month. Although a similar approach may be considered for the Grenada NIS, it is recommended that a review of the experience of other schemes that currently use this system be made first. Regardless of what system is used, safeguards to prevent self-employed persons from increasing their declared wages as they approach pension age should be put in place.

While reviewing new approaches for more effectively covering self-employed persons, other emerging forms of employment should also be considered. These include job work and the provision of workers by contracted external employment agencies. In some cases, current regulations may not clearly dictate whose obligation it is to make NIS contributions.

5.7 Voluntary Coverage

National Insurance (Voluntary Contributions) Regulations provide for the continued payment of contributions on a voluntary basis by persons who are under age 60, are not engaged in insurable employment and not in receipt of employment income. They must also be ordinarily resident in Grenada. To date, very few persons have applied for Voluntary coverage.

Voluntary coverage, after application to the Board, allows persons whose employment is terminated to continue insurance coverage while off from work. These contributions may only be used towards qualification for Long-term benefits and Funeral grant. It has been suggested that persons residing outside of Grenada also be considered for Voluntary coverage so that they may be allowed to continue contributing.

For insured persons who move to, and work in, other Caribbean countries, the CARICOM Agreement on Social Security will ensure that contributions made to the social security system in their new country of residence count towards the payment of pensions from all relevant systems. A similar agreement exists for Canada. However, for those who move elsewhere such provisions do not exist.

Where insurance cover is voluntary, persons typically enrol only if they perceive a net gain to them. Therefore, it is likely that many of insureds applying for voluntary coverage will be close to pension age and/or are only a few contributions short of 500 weeks. Also, the current contribution rate for voluntary insureds of 6.75% is not sufficient to cover the true cost of benefit accruals during voluntary coverage. Therefore, the Board should consider carefully whether or not it wishes to extend Voluntary insurance coverage to persons not residing in Grenada on the same terms as currently offered those residing in Grenada.

5.8 National Health Insurance

Several Caribbean countries, namely Anguilla, The Bahamas, The British Virgin Islands, Belize, St. Lucia and Trinidad & Tobago are at various stages of introducing a revised financing mechanism for health care. One approach to health care financing that works in a similar way to the current social security system is social health insurance. Such a system provides for contributions by workers that are pooled for the purchase of health care services for themselves and their families. Smaller programs that cover only pharmaceuticals or in-patient care are also possible.

A more in-depth discussion of health financing, either administered by the NIS or another entity, is beyond the scope of this report. However, if the Government wishes to consider alternatives to the current approach to providing health care in Grenada, it should review current initiatives of other Caribbean governments and engage suitable consultants that can provide extensive advice on the subject.

5.9 Other Issues

5.9.1 Sunday as a “Waiting Day”

Three waiting days apply prior to the payment of Sickness benefit and Injury benefit. When computing these waiting days, public holidays are included but Sundays are disregarded. For many workers, especially those in the hospitality industry, Sunday is a regular working day. As a result, it is recommended that the necessary amendments be made so that Sunday could be counted as a waiting day.

5.9.2 Wages For Calculating Weekly Benefits

When calculating the weekly amount due for short-term benefits, wages immediately preceding the date of sickness, confinement or injury are required. From a claims administrative standpoint, this requirement could cause delays as the wage information necessary to calculate the benefit may not yet have been submitted by the employer.

The goal of weekly short-term benefits is to replace lost wages. Therefore, once the wages used to determine the benefit are reflective of recent wages, another reference period for

wages may be used. Two options for the 13-week reference wage period for Sickness benefit are:

- the 13 week period that ends 30 days prior to the date of sickness,
- 13 weeks ending on the last day of the month preceding the date sickness began

There are many other suitable periods that may be used. Management should therefore determine which period is most suitable given the deadline for submitting contribution and wage information and how soon after submission such information is available from the database.

5.9.3 Coordination Of Sickness Benefit Payments With Employment Wages

One generally accepted social security principle is that benefits should replace lost income. However, to reduce the administrative effort required to verify that income has in fact been lost, some benefits are paid using a principle of presumed loss of income. For NIS, both approaches exist:-

- To receive Invalidity benefit one must have no employment income while for Age benefit, one may continue to work and still receive their pension.
- For Maternity and Injury benefits, payment is made without any verification of whether regular wages have in fact been reduced when off from work. However, for Sickness benefit, receiving “normal earnings” during the illness period may disqualify the insured from receiving the benefit.

Ideally, weekly paid benefits such as Sickness benefit, Injury benefit and Maternity Allowance, should only replace any earnings lost while off from work with NIS being the first payer. So for example, if the weekly rate of pay is \$100 and NIS pays \$65 for a week, then the employer, either as required by labour laws or on a voluntary basis may pay \$35 so that the worker has no loss of income.

For Sickness benefit, therefore, the Board may wish to revise the disqualification clause that relates to the payment of “normal earnings” and instead award Sickness, Maternity and Injury benefits only to persons who have reduced wages with the benefit amount paid being the extent of the loss up to the maximum payable based on the person’s insurable wage. This change will however still require the NIS to contact employers to determine what payment, if any, is being made by the employer.

As an alternative, employers may be requested to better coordinate their payments with the NIS so that total payments to an insured never exceed full wages. Given that both workers and employers make NIS contributions for short-term benefits, NIS benefits should be considered as always paid with the employer only needing to meet the difference.

5.9.4 Limit on Medical Expenses

Following a work-related injury or illness, medical care costs are met by the NIS under the following criteria:

- The expenses must be reasonable and reasonably incurred.
- The expenses must relate to obtaining treatment which is provided so as to secure maximum effectiveness at maximum reasonable cost.
- The fees or charges constituting the medical expenses must not be more than would be properly and reasonably charged if the insured person were paying himself.

The concern raised by the NIS regarding medical expense reimbursement is that the term “reasonable” could be very subjective. As it relates to reimbursement of medical costs the terms “reasonable” and “customary” are very common in medical insurance policies. And while it could be subjective at times, it provides the NIS with the ability to not pay certain charges which may be excessive or unrelated to the employment injury, but instead pay only those that are in line with a fee schedule or other customary charges.

Regarding the introduction of a limit, when the NIS introduced Employment Injury benefit coverage in 1998, it assumed full responsibility for costs related to job-related accidents. Some other regional social security schemes place limits on the reimbursement of Medical Expenses. However, if the Board introduces a limit on Medical Expenses to be reimbursed, employers should be made aware as they may then wish to purchase special Workers’ Compensation policies that provide coverage for amounts that exceed NIS limits.

5.9.5 Periodic Assessment of Invalidation Pensioners

After the award of an Invalidation benefit, periodic assessment of the pensioner’s continued eligibility should take place. Just as an Age pensioner must confirm that he/she is alive, Invalidation pensioners should also confirm each year that they still meet the NIS definition of invalidity. Where there is doubt, the Board should require that the pensioner be assessed by a Medical Referee. Administratively, the Board should also ensure that its computer systems check for situations where contributions are being paid for someone who is receiving an Invalidation pension.

