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2014 FEBRUARY 4

ACTUARIAL ANALYSIS OF THE SUSTAINABILITY OF THE NATIONAL INSURANCE SCHEME (NIS) IN JAMAICA

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2014 February 4

Permanent Secretary
Ministry of Labour and Social Security
14 National Heroes Circle
Kingston 4.

Dear Sir:

ACTUARIAL ANALYSIS OF THE SUSTAINABILITY OF THE NATIONAL INSURANCE SCHEME AS AT 2013 MARCH 31

1. TERMS OF REFERENCE AND ACTUARIAL OPINION

Terms of Reference

1.1 We were contracted by the Inter-American Development Bank (IADB) to provide to the Ministry of Labour and Social Security (MLSS) an updated actuarial analysis and a roadmap for strengthening the NIS. In particular, we are to:

(i) Guide the MLSS in reviewing and analysing the sustainability and coverage of the NIS, if the current conditions are sustained over time; and

(ii) Propose a roadmap and reform agenda for strengthening the role of the NIS, with the final aim of expanding pension coverage, while ensuring fiscal sustainability, taking into account the institutional capacity in the country.

1.2 To respond to the objectives we will:

(i) First, review and analyse the sustainability and coverage of the NIS if the current conditions are maintained over time, by projecting the pension coverage – contributors and pensioners – for a period of 50 years ending in 2063 and advise:

- Outgo – expenditure for pensions and grants, NI Gold (Medical Benefits provided by the Scheme since 2003 December) and the expenses of the Scheme;
- Income – contributions, investment earnings;
- Sustainability – Reserve levels of the National Insurance Fund (NIF) over the period;
- Adequacy – sufficiency of the pensions versus prior compensation.

(ii) Second, review the investments of the Fund – the investment policies and principles, strategies that have been utilized, historical performance, future goals and any asset liability matching strategies in place – with a view to determining whether the assets are optimally invested or the strategies could be changed to improve returns.

(iii) Third, develop models for contributions and benefits that can improve the adequacy and sustainability of the Fund, taking into account the investment strategy developed above, the minimum benefit levels identified in the consultations and the current economic conditions of the country.

(iv) Propose a Road Map and Reform Agenda for strengthening the role of NIS, expanding pension coverage, ensuring fiscal sustainability and adequate benefits.

1.3 **In this report we present our findings in respect of the Sustainability of the Fund. The Road Map and Reform Agenda will be presented under separate cover**.

Reliance on Data and Actuarial Opinion

1.4 Except as noted in the report, our review was based on the membership data (**Appendix 1**) and financial information (**Appendix 2**) supplied by the MLSS and the provisions of the NIS Act as at 2013 March. We have not audited the financial or membership data, but we have checked the data for reasonableness as appropriate based on the purpose of the valuation. We have relied on all the information provided, as being accurate.

1.5 The results summarized in this report involve actuarial calculations that require assumptions about future events. We believe that the assumptions and methods used in the valuation and documented in this report are reasonable and appropriate for the purposes for which they have been used. In our opinion, all methods, assumptions and calculations are in accordance with applicable Actuarial Standards of Practice and the procedures followed and presentation of results are in conformity with generally accepted actuarial principles and practices.

1.6 The results documented in this report are estimates based on data that may be imperfect and on assumptions about future events. Reasonable efforts were made to ensure that items that are significant in the context of the benefits, expenses or contributions were treated appropriately, and not excluded or included inappropriately. A range of results, different from those presented in this report, could be considered reasonable.

1.7 Our assumptions (**Section 2** and **Appendix 3**) are reasonable but are not predictions. Eventual differences between the future experience and our assumptions should be analysed and taken into account in subsequent reviews of the NIS.

1.8 The undersigned is a Fellow of the Society of Actuaries and is qualified to render the Opinions contained herein. There is no relationship between the MLSS or the Government of Jamaica and Eckler that would impair our objectivity.

Sincerely,
Eckler

Constance Dalmadge Hall, FSA
Principal

2. EXECUTIVE SUMMARY

Consultations

2.1 We commenced our review of the NIS with Consultations conducted between June 17 and July 3, with representatives of:

- MLSS;
- The Planning Institute of Jamaica (PIOJ);
- The Statistical Institute of Jamaica (STATIN); and
- Eckler.

Meeting participants are listed in Appendix 4. The Ministry of Finance and Planning (MoFP) was invited to participate, but did not.

2.2 The objectives of the consultations were to discuss Jamaica's current and developing economic conditions and develop long-term assumptions of the operations of the Scheme. MLSS presented challenges and accomplishments in the management of the Scheme relating to:

- The current participation levels – registered subscribers versus actual contributors;
- The currency of the data (membership and financial);
- The policies in place to deal with uncollected contributions, failure to register eligible persons;
- The realistic expectations and goals of NIS, in terms of both coverage and benefits (minimum benefit levels).

Assumptions

2.3 Following the consultations, we developed assumptions with respect to:

▪ Mortality	▪ Inflation
▪ Withdrawal Rates (migration, redundancies, resignations, etc.)	▪ GDP Growth
▪ New Contributors (profile of "ordinary" new entrants and "special" new entrants following a "registration drive")	▪ Returns on the Fund
	▪ Salary Growth
▪ Retirements	▪ Administrative Expenses.

2.4 Details of the rationale for the selection of assumptions are provided in Appendix 3. The key assumptions are set out below.

2.5 The economic assumptions are as follows:

	Base	Low Inflation	High Inflation
1. Inflation (% p.a.)	8.00	6.00	10.00
2. Expected Return on Assets (% p.a.)	8.50	8.00	9.50
3. Salary Growth (% p.a.)	7.62	5.63	9.62
4. Insurable Wage Ceiling	Inflation		
5. Expenses (Admin & Fund Management)	9.50% Contributions		
6. Pension Increases – Flat Rate Only (% p.a.)			
• Base	6.50		
• Low Expenditure	4.00		
• High Expenditure	9.00		
7. GDP Growth	Inflation		

To the extent possible, the base assumptions taken together represent a continuation of the historical trends. The inflation rate of 8% is that recommended by the PIOJ during the consultations. Salary growth together with the growth in the Labour Force represent Labour Compensation Growth of the rate of inflation; same as the GDP.

2.6 The demographic assumptions are summarized below:

(i) New Contributors:

- **C0** – 30,000 increasing by 1.5% for 15 years and 1.0% thereafter – Base Scenario.
- **C1 –** 20,000 increasing by 1.5% for 15 years and 1.0% thereafter (fewer contributors).

(ii) Retirement – Males age 66 years, Females age 65 years.

(iii) Marital Status – As reported, otherwise 70% assumed married.

(iv) Mortality – Rates provided by the Statistical Institute of Jamaica, with dynamic projections using scale AA of the Society of Actuaries.

(v) Withdrawal – Rates developed from the data submitted for the review (Appendix 1).

The Projections

2.7 Details of the Projections are set out in Sections 4, 5 and 6. The future Pensioners and other benefit recipients and their benefits are projected from Pensioners at 2013 March 31, Contributors up to 2010 and estimated new Contributors. Future contributors and contributions are projected from the Contributors up to 2010 and the estimated new Contributors. We estimated income and outgo of the Fund based on different long-term assumptions, as set out in Appendix 3 and summarized above. The benefits include NI Gold (medical benefits) which is paid from the Scheme. The National Health Fund (NHF) is a separate programme and is not reflected in this report. The contributions used in the projections are net of the portion pertaining to the NHF.

