



9<sup>TH</sup>

ACTUARIAL  
REVIEW

*of the*  
**NATIONAL INSURANCE FUND**

*as of 31 December 2011*





The National Insurance Board  
of the Commonwealth of The Bahamas

---

17th June, 2013

Hon. D. Shane Gibson, M.P.  
Minister  
Ministry of Labour & National Insurance  
Government of The Bahamas

Dear Minister Gibson,

**RE: 9th Actuarial Review of The National Insurance Fund**

I have the honour to submit to you the report of the 9th Actuarial Review of the National Insurance Fund as of December 31, 2011, prepared in accordance with Section 48 of the National Insurance Act. The Review has been performed by the Board's Consultant Actuary, Mr. Derek Osborne.

The Board has reviewed the report and has discussed and accepted the findings and recommendations made therein. It is hoped that the Government initiate the steps necessary to amend the relevant sections of the National Insurance Act and Regulations aimed at enhancing both the relevance and sustainability of the Fund.

Sincerely,

Rev. Dr. James Moultrie  
Chairman  
Board of Directors





The National Insurance Board  
of the Commonwealth of The Bahamas

---

April 5th, 2013

Rev. James Moultrie  
Chairman  
The National Insurance Board

Dear Chairman Moultrie:

**RE: Actuarial Review of The National Insurance Fund**

It is my pleasure to present to you the report of the 9th Actuarial Review of the National Insurance Fund prepared as at December 31, 2011.

The report provides:

- a) a review of experience between 2007 and 2011,
- b) an assessment of existing contribution and benefit rules and parameters, and the Fund's investments,
- c) 60-year projections of the Fund's income, expenditure and reserves, and
- d) recommendations for design and administrative changes that could improve long-term financial sustainability while maintaining benefit adequacy.

I am grateful to the many persons involved in the preparation of this report, especially Ms. Amanda Darville, Actuarial Analyst.

Sincerely,

Derek M. Osborne, FSA  
Consultant Actuary



## Table of Contents

Table of Contents .....	i
Abbreviations and Acronyms .....	ii
Introduction .....	iii
Executive Summary .....	iv
<b>Chapter 1 Activities &amp; Experience Since The 8<sup>th</sup> Actuarial Review.....</b>	<b>1</b>
1.1 Amendments To Act & Regulations .....	1
1.2 Economic Experience .....	2
1.3 National Insurance Experience .....	3
1.4 Benefit Branch Experience & Reserves.....	4
1.5 Experience Compared With Projections Of 8 <sup>th</sup> Actuarial Review .....	5
1.6 Investments .....	6
1.7 Subsequent Events .....	8
<b>Chapter 2 Assessment Of Performance &amp; System Design.....</b>	<b>9</b>
2.1 Historical Performance, 1975 – 2011 .....	9
2.2 Meeting Policy Objectives.....	11
<b>Chapter 3 Best-Estimate Projections .....</b>	<b>16</b>
3.1 Population Projections.....	16
3.2 National Insurance Projections.....	19
3.3 Comparison With Results Of 8 <sup>th</sup> Actuarial Review .....	25
3.4 Effect of Retirement Benefit Reforms .....	26
3.5 Sensitivity Analysis .....	27
<b>Chapter 4 Alternative Scenarios .....</b>	<b>28</b>
<b>Chapter 5 Balancing Adequacy &amp; Sustainability.....</b>	<b>30</b>
5.1. Coverage .....	30
5.2. Benefit Adequacy .....	31
5.3. Financial Sustainability .....	34
5.4. Administrative Efficiency .....	38
5.5. Diversification Security .....	40
<b>Chapter 6 Good Governance .....</b>	<b>41</b>
6.1. ISSA Good Governance Guidelines .....	41
6.2. ISSA Investment Guidelines.....	43
<b>Statement of Actuarial Opinion .....</b>	<b>44</b>
<b>References .....</b>	<b>45</b>
<b>Appendix A Summary of Contribution &amp; Benefit Provisions.....</b>	<b>46</b>
<b>Appendix B Methodology, Data &amp; Assumptions.....</b>	<b>55</b>
<b>Appendix C Projection Results – Alternate Scenarios .....</b>	<b>64</b>
<b>Appendix D Income, Expenditure &amp; Reserves, 2007–2011 .....</b>	<b>71</b>
<b>Appendix E Benefit Branch Experience &amp; Analysis .....</b>	<b>72</b>
<b>Appendix F Unemployment Benefit .....</b>	<b>78</b>
<b>Appendix G National Prescription Drug Plan .....</b>	<b>80</b>

## Abbreviations and Acronyms

BISX	Bahamas International Securities Exchange
BoB	Bank Of The Bahamas
CSP	Pensionable Civil Servant
GDP	Gross Domestic Product
IAS	Insurance Administrative System
IBB	Industrial Benefits Branch
ILO	International Labour Office
IPS	Investment Policy Statement
ISSA	International Social Security Association
IT	Information Technology
MBB	Medical Benefits Branch
NI	National Insurance
NIB	National Insurance Board
NIF	National Insurance Fund
NPDP	National Prescription Drug Plan
OECD	Organisation for Economic Co-operation & Development
PAYG	Pay-as-you-go
STB	Short-term Benefits
TFR	Total Fertility Rate
UN	United Nations



## Introduction

The National Insurance Board (NIB) began operations in October 1974. Employed and self-employed persons are covered for three main types of social security benefits – short-term, long-term and industrial (employment injury) benefits. The system is financed by contributions that are levied on employment earnings up to a wage ceiling and are paid by employers, employees and self-employed persons. Surplus funds are invested in various types of securities and properties.

This is the report of the 9<sup>th</sup> Actuarial Review of the National Insurance Fund (NIF), and in accordance with Section 48 of The National Insurance Act, 1972, is being prepared five years after the 8<sup>th</sup> Actuarial Review.

The main purpose of periodic actuarial reviews is to determine if the Fund 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.

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 no later than December 31, 2016.

This 9<sup>th</sup> Actuarial Review has been prepared by Mr. Derek Osborne, Consultant Actuary. Assisting with the data gathering and projections was Ms. Amanda Darville, Actuarial Analyst.

## Executive Summary

National social security systems make promises to former and current workers that extend beyond 60 years. It is therefore important that these systems are well designed, well governed and properly administered. Periodic actuarial reviews of the National Insurance Fund (NIF) provide a comprehensive assessment of the current and projected state of the Bahamas' primary social security system. They also provide policy recommendations for changes designed to ensure that a suitable balance between benefit adequacy and financial sustainability is achieved for both current and future periods.

Failure to regularly and consistently follow good governance practices, especially in the areas of human resources, awarding of contracts and investments, continues to affect the efficient and effective operation of the National Insurance Board. Further, the lack of political will to implement stronger penalties for businesses and self-employed persons who fail to make timely contribution payments serve to diminish the Fund's ability to maximise its income and reduce operating costs, ultimately jeopardizing long-term sustainability.

Following the laying in Parliament of the report of the 8<sup>th</sup> Actuarial Review in 2009, extensive reforms to both contribution and benefit provisions were made:

- Unemployment benefit was introduced in 2009 resulting in NIB providing income protection to workers for all contingencies that could lead to involuntary loss of wages.
- In 2010, the National Prescription Drug Plan, which provides prescription drugs free of charge for 14 chronic diseases to select groups, was added.
- In 2010, and again in 2012, changes were made to eligibility rules and benefit calculations for pensions that positively affected long-term sustainability.
- The wage ceiling was increased by 50% and automatic biennial adjustments to both pensions in payment and the wage ceiling were introduced. As a result of these, NIB now provides more predictable benefits that will maintain their value over time.

When considered in totality, these reforms led to both enhanced benefit adequacy for most insured persons and an overall improvement in long-term sustainability.

Due mainly to the effects of the global economic crisis and a recession locally, NIF finances underperformed the projections of the 8<sup>th</sup> Actuarial Review. As unemployment increased and many full-time employees worked reduced hours, contribution income was negatively affected while benefits and administrative costs continued to increase. During the 5-year review period the number of contributors declined while the number of pensions in payment increased. Although benefits exceeded contributions in some years, the Fund experienced net surpluses in each year resulting in benefit reserves increasing from \$1.42 billion at the end of 2006 to \$1.65 billion at the end of 2011.

## **Main Findings**

This report's assessment of National Insurance policy and design indicators suggests that current contribution and benefit provisions provide a very good level of benefit adequacy and income protection to most workers and pensioners. Recent reforms have resulted in enhanced income protection for higher paid earners and greater predictability of future benefits for pensioners of all income levels. However, the heavy concentration of investments in Bahamas Government and other public sector securities, the failure of around 25% of the workforce to make regular NIB contributions, and very high administrative costs, are ongoing challenges faced by the Fund.

For this Review three sets of 60-year projections of the Bahamas' 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 changes to the current contribution rate and benefit rules. Given the uncertainty in projecting such an extended period, the timing of certain events and the rates that will apply are presented as ranges.

1. Contribution income will never again be sufficient to meet total expenditure.
2. Total expenditure will first exceed total income between 2017 and 2022.
3. The Fund will be depleted between 2028 and 2033.
4. The pay-as-you-go rate, or the rate required to produce just enough contribution income to meet total expenditure when the Fund is depleted, will be between 17.5% and 18.2%.
5. The pay-as-you-go rate in 2071 will be between 23.2% and 32.2%.
6. The average long-term cost of benefits over the next 60 years, often referred to as the general average premium, is between 17.5% and 23.1%.

These results indicate that the National Insurance Fund is not financially sustainable over the long-term with the current benefit provisions and contribution rate.

## **Recommendations**

Recommendations in this report are made with the objective of arriving at a suitable balance between benefit adequacy and long-term sustainability. Unlike for private sector funds, financial sustainability for a national pension system may be described as being able to meet future obligations without placing undue burden on the incomes of future workers. Secondly, major reforms to a national pension system should not be a regular process. Thus, given the extent of reforms made in recent years, only a few benefit reforms are recommended with the overriding goal of further enhancing coverage and benefit adequacy, while boosting long-term sustainability. These recommendations are:

1. To enhance coverage:
  - a. Require contributions from all employers for workers with two or more jobs so that future benefits can be based on their regular combined insurable wages.
  - b. Devise a more simple and attractive means by which self-employed persons can contribute.
2. To enhance benefit adequacy:
  - a. For Unemployment benefit, remove the condition that defers its payment by the number of weeks of redundancy payments received.
  - b. For Survivors benefit, clarify and possibly revise the rules regarding eligibility of widow(er)s over age 40 who have no eligible children.
  - c. For pensionable civil servants, revise the method used to calculate average insurable wages for pensions so that it will take less than 40 years to obtain the maximum benefit once they start contributing on full insurable wages in July 2013.
3. To enhance sustainability:
  - a. For Retirement benefit, consider increasing the normal pension age from 65 to 67.
  - b. For Retirement benefit, consider revising pension calculations so that they are based on average career insurable wages instead of only average insurable wages in the best 5 years.
  - c. Seek further ways to reduce Medical Care costs by directing patients to facilities that adequately provide the level of care needed.
  - d. Introduce a meaningful penalty for late payment of contributions.
  - e. Insist that any new or expanded benefits to be financed by the National Insurance Fund be fully funded with new contributions or transfers from the Bahamas Government.
  - f. Increase investment diversification by setting two key 10-year asset mix goals – overseas investments to account for at least 20% of the Fund and Bahamas public sector securities to account for no more than 50% of the Fund.
4. To enhance administrative efficiency:
  - a. Further develop mutually beneficial links with various government departments that will enhance the level of NIB contribution compliance.
  - b. Significantly reduce administrative expenses with a goal of 10% of contributions by 2021.
5. To ensure Good Governance:
  - a. Implement at all levels the International Social Security Association’s Good Governance Guidelines.

In 2011, the International Social Security Association (ISSA) published the “*ISSA Good Governance Guidelines for Social Security Institutions.*” These Guidelines present a governance framework that spans a range of governance issues. It recognizes accountability, transparency, predictability, participation and dynamism as core good governance principles. It recommends qualified persons be appointed to serve on Boards and in leadership positions and that there be clear roles for the Minister, the Board and management. These *ISSA Good Governance Guidelines*, prepared specifically for social security schemes, can help guide NIB’s transformation into a well governed, efficient and sustainable system.

Contribution rate increases are inevitable. By design, the system was intended to have the rate increase gradually over time. Even though expenditure now exceeds contribution income an immediate contribution rate increase is not among this report's recommendations. Instead, the recommended financing strategy for the next 10 to 15 years is to increase the contribution rate in steps of ½% to 1% per annum if the following year's budget suggests that total expenditure will exceed total income. Under such a strategy, annual adjustments will likely be required starting in 2018.

With assets of over \$1.6 billion, NIB may appear to be an institution that can afford to hire more people than it needs, pay more for contracts than another organisation would, and invest in securities where the risk-reward tradeoff suggests that it is not prudent to do so. This is not the case. For NIB to consistently deliver on its future obligations without having to levy exorbitant contribution rates in the future, a firm commitment to implementing and following a good governance framework at all levels is required.

## Chapter 1 Activities & Experience Since The 8<sup>th</sup> Actuarial Review

### 1.1 Amendments To Act & Regulations

In April 2009, the Government of The Bahamas added unemployment benefit to NIB's suite of benefits making The Bahamas only the second country in the Caribbean to offer this benefit. Initially, the qualifying conditions were very liberal and the benefit was financed by \$20 million transferred from the Fund's Medical Benefits Branch (MBB). In June 2010, the contribution rate for all employed persons was increased by 1% and more stringent eligibility criteria were introduced.

Details of the rules and early experience of the unemployment benefit may be found in Appendix F.

In 2010, and again in early 2012, significant reforms were made to contribution and benefit provisions. Most of these changes were in line with recommendations made in the 8<sup>th</sup> Actuarial Review. The 2010 amendments that materially impacted NIF finances are listed below. Unless otherwise stated, the effective date was January 2011.

1. Pensions in payment in July 2010 were increased by up to 6.6%.
2. Automatic biennial pension increases, based on the change in the Retail Price Index over the prior two years, were introduced with the first adjustment taking place in July 2012.
3. The ceiling on insurable wages was increased from \$400 to \$500 per week in January 2011 and to \$600 per week in July 2012.
4. Automatic biennial increases to the wage ceiling will occur every two years starting July 2014 by the change in the Retail Price Index over the prior two calendar years, plus 2%.
5. The contribution rate and wage ceiling for pensionable civil servants, which since 1984 has been different from those for private sector workers, will be changed so that all employed persons will contribute on the same basis starting July 2013.
6. For workers in the hospitality sector, gratuities will be included in insurable wages starting July 2013.
7. The number of weekly contributions required for Retirement benefit was increased from 150 to 500 and a Retirement Grant (lump sum payment) at age 65 for those who do not qualify for a pension was introduced.
8. The adjustment to average insurable wages for pension calculations of those earning more than \$250 per week was eliminated.
9. The reduction factors applied to Retirement benefits awarded prior to age 65 were changed from 4% per year to 7/12% per month.

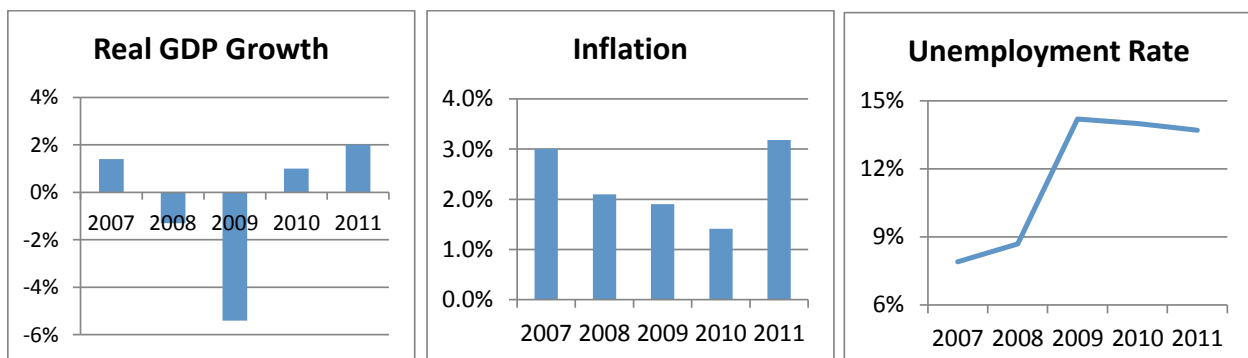
10. Maternity grant was increased from \$400 to \$430 and Funeral benefit from \$1,500 to \$1,600. (July 2010) These rates will be increased every 2 years.
11. Widows and widowers may receive their Retirement or Invalidity benefit with 50% of their Survivors benefit. Previously, only the higher of the two benefits was payable.
12. A Survivors grant, equivalent to 1 year's pension, payable to widowed spouses who do not qualify for a Survivors pension was introduced.
13. Coverage for all benefits, except Unemployment Benefit, was extended to all self-employed persons and the contribution rate for all self-employed persons was set at 8.8%.
14. A stricter means test for Assistance pensions which considers cash, investments and real estate, was introduced.

In 2010, the National Prescription Drug Plan (NPDP) was established through amendments to the NI Act and the passage of the National Insurance (Chronic Diseases Prescription Drug Fund) Act, 2009 and supporting Regulations. The NPDP provides defined groups with free access to prescription drugs for specific chronic illnesses. To date, the NPDP has been financed by the Medical Benefits Branch. Details of the NPDP and its early experience may be found in Appendix G.

## 1.2 Economic Experience

NIB's two sources of income, contributions and earnings on investments, are closely linked to economic performance and labour market changes. Some benefits are also affected by economic changes. For example, more people are likely to claim Retirement and Invalidity benefits if they lose their job and cannot find a new one. As shown in the charts in Figure 1.1, The Bahamas economy contracted in two of the five years in the review period, with average growth over the period of -0.4% per annum. Inflation remained relatively low averaging 2.3% per annum. As a consequence of the economic downturn, employment contracted and the unemployment rate increased.

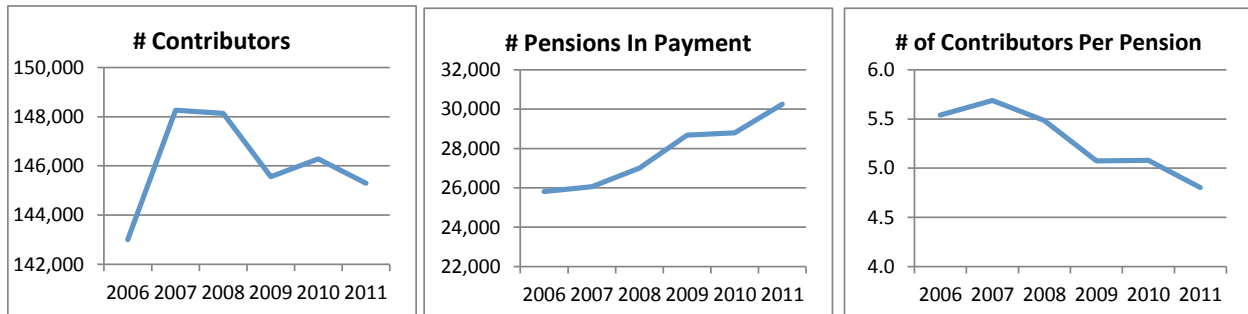
**Figure 1.1. Key Economic Indicators, 2007 to 2011**



### 1.3 National Insurance Experience

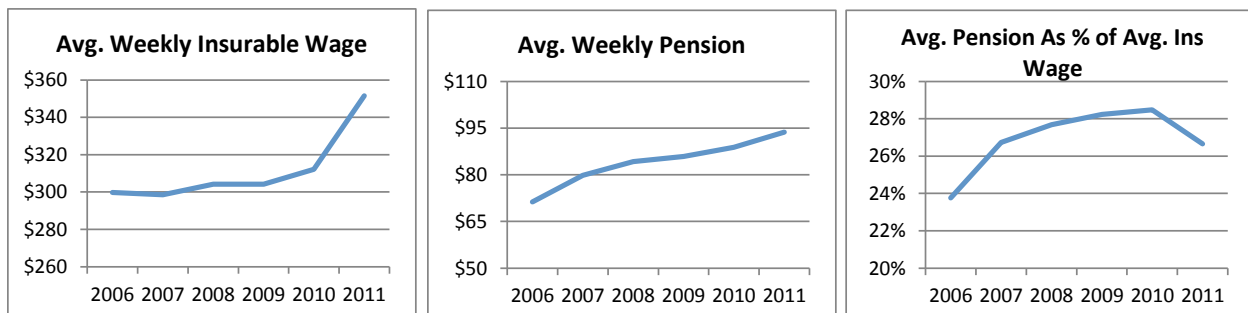
In line with recent economic patterns, the number of insured persons making contributions declined while the numbers of pensions in payment increased during the review period. This resulted in the number of contributors per pension in payment decreasing from 5.5 to 4.8.