5.9.6 Duration Of Injury Benefit Payments

Injury benefit is payable for a maximum of 26 weeks after which a determination is made as to whether or not the claimant has a permanent loss of physical or mental faculty of greater than one percent. After 26 weeks, it is still possible that the person may not yet be fully recovered and able to return to work. It has been suggested therefore that similar to current provisions for Sickness benefit, that Injury benefit be allowed to continue for an additional 26 weeks if it is considered likely that the claimant’s physical or mental status will improve. Such a change is supported as it may avoid the payment of Disablement grant or pension to someone who needed more than 26 weeks to make a full recovery.

5.9.7 Unemployment Benefit

The temporary Unemployment Assistance benefit that was paid following the passage of Hurricane Ivan in 2004 provided financial assistance to over 3,000 unemployed persons during a slow economic period. Although the program lasted for only a short period the

benefits to the economy and the affected individual of partially replacing lost income due to unemployment were quite positive. The Board may therefore wish to consider introducing a modest unemployment benefit that is financed with a new contribution rate. The report of the 7th Actuarial Review provided guidance of such a program.

5.9.8 Comprehensive Review of Regulations

Having introduced several sets of regulations after 1983 and making amendments on several occasions, the Board may wish to conduct a comprehensive review of the entire National Insurance Act and supporting regulations. Such a review would:

- Ensure that legislation is consistent with the Scheme’s current intent;
- Ensure that all current practices are covered by legislation;
- Ensure that legislation is consistent with other laws of Grenada;
- Ensure that there are no gaps or inconsistencies in coverage, contributions and benefit provisions;
- Ensure that legislation supports the ability of the NIS to effectively administer the Fund given employer and insured persons’ behaviour patterns while making maximum use of available technology;
- Remove obsolete provisions if they exist.

In addition to the many issues discussed in previous sections, two others for which review is needed are the apparent deficiency in regulations that deal with persons who work on boats and the limited period (3 years) within which outstanding contributions may be collected through the legal system.

5.10 Branch Allocations And Transfer of Reserves

At the end of 2006, both the Short-term and Employment Injury benefit branches were significantly over funded as shown in the following table. Therefore, reallocations of contribution income and the transfer of reserves from both branches to the long-term benefits branch are recommended.

Table 5.3 Benefit Branch Reserves, Contribution Allocation & Expenditure

Benefit Branch	Dec. 2006 Reserves (millions)	Reserve-Expenditure Ratio		Current Contribution Allocation	Projected Expenditure
		2006	Target		
Short-term	\$41.0	8.3	1.0	1.3%	1.25%
Employment Injury	\$50.1	54.3	2.0	1.0%	0.20%

The recommended changes to the allocation of contribution and transfer of reserves between branches are shown below.

Table 5.4 Recommended Changes to Contribution Allocation & Reserve Transfers

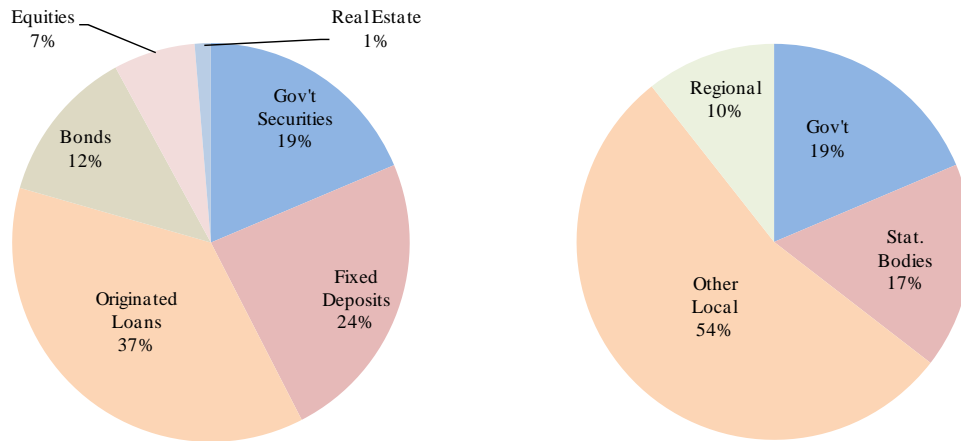
Benefit Branch	Contribution Income Allocation		Reserve Transfer Recommended
	Current	Recommended	
Short-term	1.3%	1.3%	\$35 million to LTB Branch
Employment Injury	1.0%	0.3%	\$45 million to LTB Branch
Long-term	6.7%	7.4%	\$80 million from STB & EIB Branches
All	9.0%	9.0%	

It should be noted that the change in allocations of contribution income and transfer of reserves between branches has no impact on the overall present or future funded position of the National Insurance Fund. These adjustments are for internal accounting purposes only and are consistent with the manner in which the NIS has elected to finance and account for the various types of benefits.

Chapter 6 Investments

At the end of 2006, National Insurance Fund investments stood at \$504.6 million. The following charts highlight investment diversification as at December 2006.

Figure 6.1. Distribution of NIF Investments, December 2006



As shown above the Fund's investments are fairly well diversified within Grenada. However they are not so well diversified by location and by major asset class as all but 11% of the Fund is invested in Grenada and all but 8% is held in fixed-income securities. While the proportions held in government and statutory body securities (loans and bonds) are acceptable, Government's recent debt restructuring and the fact that some loans to statutory bodies are in arrears, raises concerns regarding the prudence of the current level of holdings of public sector investments.

The Board has an approved asset allocation for Fund investments which is shown below. Also shown is the actual allocation as of December 2006.

Table 6.1 Asset Mix - Approved Limits and Actual as of December 2006

Investment Type	Approved Limits	Dec. 2006 Allocation
Cash & Term Deposits	11% to 16%	24%
Government Securities	20% to 25%	19%
Direct Lending	20% to 25%	20%
Statutory Bodies	10% to 15%	17%
Equity/Bonds - Local	10% to 15%	9%
Properties	10% to 15%	1%
Foreign Investments	10% to 15%	11%

Other than for term deposits and properties, current allocations generally fall within or near approved limits.

The projections presented in earlier chapters suggest that, unless the contribution rate is increased before the mid 2020's, investments will have to be sold to meet expenditure. It will be at that time when the true value of pre-funding National Insurance benefits will be put to the test. Important for the Fund at that time will be the ability to call or redeem fixed-income securities at their face value or sell equities and real-estate at values that reflect real rates of return over the period they were held.

Recommendations regarding the investment of NIS funds are:

- Limit the proportion of the Fund held in Government of Grenada securities to 20%;
- Make no further loans to or purchases of securities issued by statutory bodies that are not current with payments of contributions or loans;
- Monitor closely the growing size of the loan portfolio and experience patterns of existing loans as an extended economic downturn could result in substantial losses on a large portion of the Fund;
- Gradually reduce the proportion held in local short-term deposits, and
- Gradually place funds outside of Grenada with a medium-term target of 20% of all investments.

Statement of Actuarial Opinion

It is my opinion that for this report of the 8th Actuarial Review of the Grenada National Insurance Fund:

- the data on which the projections and analysis are based are sufficient and reliable;
- the assumptions used are, in the aggregate, reasonable and appropriate, and
- the methodology employed is appropriate and consistent with sound actuarial principles.