It is very important to note that the projections are for a period of 50 years. The Surplus/(Deficit) presented is not with respect to the total lifetime pension, only the cash flows during this 50-year period.

Sustainability of the NIS – Current Conditions Maintained Over Time

2.8 Our review of the Scheme confirms that the current contribution rate cannot support the current level of pension. Below we show the maximum contributions paid by persons retiring with the maximum pensions over the last 23 years.

TABLE 2_I
TOTAL CONTRIBUTIONS PAID COMPARED TO BENEFIT PAYABLE

Year of Retirement	Pension in Payment at the Review Date ($ per week)	Maximum Total Contributions Paid ($)	Total Pensions Paid to the Review Date ($)	Rate of Return on Contributions over Period to the Review Date
1990	2,822	5,809	929,147	24.7% p.a.
1995	2,844	9,579	935,995	29.0% p.a.
2000	3,087	62,212	1,020,025	24.0% p.a.
2005	3,428	135,962	928,193	27.1% p.a.
2010	3,889	235,962	540,399	31.8% p.a.

2.9 The pensions above do not include the SA, another $900 per week, if legally married or with a common law spouse. On death of the retiree, the full Flat Rate and one-half the Wage Related pension continues to the Spouse.

2.10 Clearly returns on investment at these levels are unsustainable over any long period of time. In only three years, the retiree in 2010 had already received more than twice his contributions returned to him as pension payments. Meanwhile, this retiree's life expectancy is around 15 years; that is, he is expected to receive pensions for another 15 years and on his death, his spouse (if he is married) will continue to receive a pension (his full FR pension plus 1/2 his WR – currently $3,345 per week) for the remainder of her lifetime. Also, whether or not the pensioner is married, a funeral grant – currently $80,000 will be payable.

Given the very high rates of return on Members' contributions, it is reasonable to expect that the Scheme would not be sustainable, with the current benefits and contributions.

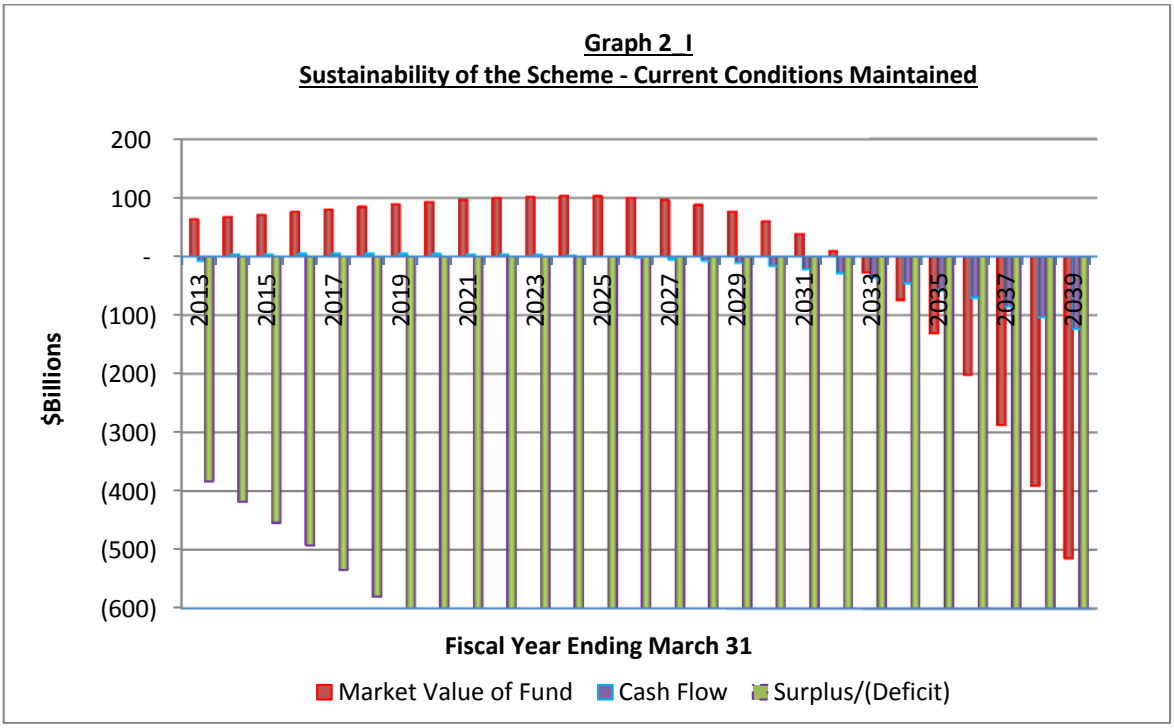
Surplus/(Deficit) in Respect of Current Pensioners

2.11 **On the base assumptions, as at the Review Date, there was a Deficit of $65 billion (US$657 million) in respect of the Pensioners**; Market Value of Assets of $63.5 billion compared to the present value of their benefits of $128.5 billion. Even if the pensions are not increased in the future (inconsistent with the historical trend) the Scheme has a deficit of $20 billion (US$202 million) in respect of current pensioners.

2.12 The Deficit of $65 billion is equivalent to 5% of the Gross Domestic Product (**GDP**). It is $148,358 per active contributor (estimated at 438,128 as at 2013 March 31) or $58,700 per member of the employed Labour Force.

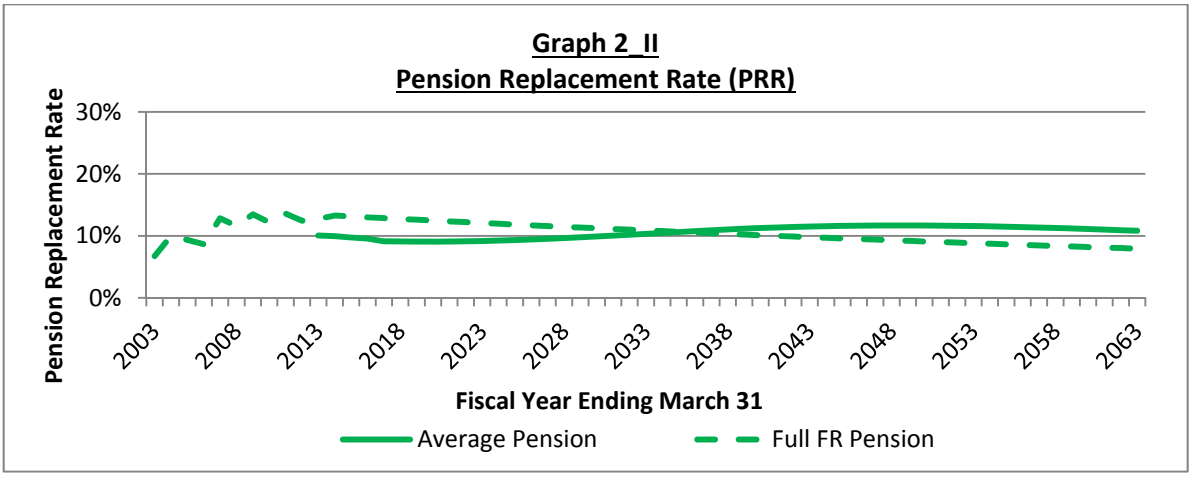
Surplus/(Deficit) in Respect of All Participants