**Figure 1.2. Contributors & Pensioners, 2006 to 2011**



Both the average insurable wage and the average pension in payment increased between 2006 and 2011. (Figure 1.3 below) The increase in average insurable wage was due to both regular wage increases and the ceiling adjustment to \$500 per week in January 2011, while pension increases were mainly due to cost of living adjustments in 2007 and 2010. Since pensions account for 80% of total benefit expenditure, changes to the number of pensions and the average pension amount have greatest influence on year-over-year changes in benefit expenditure.

**Figure 1.3. Average Insurance Wages & Pensions in Payment, 2006 to 2011**



The following table provides summary income and expenditure amounts for years 2007 to 2011. A more detailed version of the National Insurance finances for these years may be found in Appendix D.



**Table 1.1. Summary of NIF Finances, 2007 – 2011 (millions of \$'s)**

	2007	2008	2009	2010	2011
<b>Income</b>					
Contributions	155.3	154.9	159.6	167.5	190.5
Investment (net)	88.5	80.9	71.8	90.2	82.9
Other	5.1	5.2	5.2	2.5	0.3
<b>Total</b>	<b>248.9</b>	<b>240.9</b>	<b>236.6</b>	<b>260.2</b>	<b>273.7</b>
<b>Expenditure</b>					
Benefits	139.5	152.1	178.7	176.0	183.8
Administrative	31.5	32.8	35.2	38.2	41.1
Other	2.2	1.7	1.5	3.5	6.3
<b>Total</b>	<b>173.2</b>	<b>186.6</b>	<b>215.5</b>	<b>217.7</b>	<b>231.3</b>
<b>Surplus</b>	<b>75.7</b>	<b>54.3</b>	<b>21.5</b>	<b>42.7</b>	<b>42.6</b>
<b>Benefit Reserves</b>	<b>1,492</b>	<b>1,546</b>	<b>1,568</b>	<b>1,611</b>	<b>1,653</b>

Notes: Immaterial differences in totals may result due to rounding.  
Investment income shown above is net of all provisions and adjustments.

Key highlights of income and expenditure are:

- (i) The increase in contributions in 2010 was due primarily to the 1% increase in the contribution rate and the significant increase in contributions in 2011 was due to the increase in the wage ceiling.
- (ii) Fluctuations in investment income were due to fluctuations in prices of some BISX listed equities.
- (iii) In 2010, The Bahamas Government ceased the annual transfer of \$4.9 million to the NIF. This transfer partly subsidized non-contributory pensions. It is not expected that such transfers will be reinstated.
- (iv) The significant increase in benefit expenditure in 2009 was due to the introduction of unemployment benefit.
- (v) National Prescription Drug Plan expenditure accounts for the increase in Other Expenditure in 2010 and 2011.

## 1.4 Benefit Branch Experience & Reserves

NIB administers three major types of social security benefits – long-term or pensions, short-term benefits and industrial (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 four branches – one each for the three groups of benefits and a fourth known as the Medical Benefits Branch. Funds in this branch

come from a special allocation of contributions and are used for the development of health infrastructure throughout The Bahamas.

While the three benefit types have different characteristics and implicit financing mechanisms, the existence of branches does not affect the overall financing or sustainability of the Fund. Detailed analysis of individual branch experience may be found in Appendix E.

## 1.5 Experience Compared With Projections Of 8<sup>th</sup> Actuarial Review

In the 8<sup>th</sup> Actuarial Review, projections were prepared under three scenarios – *Best Estimate*, *Low Dependency* (optimistic) and *High Dependency* (pessimistic). Shown below is a comparison of actual cumulative experience over the 5-year period with the projections of the *Best Estimate* Scenario.

**Table 1.2. Projections from 8<sup>th</sup> Actuarial Review Compared With Actual Experience**

	<b>2007 - 2011 Projected – <i>Best Estimate</i> (millions of \$'s)</b>	<b>2007 - 2011 Actual (millions of \$'s)</b>	<b>Variance</b>
<b>Contribution Income</b>	999	828	17.2% below projected
<b>Investment Income (net)</b>	393	414	5.3% above projected
<b>Benefit Expenditure</b>	809	830	2.6% above projected
<b>Administrative Expenditure</b>	160	179	11.9% above projected
<b>2011 Year-end Reserves</b>	1,854	1,653	10.8% below projected

The large negative variance in contribution income is due primarily to two main factors:

- (i) The projections of the 8<sup>th</sup> Actuarial Review were performed prior to the onset of the global economic crisis which negatively affected foreign direct investments and the labour market.
- (ii) It was assumed that the wage ceiling would have been increased from \$400 to \$600 per week in 2009. Instead, the ceiling was increased to only \$500 in 2011.

Investment returns were slightly better than projected with an average annual yield on reserves of 5.6% compared with the assumed rate of 5.0%.

Although the projections of the 8<sup>th</sup> Actuarial Review did not include Unemployment benefit which was added in 2009, total benefit expenditure was only slightly higher than projected as expenditure for other benefits was lower than projected, partly due to reduced economic activity.

In the 8<sup>th</sup> Review it was assumed that administrative expenses, expressed as a percentage of insurable wages, would gradually decline following staff reductions in 2006 from a Voluntary Early Retirement Package and the expected increase in the wage ceiling. However, operating costs continued to increase.

## 1.6 Investments

At the end of 2011, National Insurance investments stood at \$1.63 billion, up from \$1.35 billion at the end of 2006. The relationship between investments and reserves, which measures how efficiently available funds are invested, is very good, averaging 98% over the 5-year review period. At the end of 2011, NIF investments stood at 21% of GDP.

During the review period, the average yield on investments was 5.7% and the average yield on reserves was 5.6%. With inflation averaging 2.3% per annum, the average real rate of return on reserves over the 5-year period was 3.3%.

The following table provides a summary of the investment mix of the National Insurance Fund at year-end 2006 and 2011.

**Table 1.3. Summary of Investments, Year-end 2011 & 2006 (millions)**

Investment Category	2011		2006	
	\$'s	%	\$'s	%
Certificates of Deposit	289.8	17.7%	226.8	16.8%
Treasury Bills	-	-	94.5	7.0%
Bahamas Government Bonds	690.1	42.2%	597.6	44.3%
Bonds Issued by Gov't Corporations	236.6	14.5%	238.2	17.6%
Other Bonds & Notes – Bahamas	91.5	5.6%	8.8	0.7%
Other Bonds & Notes – Overseas	16.0	1.0%	-	-
Loans to Gov't Corporations	3.2	0.2%	15.6	1.2%
Direct Finance Leases (Bahamas Gov't)	160.7	9.8%	59.3	4.4%
Investment Properties	5.1	0.3%	20.9	1.5%
Equities & Preferred Shares – Bahamas	72.8	4.5%	57.4	4.3%
Equities – Overseas	6.7	0.4%	-	-
Investment in Associate (Bank of Bahamas & Cable Bahamas)	61.0	3.7%	31.2	2.3%
<b>Total</b>	<b>1,633.6</b>	<b>100%</b>	<b>1,350.4</b>	<b>100%</b>

Notes: Direct Finance Leases include construction in progress.  
Totals may be off due to rounding.

Notable changes in asset mix between 2006 and 2011 are:

- (i) Slight reduction in the overall percentage of the Fund held in Bahamas Government securities.
- (ii) Significant increase in the amount held in Direct Finance Leases with the Bahamas Government.
- (iii) Significant increase in Other Bahamian Bonds & Notes, the majority of which are held in Nassau Airport Development Company debt securities.
- (iv) Almost doubling (in dollar terms) of holdings in Investment in Associates - Bank of The Bahamas and Cable Bahamas.

A summary of the asset mix, with specific emphasis on diversity, shows that:

- 66.9% of assets are held in public sector (Government and Quasi-Government) securities,
- 20.3% of assets are held in short-term deposits, and
- 98.8% of assets are held locally, a small portion of which is denominated in US dollars.

National Insurance Fund investments are guided by an Investment Policy Statement which was last revised in 2010. The following table shows the asset mix in December 2011 compared with the acceptable ranges found in the Investment Policy Guidelines.

**Table 1.4. December 2011 Asset Mix Compared With Investment Policy Guidelines**

<b>Investment Classification</b>	<b>Actual</b>	<b>Acceptable Range</b>	<b>Variance</b>
<b>Fixed Income (Bahamas Gov't &amp; Corporations)</b>	66.6%	40-60%	Over
<b>Fixed Income (Bahamas Non-Gov't)</b>	15.8%	4-10%	Over
<b>Loans (Bahamas Gov't &amp; Corporations)</b>	0.2%	4-10%	Under
<b>Loans (Bahamas Non-Gov't)</b>	-	4-10%	Under
<b>Bahamian Equities</b>	4.5%	10-20%	Under
<b>Bahamian Real Estate</b>	0.3%	5-10%	Under
<b>Cash and Cash Equivalents</b>	17.7%	10-15%	Over
<b>International Fixed Income</b>	0.9%	3%-7%	Under
<b>International Equities</b>	0.4%	0.50-1.50%	Under
<b>Alternative Investments</b>	-	0.50-1.50%	Under

As shown above all of the individual asset allocations in December 2011 were outside of the target ranges as per the most recently revised Investment Policy.

In June 2011, the Bahamas Prime Rate was reduced by  $\frac{3}{4}\%$  from  $5\frac{1}{2}\%$  to  $4\frac{3}{4}\%$ . With most of its investments having returns linked to the Prime Rate, the Fund's returns were immediately affected and will continue to experience lower returns. However, given that a stronger economy with increasing employment and wage levels is more important in the long run than higher returns on investments, it is hoped that lower interest rates will spur economic growth and development.

Although there has been slight improvement in asset diversification since 2006, NIF assets remain too heavily invested within The Bahamas and too heavily invested in Bahamas Government and public corporation instruments.

## 1.7 Subsequent Events

In January 2012, an additional set of amendments were made to Contributions Regulations and Benefits & Assistance Regulations. Although these changes took effect in July 2012, after the date of this Review, many of them have significant effects for eligibility and amounts payable and thus are presented below.

1. The age at which persons will be able to receive their Retirement benefit and earn more than 50% of the wage ceiling was reduced from 70 to 65.
2. Pensions awarded after age 65 will receive a positive actuarial adjustment of  $\frac{7}{12}\%$  for each month over age 65 up to a maximum of 35%.
3. Orphans will continue to receive Survivors benefit even if they are in school part time. The requirement previously was that after age 16 and up to age 21, they had to be in school full time.
4. Widows/Widowers can now receive Survivors benefit if they are married for less than 1 year – the requirement before was at least 1 year.
5. Basic wages now include productivity pay for certain classes of workers. For example, drivers of water trucks, gas tanks etc. who are paid a flat fee and paid for every bottle of water or tank of gas sold. This means better coverage of their regular earnings.
6. Persons can now receive Old Age Non-Contributory Pension after getting a Retirement grant once they have exhausted the effective number months of assistance that the grant represented.

## Chapter 2 Assessment Of Performance & System Design

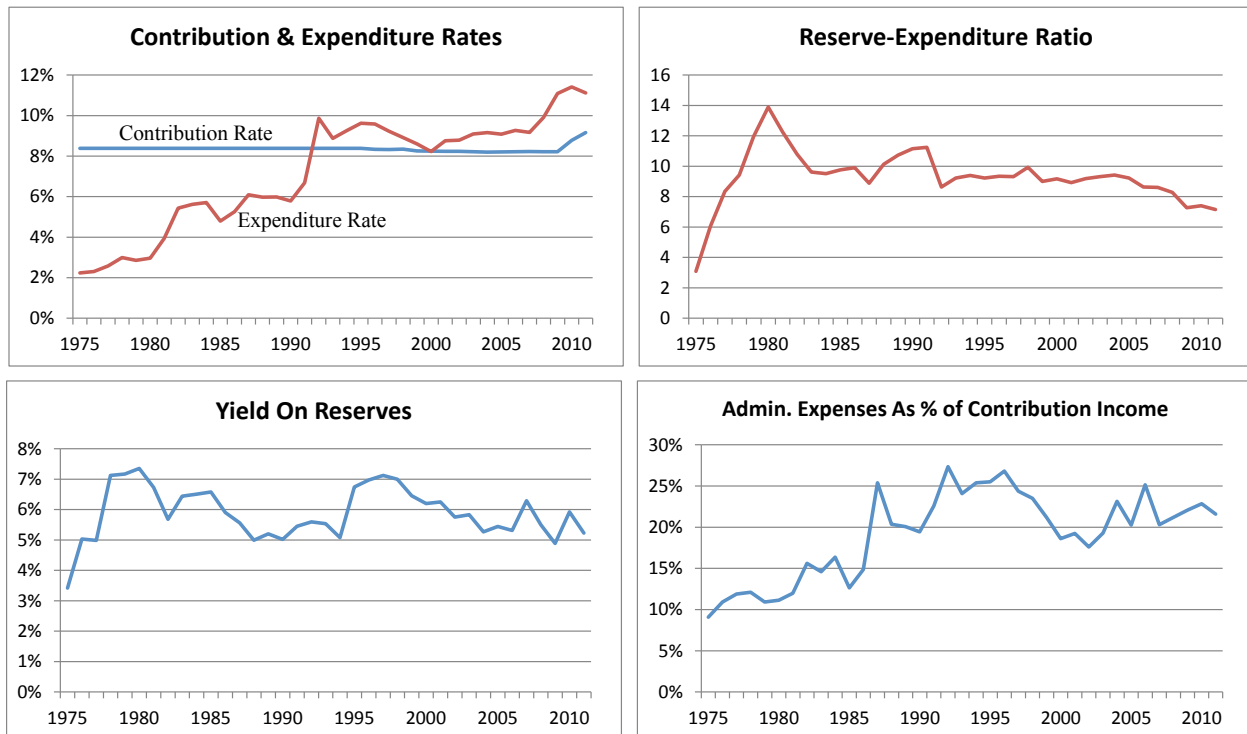
National social security systems must balance benefit adequacy with affordability and long-term sustainability. There is an obvious trade-off between these concepts:- higher benefits provide larger incomes to the elderly, invalid and widowed, but cost more. On the other hand, inadequate pensions result in pressures to increase benefits or add new ones. And when reforms designed to enhance long-term sustainability are continuously deferred, the adjustments required when reforms are eventually made will need to be drastic to both contributors and beneficiaries in order to materially impact sustainability.

While past trends for key financial ratios associated with sustainability and an analysis of rules and parameters associated with benefit adequacy are useful, the benefit rules that are likely to govern pension amounts 20 to 40 years from now also need to be assessed. This Chapter contains a review of past trends for key financial indicators, current design parameters and examines how well key policy objectives are being met.

### 2.1 Historical Performance, 1975 – 2011

Experience for key financial factors from 1975 to 2011 is presented in the following charts:

**Figure 2.1. National Insurance Experience**



As a social security system matures the patterns shown in the two upper charts are typical – total expenditure as a percentage of insurable wages gradually increases while the size of the reserve relative to annual expenditure decreases if the contribution rate is not increased. Both of these trends can be attributed to the number of pensioners increasing more quickly than the number of contributors and the average pension increasing at a faster rate than average insurable wages.

While the yield on reserves has been quite volatile in recent years, lower returns are expected following the ¾% reduction in the Bahamas Prime Rate in mid-2011, and the global low-interest rate environment. Most of the Fund’s investments are in some way tied to the Prime Rate. The ratio that remains contrary to expected trends relates to administrative costs. As NIB has grown and invested in technology, it has not been able to reduce operating costs, which during the past five years averaged 22% of contributions collected.

Following are values for several key indicators as of the dates of the 7<sup>th</sup>, 8<sup>th</sup> and 9<sup>th</sup> Actuarial Reviews along with a brief analysis of the changes that have occurred.

**Table 2.1. National Insurance Performance Indicators**

	2001	2006	2011	Comments
1. Avg. Contribution Rate	8.2%	8.2%	9.2%	Rates adjusted for first time in 2010.
2. Expenditure Rate	8.8%	9.3%	11.1%	Gradual increase expected. Gap between expenditure and contributions widening.
3. Benefits as % of GDP	1.8%	1.9%	2.4%	Gradual increase expected.
4. Reserve-Expenditure Ratio (total reserves)	8.9	8.7	7.1	Gradual decrease expected.
5. 5-year average nominal yield on reserves	6.6%	5.5%	5.6%	Little change in last 10 years.
6. 5-year average real yield on reserves (net of inflation)	5.1%	2.7%	3.3%	Inflation lower in most recent 5-year period.
7. Administrative Expenses (5-yr average) as:				Still very high - no change in past 15 years.
▪ % of Contributions	21%	21%	22%	
▪ % of Insurable Wages	1.8%	1.8%	1.8%	
8. # of Contributors Per Pension	5.3	5.4	4.7	Gradual decline expected.
9. Avg. Pension as % of Avg. Insurable Wage	22%	24%	27%	Gradual increase expected with larger increase in last 5 years due to pension adjustments.

Other than for administrative costs, all other experience is generally in line with design features and/or economic realities.

## 2.2 Meeting Policy Objectives

The National Insurance system is mandatory for all employed and self-employed persons. It has a defined benefit structure where the rules governing eligibility and the amounts payable are defined. Together, the rules and the amounts at which key parameters are set determine benefit adequacy. How well certain rules are enforced and how well the system is managed also impacts how well policy objectives are met.

The OECD in their report “OECD Pensions Outlook 2012” classified a national pension system’s primary objectives into six main categories as follows:

- *Coverage* looks at how well workers of all sectors are covered for income security in old age;
- *Adequacy* relates to the ability of pensions to provide a decent standard of living;
- *Financial sustainability* ultimately relates to the affordability of the system to future contributors and tax payers;
- *Work incentives* relate to pension systems having rules that do not encourage people to cease working but instead encourage them to remain employed longer;
- *Administrative efficiency* relates to keeping operating and management costs as low as possible; and
- *Diversification* relates to income security in old age coming from various sources with different financing mechanisms.

To determine how well these objectives are now being met, and how likely they are to be met in the future, an analysis of current contribution and benefit provisions, key rates and parameters as well as actual performance indicators have been reviewed. While some mention is made of Short-term and Industrial benefits, this analysis focuses primarily on pensions which account for 80% of NIB benefit expenditure.

### 2.2.1 Coverage

With NIB participation mandatory for all employed and self-employed persons, coverage concerns relate to actual participation rates by formal and informal sector workers and the proportion of elderly residents receiving an NIB pension. The following three rates provide a fairly good analysis of current coverage levels:

- |  |     |
|--|-----|
| a) % of workers contributing regularly to (covered by) the NIB     | 75% |
| b) % of the elderly resident population who receive an NIB pension | 80% |
| c) % of workers that have their wages fully covered by NIB         | 85% |



There have been significant enhancements to income coverage in 2010 and 2012 given the two ceiling adjustments and future adjustments every 2 years. While there remains room for improvement regarding the number of employed persons contributing, the percentage of self-employed making contributions still remains very low at just under 30%, a significant improvement, however, since the last Review when the rate was 19%.

As shown on the previous page, NIB pensions (contributory or non-contributory) are currently being received by around 80% of the Bahamian population that is 65 and over. After almost 40 years of existence this level of pension coverage is good.

The current ceiling of \$600 per week, \$2,600 per month or \$31,200 per annum, is slightly above the estimated average national wage. By international social security standards this ceiling now provides adequate income coverage to almost all workers.

For the elderly poor, the Assistance pension which is now fully financed by the NIF provides income support to those who do not qualify for a contributory pension. There are over 4,000 elderly persons who receive this pension.

In addition, some workers, especially those in the public service and financial sector, may also be covered by employer pension plans. It is estimated that just under 30% of workers in The Bahamas are enrolled in private plans.

In total, NIB provides a reasonably good level of coverage to the working and elderly population but compliance challenges with small businesses and self-employed persons remain.

### **2.2.2 Adequacy**

Benefit Adequacy can be broken down into two components:

- Current adequacy: Are pensions adequate today?
- Future adequacy: Given current provisions, will the pension be adequate in the future?

#### ***Current Adequacy***

The minimum contributory pension in 2012/13 is \$301 per month, approximately 20% of the average insurable wage. This is an acceptable minimum pension replacement rate. Although the actual dollar amount may be considered small by some, this level of income replacement provides an adequate level of protection to the elderly. This minimum pension is also applicable to Survivor spouse pensions even though the regular spouse pension is only 50% of the amount to which the deceased person would have been entitled. The biennial adjustments to the minimum rate and all pensions in payment, provides further support to maintaining benefit adequacy.

For pensioners receiving more than the minimum, their pension replacement rates are initially between 30% and 60% of their final average insurable wage, lower for highly paid persons. Given that they now receive regular pension adjustments, their benefits can also be considered adequate.