This report has been prepared in accordance with the *International Actuarial Association Guidelines of Actuarial Practice For National Insurance Programs*.



Derek M. Osborne, FSA
Chief Actuary
Horizonow Consultants Ltd.

References

6th and 7th Actuarial Review of The National Insurance Fund, ILO

National Insurance 2007 Budget

National Insurance Act & Regulations

National Insurance Fund Financial Statements – 1983 to 2006

State of Social Security in The CARICOM Single Market & Economy, Derek Osborne, 2005

Various data reports produced by the Central Statistics Office and the Eastern Caribbean central Bank

Appendix A Summary of Contribution & Benefit Provisions

Following is a general description of the coverage, contributions and benefit provisions of the Grenada National Insurance Scheme as at January 1st, 2007.

A.1 Contingencies Covered

The Grenada National Insurance Scheme provides for the following benefits:

- (a) **Short-term Benefits:** Sickness Benefit, Maternity Allowance, Maternity Grant, and Funeral Grant.
- (b) **Long-term Benefits:** Age, Invalidity and Survivors' Pensions and Grants.
- (c) **Employment Injury Benefits:** Injury Benefit, Disablement Benefit, Constant Care Allowance, Medical Expenses, Death Benefit and Funeral Grant.

A.2 Insured Persons

The Scheme covers employed, self-employed and voluntary insured persons from ages 16 to 59 as follows:

- (a) employed persons in the private and public sector are covered for all contingencies;
- (b) self-employed persons are covered for all contingencies;
- (c) voluntary insured persons are covered for long-term benefits and funeral grant only.

Contributions by self-employed persons are mandatory. Employed persons aged 60 and over and under 16 (holiday workers) are covered for Employment Injury benefits only.

A.3 Insurable Earnings and Contributions

In addition to salary, insurable earnings include overtime pay, cost of living allowance, commissions, gratuities and service charge payments.

Earnings that are covered for the purpose of determining contributions and benefits, are limited to \$693 per week or \$3,000 per month. The monthly ceiling on insurable earnings has increased as follows:

1983 – 1995	\$	1,250.00
1995 – 1998		2,500.00
1998 – present		3,000.00

Contributions are computed as a percentage of insurable earnings. The contribution rate is 9%, 4% paid by the employee and 5% by the employer, 9% for the self-employed . A

contribution rate of 1% is payable by the employer on behalf of workers who are aged 60 or over and those under 16 on holiday jobs. (Before Employment Injury Benefits were introduced in 1998, the contribution rate was 8%) Voluntary contributors pay at 6.75% of insurable earnings.

A.4 Benefit Provisions

A.4.1 LONG-TERM BENEFITS

(a) AGE PENSION

CONTRIBUTION REQUIREMENT: 150 weekly contributions paid and 500 weekly contributions paid or credited.

AGE REQUIREMENT: 60. The pension is not dependent on retirement from the workforce.

AMOUNT OF BENEFIT: 30 per cent of average insurable earnings over the best 4 years out of the last 10 years, plus 1% for every set of 50 weeks credited over 500. Effective 2008, the number of years of wages to be average will be 5.

If between 260 and 500 credits have been credited and the insured was 46 or older on the Appointed Day, the insured qualifies for a Reduced Age Pension of 16% of average insurable earnings plus 1% for each set of 25 credits between 150 and 500. Reduced Age Pension provisions will apply up to 2008 after which 500 contributions will be required for Age pensions.

- **Maximum:** 60% of average insurable earnings.
- **Minimum:** EC\$46.40 per week. The minimum pension also applies to Invalidity Pension.

(b) AGE GRANT

CONTRIBUTION REQUIREMENT: 50 weekly paid or credited contributions.

ELIGIBILITY: The person must be ineligible for Age Pension.

AGE REQUIREMENT: 60.

AMOUNT OF BENEFIT: 5 times average weekly insurable earnings for each set of 50 weekly contributions paid or credited. This amount is paid as a lump sum.

(c) INVALIDITY PENSION

CONTRIBUTION REQUIREMENT: 150 weekly contributions paid.

ELIGIBILITY: The insured is:

- (i) less than 60,
- (ii) invalid, other than as a result of an employment injury, and
- (iii) not in receipt of sickness benefit.

AMOUNT OF BENEFIT: Calculated in same manner as for Age Pension.

DURATION OF PENSION: Payable for as long as invalidity continues.

(d) INVALIDITY GRANT

CONTRIBUTION REQUIREMENT: 50 contributions weeks, paid or credited.

ELIGIBILITY: Other than for not meeting the contribution requirements, the person must be eligible for Invalidity Pension.

AMOUNT OF BENEFIT: Calculated in same manner as for Age Grant.

(e) SURVIVORS' PENSION

CONTRIBUTION REQUIREMENT: The deceased, at time of death, had paid at least 150 contributions.

ELIGIBILITY: Widows or widowers must have been married to or living with the deceased for at least 3 years.

Children up to age 16, or 18 if in full-time education, or invalid of any age, who are maintained by or living with the deceased at the time of death.

Parents who were wholly or mainly maintained by the deceased and the spouse and/or children have not exhausted the maximum amount payable.

AMOUNT OF BENEFIT: The proportion shown below of the pension being received by the deceased or the Invalidity Pension the deceased would have been entitled to:

- Widow or widower: 75%;
- Child: 25%;
- Full orphan or invalid orphan: 50%;
- Parent: 25%
- Minimum child benefit: EC\$9.90 per week
- Minimum benefit for orphan/invalid: EC\$19.70 per month
- Maximum family benefit: 100% of Age pension. However, minimum pension(s) cannot prevent more than 100%.

DURATION OF BENEFIT:

Widows and Widowers pension:

- (i) For life, if at the date of deaths he/she was either at least 50 or less than 50 but invalid, and married for at least 3 years.
- (ii) For 1 year only, if at the date of the spouse's death he/she was less than 50 and not an invalid, or he/she was at least 50 but married for less than 3 years.
- (iii) For as long as he/she continues to wholly or partly maintain children of the deceased, if not being remarried.

Widow(er)s who may also be entitled to an Age pension will receive 100% of the Age pension plus 50% of the Survivors' pension.

For dependant children, the pension will be paid up to age 16, or 18 if in full-time education, or until recovery from invalidity.

(f) SURVIVORS' GRANT

CONTRIBUTION REQUIREMENT: 50 paid contributions

AMOUNT OF BENEFIT: The same proportion of the Age Grant as Survivors' Pension bears to the Age pension.

A.4.2 SHORT-TERM BENEFITS

(a) SICKNESS BENEFIT

CONTRIBUTION REQUIREMENT: 13 paid contribution weeks with at least 8 weeks in the last 13. The insured must be under age 60, must have been engaged in insurable employment immediately at the onset of the illness.

WAITING PERIOD: 3 days. If incapacity lasts for more than 3 days, benefit is payable from the first day. Two periods of illness separated by less than eight weeks are treated as one.

AMOUNT OF BENEFIT: 65% of average weekly insurable earnings during the last 13 weeks prior to the illness with the determined by using wages only in weeks worked.

DURATION OF BENEFIT: Maximum of 26 weeks. May extend another 26 weeks if at least 150 paid contributions and at least 75 paid or credited contributions in the last 3 years.