2.13 The Deficit as at the Review Date in respect of all Participants (Pensioners and Contributors) and NI Gold, taking into account the future benefit accrual and contributions of active Contributors is shown in Graph 2_I below. The Deficit in respect of active Contributors is the Present Value of their Benefits less the Present Value of their Contributions. **The Deficit at the Review Date would be $384 billion (28.8% GDP) and the Fund would be exhausted by 2033 (Section 4.7). The cash flow becomes negative in 2025.**

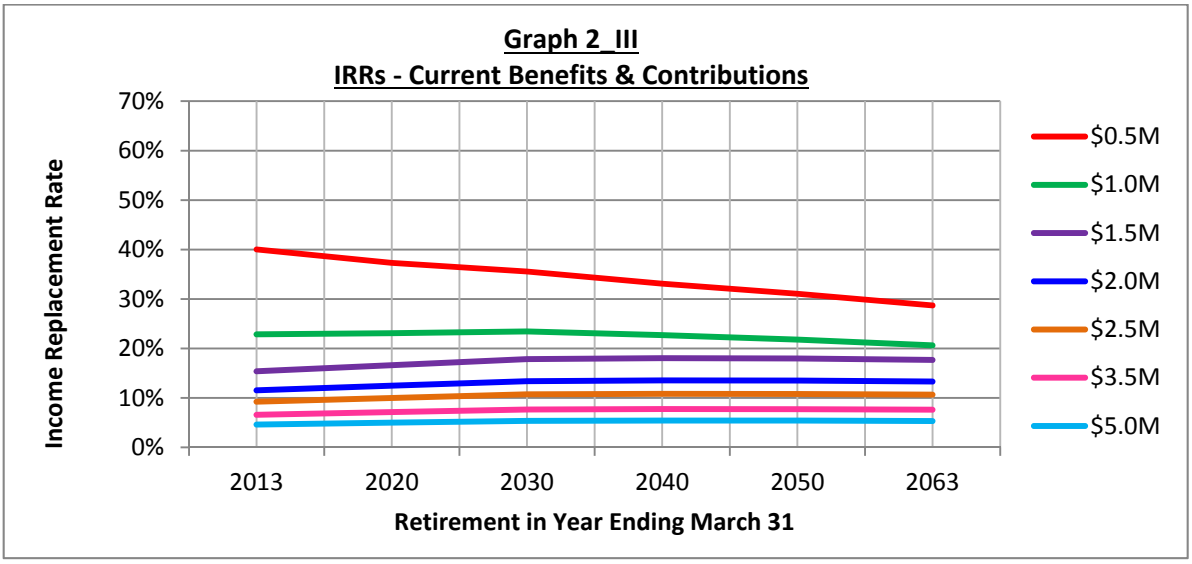


Adequacy of the Benefits – Current Conditions Maintained Over Time

2.14 The dilemma is that the Fund is not sustainable with the current benefits, but the benefits are inadequate. Graph 2_II below shows the Average NIS Pension compared to the National Average Wage (Pension Replacement Rate). The graph shows that over the review period, the average pension represents a replacement rate of 10% to 11%.



2.15 It is important to also consider the individual Income Replacement Rates (IRRs); the percentage of an individual pensioner's salary at date of retirement that would be replaced by his pension, since if these are not meaningful it will be difficult to encourage voluntary participation. Since a substantive component of the total Pension is independent of salary (the FR pension), the IRRs vary significantly by Income and are shown in Graph 2_III, below at different income levels.



The pensions are quite inadequate, at all income levels.

Contributions Required for Sustainability of the Fund – Current Conditions Maintained Over Time

2.16 We determined the contribution rate required to fund the current benefits. Details are provided in Sections 4.16 to 4.20, but below we show the required contribution rates for a new female contributor earning $750,000 per annum in 2013.

TABLE 2_II
JOINT CONTRIBUTION RATE FOR NEW FEMALE CONTRIBUTOR CURRENT SALARY OF $750,000 P.A.

Age at Entry	Flat Rate (FR)	Wage Related (WR)	SA & WW[1]	TOTAL
25	4.4	2.3	1.9	8.6
30	4.1	2.6	2.2	8.9
35	5.1	3.0	2.7	10.9
40	6.7	3.5	3.5	13.7
45	6.0	4.1	4.5	14.6
50	8.6	4.9	6.5	20.0

2.17 The required contribution rate would be 8.6% to 20.0% salary up to the IWC of $1.5 million, depending on age at entry. The Table also shows the high cost of the Spousal benefits. While the pensioner is alive a spouse's allowance is payable (currently $900 per week). On the death of the pensioner, a surviving spouse's pension is payable – equal to the total FR pension plus one-half the WR pension. **At lower income levels, the required contribution rate to fund the benefits rises**.

The required contribution rate to sustain the current benefits is 13.5% – 14.0% Salary, up to the IWC of $1.5 million (See Section 4.20).

Impact of Changing Investment Strategy

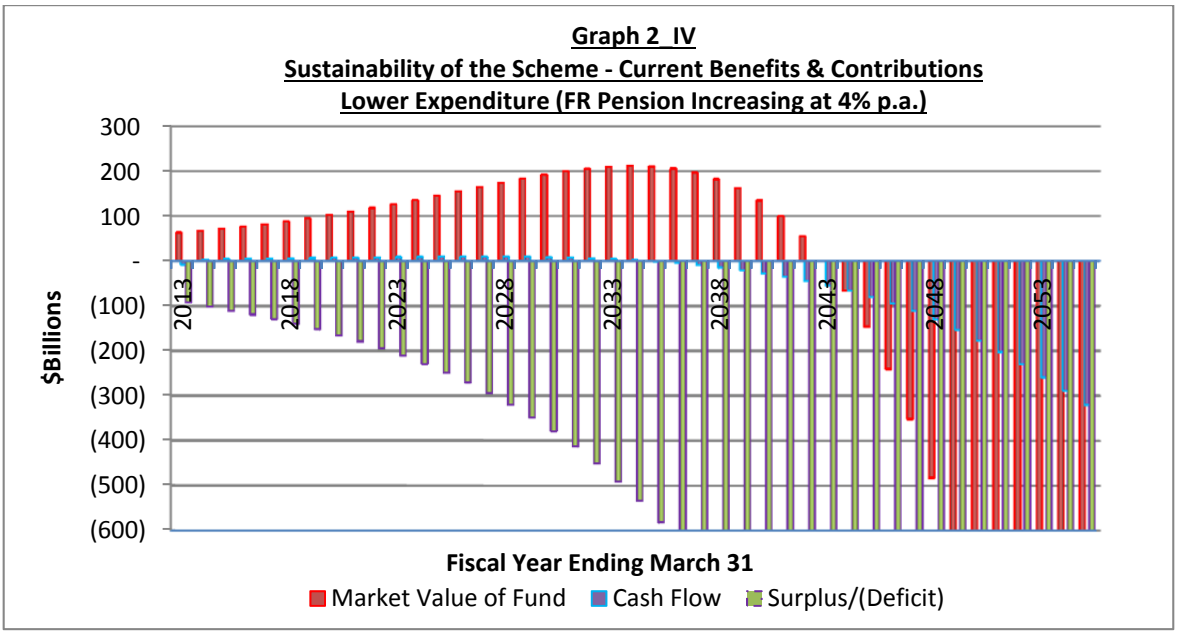
2.18 We conducted an assessment of the investment strategy of the Fund with the objective of determining whether the current strategy was optimal or whether a change in strategy could materially improve the performance of the Fund and hence the Sustainability of the Scheme. The detailed report, prepared by Eckler's Asset Management Team, located in our head office in Toronto, Canada, is attached as Annex 2. We concluded that, at best, the life of the Fund would be extended by only one year with a strategy that includes allocation of 20% of the Fund to Global Equities.