Although the recent increase in the number of contributions required for a retirement pension from 3 years to 10 years may be seen as negatively affecting adequacy, residents of The Bahamas who fail to qualify for the contributory Retirement benefit may qualify for a means-tested pension. And while there are some weaknesses in the means test, there remains adequate protection for lower income seniors.

### ***Future Adequacy***

A worker who has steady earnings below the wage ceiling and contributes to the NIB for a full career sustaining himself/herself predominantly from his employment earnings, can expect a pension of close to 60% of pre-retirement earnings from NIB. By ILO and other international standards this is quite high and thus meets reasonable tests of benefit adequacy. The challenge quite often, especially for the self-employed, is that many workers do not have steady wages and do not consistently work and contribute for 35 or 40 years.

Biennial ceiling adjustments and pension adjustments will ensure benefit adequacy both at the time of award and throughout the pension payout period as the pension maintains its initial purchasing power. The uncertainty of future benefit adequacy, therefore, relates only to those who have employment earnings well in excess of the wage ceiling and those who fail to contribute for at least 10 years.

When compared with targeted replacement rates for mandatory social security pensions in OECD countries, NIB Bahamas provides relatively high replacement rates. The significant difference between pensions in old age in the Bahamas compared with OECD countries is the additional pensions that most in OECD countries can look forward to – state means-tested pensions to those at the lower end of the income scale and private pensions (employment linked or personal) for others. Given the low level of private pension participation and personal long-term savings by workers in the Bahamas, the NIB pension will not be sufficient to meet all of the income needs to the majority of retired persons.

The NIB pension is not intended to provide all of the income required to support oneself in old-age. Based on the above, current NIB contribution and benefit provisions provide pensions in old-age that meet reasonable tests of future benefit adequacy.

When non-pension benefits are considered, the recent addition of Unemployment benefit has resulted in full income protection for all contingencies that lead to involuntary loss of employment income.

## **Financial Sustainability**

Assessing the sustainability of a national pension system is complicated. Given the perpetual nature of these systems, the rules that apply to private pensions systems are not appropriate. Therefore, whether current reserves plus future contributions at the current contribution rate are sufficient to meet future expenditure should not be used to determine long-term sustainability. Instead, assessing sustainability involves looking at the cost of the system now and in the future, and considering whether or not employers and workers in the future will be able to afford the cost. A definition of financial sustainability that has become widely used in social security discussions is whether the pension system is able to meet the needs of current generations without compromising the needs to future generations.

By design, the NIF is partially funded and the current contribution rate is inadequate to meet future benefits. However, with higher contribution rates in the future, it is expected that expenditure will be met from a combination of current contributions and reserves.

It is not possible to determine today the highest contribution rate that workers and employers will be able to afford, or willing to pay, twenty to thirty years from now. With reserves not growing as fast as they have in previous years, and reduced rates of return on investments in this new low interest rate environment, contributions will have to account for the greater portion of future NIF income.

Based on regional and international comparisons, the NIB provides a relatively generous benefits package for a low contribution rate and thus its financial sustainability often comes into question. The key challenge for NIB regarding financial sustainability is determining when will be the right time to increase the contribution rate. Key risks associated with growing the Fund that could affect long-term sustainability are continued high operating costs, low investment returns, imprudent use of reserves for non-NIB purposes and the lack of political will to implement meaningful reforms in the future.

## **Work Incentives**

Implicit incentives and disincentives to either remain working or claim Retirement benefit are found in both its eligibility conditions and the manner in which the benefit amount is calculated. The specific factors that could influence work decisions are:

- Reduced benefits if awarded between the ages of 60 and 65;
- No pension payable under age 65 if employment income exceeds 50% of the wage ceiling; and
- Increased benefits if awarded after age 65.

The recent reduction in the age at which workers can earn high wages and still receive NIB Retirement benefit from 70 to 65 is contrary to pension reforms being made around the world. However, the recent change in reduction factors from 4% to 7% for each year that the benefit

starts before age 65 offsets some of the extra payments now being made to persons who remain employed and claim the benefit after age 65.

### **Administrative Efficiency**

The NIB continues to be a very inefficiently run organisation with 22% of contributions, or 2% of total insurable wages, going towards operating expenses. (See Section 5.4.2 for costs in several other countries.) Approximately 70% of operating costs are staff related. While the staff compliment has actually increased over the 5-year review period, with further increases occurring in 2012, the Board is in the process of implementing a new Information Technology system designed to operate with a smaller staff complement. While this new system offers immense opportunities to improve service delivery, it will not be a financially feasible investment unless there is a significant reduction in staff.

In recent years several new initiatives were put in place to improve administrative efficiency. These include:

- The Med-4 form which requires an employer to certify the period an employee is off from work, resulted in a significant reduction in Sickness benefit claims after being introduced in 2009.
- Strict adherence to the rules for payment of Medical Care and Disablement pensions resulted in a reduction in Medical Care costs and Disablement pension payments.
- Closer relationship with the Ministry of Finance, specifically re Business Licenses, where an NIB Letter of Good Standing is now required for the renewal of annual licenses, has boosted compliance.

### **Diversification Security**

Having more than one source of income enhances one's confidence for being able to live comfortably in old age. With less than 30% of the workforce participating in private pension plans, and a much smaller percentage having other forms of retirement savings, a pension from the NIB is the only source of regular income for the majority of the elderly population. Ideally, there should be at least one other source of income in old age that is financed differently and possibly administered differently. Examples of other sources of income in old age found around the world include:

- State pensions for the elderly – tax financed
- Registered – individual plans with preferential tax treatments
- Mandatory savings plans – individual or employment linked and privately administered.

Recommendations relating to each of these national pension policy objectives are presented in Chapter 5.

## 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 costs and sustainability, projections of The Bahamas' 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 labelled "Optimistic" and "Pessimistic", given the implications for future NIF finances. Results of these projections are presented in Chapter 4.

### 3.1 Population Projections

#### 3.1.1 Assumptions

Projections of The Bahamas' population begin with the results of the 2010 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 The Bahamas and is the most volatile of the three factors. The 2010 population census placed The Bahamas' population at 351,461.

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. The Bahamas TFR was estimated at 1.94 in 2010 having averaged 1.98 between 2000 and 2010. For these projections it is assumed that TFR's in The Bahamas will remain below replacement level, falling to an ultimate rate of 1.8 in 2020.

Using mortality rates from The Bahamas Abridged Life Tables, 1999-2001, current population estimates and the number of deaths in the past few years suggest life expectancy at birth in 2011 of around 71 for males and 77 for females. Improvements in life expectancy are assumed to occur in accordance with UN estimates.

The third factor that affects population size is migration. This is the most volatile and most difficult to measure. Using the 2000 and 2010 census counts, and reported births and deaths between censuses, implied net in-migration between 2000 and 2010 is estimated at around 1,200 per annum.

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 for this and the previous Review. Further details may be found in Appendix B.

**Table 3.1. Principal Demographic & Economic Assumptions**

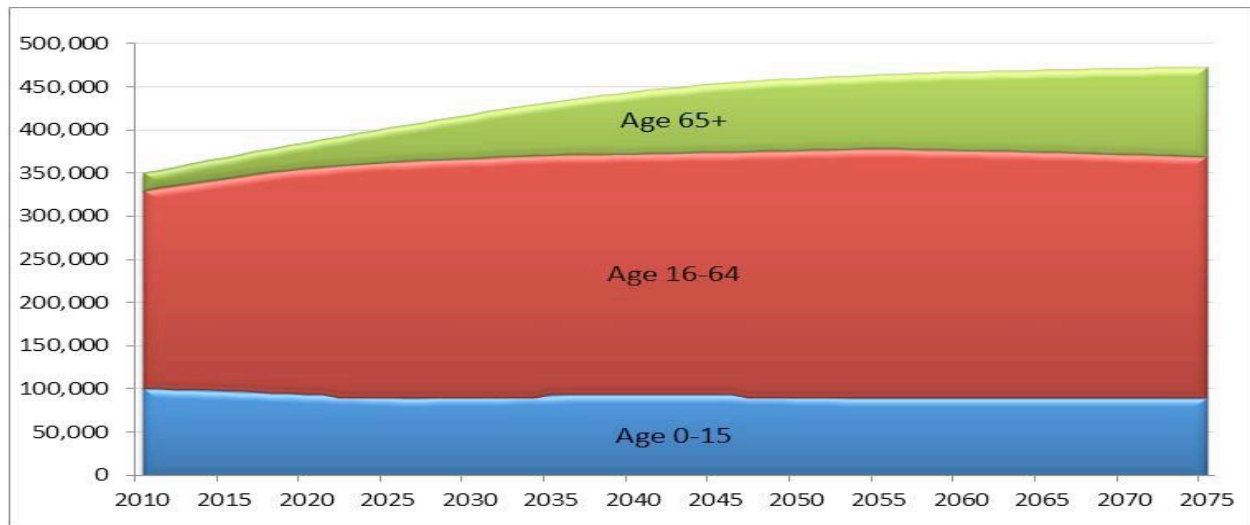
		9 <sup>th</sup> Actuarial Review	8 <sup>th</sup> Actuarial Review
<b>Total Fertility Rate</b>		1.94 in 2010 decreasing to 1.80 in 2020	2.0 in 2000 decreasing to 1.75 in 2020
<b>Mortality Improvements<sup>^</sup></b>		Slow	Slow
<b>Net In-Migration Per Annum</b>		500 decreasing to 450 in 2030, to 400 in 2040, constant thereafter	500 in all years
<b>Real GDP Growth Rates</b>	Short-term	2.50%	3.10%
	Med.-term	2.00%	2.50%
	Long-term	1.25%	1.25%
<b>Real Increase in Wages</b>		0.75%	1.0%
<b>Inflation</b>		2.50%	2.75%

<sup>^</sup> UN mortality improvement rates

### 3.1.2 Projection Results

From the 2010 Census population of 351,461 and with the above assumptions, The Bahamas' population is projected to increase to over 470,000 in the mid-2060's,

**Figure 3.1. Projected Bahamas Population (*Best-Estimate* scenario)**



For NIB, while projected future population size is important, the age distribution is more critical, as pensions to the elderly represent the bulk of expenditure and contributions will be paid by those in the working-age groups. For the projections under these best-estimate assumptions, the anticipated ageing pattern is highlighted in Table 3.2 which shows the age distribution of the population and ratio of the number of working-age people for each person of pension age. This ratio is projected to decrease from 10.6 in 2010 to 2.6 in 2075.

**Table 3.2. Projected Population, 2010 to 2071**

Year	Total	Age 0 - 15	Age 16 - 64	Age 65 & over	Ratio of Persons 16-64 To 65 & Over
<b>2010</b>	351,461	100,735	229,038	21,688	10.6
<b>2015</b>	369,944	97,939	246,288	25,717	9.6
<b>2020</b>	387,020	94,273	261,236	31,511	8.3
<b>2025</b>	403,230	90,912	271,992	40,326	6.7
<b>2030</b>	418,703	91,072	275,734	51,897	5.3
<b>2035</b>	432,626	92,707	277,606	62,313	4.5
<b>2040</b>	443,885	93,502	277,460	72,923	3.8
<b>2045</b>	452,095	92,532	279,593	79,969	3.5
<b>2055</b>	460,821	88,501	285,405	86,915	3.3
<b>2065</b>	464,203	87,546	280,771	95,886	2.9
<b>2075</b>	464,716	87,103	273,444	104,168	2.6

## 3.2 National Insurance Projections

*Best Estimate* National Insurance Fund demographic and financial projections have been modelled using the best-estimate population results, best estimate NI-specific assumptions and the contribution and benefit provisions that were in place on January 1, 2012, with provisions made for the amendments that took effect in July 2012. Automatic biennial adjustments to the wage ceiling and pensions have been assumed.

### 3.2.1 Assumptions

Key National Insurance assumptions are shown below.

**Table 3.3. National Insurance *Best Estimate* Assumptions**

	9 <sup>th</sup> Review	8 <sup>th</sup> Review
<b>Avg. Contribution Rate*</b>	9.2% up to June 2013, 9.75% thereafter	8.43% in all years
<b>Insurable Wage Ceiling increases</b>	7% every 2 years	From \$400 p.w. to \$600 in 2009 then annually by inflation +1%
<b>Short-term Benefits</b>	Increases from 1.45% to 1.5% of insurable wages over 20 years	Increases from 1.1% to 1.25% of insurable wages over 60 years
<b>Employment Injury Benefits</b>	Increases from 0.4% to 0.5% of insurable wages over 20 years	Increases from 0.45% to 0.55% of insurable wages over 60 years
<b>Pension Increases</b>	5.0% every 2 years	Annually by price inflation
<b>Long-term Yield on Reserves</b>	4.5%	5.0%
<b>Admin. Expenses as a % of Insurable Wages</b>	2.0% of Insurable wages	Decrease from 1.25% to 1.0% of Insurable wages over 20 years
<b>Other Expenses</b>	0.4% of insurable earnings	0.08% of insurable earnings
<b>New Assistance Pensions</b>	Decreasing from 270 to 130 per annum over 10 years	75 females and 50 males per annum

\*Pensionable civil servants contribute at a lower rate on wages above \$110 per week until June 2013

With the recently introduced automatic wage ceiling and pension adjustments, it is being assumed that the prevailing level of coverage and income security made possible by the wage ceiling and the minimum pension will be generally maintained throughout the projection period.



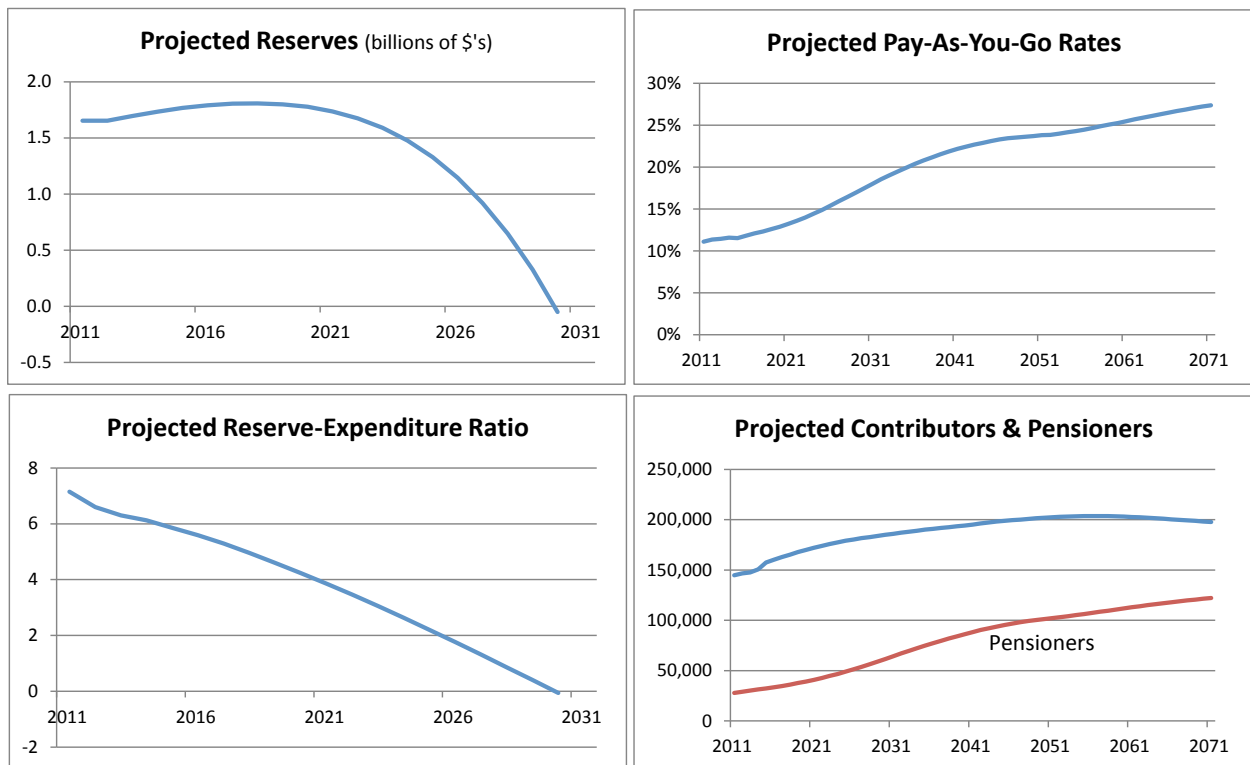
### 3.2.2 Projection Results

For accounting purposes, NIF finances are separated into the Short-term, Industrial, Pensions and Medical Benefits 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 of the four branches have been consolidated so that the complete financial picture may be shown.

It should be noted that reserves of the Medical Benefits Branch (MBB) are not expected to be available for the payment of benefits. However, in 2009 when Unemployment benefit was added to the benefits package, \$20 million was transferred from the MBB to the Short-term Benefits Branch and since 2011, expenses of the National Prescription Drug Plan have been met by the MBB. For the sake of easy comparison with financial statements and actual experience, these projections encompass the full NIF, including the MBB. The December 2011 (starting-point) reserves used for these projections is \$1.65 billion. Due to a change in accounting standards and the staff pension plan being in a deficit position, reserves at the end of 2012 have been adjusted downwards by \$40 million.

The charts in Figure 3.2 highlight 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. Expenditure will continue to exceed contribution each year.
2. The first cash flow deficit (total expenditure exceeds total income) will occur in 2019.
3. Reserves are projected to be exhausted in 2030.
4. In 2030 when reserves are exhausted, annual expenditure relative to total insurable wages (pay-as-you-go rate) will be 17.5%. The contribution rate will therefore have to be increased to this level to meet total expenditure.
5. The pay-as-you-go rate will increase to just over 27.4% in 2071.
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 20.0%
7. The number of contributors for each pension in payment is expected to fall from 4.4 in 2011 to 1.6 in 2071.

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	Other Expenses	Total	Surplus/ (Deficit)	End of Year	# of times current year's expenditure
<b>2007</b>	155.3	88.5	5.1	<b>249.0</b>	139.5	31.5	2.2	<b>173.2</b>	<b>75.7</b>	<b>1,492</b>	8.6
<b>2008</b>	154.9	80.9	5.2	<b>240.9</b>	152.1	32.8	1.7	<b>186.6</b>	<b>54.3</b>	<b>1,546</b>	8.3
<b>2009</b>	159.6	71.8	5.2	<b>236.6</b>	178.7	35.2	1.5	<b>215.5</b>	<b>21.1</b>	<b>1,568</b>	7.3
<b>2010</b>	167.5	90.2	2.5	<b>260.2</b>	176.0	38.2	3.5	<b>217.7</b>	<b>42.6</b>	<b>1,611</b>	7.4
<b>2011</b>	190.5	82.9	0.3	<b>273.7</b>	183.8	41.1	6.3	<b>231.3</b>	<b>42.4</b>	<b>1,653</b>	7.1
<b>2012</b>	202.9	88.8	0.3	<b>292.1</b>	199.1	43.4	8.4	<b>250.8</b>	<b>41.3</b>	<b>1,655</b>	6.6
<b>2013</b>	223.2	85.7	0.3	<b>309.3</b>	212.2	47.7	8.9	<b>268.9</b>	<b>40.4</b>	<b>1,695</b>	6.3
<b>2014</b>	237.9	83.7	0.4	<b>321.9</b>	224.4	49.5	9.3	<b>283.2</b>	<b>38.8</b>	<b>1,734</b>	6.1
<b>2015</b>	255.2	81.3	0.4	<b>336.9</b>	239.1	53.0	9.9	<b>302.1</b>	<b>34.8</b>	<b>1,769</b>	5.9
<b>2016</b>	264.5	78.4	0.4	<b>343.2</b>	255.4	54.9	10.3	<b>320.5</b>	<b>22.7</b>	<b>1,791</b>	5.6
<b>2017</b>	275.2	79.2	0.4	<b>354.7</b>	273.5	57.0	10.7	<b>341.2</b>	<b>13.6</b>	<b>1,805</b>	5.6
<b>2018</b>	288.9	79.5	0.4	<b>368.9</b>	294.0	59.8	11.3	<b>365.0</b>	<b>3.9</b>	<b>1,809</b>	5.3
<b>2019</b>	303.0	79.5	0.5	<b>382.9</b>	317.0	62.6	11.8	<b>391.4</b>	<b>(8.4)</b>	<b>1,801</b>	5.0
<b>2020</b>	317.5	78.8	0.5	<b>396.8</b>	342.0	65.5	12.4	<b>419.8</b>	<b>(23.1)</b>	<b>1,777</b>	3.8
<b>2021</b>	332.2	77.4	0.5	<b>410.1</b>	369.7	68.4	12.9	<b>451.1</b>	<b>(41.0)</b>	<b>1,736</b>	(0.5)
<b>2026</b>	411.6	54.5	0.6	<b>466.7</b>	550.0	84.4	16.0	<b>650.5</b>	<b>(183.8)</b>	<b>1,675</b>	(1.0)
<b>2031</b>	503.6	(11.8)	0.8	<b>492.6</b>	809.0	103.3	19.6	<b>931.9</b>	<b>(439.3)</b>	<b>1,590</b>	(1.5)
<b>2036</b>	613.7	(147.6)	0.9	<b>467.0</b>	1,133.5	125.9	23.9	<b>1,283.3</b>	<b>(816.3)</b>	<b>1,476</b>	(2.0)
<b>2041</b>	742.6	(380.5)	1.1	<b>363.2</b>	1,507.1	152.3	28.9	<b>1,688.4</b>	<b>(1,325.1)</b>	<b>1,476</b>	(2.4)
<b>2046</b>	898.4	(741.9)	1.4	<b>157.8</b>	1,927.2	184.3	35.0	<b>2,146.5</b>	<b>(1,988.7)</b>	<b>1,329</b>	(2.9)
<b>2051</b>	1,082.8	(1,267.8)	1.7	<b>(183.3)</b>	2,380.5	222.1	42.2	<b>2,644.8</b>	<b>(2,828.1)</b>	<b>1,329</b>	(2.4)
<b>2061</b>	1,545.9	(3,045.8)	2.4	<b>(1,497.5)</b>	3,664.0	317.1	60.2	<b>4,041.3</b>	<b>(5,538.9)</b>	<b>1,146</b>	(2.9)
<b>2071</b>	2,184.3	(6,457.9)	3.4	<b>(4,270.2)</b>	5,598.2	448.1	85.1	<b>6,131.4</b>	<b>(10,401.6)</b>	<b>920</b>	(3.4)