(b) MATERNITY ALLOWANCE

CONTRIBUTION REQUIREMENT: 30 paid contribution weeks with at least 20 weeks in the 30-week period immediately preceding either (i) the week that is 6 weeks before the expected week of confinement, or (ii) the week from which the Allowance is claimed.

AMOUNT OF BENEFIT: 65 per cent of average weekly insurable earnings during the last 30 weeks. (At least \$522 in total)

DURATION OF BENEFIT: 12 weeks, starting no earlier than 6 weeks before the expected date of confinement.

(c) MATERNITY GRANT

CONTRIBUTION REQUIREMENT: Same as for Maternity Allowance. If the mother fails to qualify for Maternity Allowance but her legally married husband's contributions satisfy these conditions, the Maternity Grant is payable.

AMOUNT OF GRANT: EC\$522. The Maternity Grant has increased on an ad-hoc basis as follows:

1994 – 1998	\$400
1998 – 2006	\$450

(d) FUNERAL GRANT

ELIGIBILITY: An insured person who has paid at least 50 contributions, or was in receipt of or had title to a benefit, or who was insured for at least 8 weeks during the last 13 weeks. A grant is also payable in respect of the death of the spouse or a dependant child. Note that when death results from employment injury, no prior contributions are required and only one grant may be paid.

AMOUNT OF GRANT: \$2,320 for the insured, \$1,740 for an uninsured spouse, and \$870 for a dependent child. The funeral grant for the insured has been increased on an ad-hoc basis as follows:

1979 – 1983	\$ 300
1984 – 1988	\$ 500
1988 – 1995	\$1,000
1995 – 1997	\$1,600
1998 - 2006	\$2,000

A.4.3 EMPLOYMENT INJURY BENEFIT

(a) INJURY BENEFIT

ELIGIBILITY: Incapable of work as a result of a work-related accident or a prescribed disease. There are no qualifying contribution requirements for any Employment Injury benefits.

AMOUNT OF BENEFIT: 70 per cent of average insurable earnings in the last 13 weeks before the accident occurred (or less if the person was in employment for a shorter period).

DURATION OF BENEFIT: Maximum of 26 weeks.

WAITING PERIOD: 3 days. If incapacity lasts for more than 3 days, benefit is payable from the first day.

(b) DISABLEMENT BENEFIT

ELIGIBILITY: Disablement resulting from an accident at work or a prescribed disease.

WAITING PERIOD: The period of payment of Injury benefit.

AMOUNT OF BENEFIT: Percentage of average insurable earnings by reference to percentage loss of faculty suffered. If the degree of disablement is 30 per cent or more, a weekly benefit amount of the Injury Benefit amount times the degree of disablement is paid.

If the degree of disablement is less than 30 per cent, a grant equal to 365 times the weekly Injury Benefit rate times the degree of disablement is paid. If the period of disablement is expected to be less than 7 years, the amount of the Grant is the number of weeks of disablement expected times the amount of the weekly Injury Benefit.

Constant Care Allowance

If the degree of disablement is 100 per cent and a full-time attendant is required, a Constant Attendance Allowance of an additional 50 per cent of the Disablement Benefit is paid.

(c) DEATH BENEFIT

ELIGIBILITY: Dependants are defined as for Survivors' benefit.

AMOUNT OF BENEFIT: Proportion of Disablement pension, the same percentage as for Survivors Pension. In the case of remarriage, a lump sum of 1 year's pension is paid.

(d) MEDICAL EXPENSES

➤ EXPENSES COVERED: Medical, surgical, dental, hospital and nursing services, medicines, prosthetic devices and transportation costs incurred as a result of an employment injury or prescribed disease.

A.4.4 CARICOM AGREEMENT ON SOCIAL SECURITY

Grenada is a signatory to the CARICOM Agreement on Social Security. As a result, some former contributors with fewer contributions than required for Age, Invalidity and Survivors pensions may qualify for these pensions under the Agreement based on the total number of contributions they have made in participating countries.

Appendix B Methodology, Data & Assumptions

This actuarial review makes use of the comprehensive methodology developed at the Financial and Actuarial Service of the ILO (ILO FACTS) for reviewing the long-term actuarial and financial status of a national pension scheme. The review has been undertaken by modifying the generic version of the ILO modelling tools to fit the specific case of Grenada and the National Insurance Fund. These modelling tools include a population model, an economic model, a labour force model, a wage model, a long-term benefits model and a short-term benefits model.

The actuarial valuation begins with a projection of Grenada's future demographic and economic environment. Next, projection factors specifically related to National Insurance are determined and used in combination with the demographic/economic framework to estimate future cash flows and reserves. Assumption selection takes into account both recent experience and future expectations, with emphasis placed on long-term trends rather than giving undue weight to recent experience. Projections have been made under three assumption sets for which the demographic assumptions vary.

B.1 Modelling the Demographic & Economic Developments

Grenada's general population has been projected beginning with totals obtained from the results of the 2001 national census and by applying appropriate mortality, fertility and migration assumptions. For the *Best Estimate* scenario the total fertility rate is assumed to decrease from 2.3 to 1.85 in 2020, and remain constant thereafter. Table B.1 shows ultimate age-specific and total fertility rates. For the *High Dependency* and *Low Dependency* scenarios, the ultimate total fertility rates are assumed reached in 2020.

Table B.1 Age-Specific & Total Fertility Rates

Age Group	2001	Ultimate Fertility Rates		
		<i>High Dependency</i>	<i>Best Estimate</i>	<i>Low Dependency</i>
15 - 19	0.060	0.043	0.047	0.051
20 - 24	0.123	0.108	0.118	0.127
25 - 29	0.120	0.109	0.119	0.129
30 - 34	0.103	0.051	0.055	0.059
35 - 39	0.063	0.028	0.030	0.033
40 - 44	0.021	0.006	0.007	0.007
45 - 49	-	-	-	-
TFR	2.30	1.70	1.85	2.00

Mortality rates have been determined using The Bahamas 1999-2001 Life Table. Improvements in life expectancy for the *Best Estimate* scenario have been assumed to follow the “slow” rate as established by the United Nations with a “medium” rate assumed for the *High Dependency* scenario and “very slow”¹ for the *Low Dependency* scenario. Sample mortality rates for the *Best Estimate* scenario and the life expectancies at birth and at age 60 for sample years are provided in Table B.2.