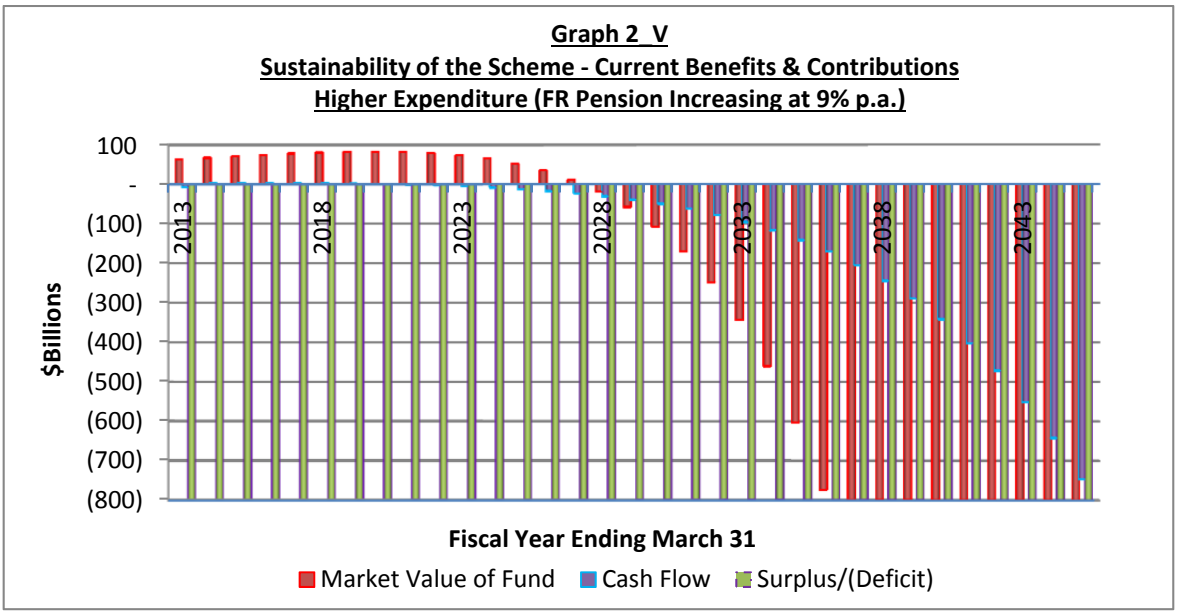
[1] Spouse Allowance & Widow/Widower Pension

Scenario 1 – FR Pension Increases Higher / Lower than 6.5% Per Annum

Sustainability

2.19 The results above assume FR pension increases of 6.5% p.a. Below, results with higher (9.0% p.a.) and lower (4.0% p.a.) increases in the FR pension are presented. With the FR pension increasing at 4.0% p.a., the Deficit would be significantly lower – $93 B as at the Review Date. The cash flows would be positive until 2034 and the life of the Fund would be extended by eleven (11) years, to 2044. However with the higher expenditure (9.0% p.a. increase), the Deficit as at the Review Date skyrockets to $1,017 B; the cash flows would be negative from 2021 and the Fund would be exhausted by 2028 (in just 15 years).



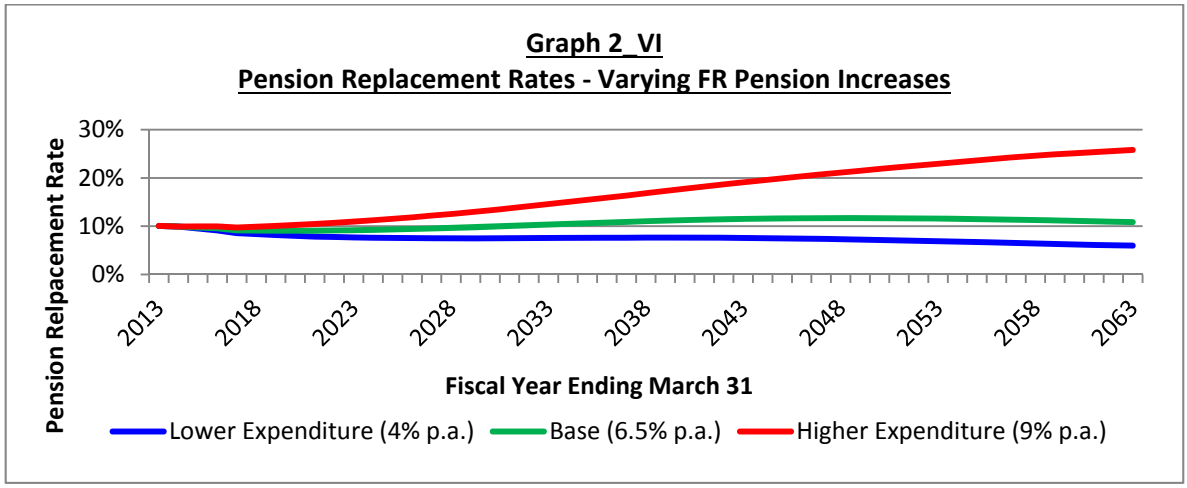


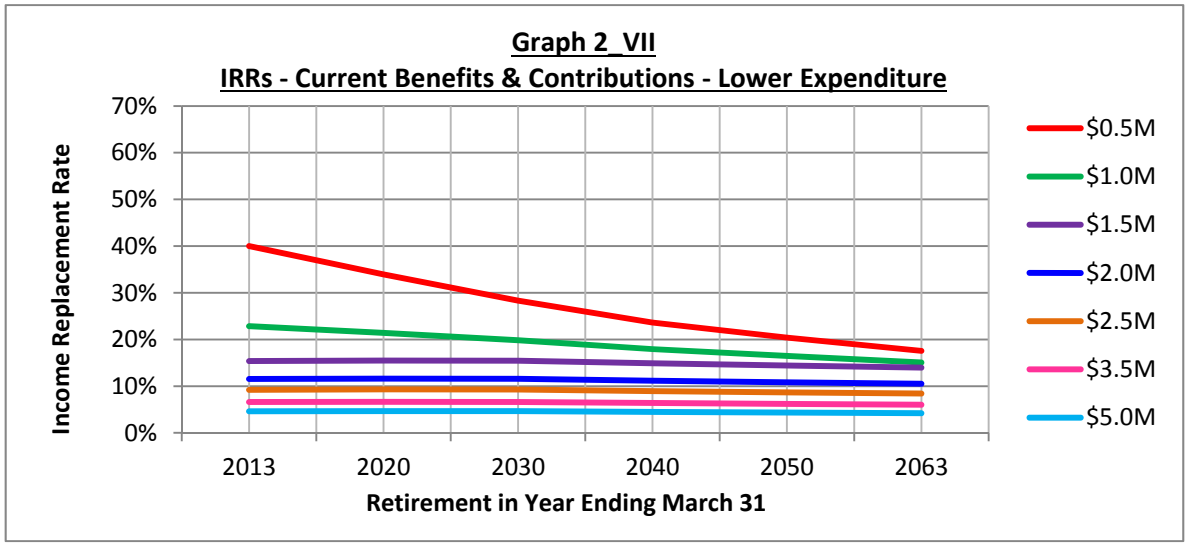
2.20 The results are summarized below.