*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:	
	Retirement	Invalidity	Survivors	Assistance Pensions	Short-term	Industrial	Insurable Wages	GDP
<b>2006</b>	57.9	9.2	10.8	15.0	20.5	11.4	6.9%	1.6%
<b>2007</b>	68.4	9.8	12.3	16.2	21.1	11.6	7.4%	1.7%
<b>2008</b>	74.9	10.3	13.3	16.7	22.1	14.8	8.1%	1.8%
<b>2009</b>	82.0	10.6	13.9	16.4	41.5	14.2	9.2%	2.3%
<b>2010</b>	90.3	11.4	14.1	16.1	29.4	14.6	9.2%	2.3%
<b>2011</b>	99.7	12.2	15.3	16.1	28.9	11.5	8.8%	2.4%
<b>2012</b>	108.5	13.1	16.9	16.1	31.9	12.2	9.0%	2.5%
<b>2013</b>	118.4	13.8	17.6	15.6	34.1	13.4	9.0%	2.5%
<b>2014</b>	126.9	14.6	18.6	15.5	35.5	14.1	9.2%	2.5%
<b>2015</b>	136.1	15.4	19.5	15.5	38.2	15.1	9.1%	2.5%
<b>2016</b>	148.2	16.3	20.6	15.5	39.6	15.9	9.4%	2.6%
<b>2017</b>	161.8	17.3	21.6	15.6	41.3	16.8	9.7%	2.6%
<b>2018</b>	177.1	18.4	22.5	15.7	43.4	17.8	9.9%	2.7%
<b>2019</b>	194.7	19.6	23.4	15.8	45.6	18.9	10.2%	2.8%
<b>2020</b>	214.2	20.8	24.2	15.9	47.9	20.1	10.5%	2.9%
<b>2021</b>	236.2	22.2	25.0	15.9	50.2	21.3	10.9%	3.0%
<b>2031</b>	602.6	39.9	37.1	17.5	77.4	36.4	15.7%	4.2%
<b>2041</b>	1,197.1	63.4	59.4	20.4	114.2	55.2	19.8%	5.3%
<b>2051</b>	1,920.0	97.8	93.9	24.3	166.6	82.0	21.4%	5.8%
<b>2061</b>	2,988.5	153.1	140.4	29.3	237.8	120.6	23.1%	6.1%
<b>2071</b>	4,631.8	226.8	202.5	36.2	336.0	173.2	25.0%	6.5%

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

Year	# of Contributors	# of Pensioners In Payment					Total # of Pensioners	Ratio of Contributors to Pensioners
		Retirement	Invalidity	Survivors	Assistance	Death & Disablement		
<b>2006</b>	143,004	13,895	2,090	5,334	6,271	573	<b>28,163</b>	<b>5.1</b>
<b>2007</b>	148,270	14,439	2,071	5,385	5,960	586	<b>28,441</b>	<b>5.2</b>
<b>2008</b>	148,142	15,240	2,092	5,685	5,881	609	<b>29,507</b>	<b>5.0</b>
<b>2009</b>	145,560	16,796	2,171	5,910	5,772	646	<b>31,295</b>	<b>4.7</b>
<b>2010</b>	146,282	17,378	2,162	5,705	5,455	674	<b>31,374</b>	<b>4.7</b>
<b>2011</b>	145,293	18,419	2,300	6,470	5,297	573	<b>33,060</b>	<b>4.4</b>
<b>2012</b>	146,596	19,302	2,374	6,630	5,063	732	<b>34,101</b>	<b>4.3</b>
<b>2013</b>	147,533	20,126	2,442	6,889	4,871	754	<b>35,081</b>	<b>4.2</b>
<b>2014</b>	150,595	20,866	2,499	7,178	4,726	772	<b>36,041</b>	<b>4.2</b>
<b>2015</b>	157,576	21,582	2,549	7,441	4,610	789	<b>36,972</b>	<b>4.3</b>
<b>2016</b>	160,252	22,444	2,601	7,682	4,511	806	<b>38,044</b>	<b>4.2</b>
<b>2017</b>	162,877	23,464	2,662	7,861	4,420	826	<b>39,233</b>	<b>4.2</b>
<b>2018</b>	165,340	24,629	2,732	7,994	4,333	846	<b>40,535</b>	<b>4.1</b>
<b>2019</b>	167,757	25,940	2,810	8,071	4,248	869	<b>41,938</b>	<b>4.0</b>
<b>2020</b>	170,003	27,342	2,893	8,105	4,161	892	<b>43,393</b>	<b>3.9</b>
<b>2021</b>	172,075	28,894	2,979	8,116	4,071	916	<b>44,976</b>	<b>3.8</b>
<b>2031</b>	186,046	50,954	3,849	8,425	3,476	1,160	<b>67,863</b>	<b>2.7</b>
<b>2041</b>	195,209	73,298	4,448	9,313	3,164	1,336	<b>91,559</b>	<b>2.1</b>
<b>2051</b>	202,343	85,657	4,928	10,143	2,924	1,479	<b>105,131</b>	<b>1.9</b>
<b>2061</b>	202,774	95,228	5,439	10,674	2,751	1,626	<b>115,718</b>	<b>1.8</b>
<b>2071</b>	197,794	104,013	5,670	10,809	2,647	1,692	<b>124,829</b>	<b>1.6</b>

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-rates, which represent 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 and, where applicable, financing shortfall, 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 20.0%.

### 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 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 wages. 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 2012 – 2071** (\$'s are in millions)

	<b>2011 Year-end Reserves</b>	1,653
Plus	<b>PV of Future Contributions</b>	11,588
Minus	<b>PV of Future Expenditure</b>	23,787
Equal	<b>PV of Surplus/(Shortfall)</b>	(10,546)
	<b>Actuarial Balance</b> (% of Insurable Earnings)	(8.9%)
	<b>Actuarial Balance</b> (% of GDP)	135%

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 8.9% indicates that the contribution rate would have to be increased to 18.7% for the entire period in order for reserves to last up to 2071.

### 3.3 Comparison With Results Of 8<sup>th</sup> Actuarial Review

The projection results presented earlier in this chapter differ from those of the 8<sup>th</sup> Actuarial Review as shown in the following table:

**Table 3.8. Summary Results – 8<sup>th</sup> & 9<sup>th</sup> Actuarial Reviews**

	<i>9<sup>th</sup> Actuarial Review</i>	<i>8<sup>th</sup> Actuarial Review</i>
<b>Expenditure First Exceeds Total Income</b>	2019	2022
<b>Reserves Depleted</b>	2030	2032
<b>General Average Premium</b>	20.0%	17.0%
<b>Pay-as-you-go rate in 2066</b>	26.5%	28.4%

While there has been little change in key medium term results, pay-as-you rates are lower while the general average premium is higher. These differences can be attributed to the following:

- Fund performance between 2007 and 2011 was lower than expected (2011 reserve lower by \$201 million).
- Amendments to Retirement and Survivor benefit rules (see Section 3.4 below).
- More optimistic population size results in larger projected income.
- ½% reduction in long-term yield on reserves and discounting rate has significant effect on present values and general average premium calculations.

### **3.4 Effect of Retirement Benefit Reforms**

Extensive changes were made to contribution and benefit provisions in 2010 and again in 2012. The changes to Retirement benefit with greatest financial effect were:

- Number of weekly contributions required for Retirement benefit increased from 150 to 500 (reduced cost)
- Number of years of insurable wages averaged increased from 3 to 5 (reduced cost)
- Lower accrual of pension replacement rates so that the maximum 60% is now attained after 40 years of contributions instead of 35 (reduced cost)
- Elimination of average insurable wage adjustment for higher income insureds (increased cost)
- Change in reduction factors for early pension from 4% to 7% per year and introduction of increased factors for awards after age 65 (reduced cost)

As shown in table 3.9, the overall net effect of the changes was positive with a significant reduction in long-term costs.

**Table 3.9. Summary Results – Effect of Recent Reforms**

	<i>Post-reform Provisions</i>	<i>Pre-Reform Provisions</i>
<b>Expenditure First Exceeds Total Income</b>	2019	2018
<b>Reserves Depleted</b>	2030	2028
<b>General Average Premium</b>	20.0%	23.4%
<b>Pay-as-you-go rate in 2071</b>	27.4%	33.4%

### 3.5 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 compliance, yield on reserves and level of administrative costs 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 3.10. Sensitivity Tests – National Insurance Factors**

<b>Assumption</b>	<b>Differs From Best Estimate</b>	<b>Pay-as-you-Go Rate in 2041</b>	<b>General Average Premium</b>
<b>Best Estimate</b>		22.2%	20.0%
<b>Contribution Collections</b>	+2.0%	21.8%	19.7%
	-2.0%	22.6%	20.4%
<b>Long-term Yield on Reserves (4.5%)</b>	+0.5%	22.2%	19.6%
	-0.5%	22.2%	20.4%
<b>Administrative Costs (Instead of 2.0% in 10 years)</b>	1.5%	21.7%	19.6%
	2.5%	22.7%	20.5%

As shown above, the long-term costs of National Insurance benefits could be reduced by a few basis points if collections are greater than assumed, operating costs are reduced more than assumed and yields on reserves are greater than assumed.



## Chapter 4 Alternative Scenarios

*Best Estimate* projections up to 2071 presented in the previous chapter provide estimates of future National Insurance Fund 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 long-term sustainability will likely be more sensitive to future population growth and economic development than NIB-specific factors such as compliance rates and operating costs, the basis for the alternative scenarios also focus on differences in population and economic outlooks. The *Optimistic* scenario will therefore represent one with a larger economy with higher wages, lower pensions, better contributions compliance and higher investment returns. The *Pessimistic* scenario on the other hand will have a smaller population with lower wages and larger pensions, lower contributions compliance and lower investment returns.

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

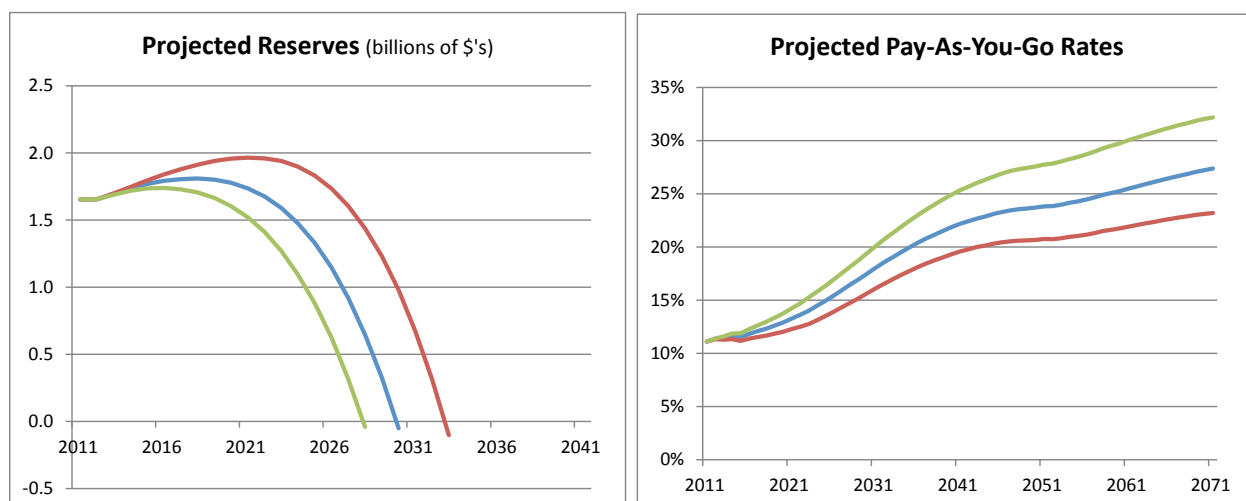
**Table 4.1. Principal Demographic, Economic & National Insurance Assumptions**

	<i>Optimistic</i>	<i>Best Estimate</i>	<i>Pessimistic</i>
<b>Ultimate Total Fertility Rate</b>	1.90	1.80	1.70
<b>Mortality Improvements<sup>^</sup></b>	Very Slow	Slow	Medium
<b>Net (In) Migration Per Annum</b>	125% of <i>Best Estimate</i>	500 down to 450 in 2030, to 400 in 2040, constant thereafter	75% of <i>Best Estimate</i>
<b>Ultimate Real GDP Growth</b>	Short-term	3.50%	3.10%
	Med.-term	2.50%	2.25%
	Long-term	1.50%	1.25%
<b>Real Increase In Wages (p.a.)</b>	1.0%	0.8%	0.6%
<b>Inflation (p.a.)</b>	2.25%	2.5%	2.75%
<b>Collection Of Contributions</b>	+2%	-	-2%
<b>Long-term Yield on Reserves</b>	5.0%	4.5%	4.0%
<b>Ultimate STB as % of Ins. Wages</b>	1.4%	1.5%	1.6%
<b>Ultimate IB as % of Ins. Wages</b>	0.45%	0.5%	0.55%
<b>Ultimate Admin. Cost as % of Ins. Wages</b>	1.5%	2.0%	2.5%

<sup>^</sup> 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 such as contribution collection rates, yield on investments and administrative costs.

**Figure 4.1. Projection Results – All Scenarios**



**Table 4.2. Summary Results – All Scenarios**

	<i>Optimistic</i>	<i>Best Estimate</i>	<i>Pessimistic</i>
<b>Expenditure First Exceeds Total Income</b>	2022	2019	2017
<b>Reserves Depleted</b>	2033	2030	2028
<b>General Average Premium</b>	17.5%	20.0%	23.1%
<b>Pay-as-you-go rate in 2041</b>	19.6%	22.2%	25.3%
<b>Pay-as-you-go rate in 2071</b>	23.2%	27.4%	32.2%
<b># of Contributors per pensioner – 2071</b>	1.7	1.6	1.4
<b>Actuarial Balance (% of Ins. Earnings)</b>	(6.2%)	(8.9%)	(12.1%)
<b>Actuarial Balance (% of GDP)</b>	89%	135%	195%

## Chapter 5 Balancing Adequacy & Sustainability

By design, National Insurance pension obligations are 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 given their expected perpetual life. With funding levels expected to gradually deteriorate and pay-as-you-go rates gradually increase to around 25% further changes to NIB contribution and benefit rules will be required. In today's environment, a 25% contribution rate appears unaffordable. Therefore, further reforms aimed at reducing long-term costs and increasing the contribution rate will have to be considered. These changes will serve to reduce the level of contributions that will have to be levied on future generations of workers.

Many national pension systems in the Caribbean and across the world have, or are in the process of, reforming their national pension systems. Enhancing financial sustainability is often the primary motive of such reforms but this has been achieved at the expense of benefit adequacy. Common reforms designed to enhance financial sustainability include:

- (i) Increasing the normal pension age,
- (ii) Reducing benefit promises,
- (iii) Changing the method of benefit indexation,
- (iv) Not awarding retirement pensions unless retired or substantially retired,
- (v) Increasing the contribution rate, and
- (vi) Change in investments strategy.

Of these typical reforms items (ii), (iii) and (v) were part of the extensive reforms to NIB contribution and benefit rules made in the last few years. While the normal pension age was not changed, the reduction in the age at which pensioners could work for high wages and still collect their pension from 70 to 65 was contrary to common reform measures.

The remainder of this Chapter provides recommendations for further changes to contributions and benefit provisions where gaps still exist. These recommendations are separated into the six primary objectives of national pension systems presented in Chapter 2.

### 5.1. Coverage

#### 5.1.1 Multiple Employment

While recent reforms will lead to the closure of coverage gaps for pensionable civil servants and workers in the hospitality sector, employed persons with more than one job remain inadequately covered. Contribution regulations require only the primary employer to

contribute and so those with two or more employers may not have their total earnings covered. As a result, should they get sick or when they retire their benefits will not be related to their combined regular income.

It is therefore recommended that all employers be required to pay for all employees. Where the total wages on contributions are paid in any given year exceeds the annual wage ceiling, appropriate refunds could be made to the employee as well as all associated employers. NIB's soon-to-be installed IT system should be able to handle such refund calculations quite easily.

Where an individual is employed but also works as a self-employed person, he or she should be given the option as to whether they wish to maximize their insurance coverage by also contributing as a self-employed person. This will also ensure that they are covered for industrial benefits, if hurt, while performing self-employed activities.

### **5.1.2 Self-employed Persons**

Of the estimated 23,000 self-employed persons in The Bahamas, just under 30% made contributions in the past year. One complaint often heard from self-employed persons and informal sector workers is the complexity (same C-10 form as for employers) involved with making NIB contributions.

A system whereby someone can make flexible, lump sum payments, or in other words, "put money on their account," as their earnings and needs allow should be considered for such workers. This will also require the creation of a method for converting accumulated contributions into annual insurable wages and contribution weeks or alternatively into a pension amount at the time of retirement.

## **5.2. Benefit Adequacy**

### **5.2.1 Unemployment benefit**

While there have been a few difficulties in the smooth administration of the new unemployment benefit, the rules governing eligibility, payment amounts and payment durations have worked fairly well. As experience warranted, a few changes were made to enhance these rules but the provision that results in the start date of the benefit being deferred by any redundancy payments still exists. It is recommended that this provision be removed.

Redundancy payments are designed to compensate a worker who was made redundant for his past service and therefore should not affect the payment of unemployment benefits. A review of unemployment benefit rules in the United States, Canada, United Kingdom and Barbados reveals that redundancy payments do not affect such payments in those countries.

As additional experience unfolds and economy conditions improve, the Government may wish to enhance unemployment benefits in several steps by:

- i. Increasing the benefit rate from 50% to 60%;
- ii. Extending the maximum duration of payments in several steps up to 26 weeks (currently 13 weeks).

Should the maximum benefit duration be increased above 13 weeks, the number of additional weeks paid could be linked to the number of weeks worked and contributed in the previous year as a means of linking the duration of payment to the number of contributions made in the recent past.

Any expansion of unemployment benefit should only be made if benefits and associated administrative costs are projected to remain under 1% of insurable wages or if the contribution rate is increased so that additional benefits are fully met by additional contribution revenue.

### **5.2.2 Survivors Pensions**

Eligibility to Survivors benefit for widow(er)s who have no eligible children requires them to be “incapable of economic employment.” “Economic employment” is defined in Benefit & Assistance Regulations as “gainful occupation as an employed or self-employed person, the earnings from which exceed fifty per centum of the ceiling on insurable wages.”

This definition has been interpreted two different ways at different times:- firstly as being either not currently working or working for less than 50% of the wage ceiling or secondly, not capable of earning more than 50% of the wage ceiling. To remove any uncertainty, it is recommended that the language for Survivors benefits for widow(er)s be revised. A revision should also consider how best to provide income support to widow(er)s who have no young children.

Following is the recommended approach for Survivors benefit to widow(er)s without children:

- If under age 40: award a grant (one-time payment)
- If age 60 or older: award a full Survivor pension regardless of income.
- If between ages 40 and 60, award a proportionate pension that increases as age increases as follows - 50% of the Survivors pension + 2.5% for each year in excess of age 40.

The following table illustrates the pension replacement rate at several ages under the proposed structure.

**Table 5.1. Recommended Survivor Pension Replacement Rates**

<b>Age of Widow(er) at time of spouse's death or suspension of last child</b>	<b>Percentage of Regular Survivors pension payable</b>
<40	0% (grant only)
40	50.0%
45	62.5%
50	75.0%
55	87.5%
60	100.0%

As is the case with the dual Survivors pension, the usual minimum pension should not apply to these Survivors pensions.