Table B.2 Sample Mortality Rates & Life Expectancies

Age	Males			Females		
	2006	2036	2066	2006	2036	2066
0	0.0156	0.0107	0.0088	0.0117	0.0090	0.0075
5	0.0005	0.0003	0.0002	0.0004	0.0002	0.0002
15	0.0006	0.0004	0.0003	0.0003	0.0002	0.0001
25	0.0025	0.0015	0.0012	0.0013	0.0008	0.0006
35	0.0044	0.0029	0.0023	0.0025	0.0017	0.0013
45	0.0064	0.0045	0.0037	0.0038	0.0028	0.0023
55	0.0123	0.0093	0.0080	0.0065	0.0051	0.0043
65	0.0229	0.0184	0.0165	0.0148	0.0122	0.0107
75	0.0406	0.0348	0.0323	0.0305	0.0262	0.0238
85	0.1096	0.1006	0.0962	0.0748	0.0673	0.0627
95	0.1472	0.1433	0.1414	0.1704	0.1602	0.1538
Life Expectancy at:						
Birth	70.8	74.7	76.7	77.8	80.6	82.4
Age 60	20.1	21.6	22.3	23.1	24.4	25.2

Table B.3 Projected Age 60 Life Expectancies

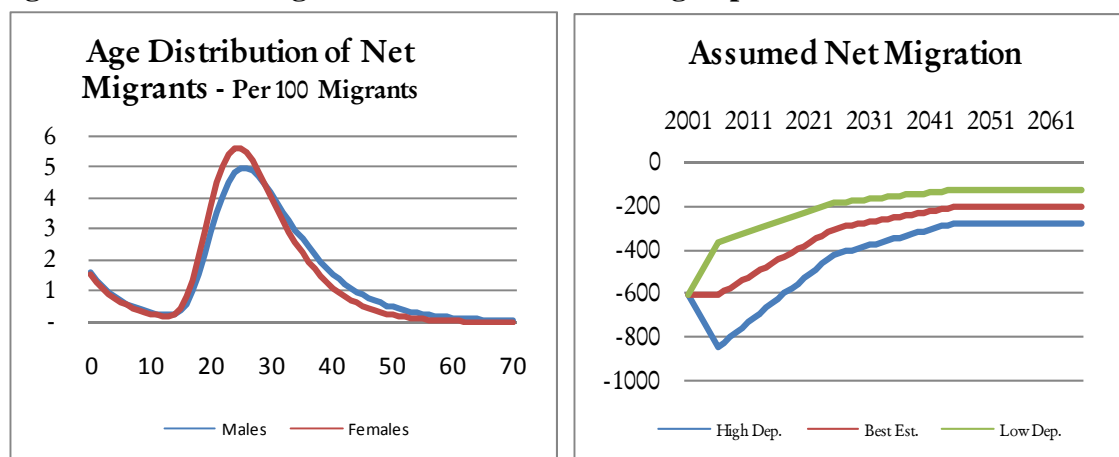
	2006	2066		
		<i>High Dependency</i>	<i>Best Estimate</i>	<i>Low Dependency</i>
Male	20.1	23.0	22.3	21.4
Female	23.1	26.0	25.2	24.3

Net outward migration (out minus in) is assumed to have been constant at 600 persons per year between 2001 and 2006. For the *Best Estimate*, outward migration is then assumed to decrease to 30 per annum in 2025 decreasing further to 200 per annum in 2045. For the *High Dependency* and *Low Dependency* scenarios, outward migration is assumed to be 40% higher and lower respectively than assumed under the *Best Estimate* projections. The following

¹ Midpoint of Slow rates and no improvements

charts show assumed total net migration for each year from 2000 to 2066 and the age-specific rates when total net in-migration for a single year is 100.

Figures B.1 Net Immigration – Total Annual & Age-Specific Rates



The projection of the labour force, i.e. the number of people available for work, is obtained by applying assumed labour force participation rates to the projected number of persons in the total population. Between 2000 and 2030, age-specific labour force participation rates for persons over 0 are assumed to increase to the extent that they reach the levels that currently exist for persons five years younger. That is, participation rates for a 60 year old in 2030 will be those of 55 years olds in 2000. Table B.4 below shows the assumed age-specific labour force participation rates in 2006 and 2066. Between these two years, rates are assumed to change linearly.

Table B.4 Age-Specific & Total Labour Force Participation Rates

Age	Males		Females		Year	Males	Females
	2006	2066	2006	2066			
17	26%	26%	19%	19%			
22	85%	85%	76%	76%	2006	74%	64%
27	93%	93%	85%	85%	2011	77%	67%
32	93%	93%	86%	86%			
37	94%	94%	84%	84%	2016	78%	68%
42	92%	92%	86%	86%	2026	79%	69%
47	88%	88%	82%	82%	2036	80%	70%
52	90%	90%	77%	77%			
57	85%	85%	68%	68%	2046	81%	69%
62	69%	75%	45%	53%	2056	79%	67%
67	49%	59%	29%	37%	2066	80%	68%

The projected real GDP divided by the projected labour productivity per worker gives the number of employed persons required to produce total output. Unemployment is then measured as the difference between the projected labour force and employment.

Estimates of increases in the total wages as well as the average wage earned are required. Annual average real wage increases are assumed equal to the increase in labour productivity as it is expected that wages will adjust to efficiency levels over time. Such increases are assumed to be 0.8% for the High Dependency scenario, 1.0% for Best Estimate and 1.2% for the Low Dependency Scenario. Actual projection assumptions may be found in Table 4.1.

B.2 Projection of National Insurance Income & Expenditure

This actuarial review addresses all National Insurance Fund revenue and expenditure items. For Short-term and Employment Injury benefits, income and expenditure are projected as a percentage of insurable earnings. Projections of pensions are performed following a year-by-year cohort methodology. For each year up to 2066, the number of contributors and pensioners, and the dollar value of contributions, benefits and administrative expenditure, is estimated.

Once the projections of the insured (covered) population, as described in the previous section, are complete, contribution income is then determined from the projected total insurable earnings, the contribution rate and contribution density. Contribution density refers to the average number of weeks of contributions persons make during a year.

Benefit amounts are obtained through contingency factors based primarily on plan experience and applied to the population entitled to benefits. Investment income is based on the assumed yield on the beginning-of-year reserve and net cash flow in the year. National Insurance's administrative expenses are modelled as a percentage of insurable earnings. Finally, the end-of-year reserve is the beginning-of-year reserve plus the net result of cash inflow and outflow.

B.3 National Insurance Population Data and Assumptions

The data required for the valuation of the National Insurance Fund is extensive. As of December 31st, 2006, required data includes the insured population by active and inactive status, the distribution of insurable wages among contributors, the distribution of paid and credited contributions and pensions in payment, all segregated by age and sex.

Scheme specific assumptions such as the incidence of invalidity, the distribution of retirement by age, density and collection of contributions, are determined with reference to the application of the scheme's provisions and historical experience.

Projecting investment income requires information of the existing assets at the valuation date and past performance of each class. Future expectations of changes in asset mix and expected rates of return on each asset type together allow for long-term rate of return expectations.

Details of National Insurance specific input data and the key assumptions used in this report are provided in tables B.5 through B.9.