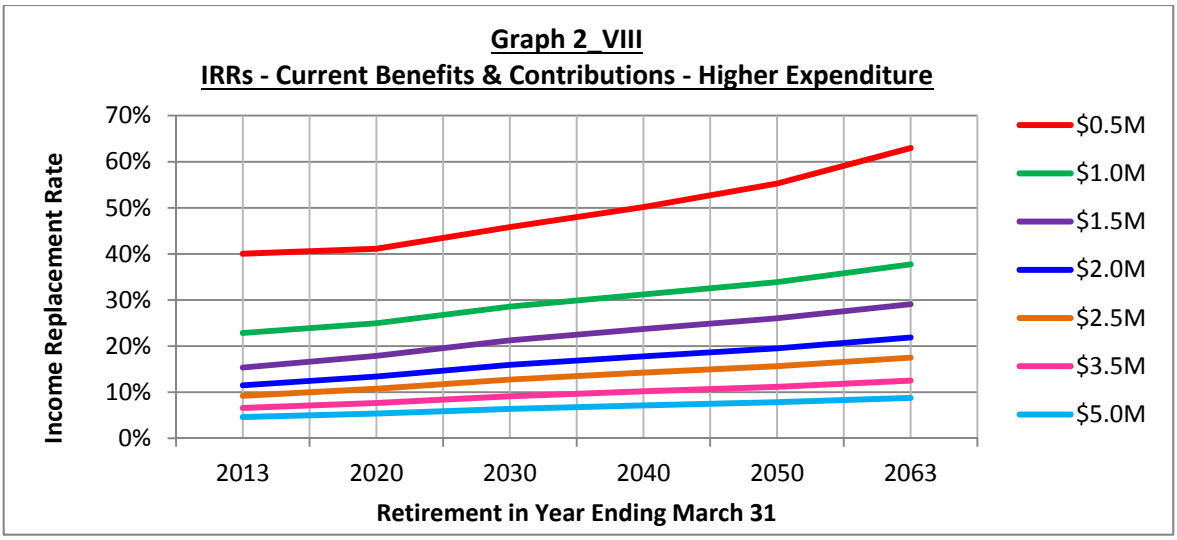
Current Benefits & Contributions	Surplus /(Deficit) at the Review Date ($ B)	Year Ending March 31 in Which	
		Fund Exhausted	Cash Flow Negative
Lower Expenditure	(93)	2044	2035
Base	(384)	2033	2025
Higher Expenditure	(1,017)	2028	2021

Adequacy

2.21 The PRRs and IRRs with lower and higher expenditure are shown in Graphs 2_VI to 2_VIII, below. With the higher FR Pension increases, the PRR would more than double by 2063. Meanwhile with increases of 4%, the IRR at the low income level would decrease by more than 50%.



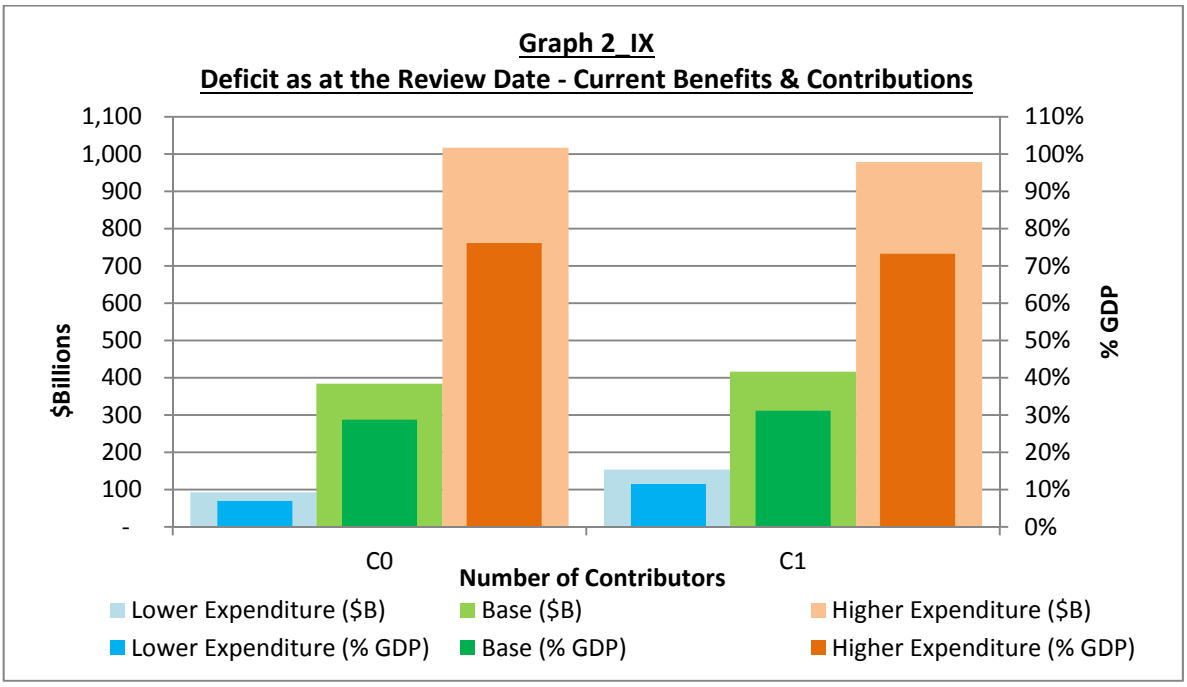




Scenario 2 – Fewer Contributors

Sustainability of the Scheme

2.22 In Graph 2_IX below, we show the Deficit with 1/3 fewer new contributors in each year.



2.23 On the Base assumption, the Deficit as at the Review Date would increase by about 10%; from $384 B (28.8% GDP) to $416 billion (31.2% GDP). With the assumption of lower expenditure and fewer new contributors, the Deficit increases by about 65%, from $93 B (C0) to $153 B (C1) and with the assumed higher expenditure and fewer new contributors, the Deficit would be about 5% lower; $979 B versus $1,017 B.

It is important to note that with the higher expenditure, a greater number of new contributors is harmful to the Fund as the benefits exceed the contributions.