### **5.2.3 Pensionable Civil Servants**

Although the wage ceiling has been increased several times, pensionable civil servants (CSP's) have continued to contribute at the initial \$110 per week ceiling. This will change in July 2013 when they will contribute at the same rate and with the same ceiling for all benefits as for other employed persons. As a result of contributing on the \$110 per week ceiling, the maximum Retirement pension awarded to a career CSP pensionable civil servant is \$301 in 2012 compared with over \$1,000 for someone who contributed at the full wage ceiling since inception.

To ensure that persons who made CSP contributions and non-CSP contributions while in any other type of employment, pension calculations are based on a weighted average using the number of contributions and average insurable wages in both pensionable and non-pensionable service. If this formula remains unchanged it will take pensionable civil servants around 40 years of contributing on their full wages (starting July 2013) to get the same pension as private sector contributors would receive.

While the current weighted average pension calculation is equitable in theory, the use of a final average salary basis for pension calculations suggests that a quicker transition to pensions in line with others should be considered. The recommended approach is similar to the current weighted average approach but instead, values each week of non-CSP contributions as two weeks of non-CSP contributions. Under this approach, the contributions paid at the higher wage are given greater weight in the weighted average calculation of insurable wages and a pensionable civil servant with 40 years of pensionable service would qualify for the same pension amount as others after around 20 years of contributing on their full insurable wages.

The following chart illustrates the weighted average insurable wage that would be used to calculate the Retirement pension for persons with 40 years contributions with different mixes of CSP and non-CSP. For this illustration, the average insurable wages for non-CSP is assumed to be \$500 per week.

**Table 5.2. Proposed Weighted Average Formula Examples**

# Years of Contributions		Weighted Average Insurable Wage		Difference In Ultimate Pension (current vs recommended)
CSP	Non-CSP	Current Formula	Recommended Formula	
35	5	\$159	\$214	+35%
30	10	\$208	\$319	+53%
20	20	\$305	\$500	+64%
10	30	\$403	\$500	+24%
5	35	\$451	\$500	+11%
0	40	\$500	\$500	-

There is another issue related to pensionable civil servants that requires urgent amendment to Benefit & Assistance Regulations. The issue relates to whether NIB should consider periods during which a non-pensionable civil servant contributed correctly (as a non-pensionable civil servant) but upon retirement received a pension from the Government for that period of service. The pension could be substantially different - \$301 compared with more than \$1,000 per month. Where someone contributed as a pensionable civil servant but left Government employment prior to becoming pensionable, contributions paid while pensionable are treated as pensionable contributions even though the person never ultimately qualified for a pension.

### 5.3. Financial Sustainability

#### 5.3.1 Retirement Benefit

Many changes were made to Retirement benefit in the most recent reforms. These included:

- Number of weekly contributions required to qualify increased from 150 to 500
- Number of years of insurable wages averaged increased from best 3 to best 5
- Lower accrual of pension replacement rates so that the maximum 60% is now attained after 40 years of contributions instead of 35.

Two changes that were not considered that should still be are:

- Increasing the normal pension age from 65 to say 67, and
- Using insurable wages over one's career instead of just the best five years.

Increasing the normal pension age gradually to 67 will immediately serve to enhance long-term sustainability. Social security normal pension age increases to 67 are occurring in Barbados and the United States. The career average pension formula is not necessarily an approach that will reduce long-term costs as benefit rates will have to be selected. However, it would certainly improve the relationship between the benefit payable and contributions made.

### **5.3.2 Assistance Pensions**

Non-contributory pensions are included in the NIB program to provide income to those who fail to meet the contribution requirement for a benefit but, because of their low income and minimal assets, are assumed to be in need of financial support. To qualify, one must pass a test of resources.

The current test of resources considers the income of the claimant and his/her spouse, if any. Therefore, it is possible for a claimant who lives with a wealthy relative to qualify for an assistance pension. Given that this pension is means-tested and the Fund is challenged, assistance payments should not be made in these circumstances.

The Ministry of Social Services, with assistance from the Inter-American Development Bank, is at an early stage of initiating an amalgamation of several welfare/assistance programs. One aspect of this initiative is a national process of assessing household income and means. The NIB has already been identified as a partner in this effort. It is recommended that all Assistance pensions be included in this project and while NIB may continue to finance and possibly pay assistance pensions, determining whether or not one qualifies would be best handled by the agency selected to conduct means and income assessments across The Bahamas.

### **5.3.3 Medical Care**

Efforts to control and reduce the cost of Medical Care have resulted in significant savings for the Fund. Medical care is the payment of expenses related to care provided to persons injured while on the job. In 2011, Medical Care expenditure was \$5.9 million compared with an average of \$8.9 million in the previous 3 years. The largest share of these expenses are for the treatment of severe injuries at Doctors' Hospital and overseas.

Opportunities still remain to reduce Medical Care costs even further as many workers visit Doctors' Hospital first, even though their injury is relatively minor. Compared to other facilities, the cost of care at Doctors' Hospital's is much higher. The Board is therefore encouraged to establish a provider payment network that will serve to standardize both care and costs while ensuring that injured persons access appropriate levels of care at appropriate facilities at a reasonable cost.



### 5.3.4 Penalties For Late Payment of Contributions

Less than 25% of NIB monthly contribution dollars are paid on time (by the 15<sup>th</sup> of the following month), with 10% remaining unpaid after 3 months. In terms of number of employers, however, almost 50% pay more than 3 months late. This illustrates that smaller employers consistently pay late. The current penalty for late paid contributions is minimal - interest at the Prime rate (now 4.75% per annum) - and it is not consistently applied. With only a minimal penalty for contributions paid late the Fund is losing interest on monies that could have been invested had they been received earlier.

A new penalty or surcharge for late-paid contributions is recommended. Two reasonable options are:

- 1) 10% initial charge plus interest at Prime Rate or a slightly higher rate, for example, the commercial bank lending rate.
- 2) \$1 per employee for each week that contributions are late.

The following box illustrates the surcharge that would be payable by an employer for one month that goes unpaid for 12 months under the current approach and the two options presented above. For this example, it is assumed that the employer has 10 employees and a monthly contribution payment of \$1,500.

**Table 5.3. Options For Penalties For Late Paid Contributions**

# months contribution late	Current Penalty	10% of amount due + interest	\$1 per employee per week
1 month	\$6	\$156	\$40
3 months	\$18	\$168	\$130
6 months	\$35	\$185	\$260
12 months	\$71	\$221	\$520
24 months	\$146	\$296	\$1,040

It is recommended that the Board review these and other options for the surcharge on late-paid contributions and amend the Contribution Regulations at the earliest opportunity.

### 5.3.5 New Initiatives Must Be Fully Funded

In 2009, Unemployment benefit was added to NIB's benefits package. One year later the contribution rate was increased by 1% which fully covers likely unemployment benefit costs.

In 2010 the National Prescription Drug Plan was established. To date, it covers only a limited segment of the population and is being financed from the Medical Benefits Branch. Although

there is no public commitment yet, it is expected that the Plan will be expanded to cover the entire population. There may also be a renewed initiative to implement a national health Insurance program.

One key condition to any new benefit or program to be administered and/or financed by the NIF should be that it is fully financed by additional contributions or transfers from the Government. The current contribution rate is already not able to cover the current expenditure and so no new benefits should be met from current reserves and contributions.

### **5.3.6 Investments**

The recent defaults and restructurings of public debt by several Caribbean governments show that even government bonds are not as safe as they were once thought to be. With international rating agencies voicing concerns about Bahamas Government finances and debt levels, NIB's primary long-term risk is the inability of Government to repay the face amount of bonds on or before their maturity dates. The NIF should therefore seek to reduce its exposure to Bahamas Government and public sector securities to a maximum of 50% over the next 5 years.

In tough economic times when government revenue is down and demands for employment and social benefits are high, social security funds are often targeted by governments to meet both discretionary and non-discretionary spending. The Board should treat all loan/investment requests from Government and statutory bodies with the same amount of scrutiny and due diligence that it would non-traditional investments. Where proposals do not meet NIB's investment criteria or fit within investment Guidelines, they should be rejected.

To ensure that the asset mix remains consistent with current and future needs of the Fund it is further recommended that the Statement of Investment Policy & Guidelines be reviewed, amended and approved at all levels.

### **5.3.7 Contribution Rate Increases**

As shown in Chapter 3, contribution rate increases are necessary if the NIF is to meet its obligations beyond the next twenty years. However, with reserves of \$1.6 billion a rate increase is not required immediately. Further, until reserves are exhausted, there is no right or wrong time to increase the contribution rate. The following factors should be considered when deciding whether or not to increase the contribution rate:

- Can workers and employers afford a rate increase in the current environment?
- Can current revenues and liquid assets meet expenditure in the short-term?
- Are there suitable investment opportunities for additional surplus cash?
- Is advanced funding (higher contribution rates and a large fund now with lower contribution rates later) superior to higher contribution rates and a very small fund in the future?

This last question has been debated by economists and social security scholars for many years. Both options have risks and both depend ultimately on a strong economy. After almost 40 years the NIF has now reached a state where it is being forced to look closely at answering this question.

The current state of NIB's finances can be summarised as follows:- while contributions are less than total expenditure, total income exceeds total expenditure and there are significant reserves on which to depend on should the need arise. The current economic climate can be described as follows:- in the midst of a sluggish recovery, low interest rates and weakening public finances.

While an immediate contribution rate increase may be enacted as a means of improving short-term finances and enhancing long-term sustainability, there are significant risks involved with further advanced funding of future benefits. Firstly, generating additional income may provide opportunities for inappropriate investments and increases to administrative costs. Also, with increasing annual surpluses, suitable investment vehicles will have to be found. A larger Fund which has difficulty finding investment opportunities could therefore open itself to demands from Government and quasi-government agencies to borrow funds at below market rates.

With the above risks and the potential for poor governance practices that may result in imprudent investments and escalating costs, a contribution rate increase is not recommended at this time. Instead, it is recommended that initiatives aimed at improving contribution compliance, reducing administrative costs and diversifying the investment portfolio be adopted.

Since contribution rate increases cannot be deferred indefinitely, the recommended approach to funding future obligations is:

*Within the next 10 to 15 years do not withdraw from reserves in order to meet expenditure. Instead, adjust the contribution rate if in the following year expenditure is expected to exceed combined income from contributions and investments.*

Based on the projections presented in Chapters 3 and 4, maintaining this funding objective will require ½% contribution rate increases each year starting as early as 2018.

## **5.4. Administrative Efficiency**

### **5.4.1 Compliance**

The NIB's greatest administrative challenge is compliance. Approximately 75% of the workforce makes regular monthly contributions and only 23% of contribution payments in 2011 were made on time. The failure of so many employers and self-employed persons to make regular contributions will result in thousands of workers retiring without a secure source of income in

old age. And since contributions are not being paid for all periods worked, many who qualify for a Retirement pension will be awarded less than what they would have received had they contributed for all employment periods.

NIB has generally had a laissez faire approach to enforcing compliance:– penalties for late or non-payment are minimal, prosecutions are used only as a last resort and they are often applied selectively. Further, benefits are paid for periods of unpaid contributions if employment can be confirmed but without first collecting outstanding contributions. All of these have resulted in a lax culture among employers towards paying contributions.

Adopting a zero-tolerance approach to non-compliance is required to make a significant change in employer behaviour. At a minimum this should include new penalties for failure to pay on time. The requirement that NIB contributions be up-to-date prior to the renewal of annual Business Licenses has improved NIB compliance over the last two years. Therefore, if NIB is able to develop relationships with other government agencies so that delinquent employers and self-employed persons are prohibited from conducting business unless all of their Government fees/taxes are paid up, further improvements in compliance should be realised.

Some countries have created a single revenue authority that collects all government revenue, including social security contributions. The Government should consider such an authority for The Bahamas and charge NIB a fee for collecting NIB contributions. Similarly, NIB can become the agency that makes pension and benefit payments for all public service pensions and welfare benefits. The new NIB Insurance Administrative System will have extensive capabilities for NIB to provide payment services for others.

#### 5.4.2 Administrative Expenses

The following table shows two measures of administrative costs for The Bahamas, two of the larger Caribbean countries, Canada and the United States.

**Table 5.4. Country Comparison of Administrative Costs Ratios, 2011**

Country	As % of Contributions	As % of Contributions Plus Benefits
Bahamas	21.6%	11.0%
Barbados	5.2%	2.8%
Trinidad & Tobago <sup>^</sup>	4.9%	2.7%
Canada	2.2%	1.2%
USA	1.1%	0.5%

<sup>^</sup> 2010

While there are limitations comparing operating costs across countries given different contribution and benefit rules, geographical realities and methods of collecting contributions and paying benefits, the significant difference in costs for a national pension system between the Bahamas and the other countries shown cannot be dismissed simply by comparing size, rules and geography.

70% of NIB's administrative costs are staff related. The total staff complement of 532 in October 2012 is around one hundred more than it was in 2006. These high employment related costs are not only due to overstaffing but also due to relatively high salaries (average increase of 6.2% over previous 10 years), generous pension and health insurance plans.

A new Insurance Administrative System (IAS) is currently being implemented across NIB. While costly, this system is expected to significantly change the way NIB interacts with employers and customers and deliver a new and improved level of service. Annual amortization costs for the new IAS system will be in the order of \$1 million. Therefore, to generate any financial savings from this investment, significant reductions in staff will be required.

Reducing operating costs significantly can go a long way to enhancing sustainability and reducing the level of contribution rates that will be required decades from now. The Board should therefore set as a 10-year goal the reduction of administrative costs to 10% of contribution income and immediately take steps towards achieving this.

## **5.5. Diversification Security**

According to survey results published by the Central Bank of the Bahamas, fewer than 30% of the workforce are enrolled in employer-linked pension plans. With the trend towards defined contribution plans in an environment without regulations that restrict lump sum payouts, the NIB pension will be the only reliable source of income in old age for most workers.

The Government is, therefore, encouraged to consider adopting innovative ways and strategies to encourage alternative avenues for reliable sources of income in old age. A more detailed review of this national pension policy objective is beyond the scope of this review.

## Chapter 6 Good Governance

Several Caribbean social security schemes are now facing major financial challenges due to their failure to adopt and follow good governance practices. For The Bahamas, examples of poor governance practices that have plagued the National Insurance Board for many years include:

- Board members not selected in accordance with the terms of the National Insurance Act;
- Selective prosecuting of delinquent employers;
- Excessive hiring;
- Issuance of contracts where approved tendering and procurement policies were not followed;
- Directions to invest in securities & properties that do not meet social security investment principles.

To assist social security schemes like the Bahamas NIB, the International Social Security Association (ISSA) in 2011 published *ISSA Good Governance Guidelines for Social Security Institutions*. These guidelines provide ISSA member organizations with guiding principles and practical guidelines on good governance. It also presents a virtual checklist of essential elements that help engender and support good governance within the institution. It is strongly recommended that the Board adopt the principles and guidelines included in ISSA's *Good Governance Guidelines* and initiate steps to ensure that good governance practices are commonplace in all aspects of NIB's administration and operations.

### 6.1. ISSA Good Governance Guidelines

ISSA defines governance as:

*“the manner in which the vested authority uses its powers to achieve the institution’s objectives, including its powers to design, implement and innovate the organisation’s policies, rules, systems and processes, and to engage and involve stakeholders.”*

ISSA's *Good Governance Guidelines* further suggests that “good governance implies that the exercise of the vested authority is accountable, transparent, predictable, participative and dynamic.” It describes these five principles as follows:

*Accountability* is the ability to hold legally responsible the officials who are in charge of the institution for managing the program prudently, efficiently and equitably.

*Transparency* is the availability and accessibility of accurate, essential and timely information to stakeholders and in reference to the decision-making process, promotes honesty, integrity and competence, and discouraging wrongdoing.

*Predictability* refers to the consistent application of the law, policies, rules and regulations. Surprises and sudden changes in contribution rates, benefit entitlements or other features could undermine the credibility of the programme.

*Participation* refers to the active education, engagement and effective involvement of stakeholders to ensure the protection of their interests.

The principle of *dynamism* is defined as the element of positive change in governance. While the first four principles of governance may well be applied in the context of maintaining the status quo, dynamism refers to changing and improving by doing things more efficiently and equitably, and by responding to the evolving needs of insured persons.

In addition to outlining in detail the five good governance principles as they specifically relate to Boards and Management, the *Good Governance Guidelines* include further guidelines in six specific areas that are of common concern to social security institutions. These guidelines, which support and promote the good governance principles listed above, are provided for the following areas:

- (a) Actuarial soundness
- (b) Enforcing the prudent person principle in investment management
- (c) Prevention and control of corruption and fraud
- (d) Service standards
- (e) Staffing policies & performance appraisals
- (f) Investments in Information and Communication Technology infrastructure

The third component of the ISSA Good Governance Guidelines is the “Questionnaire on Good Governance.” Through hundreds of specific multiple choice questions on general governance practices of the Board and Management as it relates to the five principles and six specific areas of social security administration, institutions are able to determine the extent to which they practice good governance and where improvements are required. Completion of this document will be the ideal start to the Board’s adoption of ISSA’s recommended good governance principles and guidelines.

## 6.2. ISSA Investment Guidelines

With \$1.6 billion in trust funds, the prudent investment of securities is critical to the long-term sustainability of the National Insurance Fund. During the review period the Board illustrated its commitment to its fiduciary duties by strengthening the overall management of NIF investments by adding expertise at the most senior level. Although not yet approved at all levels, revisions to the Fund's Investment Policy Guidelines were made.

In addition to its *Good Governance Guidelines*, ISSA in 2012 created ISSA Investment Guidelines which allow social security institutions to follow a "Governance Journey" moving from investment government principles to structures and processes which include defining and monitoring an investment strategy and monitoring of performance and reporting. These investment guidelines are consistent with the ISSA Good Governance Guidelines discussed in the previous section.

ISSA is the world's leading organization bringing together national social security administrations and agencies. It provides information, research expert advice and platforms for members to build and promote dynamic social security systems. As a member organisation NIB should take full advantage of the extensive work of the ISSA and make full use of the Good Governance Guidelines, Investment Guidelines, along with other tools and research designed to strengthen various aspects of the its administration.



## Statement of Actuarial Opinion

It is my opinion that for this report of the 9<sup>th</sup> Actuarial Review of the 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 Caribbean Actuarial Association Actuarial Practice Standard #3 for Social Security Programs.



---

Derek M. Osborne, FSA  
Consultant Actuary

April 5<sup>th</sup>, 2013

## References

8<sup>th</sup> Actuarial Review of The Bahamas National Insurance Fund, NIB, 2009  
Barbados NIS Financial Statements, 2011  
Better Social Security For Bahamians, Social Security Reform Commission, 2005  
Canada Pension Plan Financial Statements, 2011  
Good Governance Guidelines, ISSA, 2010  
ISSA Good Governance Guidelines, ISSA, 2011  
ISSA Investment Guidelines, ISSA, 2012  
Labour Force & Household Income Reports, 2006 to 2011, Department of Statistics  
Life Table Report, 1999-2001, Department of Statistics  
National Insurance Act & Regulations  
National Insurance Fund Financial Statements – 1975 to 2011  
OECD Pensions Outlook 2012, OECD, 2012  
Report Of The 2010 Census Of Population & Housing, Department of Statistics, 2012  
Survey of Private Pension Plans In The Bahamas (2006 & 2007), Central Bank, 2008  
Trinidad & Tobago National Insurance Board Annual report, 2009  
US Social Security Financial Statements, 2011  
Vital Statistics provisional Report For The Bahamas, Department of Statistics, 2011 & 2012

## Appendix A Summary of Contribution & Benefit Provisions

### A.1 Benefits, Insured Persons & Contribution Rates

The National Insurance Board began operations in October 1974 and as of December 2011, provided the following benefits:

- (a) **Long-term contributory benefits:** Retirement, Invalidity and Survivors' benefits.
- (b) **Long-term assistance:** Old Age Non-contributory pension, Invalidity and Survivors' assistance.
- (c) **Short-term benefits:** Sickness benefit, Maternity benefit & grant, Unemployment benefit, Funeral benefit.
- (d) **Short-term assistance:** Sickness assistance.
- (e) **Industrial benefits:** Injury benefit, Disablement benefit, Medical Care, Industrial Death benefit and Industrial Funeral benefit.

#### Insured Persons

Employed, self-employed and voluntary insured persons aged 16 and over are covered for the above contingencies as follows:

- **Employed persons:** All contingencies.
- **Self-employed persons:** All contingencies except Unemployment benefit.
- **Voluntary insured persons:** Retirement, Invalidity, Funeral and Survivors' benefits only.

Employed persons who are in receipt of Retirement benefit are covered for Industrial benefits only.