Table B.5 2006 Active Insured Population, Earnings & Past Credits

Age	# of Active Insureds		Average Monthly Insurable Earnings		Average # of Years of Past Contributions	
	Male	Female	Male	Female	Male	Female
15 - 19	859	567	928	810	1.4	1.4
20 - 24	3,435	3,023	1,215	1,095	3.4	3.4
25 - 29	2,691	2,658	1,561	1,376	6.4	6.6
30 - 34	2,423	2,377	1,799	1,541	9.8	10.1
35 - 39	2,295	2,210	1,884	1,559	13.2	13.5
40 - 44	2,308	2,300	1,909	1,609	15.7	16.1
45 - 49	2,351	2,347	1,981	1,666	16.8	17.1
50 - 54	1,524	1,490	1,974	1,592	17.3	17.5
55 - 59	987	932	1,949	1,516	17.5	17.6
All Ages	18,873	17,904	1,687	1,448	10.8	11.3

Table B.6 Pensions in Payment - December 2006

Age	Old-Age Benefit		Invalidity Benefit		Survivors Benefits		Provident Fund Pensions	
	Male	Female	Male	Female	Male	Female	Male	Female
0 - 4	-	-	-	-	7	12	-	-
5 - 9	-	-	-	-	46	42	-	-
10 - 14	-	-	-	-	111	119	-	-
15 - 19	-	-	-	-	123	128	-	-
20 - 24	-	-	-	-	-	3	-	-
25 - 29	-	-	-	-	-	1	-	-
30 - 34	-	-	1	2	-	1	-	-
35 - 39	-	-	5	4	-	2	-	-
40 - 44	-	-	12	13	-	3	-	-
45 - 49	-	-	16	15	-	11	-	-
50 - 54	-	-	22	28	-	16	-	-
55 - 59	-	-	48	45	-	32	-	-
60 - 64	522	441	39	47	-	44	-	-
65 - 69	460	387	22	24	-	51	74	123
70 - 74	236	183	6	15	2	37	144	192
75 - 79	173	153	2	3	-	36	132	205
80 - 84	31	37	-	-	1	17	78	154
85 - 89	6	14	-	-	-	10	33	64
90 - 94	2	12	-	-	1	1	7	20
95+	1	2	-	-	-	-	5	6
# of Pensioners	1,431	1,229	173	196	291	566	473	764
Avg Weekly Pension	\$ 125	\$ 105	\$ 89	\$ 77	\$ 23	\$ 63	\$ 34	\$ 34

The following table shows assumed density factors, or the average portion of the year for which contributions are made. These rates are assumed to remain constant for all years.

Table B.7 Density Of Contributions

Age	Males	Females
17	36%	37%
22	56%	59%
27	66%	68%
32	68%	70%
37	69%	71%
42	70%	70%
47	71%	73%
52	72%	72%
57	73%	71%
62	73%	71%

The following table shows the expected incidence rates of insured persons qualifying for Invalidation benefit which is assumed for all projection years.

Table B.8 Rates of Entry Into Invalidation Per 1,000 Insureds

Age	Males	Females
17	-	-
22	-	-
27	0.084	-
32	0.279	0.379
37	0.490	0.509
42	0.780	1.468
47	1.627	0.767
52	3.248	3.019
57	8.210	7.726
62	-	-

Table B.9, shows the assumed probability of Survivor benefit claims and the average number of eligible dependant children following the death of an insured person.

Table B.9 Survivor Characteristics

Age	Males		Females	
	Probability of Eligible Spouse	Avg # of Eligible Children	Probability of Eligible Spouse	Avg # of Eligible Children
17	0%	-	0%	-
22	0%	-	0%	-
27	6%	0.4	8%	0.7
32	20%	0.5	16%	0.7
37	21%	0.5	15%	0.7
42	33%	0.6	18%	0.5
47	32%	0.5	16%	0.5
52	31%	0.4	10%	0.4
57	35%	0.3	5%	0.3
62	40%	0.2	4%	0.1
67	33%	0.1	1%	0.1
72	30%	0.0	2%	-
77	24%	0.0	2%	-
82	27%	0.0	0%	-
87	14%	-	0%	-

Appendix C Projection Results – Alternate Scenarios**Table C.1 Projected Grenada Population, *High Dependency Scenario***

Year	Total	Age 0 - 15	Age 16 - 59	Age 60 & over	Ratio of Persons 16-59 To 60 & Over
2001	103,143	35,911	54,521	12,711	4.3
2006	104,626	31,656	60,098	12,871	4.7
2011	105,783	28,922	63,293	13,567	4.7
2016	107,095	27,372	64,728	14,996	4.3
2021	108,046	26,230	64,348	17,469	3.7
2026	108,737	24,750	64,096	19,891	3.2
2031	109,033	22,849	65,029	21,156	3.1
2036	108,957	21,326	65,911	21,719	3.0
2046	107,463	19,285	63,487	24,691	2.6
2056	103,580	17,189	55,529	30,863	1.8
2066	97,726	15,119	49,967	32,640	1.5

Table C.2 Projected Cash Flows & Reserve, *High Dependency Scenario* (millions of \$'s)

Year	Cash Inflows				Cash Outflows			Reserves		
	Contribution Income	Investment Income	Other Income	Total	Benefits	Admin. Expenses	Total	Surplus/ (Deficit)	End of Year	# of times current year's expenditure
2006	44.6	25.4	33.5	103.5	24.6	6.2	30.7	72.7	523	17.0
2007	45.5	27.0	0.3	72.8	28.4	6.0	34.4	38.4	561	16.3
2008	48.2	28.3	0.3	76.9	30.5	6.4	36.9	40.0	601	16.3
2009	52.7	29.7	0.3	82.8	34.1	7.0	41.1	41.7	643	15.6
2010	55.9	31.1	0.4	87.4	37.7	7.4	45.1	42.3	685	15.2
2011	59.2	31.7	0.4	91.4	41.8	7.8	49.6	41.8	727	14.7
2012	62.2	33.6	0.4	96.2	46.3	8.2	54.6	41.6	769	14.1
2016	75.0	39.6	0.5	115.1	72.5	9.9	82.4	32.6	916	11.1
2026	110.8	33.3	0.7	144.9	214.9	15.4	230.3	(85.5)	714	3.1
2036	165.5	(45.9)	1.1	120.7	385.1	23.0	408.1	(287.4)	(1,188)	(2.9)
2046	230.7	(244.6)	1.5	(12.4)	648.0	32.0	680.0	(692.4)	(5,907)	(8.7)
2056	306.0	(739.3)	2.0	(431.3)	1,151.4	42.5	1,193.9	(1,625.3)	(17,616)	(14.8)
2066	448.2	(1,755.9)	2.9	(1,304.8)	1,756.5	62.2	1,818.7	(3,123.5)	(41,466)	(22.8)

Negative reserves indicate the indebtedness of the Fund and negative investment income is the current cost of servicing that debt.