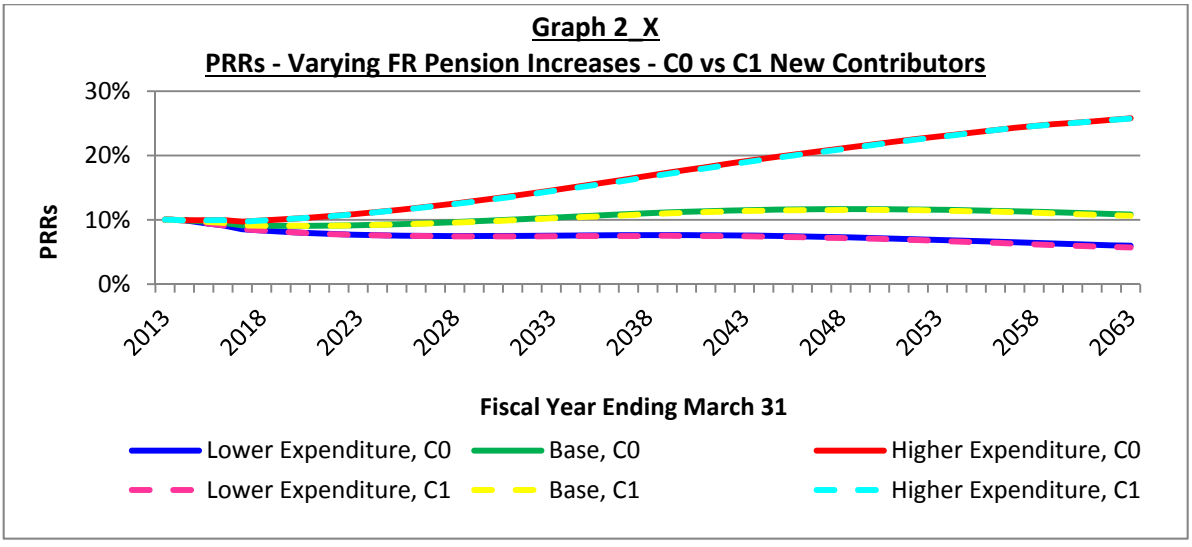
2.24 The database is not up-to-date. The data provided to us included 280,961 persons with contributions in 2010 and many more persons whose last contributions were in 2009 and earlier. In Section 4.2 we note that we have included as active Contributors, 147,302 persons who were reported as having contributed in 2008 and/or 2009 but not in 2010. We assumed that persons without contributions in 2008 or later would not resume contributing.

2.25 The results on the base scenario, but excluding future contributions from the 2008 and 2009 re-entries are compared below. When contributions from these are excluded, the Deficit is lower as their benefits, most of which will come due well into the future, are lower. However, the Fund is exhausted sooner, due to lower contribution income immediately.

Current Benefits and Contributions & Base Assumptions (FR Pension Increasing at 6.5% p.a.)	**Surplus / (Deficit) at Review Date ($B)**		**Year Ending March 31 In Which Fund Exhausted**	
	C0	**C1**	**C0**	**C1**
Including Contributions from the 2008 and 2009 Contributors	(384)	(416)	2033	2029
Excluding Contributions from the 2008 and 2009 Contributors	(351)	(383)	2029	2026

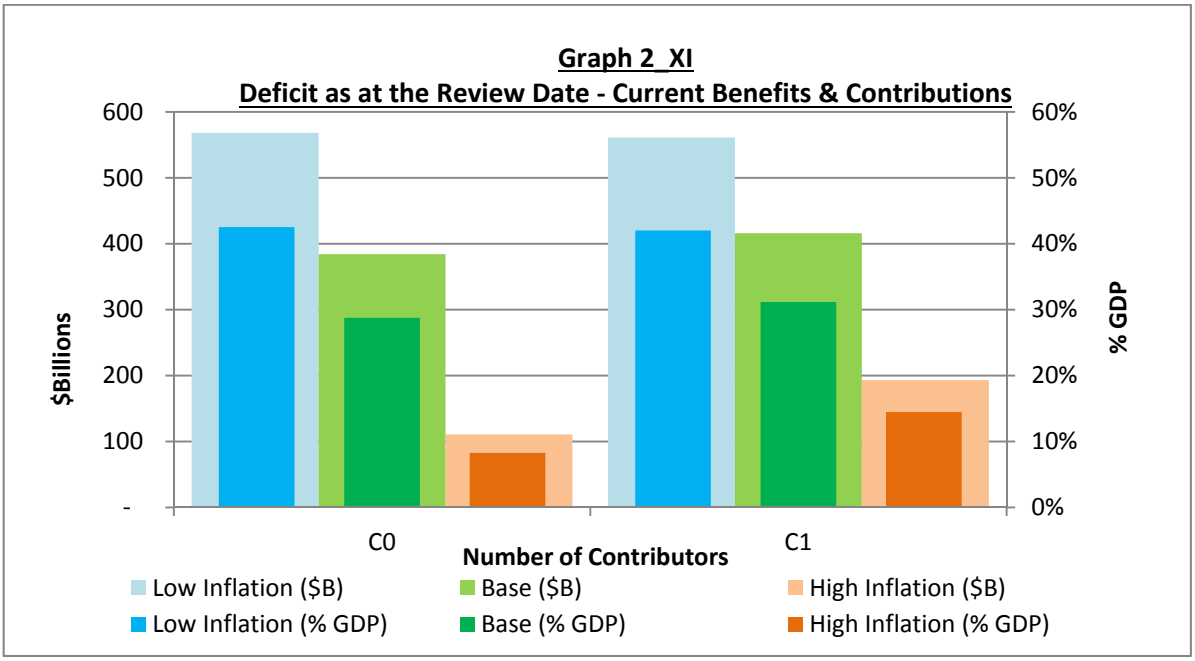
Adequacy

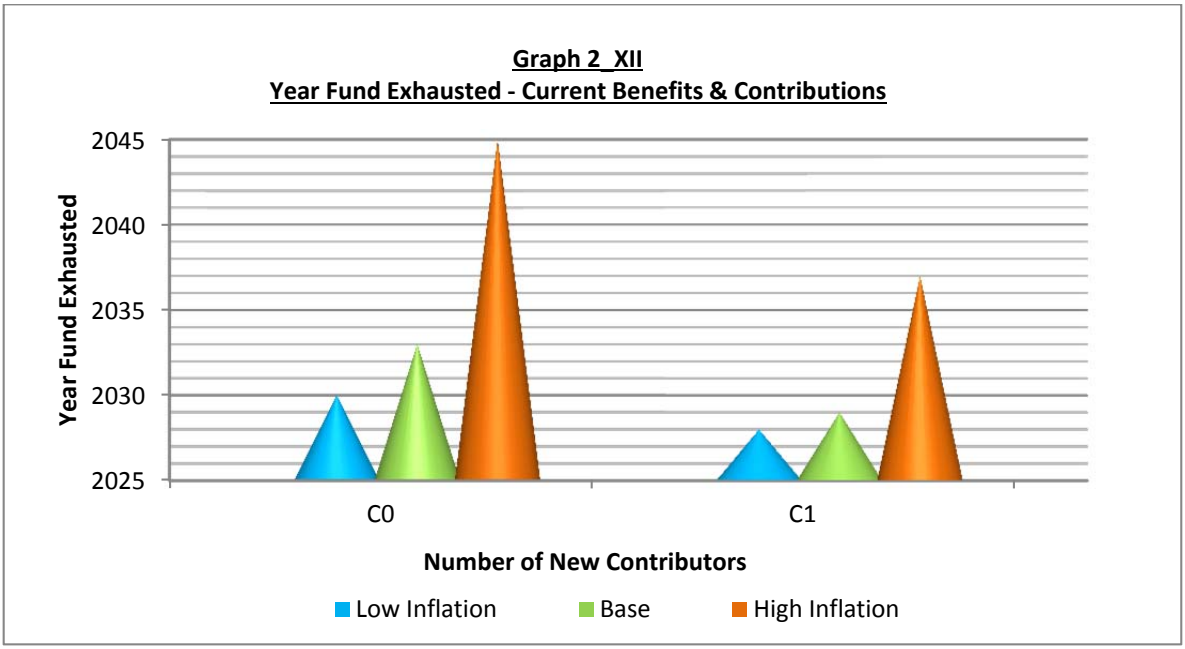
2.26 The PRRs with fewer contributors are shown below; there is practically no variation in PRRs based on coverage.