#### Insurable Earnings & Contributions

Earnings used for determining contributions and benefits include basic wages and pay in lieu of notice but exclude bonuses, overtime and tips. Wage ceilings since 1974 are shown below:

1974 to 1984	\$ 110.00 per week
1984 to 1998	\$ 250.00 per week
1999 to 2010	\$ 400.00 per week
2011 to June 2012	\$ 500.00 per week
July 2012 to June 2014	\$ 600.00 per week

Starting July 2014, the ceiling will be increased every second July by the combined change in the Retail Price Index during the two previous calendar years, plus 2%.

For pensionable Bahamas Government employees, the ceiling for long-term benefits (pensions) is \$110 per week. However, effective July 2013, these insured persons will contribute on the same basis as all other employed persons.

Contributions are computed as a percentage of insurable wages. The contribution rates for all categories of contributors are shown below:

Employee Type		Employee	Employer	Total
<b>Private &amp; non-Pensionable Civil Servants</b>		3.9%	5.9%	9.8%
<b>Pensionable Civil Servants</b>	Wages <=110 pw	3.9%	5.9%	9.8%
	> 110 pw	2.2%	3.05%	5.25%
<b>Self-employed</b>				8.8%
<b>Voluntary</b>				5.0%
<b>Summer Students &amp; Persons in receipt of Retirement Benefit</b>			2.0%	2.0%

## A.2 Qualifying Conditions & Benefit Rates

### A.2.1 LONG-TERM BENEFITS

#### (a) RETIREMENT BENEFIT

*Eligibility Requirements:* The applicant must be age 65 or older and have paid at least 500 weekly contributions. A reduced pension is payable beginning from age 60.

*Amount Of Benefit:* A percentage of average insurable earnings over the best 5 years in the contribution history (over last 10 years prior to July 2012). The applicable percentages are:

500 – 1,999 contributions	30% + 1% for each set of 50 above 500
2,000 or more contributions	60%

Average insurable earnings are determined by taking the average of the wages for years in which at least 26 contributions were made.

If the benefit is awarded prior to age 65 the amount is reduced by 7/12% for each month that the insured is less than 65. Effective July 2012, if awarded after age 65, the amount is increased by 7/12% per month for each month the insured is above age 65 up to a maximum of 35%.

*Maximum Pension:* 60% of average monthly earnings over the best five years.

*Minimum Pension:* \$287.82 per month (\$301.08 effective July 2012). \$266.50 (\$278.76 effective July 2012) if awarded at age 60.

*Initial Contribution Credits:* Persons over age 35 in October 1974 who made at least 150 contributions in the programme's first 3 years were awarded special credits at the rate of 25 contributions for each year their age exceeded 35, subject to a maximum of 600 credits.

(b) RETIREMENT GRANT

*Eligibility Requirements:* The applicant must be age 65 or older and have paid between 150 to 499 weekly contributions

*Grant Amount:* 6 times the # of sets of 50 contributions times Average weekly insurable earnings.

Average insurable earnings are determined as for Retirement Benefit.

(c) OLD AGE NON-CONTRIBUTORY PENSION

*Eligibility:* Age 65, insufficient credits to qualify for Retirement benefit, Bahamian citizen or resident in the Bahamas as an employed or self-employed person for at least 12 months in the 15 years immediately before claiming, and has a share of household income of less than \$56.58 per week (\$59.18 effective July 2012).

*Amount Of Assistance:* \$245.18 per month (\$256.45 effective July 2012).

(d) INVALIDITY BENEFIT

*Eligibility Requirements:* The applicant must have paid at least 150 weekly contributions and be:

- (i) Less than 65;
- (ii) Incapable of work as a result of a specified disease or bodily or mental disablement, otherwise than as a result of an employment injury, which is likely to remain permanent.

*Amount Of Benefit:* A percentage of average insurable earnings over the best 3 years in the contribution history (over last 10 years prior to July 2012). The applicable percentages are:

First 150 contributions	16%
151 – 500 contributions	2% for each set of 50
500 – 2000 contributions	1% for each set of 50
2,000 or more contributions	60%

*Maximum Pension:* 60% of average earnings over the best three years.

*Minimum Pension:* \$287.82 per month (\$301.08 effective July 2012).

(e) INVALIDITY ASSISTANCE

*Eligibility Requirements:* The applicant must:

- (i) have insufficient credits to qualify for Invalidity benefit;
- (ii) be less than 65;
- (iii) be medically declared an invalid, other than as a result of an employment injury.

*Amount of Benefit:* \$245.18 per month (\$256.45 effective July 2012).

(f) SURVIVORS BENEFIT

*Eligibility Requirements:* The deceased, at time of death, had paid at least 150 contributions. A widow or widower must have been married to the deceased (includes common-law spouse), children must be under 16, 21 if in full-time education, and any age if invalid. Parents need to have been dependent on the deceased.

*Amount Of Benefit:* The proportion of Retirement/Invalidity benefit shown below:

Widow or widower: 50%;

Children: 10% per child – up to 5 children at any one time, 10 if there is no widow(er);

Parents: 50%;

Minimum pensions:

Widow(er)/Parent - \$287.82 per month (\$301.08 effective July 2012)

Children - \$117.26 per month (\$122.63 effective July 2012)

Orphans - \$133.25 per month (\$139.36 effective July 2012)

*Duration Of Benefit:*

- Widow or widower older than 40 and incapable of economic employment at time of insured's death, or widow or widower who is disabled, or a widow pregnant by her late husband at the time of his death, or a widow who has the care of a child of the deceased: life pension that is reduced by 50% if the beneficiary is entitled to a Retirement or Invalidity pension in his/her own right.

The Survivors pension will cease upon remarriage or cohabitation;

- Children: payable until age 16, age 21 if receiving fulltime education or training, for life if invalid;
- Parents: payable for life.

(g) SURVIVORS GRANT

*Eligibility Requirements:* The deceased, at time of death, had paid at least 150 contributions. A widow or widower must have been married to the deceased (includes common-law spouse). The widow or widower does not satisfy the requirements for a Survivors Benefit.

Amount of Benefit: Lump sum of one year's worth of the deceased's Retirement Benefit.

(h) SURVIVORS ASSISTANCE

*Eligibility Requirements:* Other than for the contribution requirement of the deceased, the applicant must be eligible for survivors pension.

*Amount Of Benefit:*

Widow(er) / Parent - \$245.18 per month (\$256.45 effective July 2012).

Children - \$98.06 per month (\$102.57 effective July 2012).

Orphans - \$111.93 per month (\$117.09 effective July 2012).

**CARICOM Agreement On Social Security**

Some former contributors with fewer contributions than required for Retirement, Invalidity and Survivors pensions may qualify for a pension under the CARICOM Agreement on Social Security based on the total number of contributions made in participating countries.

## A.2.2. SHORT-TERM BENEFITS

### (a) SICKNESS BENEFIT

*Contribution Requirements:* Employed the day prior to becoming sick and at least 40 paid weekly contributions plus one of:

- (i) at least 13 contributions in the 26 weeks preceding sickness,
- (ii) at least 26 contributions in the last 52 weeks,
- (iii) at least 26 contributions in the preceding contribution year.

*Waiting Period:* 3 days.

*Amount Of Benefit:* 60% of average weekly insurable earnings during the applicable qualifying period used above, subject to a minimum of \$66.42 per week (\$69.48 effective July 2012).

*Duration Of Benefit:* 26 weeks in any continuous period that may be extended to 40 weeks subject to approval of the Medical Officer. Any two or more periods of incapacity separated by not more than eight weeks shall be treated as a continuous period of incapacity.

### (b) MATERNITY BENEFIT

*Contribution Requirement:* At least 50 paid weekly contributions plus one of:

- (i) at least 26 contributions in the 40 weeks prior to commencement of benefit,
- (ii) at least 26 contributions in the preceding contribution year.

*Amount Of Benefit:* 66 2/3% of average weekly insurable earnings during the applicable qualifying period used above, subject to a minimum of \$66.42 per week (\$69.48 effective July 2012).

*Duration Of Benefit:* 13 weeks, starting no earlier than 6 weeks before the expected date of confinement. This may be extended by up to 2 weeks if confinement is delayed.

### (c) MATERNITY GRANT

*Contribution Requirement:* At least 50 paid contributions. Where the mother fails to meet these requirements the grant will be paid if her spouse meets the contribution requirement.

*Amount Of Grant:* Lump sum of \$430.00 (\$450.00 effective July 2012)



(d) UNEMPLOYMENT BENEFIT

*Contribution Requirements:* At least 52 paid weekly contributions plus:

- (i) at least 7 contributions in the 13 weeks preceding unemployment,
- (ii) at least 13 contributions in the 26 weeks preceding unemployment, and
- (iii) must be able to satisfy the Department of Labour's conditions for registration.

*Waiting Period:* 3 days.

*Amount Of Benefit:* 50% of average weekly insurable earnings during the applicable qualifying period used above, subject to a minimum of \$66.42 per week (\$69.48 effective July 2012).

*Duration Of Benefit:* Up to 13 weeks.

(e) FUNERAL BENEFIT

*Eligibility Requirements:* Death of an insured person, other than as a result of an employment-related accident, or the deceased is the spouse of an insured. The insured person must have paid at least 50 contributions.

*Amount Of Benefit:* \$1,600.00 (\$1,680.00 effective July 2012)

(f) SICKNESS ASSISTANCE

*Eligibility Requirements:* Gainfully employed in the contribution year or the 52 week period preceding incapacity but fails to qualify for Sickness benefit and meets the means test.

*Waiting Period:* 3 days.

*Amount Of Benefit:* \$56.58 per week (\$59.18 effective July 2012).

*Duration Of Benefit:* 26 weeks in any continuous period that may be extended to 40 weeks subject to approval of the Medical Officer. Any two or more periods of incapacity separated by not more than eight weeks shall be treated as a continuous period of incapacity.

### A.2.3. INDUSTRIAL BENEFITS

#### (a) INJURY BENEFIT

*Eligibility Requirements:* Incapable of work as a result of an accident arising out of insured employment, or as a result of an illness related to employment. There are no qualifying contribution requirements for Injury benefits.

*Waiting Period:* 3 days.

*Amount Of Benefit:* 66 2/3% of average insurable earnings in the 26 weeks before the accident or disease occurred.

*Duration Of Benefit:* Maximum 40 weeks.

#### (b) DISABLEMENT BENEFIT

*Eligibility Requirements:* Partial or total loss of any physical or mental faculty as a result of a job-related accident or disease.

*Waiting Period:* Period of Injury benefit.

*Amount Of Benefit:* The payment of a pension or a grant is based on the percentage loss of faculty suffered.

- If degree of disablement is less than 25%, a grant equal to 100 times the percentage degree of disability is paid;
- If degree of disablement is 25% or more a benefit equal to the percentage loss of faculty times the rate of injury benefit is paid. A grant of \$500 is also paid for disablement assessed at 25% - 66%, and \$1,000 for disablement assessed at greater than 66%.
- If degree of disablement is 100% and the insured requires constant care and attendance, an allowance of 20% of the disablement benefit shall also be paid.

#### (c) DEATH BENEFIT

*Eligibility Requirements:* Dependants are defined as for survivors' benefit.

*Amount Of Benefit:* Proportion of disablement pension, the same percentage as for Survivors benefit.

(d) INDUSTRIAL FUNERAL BENEFIT

*Eligibility Requirements:* Death was due to an accident arising out of and in the course of employment

*Amount Of Benefit:* \$1,600.00 (\$1,680.00 effective July 2012)

(e) MEDICAL CARE

*Eligibility Requirements:* Insured suffers injury or illness arising out of and in the course of employment.

*Expenses Covered:* Reasonable expenses for doctor's fees, medication, hospitalisation, travelling and constant care and other specified costs incurred as a result of an employment injury or prescribed disease.

*Duration:* 40 weeks from the date of injury unless the degree of disablement is greater than 25% in which case it is payable for 2 years from the date of injury. This may be extended at the discretion of the Director.

## 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 The Bahamas 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 The Bahamas' 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 and economic assumptions vary.

### B.1 Modelling the Demographic & Economic Developments

The general Bahamas population has been projected beginning with totals obtained from the results of the 2010 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 1.9 to 1.8 in 2020, and remain constant thereafter. Table B.1 shows ultimate age-specific and total fertility rates. For the *Pessimistic* the ultimate TFR of 1.7 is assumed reached in 2020. Fertility rates are assumed to remain constant for the *Optimistic* scenario.

**Table B.1. Age-Specific & Total Fertility Rates**

Age Group	2010	Ultimate Fertility Rates		
		<i>Optimistic</i>	<i>Best Estimate</i>	<i>Pessimistic</i>
15 - 19	0.039	0.025	0.024	0.023
20 - 24	0.090	0.065	0.062	0.058
25 - 29	0.102	0.102	0.097	0.092
30 - 34	0.091	0.094	0.089	0.084
35 - 39	0.049	0.081	0.077	0.072
40 - 44	0.013	0.017	0.016	0.015
45 - 49	-	-	-	-
<b>TFR</b>	<b>1.90</b>	<b>1.90</b>	<b>1.80</b>	<b>1.70</b>

Mortality rates have been determined using The Bahamas 1999-2001 Life Table produced by the Department of Statistics. 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 *Pessimistic* scenario and “very slow”<sup>1</sup> for the *Optimistic* scenario. Sample mortality rates for the *Best Estimate* scenario and the life expectancies at birth and at age 65 for sample years are provided in Table B.2.

<sup>1</sup> Midpoint of Slow rates and no improvements

**Table B.2. Sample Mortality Rates & Life Expectancies**

Age	Males			Females		
	2011	2041	2071	2011	2041	2071
<b>0</b>	0.0081	0.0055	0.0045	0.0061	0.0048	0.0042
<b>5</b>	0.0005	0.0003	0.0002	0.0004	0.0002	0.0001
<b>15</b>	0.0007	0.0004	0.0003	0.0003	0.0002	0.0001
<b>25</b>	0.0027	0.0017	0.0013	0.0014	0.0012	0.0011
<b>35</b>	0.0048	0.0031	0.0024	0.0028	0.0021	0.0018
<b>45</b>	0.0069	0.0048	0.0039	0.0041	0.0030	0.0025
<b>55</b>	0.0129	0.0097	0.0083	0.0068	0.0051	0.0044
<b>65</b>	0.0237	0.0190	0.0168	0.0153	0.0108	0.0089
<b>75</b>	0.0414	0.0356	0.0327	0.0311	0.0227	0.0191
<b>85</b>	0.1104	0.1013	0.0965	0.0756	0.0634	0.0574
<b>95</b>	0.1465	0.1426	0.1405	0.1704	0.1565	0.1492
<b>Life Expectancy at:</b>						
<b>Birth</b>	<b>70.6</b>	<b>74.6</b>	<b>76.5</b>	<b>77.0</b>	<b>80.4</b>	<b>82.1</b>
<b>Age 65</b>	<b>16.6</b>	<b>17.8</b>	<b>18.4</b>	<b>19.0</b>	<b>21.1</b>	<b>22.2</b>

**Table B.3. Projected Age 65 Life Expectancies**

	2011	2071		
		Pessimistic	Best Estimate	Optimistic
<b>Male</b>	16.6	18.9	18.4	17.8
<b>Female</b>	19.0	23.3	22.2	21.1

Net migration (in minus out) is assumed to be 500 persons between 2010 and 2020, declining to 450 in 2030 and then to 400 in 2040, remaining constant thereafter. For the *Optimistic* scenario migration is assumed to be 125% of the rates in the *Best Estimate* and for the *Pessimistic* scenario migration, 75% of the rates in the *Best Estimate*.

**Table B.4. Net Immigration**

Age	2011			2040		
	Optimistic	Best Estimate	Pessimistic	Optimistic	Best Estimate	Pessimistic
0 - 9	549	439	329	439	351	263
10 - 19	125	100	75	100	80	60
20 - 29	(93)	(75)	(56)	(75)	(60)	(45)
30 - 39	304	244	183	244	195	146
40 - 49	63	51	38	51	41	30
50 - 59	(93)	(75)	(56)	(75)	(60)	(45)
60 - 69	(85)	(68)	(51)	(68)	(54)	(41)
70+	(145)	(116)	(87)	(116)	(93)	(70)
<b>All Ages</b>	<b>625</b>	<b>500</b>	<b>375</b>	<b>500</b>	<b>400</b>	<b>300</b>

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 2010 and 2040, age-specific labour force participation rates for persons over 45 are assumed to increase to the extent that they reach the levels that currently exist for persons two years younger. That is, participation rates for a 60 year old in 2040 will be those of 58 years olds in 2010. Table B.5 below shows the assumed age-specific labour force participation rates in 2011 and 2041. Between these two years, rates are assumed to change linearly.

**Table B.5. Age-Specific & Total Labour Force Participation Rates**

Age	Males		Females		Year	Males	Females
	2011	2041	2011	2041			
17	29%	29%	27%	27%			
22	75%	75%	77%	78%	2011	80%	74%
27	90%	90%	85%	86%	2016	80%	74%
32	95%	95%	90%	91%			
37	96%	96%	92%	93%	2021	80%	73%
42	96%	96%	92%	93%	2031	81%	74%
47	92%	92%	89%	91%	2041	81%	75%
52	89%	89%	84%	87%			
57	87%	88%	67%	74%	2051	81%	74%
62	78%	82%	50%	57%	2061	81%	74%
67	57%	66%	27%	36%	2071	81%	74%

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 0.6% for the *Pessimistic* scenario, 0.8% for *Best Estimate* and 1.0% for the *Optimistic* 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 2071, 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 31<sup>st</sup>, 2011, 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.6 through B.10.

**Table B.6. 2011 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
<b>15 - 19</b>	2,958	2,668	841	722	0.3	0.2
<b>20 - 24</b>	8,393	8,080	1,117	993	2.6	2.1
<b>25 - 29</b>	8,730	9,323	1,381	1,303	5.2	4.7
<b>30 - 34</b>	8,960	9,393	1,481	1,431	7.6	7.7
<b>35 - 39</b>	9,247	9,917	1,523	1,493	10.1	10.5
<b>40 - 44</b>	8,977	9,929	1,590	1,535	13.3	14.0
<b>45 - 49</b>	8,378	9,362	1,609	1,560	15.4	16.6
<b>50 - 54</b>	6,595	7,548	1,624	1,582	16.9	18.3
<b>55 - 59</b>	4,750	5,065	1,651	1,643	19.9	20.7
<b>60 - 64</b>	2,560	2,630	1,655	1,603	20.5	22.9
<b>65+</b>	1,033	810	1,481	1,310	20.2	21.4
<b>All Ages</b>	<b>70,581</b>	<b>74,725</b>	<b>1,464</b>	<b>1,415</b>	<b>10.7</b>	<b>11.4</b>

**Table B.7. Pensioners in Payment - December 2011**

Age	Retirement Benefit		Invalidity Benefit		Survivors Benefits		Disablement & Death Benefits		Non-Contributory	
	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
0 - 4	-	-	-	-	84	82	-	-	10	14
5 - 9	-	-	-	-	255	281	-	-	46	47
10 - 14	-	-	-	-	547	551	-	-	172	180
15 - 19	-	-	-	-	558	544	-	1	208	174
20 - 24	-	-	-	-	53	67	7	5	121	97
25 - 29	-	-	8	3	1	4	11	7	128	77
30 - 34	-	-	19	11	5	49	20	16	156	116
35 - 39	-	-	46	27	17	77	36	26	151	129
40 - 44	-	-	64	67	33	142	64	55	154	148
45 - 49	-	-	96	89	39	234	66	67	142	151
50 - 54	-	-	128	130	44	253	51	56	162	150
55 - 59	-	-	175	209	27	307	33	56	103	96
60 - 64	1,343	1,856	161	235	24	307	29	50	60	107
65 - 69	2,397	2,897	129	247	19	378	23	31	187	322
70 - 74	2,199	2,394	91	190	19	415	11	20	224	372
75 - 79	1,390	1,541	41	81	23	346	5	9	220	406
80 - 84	695	832	14	34	13	185	6	2	113	293
85 - 89	285	332	2	3	2	130	-	2	69	247
90 - 94	85	121	-	-	1	40	-	1	41	169
95 - 99	25	26	-	-	-	11	-	-	16	70
<b># of Pensioners</b>	<b>8,419</b>	<b>9,999</b>	<b>974</b>	<b>1,326</b>	<b>1,764</b>	<b>4,403</b>	<b>362</b>	<b>404</b>	<b>2,483</b>	<b>3,365</b>
<b>Avg Monthly Pension</b>	<b>\$ 476</b>	<b>\$ 412</b>	<b>\$ 437</b>	<b>\$ 409</b>	<b>\$ 145</b>	<b>\$ 227</b>	<b>\$ 503</b>	<b>\$ 441</b>	<b>\$ 245</b>	<b>\$ 245</b>

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.8. Density Of Contributions**

Age	Males	Females
17	25%	21%
22	70%	65%
27	76%	77%
32	78%	82%
37	79%	86%
42	82%	87%
47	82%	88%
52	81%	89%
57	86%	89%
62	84%	91%