Table C.3 Projected Benefit Expenditure– *High Dependency Scenario* (millions of \$'s)

Year	Pensions, Grants & Benefits						Benefits as a % of:	
	Age	Invalidity	Survivors	Provident Fund	Short-term	Emp. Injury	Insurable Wages	GDP
2006	14.7	1.6	1.5	2.2	3.8	0.7	5.3%	1.6%
2007	17.3	1.7	1.8	2.3	4.5	0.8	5.4%	1.8%
2008	18.7	1.8	2.0	2.4	4.8	0.8	5.5%	1.8%
2009	21.7	2.0	2.1	2.2	5.2	0.9	5.6%	1.9%
2010	24.6	2.2	2.3	2.1	5.6	1.0	5.8%	2.0%
2011	28.0	2.4	2.6	1.8	5.9	1.1	6.1%	2.2%
2012	31.9	2.7	2.8	1.6	6.2	1.1	6.4%	2.3%
2016	54.4	4.1	4.0	1.0	7.6	1.5	8.4%	3.0%
2026	182.6	8.3	9.9	0.2	11.4	2.5	16.8%	5.7%
2036	328.2	13.4	21.9	0.0	17.4	4.2	20.1%	7.0%
2046	549.8	25.0	41.7	0.0	24.7	6.8	24.3%	8.1%
2056	998.1	39.5	70.3	-	33.4	10.2	32.5%	10.0%
2066	1,526.4	54.7	110.0	-	49.8	15.6	33.9%	10.6%

Table C.4 Projected Contributors & Pensioners, *High Dependency Scenario*

Year	# of Contributors	# of Pensioners					Total # of Pensioners	Ratio of Contributors to Pensioners
		Age	Invalidity	Survivors	Provident Fund	Death & Disablement		
2006	36,715	2,660	369	860	1,236	18	5,143	7.1
2007	37,441	2,797	383	831	1,588	20	5,618	6.7
2008	38,173	2,954	396	846	1,402	21	5,619	6.8
2009	38,906	3,157	415	873	1,236	22	5,703	6.8
2010	39,430	3,394	442	912	1,086	23	5,857	6.7
2011	39,942	3,650	473	952	950	24	6,049	6.6
2012	40,439	3,924	506	986	828	26	6,270	6.4
2016	42,167	5,305	636	1,088	453	31	7,512	5.6
2026	43,721	12,039	872	1,451	56	42	14,460	3.0
2036	45,883	15,275	989	1,869	2	50	18,184	2.5
2046	45,072	18,034	1,282	2,248	0	63	21,626	2.1
2056	40,849	23,330	1,439	2,537	-	71	27,376	1.5
2066	36,752	24,899	1,364	2,690	-	69	29,023	1.3

Table C.5 Projected Grenada Population, *Low Dependency Scenario*

Year	Total	Age 0 - 15	Age 16 - 59	Age 60 & over	Ratio of Persons 16-59 To 60 & Over
2001	103,143	35,911	54,521	12,711	4.3
2006	106,080	31,863	61,361	12,856	4.8
2011	110,140	30,207	66,434	13,498	4.9
2016	114,710	30,460	69,406	14,844	4.7
2021	118,857	31,381	70,263	17,213	4.1
2026	122,304	31,150	71,587	19,566	3.7
2031	125,213	29,767	74,547	20,899	3.6
2036	127,942	28,666	77,498	21,778	3.6
2046	132,650	28,616	77,929	26,104	3.0
2056	134,948	27,977	74,013	32,957	2.2
2066	135,360	26,941	73,896	34,524	2.1

Table C.6 Projected Cash Flows & Reserve, *Low Dependency Scenario* (millions of \$'s)

Year	Cash Inflows				Cash Outflows			Surplus/ (Deficit)	Reserves	
	Contribution Income	Investment Income	Other Income	Total	Benefits	Admin. Expenses	Total		End of Year	# of times current year's expenditure
2006	44.6	25.4	33.5	103.5	24.6	6.2	30.7	72.7	523	17.0
2007	45.5	27.0	0.3	72.8	28.4	6.0	34.4	38.4	561	16.3
2008	48.5	29.5	0.3	78.3	30.6	6.3	36.9	41.5	603	16.3
2009	53.3	32.3	0.3	85.9	33.7	6.8	40.6	45.4	648	16.0
2010	56.8	35.3	0.4	92.5	37.1	7.1	44.2	48.2	696	15.7
2011	60.5	38.6	0.4	99.5	40.8	7.5	48.3	51.2	747	15.5
2012	63.8	41.4	0.4	105.6	45.1	7.7	52.8	52.8	800	15.2
2016	78.2	53.0	0.5	131.8	69.1	8.8	78.0	53.8	1,017	13.0
2026	119.9	67.5	0.8	188.2	193.8	11.1	204.9	(16.7)	1,252	6.1
2036	179.8	25.9	1.2	207.0	341.3	16.7	357.9	(151.0)	408	1.1
2046	251.4	(126.3)	1.6	126.7	598.7	23.3	622.0	(495.3)	(2,610)	(4.2)
2056	350.3	(600.2)	2.3	(247.7)	1,056.8	32.4	1,089.2	(1,336.9)	(11,886)	(10.9)
2066	512.4	(1,648.1)	3.3	(1,132.3)	1,515.0	47.4	1,562.5	(2,694.8)	(32,143)	(20.6)

Negative reserves indicate the indebtedness of the Fund and negative investment income is the current cost of servicing that debt.

Table C.7 Projected Benefit Expenditure– *Low Dependency Scenario* (millions of \$'s)

Year	Pensions, Grants & Benefits						Benefits as a % of:	
	Age	Invalidity	Survivors	Provident Fund	Short-term	Emp. Injury	Insurable Wages	GDP
2006	14.7	1.6	1.5	2.2	3.8	0.7	5.3%	1.6%
2007	17.3	1.7	1.8	2.3	4.5	0.8	5.4%	1.8%
2008	18.7	1.8	2.0	2.4	4.8	0.8	5.4%	1.8%
2009	21.3	1.9	2.2	2.2	5.3	0.9	5.5%	1.9%
2010	24.0	2.1	2.3	2.1	5.7	1.0	5.6%	2.0%
2011	27.0	2.3	2.6	1.8	6.0	1.1	5.8%	2.1%
2012	30.6	2.6	2.8	1.6	6.4	1.2	6.1%	2.2%
2016	50.9	3.8	4.1	1.0	7.9	1.5	7.6%	2.7%
2026	161.2	7.5	10.0	0.2	12.3	2.6	14.0%	4.7%
2036	284.6	12.3	21.1	0.0	18.9	4.4	16.4%	5.6%
2046	502.9	23.0	38.9	0.0	26.9	7.0	20.6%	6.8%
2056	908.0	34.1	65.8	-	38.2	10.7	26.1%	8.4%
2066	1,292.4	46.0	103.3	-	56.9	16.4	25.5%	8.3%

Table C.8 Projected Contributors & Pensioners, *Low Dependency Scenario*

Year	# of Contributors	# of Pensioners					Total # of Pensioners	Ratio of Contributors to Pensioners
		Age	Invalidity	Survivors	Provident Fund	Death & Disablement		
2006	36,722	2,660	369	860	1,236	18	5,143	7.1
2007	37,686	2,794	381	838	1,588	20	5,621	6.7
2008	38,655	2,948	394	859	1,402	21	5,624	6.9
2009	39,627	3,148	412	894	1,236	22	5,711	6.9
2010	40,397	3,380	438	945	1,086	23	5,871	6.9
2011	41,162	3,630	467	998	950	24	6,069	6.8
2012	41,902	3,898	498	1,047	828	26	6,297	6.7
2016	44,666	5,238	624	1,213	453	32	7,560	5.9
2026	48,563	11,666	859	1,745	56	44	14,370	3.4
2036	51,860	15,061	1,011	2,266	2	54	18,393	2.8
2046	51,503	18,904	1,316	2,729	0	68	23,017	2.2
2056	51,569	24,675	1,425	3,157	-	75	29,332	1.8
2066	53,152	25,844	1,388	3,459	-	76	30,767	1.7