Scenario 3 – Higher /Lower Inflation

2.27 With higher (10% p.a.) or lower (6% p.a.) inflation, the expectation is that the economic assumptions would change (as shown in Section 2.5). The Surplus/(Deficit) and year by which the Fund would be expected to be exhausted are compared in Graph 2_XI and Graph 2_XII, below.



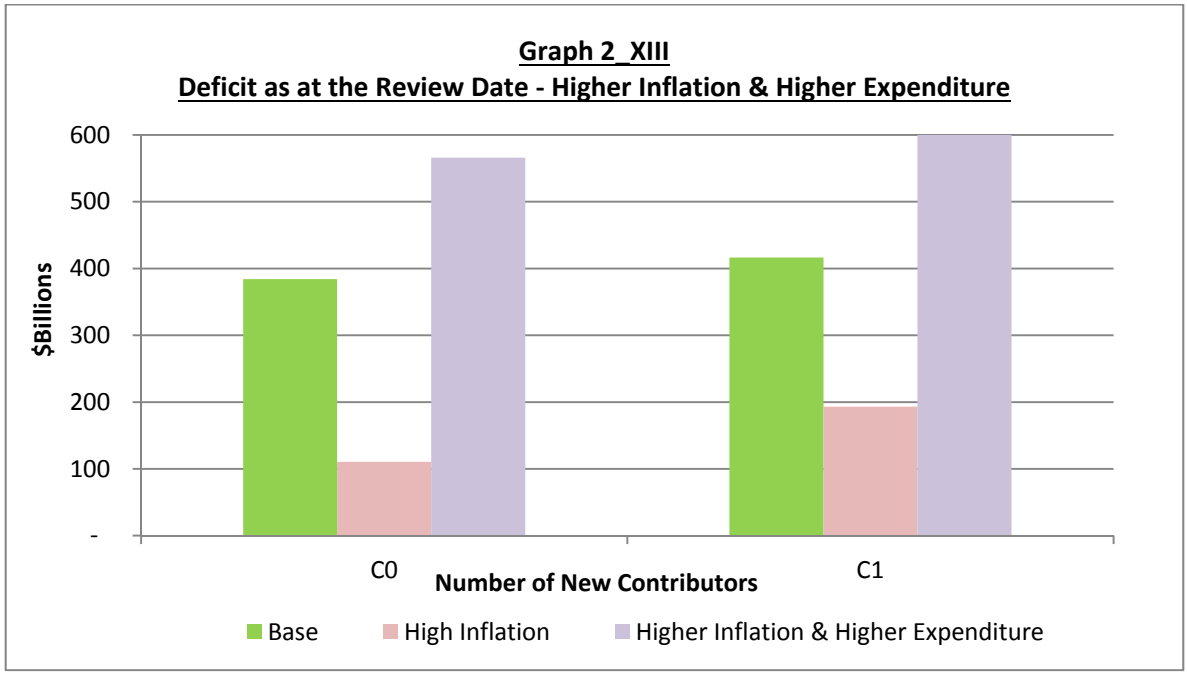


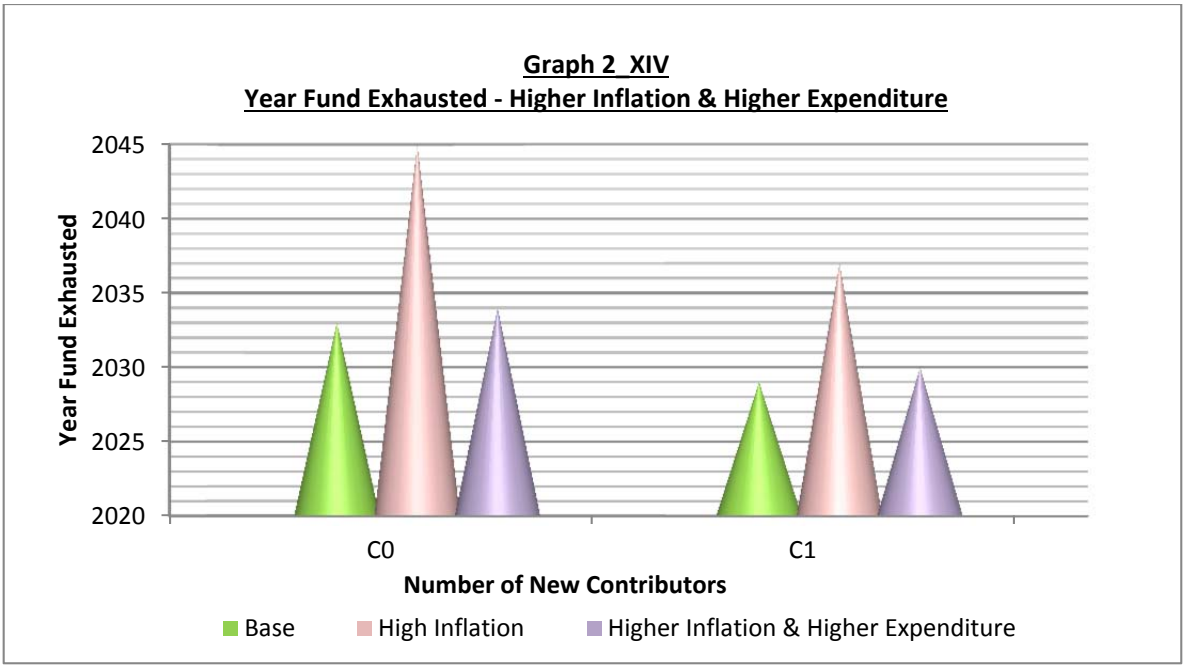
2.28 With higher inflation (10% p.a. versus base of 8% p.a.) the sustainability is greatly improved, if the FR pension increases are not increased to match the higher inflation. With the higher coverage (C0 new contributors) the Deficit decreases from $384B to $111B and the life of the Fund is extended by 12 years. However, with the lower inflation (6% per annum) and the FR Pension increases maintained at the same 6.5% per annum (with C0 new contributors) the Deficit increases significantly from $384B to $568B. These results are not unexpected. If the FR pension increases are not higher/lower, in tandem with inflation, then the situation arises where investment returns and salary increases are either much higher or lower than pension increases.

2.29 In the situation where inflation is higher, the salary increases and investment returns are much higher than the pension increases and the sustainability of the Fund is improved. Meanwhile, if Inflation is lower, then salary increases and investment returns are also lower so if the FR pension increases are not reduced, the life of the Fund would be reduced. Note as well that in this scenario more contributors are harmful to the Fund as the additional benefits exceed their additional contributions.

Scenario 4 – Higher Inflation and Higher Expenditure

2.30 It is reasonable to assume that with higher inflation the FR pension increases would be higher hence results with higher inflation (10% p.a.) and higher expenditure (9% p.a.) are presented in Graphs 2_XIII and 2_XIV, below.