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

**Table B.9. Rates of Entry Into Invalidation Per 1,000 Insureds**

Age	Males	Females
17	-	-
22	-	-
27	0.458	0.107
32	0.521	0.355
37	0.829	0.639
42	1.077	1.376
47	1.830	1.602
52	2.729	3.179
57	4.983	6.055
62	6.120	5.196

Table B.10, 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.10. Survivor Characteristics**

Age	Male Deceased		Female Deceased	
	Probability of Eligible Spouse	Avg # of Eligible Children	Probability of Eligible Spouse	Avg # of Eligible Children
17	0%	-	0%	-
22	0%	-	0%	-
27	1%	0.6	6%	1.0
32	18%	0.8	4%	1.0
37	10%	0.8	7%	1.0
42	20%	0.9	8%	0.8
47	20%	0.8	14%	0.7
52	23%	0.6	6%	0.6
57	22%	0.4	5%	0.4
62	18%	0.3	2%	0.2
67	24%	0.2	5%	0.1
72	25%	0.1	3%	-
77	17%	0.1	4%	-
82	10%	0.0	1%	-
87	8%	-	0%	-

## Appendix C Projection Results – Alternate Scenarios

Table C.1. Projected Bahamas Population, All Scenarios

Year	All Ages	Ages 0-15		Ages 16-64		Ages 65+		Dep Ratio
<b>2010</b>	351,461	100,735	28.7%	229,038	65.2%	21,688	6.2%	0.09
<b>Optimistic</b>								
<b>2011</b>	355,369	100,370	28.2%	232,827	65.5%	22,173	6.2%	0.10
<b>2016</b>	374,433	98,397	26.3%	249,585	66.7%	26,451	7.1%	0.11
<b>2021</b>	392,837	96,407	24.5%	263,934	67.2%	32,496	8.3%	0.12
<b>2026</b>	410,545	94,834	23.1%	274,279	66.8%	41,432	10.1%	0.15
<b>2031</b>	427,321	97,410	22.8%	277,568	65.0%	52,343	12.2%	0.19
<b>2041</b>	454,683	100,736	22.2%	282,711	62.2%	71,235	15.7%	0.25
<b>2051</b>	471,578	99,156	21.0%	291,809	61.9%	80,613	17.1%	0.28
<b>2061</b>	482,614	98,985	20.5%	296,787	61.5%	86,841	18.0%	0.29
<b>2071</b>	491,575	100,643	20.5%	296,325	60.3%	94,608	19.2%	0.32
<b>Best Estimate</b>								
<b>2011</b>	355,243	100,230	28.2%	232,803	65.5%	22,210	6.3%	0.10
<b>2016</b>	373,479	97,262	26.0%	249,478	66.8%	26,739	7.2%	0.11
<b>2021</b>	390,307	93,533	24.0%	263,640	67.5%	33,134	8.5%	0.13
<b>2026</b>	406,402	90,246	22.2%	273,604	67.3%	42,552	10.5%	0.16
<b>2031</b>	421,649	91,364	21.7%	276,191	65.5%	54,093	12.8%	0.20
<b>2041</b>	445,772	93,441	21.0%	277,848	62.3%	74,483	16.7%	0.27
<b>2051</b>	458,296	89,969	19.6%	283,208	61.8%	85,118	18.6%	0.30
<b>2061</b>	463,217	87,551	18.9%	283,254	61.1%	92,412	20.0%	0.33
<b>2071</b>	464,942	87,565	18.8%	276,479	59.5%	100,898	21.7%	0.36
<b>Pessimistic</b>								
<b>2011</b>	355,117	100,090	28.2%	232,779	65.6%	22,247	6.3%	0.10
<b>2016</b>	372,424	96,123	25.8%	249,312	66.9%	26,989	7.2%	0.11
<b>2021</b>	387,508	90,650	23.4%	263,176	67.9%	33,683	8.7%	0.13
<b>2026</b>	401,779	85,648	21.3%	272,613	67.9%	43,518	10.8%	0.16
<b>2031</b>	415,326	85,320	20.5%	274,386	66.1%	55,620	13.4%	0.20
<b>2041</b>	435,800	86,233	19.8%	272,390	62.5%	77,177	17.7%	0.28
<b>2051</b>	443,412	81,064	18.3%	273,749	61.7%	88,599	20.0%	0.32
<b>2061</b>	442,335	76,656	17.3%	268,809	60.8%	96,871	21.9%	0.36
<b>2071</b>	437,373	75,281	17.2%	255,957	58.5%	106,135	24.3%	0.41

**Table C.2. Projected Cash Flows & Reserves, *Pessimistic Scenario* (millions of \$'s)**

Year	Cash Inflows				Cash Outflows				Reserves		
	Contribution Income	Investment Income	Other Income	Total	Benefits	Admin. Expenses	Other Expenses	Total	Surplus/ (Deficit)	End of Year	# of times current year's expenditure
<b>2007</b>	155.3	88.5	5.1	<b>249.0</b>	139.5	31.5	2.2	<b>173.2</b>	<b>75.7</b>	<b>1,492</b>	8.6
<b>2008</b>	154.9	80.9	5.2	<b>240.9</b>	152.1	32.8	1.7	<b>186.6</b>	<b>54.3</b>	<b>1,546</b>	8.3
<b>2009</b>	159.6	71.8	5.2	<b>236.6</b>	178.7	35.2	1.5	<b>215.5</b>	<b>21.1</b>	<b>1,568</b>	7.3
<b>2010</b>	167.5	90.2	2.5	<b>260.2</b>	176.0	38.2	3.5	<b>217.7</b>	<b>42.6</b>	<b>1,611</b>	7.4
<b>2011</b>	190.5	82.9	0.3	<b>273.7</b>	183.8	41.1	6.3	<b>231.3</b>	<b>42.4</b>	<b>1,653</b>	7.1
<b>2012</b>	202.9	88.8	0.3	<b>292.1</b>	199.0	43.2	8.3	<b>250.5</b>	<b>41.6</b>	<b>1,655</b>	6.6
<b>2013</b>	217.2	81.6	0.3	<b>299.1</b>	211.4	45.3	8.7	<b>265.3</b>	<b>33.8</b>	<b>1,689</b>	6.4
<b>2014</b>	231.0	78.2	0.4	<b>309.5</b>	224.0	48.0	9.0	<b>281.0</b>	<b>28.5</b>	<b>1,717</b>	6.1
<b>2015</b>	247.2	72.7	0.4	<b>320.3</b>	239.2	52.6	9.6	<b>301.4</b>	<b>18.8</b>	<b>1,736</b>	5.8
<b>2016</b>	256.0	68.2	0.4	<b>324.6</b>	256.1	55.7	10.0	<b>321.8</b>	<b>2.8</b>	<b>1,739</b>	5.4
<b>2017</b>	265.8	68.0	0.4	<b>334.3</b>	274.8	59.2	10.4	<b>344.3</b>	<b>(10.0)</b>	<b>1,729</b>	5.4
<b>2018</b>	278.6	67.4	0.4	<b>346.4</b>	296.0	63.4	10.9	<b>370.2</b>	<b>(23.8)</b>	<b>1,705</b>	5.0
<b>2019</b>	291.8	66.1	0.5	<b>358.4</b>	319.8	67.8	11.4	<b>398.9</b>	<b>(40.6)</b>	<b>1,665</b>	4.6
<b>2020</b>	305.3	64.1	0.5	<b>369.9</b>	345.7	72.4	11.9	<b>430.0</b>	<b>(60.1)</b>	<b>1,604</b>	3.3
<b>2021</b>	318.9	61.3	0.5	<b>380.7</b>	374.6	77.1	12.4	<b>464.2</b>	<b>(83.5)</b>	<b>1,521</b>	(1.5)
<b>2026</b>	391.5	29.5	0.6	<b>421.7</b>	563.2	100.4	15.3	<b>678.9</b>	<b>(257.2)</b>	<b>1,411</b>	(2.0)
<b>2031</b>	474.7	(47.4)	0.7	<b>428.1</b>	837.2	121.7	18.5	<b>977.4</b>	<b>(549.3)</b>	<b>1,269</b>	(2.5)
<b>2036</b>	573.3	(194.4)	0.9	<b>379.8</b>	1,182.7	147.0	22.3	<b>1,352.0</b>	<b>(972.2)</b>	<b>1,094</b>	(3.0)
<b>2041</b>	687.1	(437.5)	1.1	<b>250.6</b>	1,581.9	176.2	26.8	<b>1,784.8</b>	<b>(1,534.2)</b>	<b>1,094</b>	(3.5)
<b>2046</b>	824.1	(806.2)	1.3	<b>19.2</b>	2,031.3	211.3	32.1	<b>2,274.7</b>	<b>(2,255.6)</b>	<b>880</b>	(4.0)
<b>2051</b>	986.6	(1,332.9)	1.5	<b>(344.8)</b>	2,516.4	253.0	38.5	<b>2,807.9</b>	<b>(3,152.6)</b>	<b>880</b>	(3.5)
<b>2061</b>	1,391.3	(3,065.0)	2.2	<b>(1,671.5)</b>	3,875.0	356.7	54.2	<b>4,286.0</b>	<b>(5,957.5)</b>	<b>622</b>	(4.0)
<b>2071</b>	1,957.2	(6,267.6)	3.1	<b>(4,307.3)</b>	5,882.1	501.8	76.3	<b>6,460.3</b>	<b>(10,767.6)</b>	<b>317</b>	(4.5)

*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 – *Pessimistic Scenario* (millions of \$'s)**

Year	Pensions, Grants & Benefits						Benefits as a % of:	
	Retirement	Invalidity	Survivors	Assistance Pensions	Short-term	Industrial	Insurable Wages	GDP
<b>2006</b>	57.9	9.2	10.8	15.0	20.5	11.4	6.9%	1.6%
<b>2007</b>	68.4	9.8	12.3	16.2	21.1	11.6	7.4%	1.7%
<b>2008</b>	74.9	10.3	13.3	16.7	22.1	14.8	8.1%	1.8%
<b>2009</b>	82.0	10.6	13.9	16.4	41.5	14.2	9.2%	2.3%
<b>2010</b>	90.3	11.4	14.1	16.1	29.4	14.6	9.2%	2.3%
<b>2011</b>	99.7	12.2	15.3	16.1	28.9	11.5	8.8%	2.4%
<b>2012</b>	108.5	13.1	16.9	16.1	31.9	12.2	9.1%	2.5%
<b>2013</b>	118.5	13.8	17.6	15.6	33.3	13.2	9.2%	2.5%
<b>2014</b>	127.4	14.7	18.6	15.5	34.7	13.9	9.5%	2.6%
<b>2015</b>	137.1	15.5	19.6	15.5	37.3	15.0	9.4%	2.6%
<b>2016</b>	149.6	16.4	20.7	15.5	38.9	15.8	9.8%	2.6%
<b>2017</b>	163.7	17.4	21.6	15.6	40.6	16.8	10.1%	2.7%
<b>2018</b>	179.5	18.6	22.6	15.7	42.7	17.9	10.4%	2.8%
<b>2019</b>	197.7	19.8	23.4	15.8	45.0	19.0	10.7%	2.9%
<b>2020</b>	218.0	21.2	24.2	15.9	47.3	20.2	11.0%	3.0%
<b>2021</b>	240.9	22.6	25.0	15.9	49.6	21.5	11.5%	3.1%
<b>2031</b>	628.1	41.5	36.7	17.5	77.5	37.6	17.2%	4.6%
<b>2041</b>	1,269.7	66.6	58.3	20.4	112.7	56.7	22.4%	6.0%
<b>2051</b>	2,055.2	102.7	92.9	24.3	161.9	83.4	24.9%	6.8%
<b>2061</b>	3,200.5	161.5	139.1	29.3	228.3	121.9	27.2%	7.4%
<b>2071</b>	4,920.7	238.7	198.8	36.2	321.2	174.4	29.3%	7.9%

**Table C.4. Projected Contributors & Pensioners, *Pessimistic Scenario***

Year	# of Contributors	# of Pensioners In Payment					Total # of Pensioners	Ratio of Contributors to Pensioners
		Retirement	Invalidity	Survivors	Assistance	Death & Disablement		
<b>2006</b>	143,004	13,895	2,090	5,334	6,271	573	<b>28,163</b>	<b>5.1</b>
<b>2007</b>	148,270	14,439	2,071	5,385	5,960	586	<b>28,441</b>	<b>5.2</b>
<b>2008</b>	148,142	15,240	2,092	5,685	5,881	609	<b>29,507</b>	<b>5.0</b>
<b>2009</b>	145,560	16,796	2,171	5,910	5,772	646	<b>31,295</b>	<b>4.7</b>
<b>2010</b>	146,282	17,378	2,162	5,705	5,455	674	<b>31,374</b>	<b>4.7</b>
<b>2011</b>	145,293	18,419	2,300	6,470	5,297	573	<b>33,060</b>	<b>4.4</b>
<b>2012</b>	145,867	19,312	2,374	6,629	5,063	732	<b>34,110</b>	<b>4.3</b>
<b>2013</b>	146,073	20,147	2,443	6,886	4,871	754	<b>35,100</b>	<b>4.2</b>
<b>2014</b>	148,369	20,899	2,500	7,168	4,726	773	<b>36,066</b>	<b>4.1</b>
<b>2015</b>	154,494	21,629	2,552	7,419	4,610	790	<b>37,000</b>	<b>4.2</b>
<b>2016</b>	156,657	22,502	2,604	7,646	4,511	807	<b>38,070</b>	<b>4.1</b>
<b>2017</b>	158,754	23,532	2,666	7,805	4,420	826	<b>39,250</b>	<b>4.0</b>
<b>2018</b>	160,676	24,712	2,737	7,915	4,333	847	<b>40,543</b>	<b>4.0</b>
<b>2019</b>	162,541	26,041	2,815	7,964	4,248	869	<b>41,937</b>	<b>3.9</b>
<b>2020</b>	164,221	27,463	2,898	7,968	4,161	892	<b>43,382</b>	<b>3.8</b>
<b>2021</b>	165,714	29,036	2,985	7,948	4,071	916	<b>44,957</b>	<b>3.7</b>
<b>2031</b>	173,582	51,497	3,868	7,905	3,476	1,160	<b>67,907</b>	<b>2.6</b>
<b>2041</b>	176,209	74,208	4,464	8,439	3,164	1,331	<b>91,606</b>	<b>1.9</b>
<b>2051</b>	177,878	86,302	4,911	9,081	2,924	1,462	<b>104,680</b>	<b>1.7</b>
<b>2061</b>	175,903	95,090	5,409	9,406	2,751	1,604	<b>114,259</b>	<b>1.5</b>
<b>2071</b>	174,026	102,470	5,630	9,380	2,647	1,665	<b>121,791</b>	<b>1.4</b>



**Table C.5. Projected Cash Flows & Reserves, *Optimistic Scenario* (millions of \$'s)**

Year	Cash Inflows				Cash Outflows				Reserves		
	Contribution Income	Investment Income	Other Income	Total	Benefits	Admin. Expenses	Other Expenses	Total	Surplus/ (Deficit)	End of Year	# of times current year's expenditure
<b>2007</b>	155.3	88.5	5.1	<b>249.0</b>	139.5	31.5	2.2	<b>173.2</b>	<b>75.7</b>	<b>1,492</b>	8.6
<b>2008</b>	154.9	80.9	5.2	<b>240.9</b>	152.1	32.8	1.7	<b>186.6</b>	<b>54.3</b>	<b>1,546</b>	8.3
<b>2009</b>	159.6	71.8	5.2	<b>236.6</b>	178.7	35.2	1.5	<b>215.5</b>	<b>21.1</b>	<b>1,568</b>	7.3
<b>2010</b>	167.5	90.2	2.5	<b>260.2</b>	176.0	38.2	3.5	<b>217.7</b>	<b>42.6</b>	<b>1,611</b>	7.4
<b>2011</b>	190.5	82.9	0.3	<b>273.7</b>	183.8	41.1	6.3	<b>231.3</b>	<b>42.4</b>	<b>1,653</b>	7.1
<b>2012</b>	202.9	88.8	0.3	<b>292.1</b>	199.2	43.6	8.4	<b>251.2</b>	<b>40.9</b>	<b>1,654</b>	6.6
<b>2013</b>	229.3	86.6	0.3	<b>316.2</b>	212.9	50.2	9.2	<b>272.3</b>	<b>43.9</b>	<b>1,698</b>	6.2
<b>2014</b>	245.0	87.3	0.4	<b>332.7</b>	224.5	51.0	9.5	<b>285.0</b>	<b>47.7</b>	<b>1,746</b>	6.1
<b>2015</b>	263.4	88.1	0.4	<b>351.9</b>	238.5	53.4	10.3	<b>302.1</b>	<b>49.8</b>	<b>1,796</b>	5.9
<b>2016</b>	273.1	88.7	0.4	<b>362.2</b>	253.9	53.8	10.6	<b>318.4</b>	<b>43.8</b>	<b>1,839</b>	5.8
<b>2017</b>	284.6	90.7	0.4	<b>375.8</b>	271.2	54.6	11.1	<b>336.8</b>	<b>38.9</b>	<b>1,878</b>	5.8
<b>2018</b>	299.3	92.5	0.5	<b>392.2</b>	290.7	55.8	11.7	<b>358.1</b>	<b>34.1</b>	<b>1,913</b>	5.6
<b>2019</b>	314.5	94.0	0.5	<b>408.9</b>	312.6	56.9	12.3	<b>381.8</b>	<b>27.2</b>	<b>1,940</b>	5.3
<b>2020</b>	330.1	95.1	0.5	<b>425.7</b>	336.4	57.9	12.9	<b>407.1</b>	<b>18.5</b>	<b>1,958</b>	4.5
<b>2021</b>	345.9	95.7	0.5	<b>442.2</b>	362.8	58.8	13.5	<b>435.1</b>	<b>7.1</b>	<b>1,965</b>	0.8
<b>2026</b>	432.3	87.0	0.7	<b>519.9</b>	532.8	66.5	16.8	<b>616.2</b>	<b>(96.2)</b>	<b>1,959</b>	0.3
<b>2031</b>	530.4	40.4	0.8	<b>571.6</b>	773.8	81.6	20.7	<b>876.0</b>	<b>(304.4)</b>	<b>1,940</b>	(0.1)
<b>2036</b>	646.3	(70.3)	1.0	<b>576.9</b>	1,075.6	99.4	25.2	<b>1,200.3</b>	<b>(623.3)</b>	<b>1,898</b>	(0.5)
<b>2041</b>	783.7	(273.0)	1.2	<b>511.8</b>	1,422.8	120.6	30.5	<b>1,573.9</b>	<b>(1,062.0)</b>	<b>1,898</b>	(1.0)
<b>2046</b>	953.0	(599.7)	1.4	<b>354.8</b>	1,814.6	146.6	37.1	<b>1,998.3</b>	<b>(1,643.5)</b>	<b>1,831</b>	(1.5)
<b>2051</b>	1,157.2	(1,087.3)	1.7	<b>71.7</b>	2,239.4	178.0	45.1	<b>2,462.5</b>	<b>(2,390.9)</b>	<b>1,831</b>	(1.0)
<b>2061</b>	1,680.1	(2,793.9)	2.5	<b>(1,111.3)</b>	3,453.4	258.5	65.5	<b>3,777.4</b>	<b>(4,888.6)</b>	<b>1,735</b>	(1.5)
<b>2071</b>	2,414.0	(6,204.2)	3.6	<b>(3,786.6)</b>	5,278.3	371.4	94.1	<b>5,743.8</b>	<b>(9,530.4)</b>	<b>1,605</b>	(1.9)