Appendix D Income, Expenditure & Reserves

	2003	2004	2005	2006
Income				
Contribution	36,849,635	39,181,097	37,317,658	44,630,449
Investment	23,453,165	24,154,957	25,490,682	25,386,799
Other	246,524	430,798	318,327	333,265
Gain on Sale of Land	-	-	234,016	11,768,504
Unrealised Gain On Equities	-	-	-	21,371,329
Total	60,549,324	63,766,852	63,360,683	103,490,346
Expenditure				
Sickness	2,241,958	2,067,130	2,023,185	2,104,019
Maternity Allowance	1,107,888	1,088,765	1,080,012	1,030,226
Maternity Grant	19,800	23,025	20,700	19,800
Funeral	584,635	650,000	673,500	647,000
Age Pension	9,104,232	10,356,000	11,650,134	14,253,796
Invalidity Pension	1,167,844	1,279,710	1,374,624	1,635,021
Survivors Pension	949,315	1,049,394	1,161,396	1,502,564
Provident Fund Pensions	2,368,829	2,244,452	2,092,188	2,207,599
Age Grant	272,680	295,801	290,054	441,056
Invalidity Grant	1,258	13,414	1,526	7,763
Survivors Grant	10,846	8,632	7,041	6,669
Medical Care	41,221	94,867	203,025	166,308
Injury Benefit	203,801	247,308	365,684	304,310
Disablement Benefit	40,205	80,684	55,368	123,674
Death Benefit	32,905	29,763	51,333	51,516
Disablement Grant	17,673	35,022	169,569	63,581
Unemployment Assistance	-	-	6,372,079	1,977
Total Benefits	18,165,090	19,563,967	27,591,418	24,566,879
Administrative Expenditure	4,740,268	5,374,347	6,027,997	6,180,740
Total Expenditure	22,905,358	24,938,314	33,619,415	30,747,619
Surplus/(Deficit)	37,643,966	38,828,538	29,741,268	72,742,727
Reserves at year-end	381,519,265	420,347,803	450,089,071	522,831,798
Short-term Benefits Branch	35,105,464	38,189,940	34,863,783	40,970,984
Long-term Benefits Branch	315,230,534	345,540,339	374,501,608	431,739,832
Emp. Injury Benefits Branch	31,183,267	36,617,524	40,723,680	50,120,982

Appendix E Benefit Experience & Branch Analysis

E.1 Long-term Benefits Branch

Table E.1 Long-term Benefits Branch Expenditure, 2003 to 2006

Expenditure	2003	2004	2005	2006
Age Pension	2.28%	2.56%	2.74%	3.05%
Invalidity Pension	0.29%	0.32%	0.32%	0.35%
Survivors' Pension	0.24%	0.26%	0.27%	0.32%
Provident Fund Pension	0.59%	0.55%	0.49%	0.47%
Age, Invalidity & Survivors Grants	0.07%	0.08%	0.07%	0.10%
Administrative Expenses	0.89%	1.01%	0.89%	1.08%
Total Expenditure	4.37%	4.78%	4.80%	5.38%
Total Benefits (millions of \$'s)	17.4	19.3	20.4	23.4

Table E.2 Pensions-In-Payment, Awarded & Terminated, 2003 to 2006

Pension Type	Paid in Dec 2002	Awarded 2003 - 2006	Terminated 2003 - 2006	Paid in Dec 2006	Average Weekly Pension	
					Dec. 2002	Dec. 2006
Age	2,042	895	277	2,660	\$80	\$107
Invalidity	289	184	104	369	\$69	\$76
Survivors	673	450	263	860	\$28	\$33
Prov. Fund	1,558	3	324	1,237	\$30	\$34

E.2 Short-term Benefits Branch

Table E.3 Sickness Benefit Experience – 2003 to 2006

Year	# Claims Awarded per 1,000 Insureds	Average Benefit Duration (days)	Average Weekly Benefit	Cost as a % of Insurable Wages
2003	150	12	\$182	0.56%
2004	139	13	\$188	0.51%
2005	129	13	\$193	0.48%
2006	134	14	\$186	0.45%

Table E.4 Maternity Allowance Experience – 2003 to 2006

Year	# Claims Awarded per 1,000 Insureds	Average Benefit Duration (days)	Average Weekly Allowance	Cost as a % of Insurable Wages
2003	13	73	\$177	0.28%
2004	14	72	\$181	0.27%
2005	12	72	\$193	0.25%
2006	14	68	\$177	0.22%

Table E.5 Maternity Grant & Funeral Grant Experience, 2003 to 2006

Year	# Births	# Maternity Grants Awarded	Cost as a % of Insurable Wages	# Deaths	# Funeral Grants Awarded	Cost as a % of Insurable Wages
2003	1,851	45	0.00%	810	242	0.15%
2004	1,700	53	0.01%	852	345	0.16%
2005	1,906	46	0.00%	769	358	0.16%
2006	Not Available	45	0.0%	Not Available	341	0.14%

Table E.6 Administrative & Total Expenditure, 2003 to 2006 (% of Insurable Wages)

	Admin. & Other Expenditure	Total Branch Expenditure
2003	0.20%	1.19%
2004	0.21%	1.16%
2005	0.18%	2.57%
2006	0.20%	1.02%

In 2005, 3,404 Unemployment Assistance claims were awarded. The total amount was \$6.4 million or 1.5% of insurable wages.

E.3 Employment Injury Benefits Branch

Table E.7 Injury Benefit Experience – 2003 to 2006

Year	# Claims Awarded per 1,000 Insureds	Average Benefit Duration (days)	Average Weekly Allowance	Cost as a % of Insurable Wages
2003	10	16	\$199	0.05%
2004	11	17	\$215	0.06%
2005	12	19	\$258	0.09%
2006	12	18	\$227	0.07%

Table E.8 Medical Care % Disablement Grants, 2003 to 2006

Year	Medical Care		Disablement Grant	
	# Grants Awarded	Cost as a % of Insurable Wages	# Claims Awarded	Cost as a % of Insurable Wages
2003	231	0.01%	7	0.004%
2004	230	0.02%	5	0.009%
2005	277	0.05%	18	0.040%
2006	292	0.04%	15	0.014%

Table E.9 Disablement & Death Benefits Experience – 2003 to 2006

Year	Disablement Benefit			Death Benefit		
	# Pensions Awarded	Pensions in Payment (December)	Cost as a % of Insurable Wages	# Pensions Awarded	Pensions in Payment (December)	Cost as a % of Insurable Wages
2003	3	13	0.01%	1	7	0.01%
2004	1	12	0.02%	0	5	0.01%
2005	0	11	0.01%	2	7	0.01%
2006	1	12	0.03%	0	6	0.01%

Table E.10 Administrative & Total Expenditure, 2003 to 2006 (% of Insurable Wages)

	Admin. & Other Expenditure	Total Branch Expenditure
2003	0.10%	0.18%
2004	0.11%	0.23%
2005	0.35%	0.54%
2006	0.04%	0.19%

With an allocation of 1% of insurable earnings plus investment returns, the EIB Branch incurred large surpluses each year.