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

**Table C.6. Projected Benefit Expenditure – *Optimistic Scenario* (millions of \$'s)**

Year	Pensions, Grants & Benefits						Benefits as a % of:	
	Retirement	Invalidity	Survivors	Assistance Pensions	Short-term	Industrial	Insurable Wages	GDP
<b>2006</b>	57.9	9.2	10.8	15.0	20.5	11.4	6.9%	1.6%
<b>2007</b>	68.4	9.8	12.3	16.2	21.1	11.6	7.4%	1.7%
<b>2008</b>	74.9	10.3	13.3	16.7	22.1	14.8	8.1%	1.8%
<b>2009</b>	82.0	10.6	13.9	16.4	41.5	14.2	9.2%	2.3%
<b>2010</b>	90.3	11.4	14.1	16.1	29.4	14.6	9.2%	2.3%
<b>2011</b>	99.7	12.2	15.3	16.1	28.9	11.5	8.8%	2.4%
<b>2012</b>	108.5	13.1	16.9	16.1	31.9	12.2	9.0%	2.5%
<b>2013</b>	118.2	13.8	17.6	15.6	34.8	13.6	8.8%	2.5%
<b>2014</b>	126.3	14.6	18.6	15.5	36.1	14.2	8.9%	2.5%
<b>2015</b>	135.1	15.3	19.5	15.5	38.6	15.3	8.8%	2.5%
<b>2016</b>	146.7	16.1	20.6	15.5	39.8	16.0	9.1%	2.5%
<b>2017</b>	159.8	17.0	21.6	15.6	41.2	16.8	9.3%	2.6%
<b>2018</b>	174.4	18.1	22.5	15.7	43.1	17.7	9.5%	2.6%
<b>2019</b>	191.3	19.2	23.4	15.8	45.1	18.8	9.7%	2.7%
<b>2020</b>	209.9	20.4	24.3	15.9	47.1	19.9	9.9%	2.8%
<b>2021</b>	231.0	21.7	25.2	15.9	49.1	21.0	10.2%	2.8%
<b>2031</b>	576.0	38.1	38.2	17.5	71.1	34.7	14.2%	3.9%
<b>2041</b>	1,127.2	59.7	61.3	20.4	104.5	52.4	17.7%	4.7%
<b>2051</b>	1,798.1	91.7	96.9	24.3	154.3	78.5	18.9%	4.9%
<b>2061</b>	2,800.6	143.5	145.6	29.3	224.0	116.6	20.0%	5.1%
<b>2071</b>	4,335.5	213.1	211.3	36.2	321.9	169.3	21.3%	5.3%

**Table C.7. Projected Contributors & Pensioners, *Optimistic Scenario***

Year	# of Contributors	# of Pensioners In Payment					Total # of Pensioners	Ratio of Contributors to Pensioners
		Retirement	Invalidity	Survivors	Assistance	Death & Disablement		
<b>2006</b>	143,004	13,895	2,090	5,334	6,271	573	<b>28,163</b>	<b>5.1</b>
<b>2007</b>	148,270	14,439	2,071	5,385	5,960	586	<b>28,441</b>	<b>5.2</b>
<b>2008</b>	148,142	15,240	2,092	5,685	5,881	609	<b>29,507</b>	<b>5.0</b>
<b>2009</b>	145,560	16,796	2,171	5,910	5,772	646	<b>31,295</b>	<b>4.7</b>
<b>2010</b>	146,282	17,378	2,162	5,705	5,455	674	<b>31,374</b>	<b>4.7</b>
<b>2011</b>	145,293	18,419	2,300	6,470	5,297	573	<b>33,060</b>	<b>4.4</b>
<b>2012</b>	147,326	19,291	2,373	6,632	5,063	732	<b>34,092</b>	<b>4.3</b>
<b>2013</b>	149,000	20,100	2,439	6,897	4,871	753	<b>35,061</b>	<b>4.2</b>
<b>2014</b>	152,845	20,824	2,494	7,197	4,726	771	<b>36,012</b>	<b>4.2</b>
<b>2015</b>	160,706	21,520	2,542	7,478	4,610	788	<b>36,937</b>	<b>4.4</b>
<b>2016</b>	163,914	22,361	2,591	7,745	4,511	804	<b>38,011</b>	<b>4.3</b>
<b>2017</b>	167,088	23,361	2,649	7,956	4,420	823	<b>39,209</b>	<b>4.3</b>
<b>2018</b>	170,118	24,500	2,717	8,126	4,333	844	<b>40,520</b>	<b>4.2</b>
<b>2019</b>	173,118	25,783	2,793	8,244	4,248	866	<b>41,933</b>	<b>4.1</b>
<b>2020</b>	175,963	27,155	2,873	8,322	4,161	889	<b>43,401</b>	<b>4.1</b>
<b>2021</b>	178,650	28,675	2,958	8,380	4,071	913	<b>44,997</b>	<b>4.0</b>
<b>2031</b>	196,930	50,227	3,802	9,198	3,476	1,156	<b>67,858</b>	<b>2.9</b>
<b>2041</b>	201,443	71,978	4,334	10,342	3,164	1,316	<b>91,134</b>	<b>2.2</b>
<b>2051</b>	208,078	83,702	4,694	11,276	2,924	1,427	<b>104,023</b>	<b>2.0</b>
<b>2061</b>	211,967	92,670	5,118	11,954	2,751	1,552	<b>114,044</b>	<b>1.9</b>
<b>2071</b>	211,467	100,810	5,348	12,213	2,647	1,618	<b>122,636</b>	<b>1.7</b>

## Appendix D Income, Expenditure & Reserves, 2007–2011

(Expressed in Thousands of \$'s)

	2007	2008	2009	2010	2011
<b>Income</b>					
Contribution Income	155,321	154,861	159,648	167,480	190,488
Investment Income	88,655	81,279	74,314	91,476	83,210
Investment Provisions & Impairments	(138)	(386)	(2,503)	(1,259)	(312)
Other Income	5,127	5,184	5,176	2,524	307
<b>Total Income</b>	<b>248,965</b>	<b>240,938</b>	<b>236,635</b>	<b>260,221</b>	<b>273,693</b>
<b>Expenditure</b>					
<b>Benefits</b>					
Sickness Benefit	10,921	11,468	10,056	10,073	11,204
Maternity Benefit	6,903	7,244	6,998	6,777	6,663
Maternity Grant	1,448	1,440	1,430	1,502	1,487
Funeral Benefit	1,846	1,983	2,225	2,295	2,459
Sickness Assistance	21	4	6	9	1
Unemployment	-	-	20,810	8,759	7,080
Retirement Benefit	68,398	74,922	82,048	90,292	99,735
Invalidity Benefit	9,831	10,281	10,644	11,424	12,248
Survivors Benefit	12,269	13,280	13,893	14,082	15,287
Old-Age Assistance	7,285	7,353	7,023	6,779	6,683
Invalidity Assistance	7,449	7,662	7,786	8,018	8,060
Survivors Assistance	1,473	1,641	1,598	1,299	1,388
Medical Care	6,910	9,473	8,566	8,708	5,886
Injury Benefit	1,367	1,617	1,441	1,832	1,694
Disablement Benefit	2,994	3,353	3,804	3,623	3,405
Death Benefit	317	337	325	342	386
Disablement Grant	50	62	68	140	172
<b>Total Benefit Expenditure</b>	<b>139,482</b>	<b>152,120</b>	<b>178,721</b>	<b>175,954</b>	<b>183,838</b>
<b>Administrative Expenditure</b>	<b>31,524</b>	<b>32,824</b>	<b>35,237</b>	<b>38,238</b>	<b>41,134</b>
Exp on Med Branch	2,226	1,663	1,535	3,467	6,346
<b>Total Expenditure</b>	<b>173,232</b>	<b>186,607</b>	<b>215,493</b>	<b>217,659</b>	<b>231,318</b>
Unclaimed Benefits	-	-	367	179	202
<b>Excess of Income over Expenditure</b>	<b>75,733</b>	<b>54,331</b>	<b>21,509</b>	<b>42,741</b>	<b>42,577</b>
<b>Reserves at End of Year</b>	<b>1,491,629</b>	<b>1,546,260</b>	<b>1,567,769</b>	<b>1,610,689</b>	<b>1,653,468</b>
Short-Term Benefits Branch	9,566	8,418	6,603	11,579	22,748
Pensions Branch	1,250,017	1,300,762	1,338,410	1,375,534	1,404,247
Industrial Benefits Branch	123,721	124,864	127,070	127,736	133,239
Medical Benefits Branch	107,749	111,640	95,110	95,085	92,276

## Appendix E Benefit Branch Experience & Analysis

Since the NIF's three categories of benefits have different characteristics and implicit financing mechanisms, accounting for these benefits is separated into three benefit branches. 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 benefits branch and the non-pension benefits that fall under the Industrial benefits branch, 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. A very small portion of contributions is allocated to the Medical Benefits Branch with the remainder going to the Pensions branch.

Table E.1 shows the contribution allocation and annual expenditure for each benefit branch.

**Table E.1. Summary Branch Experience (% of Insurable Wages)**

Benefit Branch	Contributions Allocated		Total Expenditure				
	Up to 5/2010	From 6/2010	2007	2008	2009	2010	2011
Short-term	1.36%	2.29%	1.39%	1.45%	2.50%	2.00%	1.80%
Industrial	0.70%	0.69%	0.76%	0.95%	0.88%	0.93%	0.69%
Pensions (Long-term)	6.07%	6.14%	6.92%	7.44%	7.75%	8.41%	8.34%
Medical	0.09%	0.05%	0.12%	0.09%	0.08%	0.18%	0.31%
<b>All Branches</b>	<b>8.22%</b>	<b>9.16%</b>	<b>9.18%</b>	<b>9.93%</b>	<b>11.22%</b>	<b>11.48%</b>	<b>10.95%</b>

Table E.2 shows changes in reserves and funding levels for each branch in 2006 and 2011.

**Table E.2. Benefit Reserves & Reserve-Expenditure Ratios, 2006 & 2011**

Benefit Branch	Year-end Reserves (in millions)		Reserve-Expenditure Ratio	
	2006	2011	2006	2011
Short-term	\$9.6	\$22.8	0.4	0.6
Industrial	\$119.2	\$133.2	8.2	9.3
Pensions (Long-term)	\$1,181.0	\$1,404.2	9.9	8.1
Medical	\$104.9	92.3	N/A	N/A
<b>Total Benefit Reserves</b>	<b>\$1,414.7</b>	<b>\$1,652.5</b>	<b>8.7</b>	<b>7.1</b>

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

With a reserve-expenditure ratio of 0.6, the Short-term Benefits Branch is slightly underfunded as an acceptable level is 1.0. The Industrial Benefits Branch, however, is significantly overfunded.

## E.1 Pensions Branch

**Table E.3. Pensions Branch Expenditure As % of Insurable Wages, 2007 - 2011**

	2007	2008	2009	2010	2011
<b>Benefits</b>					
Retirement	3.62%	3.98%	4.22%	4.73%	4.79%
Invalidity	0.52%	0.55%	0.55%	0.60%	0.59%
Survivors	0.65%	0.70%	0.71%	0.74%	0.73%
<b>Assistance</b>					
OANCP	0.39%	0.39%	0.36%	0.36%	0.32%
Invalidity	0.39%	0.41%	0.40%	0.42%	0.39%
Survivors	0.08%	0.09%	0.08%	0.07%	0.07%
<b>Administrative &amp; Other Expenses</b>					
	1.27%	1.33%	1.43%	1.49%	1.45%
<b>Total</b>	<b>6.92%</b>	<b>7.44%</b>	<b>7.75%</b>	<b>8.41%</b>	<b>8.34%</b>
<b>Total Benefits</b> (millions of \$'s)	<b>106.7</b>	<b>115.1</b>	<b>123.0</b>	<b>131.9</b>	<b>143.4</b>

**Table E.4. Pensions In Payment, Awarded & Terminated, 2007- 2011**

Pension Type	Paid in Dec 2006	Awarded 2007-2011	Terminated 2007-2011	Paid in Dec 2011	Avg. Monthly Pension Dec. 2006	Dec. 2011
<b>Benefits</b>						
Retirement	13,869	8,303	3,797	18,375	\$349	\$437
Invalidity	2,086	1,018	816	2,288	\$339	\$421
Survivors	3,525	2,588	1,904	4,209	\$239	\$279
<b>Assistance</b>						
OANCP	2,817	707	1,349	2,175	\$200	\$245
Invalidity	2,759	620	694	2,685	\$200	\$245
Survivors	717	191	464	444	\$155	\$202

Figures for Survivors pensions represent individual claims not the individual pensioners.

## E.2 Short-term Benefits Branch

**Table E.5. Sickness Benefit Experience, 2007-2011**

Year	# Claims Awarded per 1,000 Insureds	Average Benefit Duration (days)	Average Weekly Benefit	Cost as a % of Insurable Wages
2007	144	15.4	\$199	0.58%
2008	149	15.8	\$199	0.61%
2009	119	17.1	\$200	0.52%
2010	120	17.4	\$201	0.53%
2011	133	16.1	\$219	0.54%

**Table E.6. Maternity Benefit Experience, 2007-2011**

Year	# Claims Awarded per 1,000 Insureds	Average Benefit Duration (days)	Average Weekly Benefit	Cost as a % of Insurable Wages
2007	21	73.9	\$220	0.37%
2008	21	74.4	\$219	0.38%
2009	22	73.5	\$216	0.36%
2010	25	65.8	\$211	0.36%
2011	24	65.3	\$217	0.32%

**Table E.7. Maternity Grant & Funeral Benefit Experience, 2007-2011**

Year	# Births	# Claims Awarded	Cost as a % of Insurable Wages	# Deaths	# Claims Awarded	Cost as a % of Insurable Wages
2007	5,854	3,546	0.08%	1,798	1,225	0.10%
2008	5,480	3,658	0.08%	1,863	1,317	0.11%
2009	4,788	3,580	0.07%	1,981	1,476	0.11%
2010	4,790	3,563	0.08%	2,078	1,472	0.12%
2011	4,670	3,435	0.07%	2,127	1,557	0.12%

Note: Births & deaths for 2011 are provisional.

**Table E.8. Unemployment Benefit Experience, 2007-2011**

Year	# Claims Awarded per 1,000 Insureds	Average Benefit Duration (days)	Average Weekly Benefit	Cost as a % of Insurable Wages
2009	97	70.9	\$134	1.07%
2010	41	64.4	\$140	0.46%
2011	34	51.1	\$148	0.34%

**Table E.9. Administrative & Total Expenditure - STB Branch**

Year	As a % of Insurable Wages	
	Administrative & Other Expenditure	Total Branch Expenditure
<b>2007</b>	0.27%	1.39%
<b>2008</b>	0.27%	1.44%
<b>2009</b>	0.37%	2.49%
<b>2010</b>	0.42%	1.96%
<b>2011</b>	0.41%	1.79%

In 2009, a new form signed by the employer was required before Sickness, Maternity and Injury benefit claims were awarded. This form, known as the Med-4, was used to confirm that the claimant was indeed off from work for a given period. Following its introduction, there was a significant reduction in Sickness benefit claims with smaller reductions for Maternity and Injury benefits.

With a contribution allocation of 2.29% of insurable earnings, plus investment returns, the STB Branch receives sufficient contributions to meet projected expenditure.



### E.3 Industrial Benefits Branch

**Table E.10. Injury Benefit Experience, 2007-2011**

Year Ended	# Claims Awarded per 1,000 Insureds	Average Benefit Duration (days)	Average Weekly Benefit	Cost as a % of Insurable Wages
2007	10	26.9	\$216	0.07%
2008	11	26.6	\$216	0.09%
2009	10	28.6	\$222	0.07%
2010	12	27.3	\$223	0.10%
2011	12	26.0	\$237	0.08%

**Table E.11. Medical And Disablement Grant Experience, 2007-2011**

Year Ended	Medical Expenses		Disablement Grant	
	# Claims Awarded	Cost as a % of Insurable Wages	# Claims Awarded	Cost as a % of Insurable Wages
2007	2,165	0.37%	35	0.003%
2008	1,868	0.50%	32	0.003%
2009	2,263	0.44%	49	0.003%
2010	2,481	0.46%	62	0.007%
2011	2,919	0.28%	87	0.008%

**Table E.12. Disablement & Death Benefit Awards & Pensions In Payment, 2007-2011**

Year Ended	Disablement Benefit			Death Benefit		
	# Pensions Awarded	Pensions In Payment (December)	Payments as a % of Insurable Wages	# Pensions Awarded	Pensions In Payment (December)	Payments as a % of Insurable Wages
2007	35	514	0.16%	5	72	0.02%
2008	32	537	0.18%	2	72	0.02%
2009	49	580	0.20%	1	66	0.02%
2010	62	607	0.19%	10	67	0.02%
2011	87	637	0.16%	4	69	0.02%

**Table E.13. Administrative & Total Expenditure - Industrial Branch**

<b>Year Ended</b>	<b>As a % of Insurable Wages</b>	
	<b>Admin. &amp; Other Expenditure</b>	<b>Total Branch Expenditure</b>
<b>2007</b>	0.14%	0.76%
<b>2008</b>	0.16%	0.95%
<b>2009</b>	0.15%	0.87%
<b>2010</b>	0.16%	0.92%
<b>2011</b>	0.14%	0.69%

While the contribution allocation of 0.69% of insurable earnings closely matches projected expenditure, investment returns on the large amount of reserves are likely to lead to annual surpluses.

## Appendix F      Unemployment Benefit

In early 2009, amendments to the NI Act & Regulations that led to the introduction of unemployment benefits were passed. The new benefit was instituted in response to lay-offs, reduced working hours and business closures that began in late 2008 caused by the effects of the global economic crisis.

Unemployment benefit was introduced in two phases:- the first phase, which ran from April 2009 to May 2010, was a non-contributory unemployment benefit assistance program where eligibility conditions were liberal, allowing persons who had not worked for up to 4 years to qualify. Then in June 2010, the total NIB contribution rate was increased by 1% and benefit eligibility was dependent on recent employment and contributions.

Following is a summary of key provisions for each phase.

### Interim Phase:

- Start date: April 20, 2009
- Must have been unemployed to qualify
- Benefit duration: 13 weeks
- Benefit rate: 50% of average weekly insurable wages
- Applicant must not have been in receipt of any other NIB benefits or assistance other than Survivors or Disablement benefits.
- Applicant must not have been self-employed or voluntarily insured.
- Eligibility requirements same as for Sickness benefit:
  - At least 40 paid contribution weeks plus one of:
    - (a) 13 paid or credited contribution weeks in last 26 weeks;
    - (b) 26 paid or credited contribution weeks in last 52 weeks;
    - (c) 26 paid or credited contribution weeks in last contribution year (July to June).
- 2-week waiting period - from last day of work or after period for which pay in lieu of notice and/or redundancy payments had expired.
- Continuing eligibility to weekly payments will be based on:
  - Registering with Labour Exchange every 4 weeks,
  - Being unemployed,
  - Being available and looking for work; and
  - Have not refused suitable employment.
- Initially, the benefit was funded with a transfer of \$20 million from the Medical Benefits Branch.

**Permanent Phase:**

- Same coverage and benefit provisions but different contribution requirements
- Contribution requirements for benefit eligibility:
  - (a) insured for at least 52 weeks, and
  - (b) at least 13 paid or credited contributions in the 26 weeks prior to the week in which unemployment began, and
  - (c) at least 7 contributions in 13 weeks prior to the week in which unemployment commenced.
- If the maximum unemployment benefit duration was recently exhausted then another unemployment benefit cannot be awarded until 52 weeks since the last week benefit was paid has elapsed.
- If an insured person becomes unemployed quite frequently, then he/she can qualify again and again as long as he/she has not benefited for the maximum benefit duration in the last 52 weeks and still meets the conditions listed above.

**Experience:**

The following tables highlight unemployment benefit experience in its first 32 months.

Benefit Branch	Temporary Phase		Permanent Phase	
	Apr. to Dec. 2009	Jan. to May. 2010	June to Dec. 2010	2011
# Claims Awarded	14,132	2,286	3,662	4,942
Average Duration (weeks)	11.9	11.5	11.3	11.1
Average Weekly Benefit	\$134	\$140	\$139	\$147
Total Paid (millions)	\$20.8	\$8.8		\$7.1

The fact that employees of the Bahamas Government contribute at the same rate as private sector workers and have a much lower chance of becoming unemployed, helps reduce the cost of Unemployment benefits when compared with insurable wages. As a result, the 1% contribution rate has been sufficient to meet the cost of the 50% benefit payable for a maximum of up to 13 weeks, even with a 22% allowance for administrative costs.

## Appendix G National Prescription Drug Plan

In September 2009, the Bahamas Government through the NIB established the National Prescription Drug Plan (NPDP). With an estimated one in three Bahamians suffering from one or more chronic diseases, the NPDP provides prescription drugs for the most prevalent and/or most costly chronic illnesses. Initially, 11 chronic illnesses were covered and NIB pensioners and invalids, children and Bahamians over 65 years normally resident in The Bahamas were able to qualify for over 150 prescription drugs free of charge. In 2011, civil servants, indigents and women receiving anti-natal and post-natal care were allowed to enrol. In early 2012, three additional illnesses were added.

To date, the NPDP has been financed by NIB's Medical Benefits branch as follows:

	<b>2010</b>	<b>2011</b>
<b>Prescription Drugs</b>	\$0.65 million	\$3.30 million
<b>Administration</b>	\$1.92 million	\$1.78 million
<b>Total</b>	<b>\$2.57 million</b>	<b>\$5.08 million</b>

Estimated expenditure for 2012 is \$6.8 million.

It is not clear for how much longer the NIF, through the Medical Benefits Branch, will bear the cost of the NPDP. Previous discussions related to the expansion of the Plan to include all NIB insured persons included a 1% contribution rate by all workers, shared equally by the employer and employees, and a co-payment for each prescription. For the projections presented in this report, it has been assumed that NPDP expenditure will continue to be met by the Medical Benefits Branch.