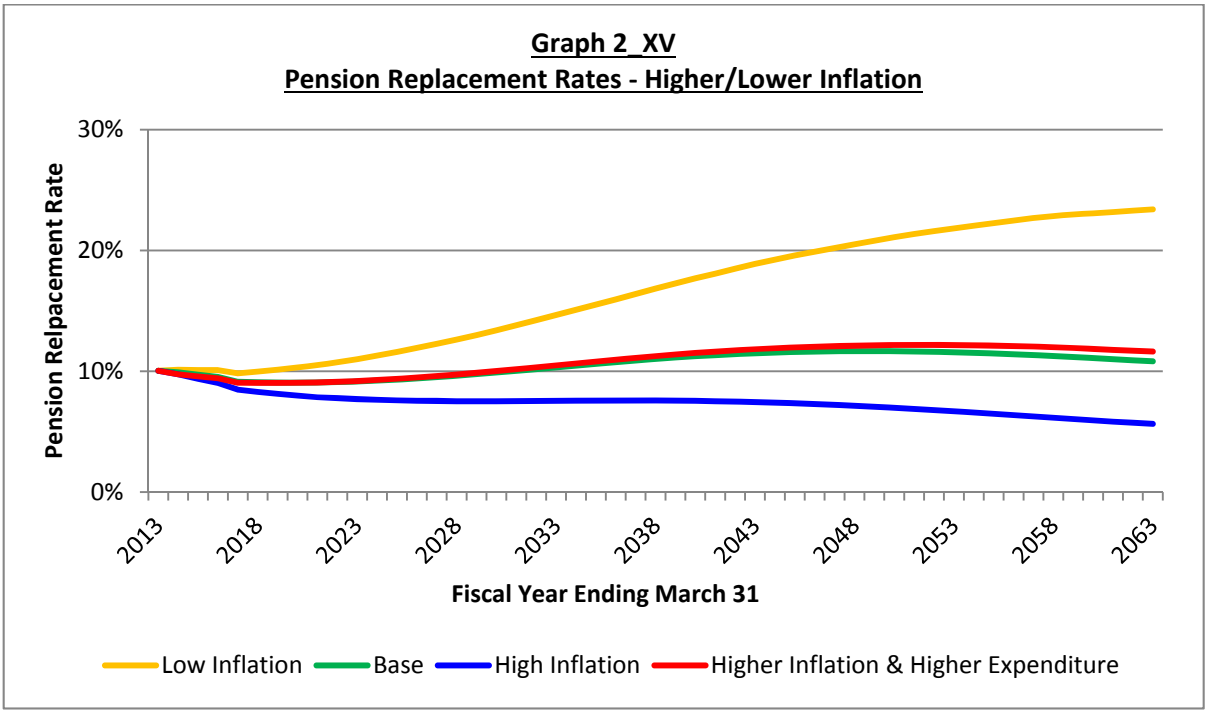


2.31 With higher inflation and higher expenditure, the Deficit is approximately 50% higher than on the base scenario ($566B vs $384B), but the Fund would be exhausted only one year later (by 2034 vs. 2033 on the base assumption).

2.32 The results with different rates of inflation are summarized below.

Current Benefits and Contributions	Surplus / (Deficit) at Review Date ($B)		Year Ending March 31 In Which Fund Exhausted	
	C0	C1	C0	C1
Base Expenditure – FR Pensions Increasing at 6.5% p.a.				
Base Inflation (8.0% p.a.)	(384)	(416)	2033	2029
Lower Inflation (6.0% p.a.)	(568)	(561)	2030	2028
Higher Inflation (10.0% p.a.)	(111)	(193)	2045	2037
Higher Expenditure – FR Pensions Increasing at 9.0% p.a.				
Base Inflation (8.0% p.a.)	(1,017)	(979)	2028	2026
Higher Inflation (10.0% p.a.)	(566)	(600)	2034	2030

2.33 In Graph 2_XV, below the PRRs on these scenarios are shown. Note the significantly increasing PRR with Low Inflation and Base Expenditure; essentially the pensions would be growing faster than salaries. With Higher Inflation & Higher Expenditure the PRRs are not much different from Base.



Summary of Key Results

2.34 The Results given throughout Section 2 are summarized in **Table 2_III**, below:

TABLE 2_III
SUMMARY OF KEY RESULTS

Current Benefits and Contributions	Surplus/ (Deficit) as at the Review Date ($Billion)	Year Ending March 31 In Which			Detailed Results
		Fund Exhausted	Benefits Exceed Contributions	Net Cash Flow Negative	Table/ Graph (page)
Base Assumptions	(384)	2033	2014	2025	2_I (7)
Scenario 1 – Higher/Lower Expenditure					
Higher Expenditure – Current Benefits and Cont'ns	(1,017)	2028	2014	2021	2_V (10)
Lower Expenditure – Current Benefits and Cont'ns	(93)	2044	2028	2035	2_IV (10)

TABLE 2_III SUMMARY OF KEY RESULTS					
Current Benefits and Contributions	Surplus/ (Deficit) as at the Review Date ($Billion)	Year Ending March 31 In Which			Detailed Results
		Fund Exhausted	Benefits Exceed Contributions	Net Cash Flow Negative	Table/ Graph (page)
Scenario 2 – Fewer New Contributors					
Base Assumptions	(416)	2029	2014	2022	2_IX (12)
Lower Expenditure	(153)	2036	2014	2028	
Higher Expenditure	(979)	2026	2014	2019	
Scenario 3 – Higher/Lower Inflation					
Higher Inflation – Base Expenditure	(111)	2045	2031	2037	2_XI,XII (14)
Lower Inflation – Base Expenditure	(568)	2030	2014	2022	
Scenario 4 – Higher Inflation & Higher Expenditure	(566)	2034	2021	2027	2_XIII, 2_XIV (15, 16)

Additional Scenarios are presented in Section 5.

Conclusions

Sustainability

2.35 The Scheme is in an untenable position. Assuming investment returns of 8.5% per annum and only modest increases in the current flat rate pensions (6.5% per annum; well below both past and future expected inflation) the accumulated fund of $63.5 Billion as at the Review Date cannot cover the liability for benefits for just the current pensioners. In fact the Fund is only around 50% of the Liability and this ignores NI Gold and all expenses related to the operations of the Fund. Additionally persons already eligible for pensions who have not yet claimed benefits are also excluded – estimated at an additional $17 Billion.

2.36 The status of the Fund is due to the fact that the contributions are not sufficient to fund the Benefits. The current contribution rate can, for most new contributors, fund their Wage Related (WR) pensions. The contribution rate cannot also fund the FR pensions and the ancillary benefits – spouses' pensions and allowances and funeral grants. The cost of the Pensions is 8.6% to 20% Salary up to the IWC, depending on age at which contributions commence (Section 2.16, page 9). Meanwhile, the contributions are 4% Salary up to the IWC.

Ignoring the accumulated Deficit, on average, the contributions need to be increased by 3 1/2 times to adequately fund the current benefits. If the benefits are to be increased; other than periodic inflationary adjustments, then the contributions would have to be even higher.

Impact of Lower Coverage

2.37 The results summarized above are based on assumptions. In particular, we have assumed that the pension coverage (active contributors) would be just over 40% of the Employed Labour Force by 2063 (current conditions maintained). With fewer contributors – coverage of around 28% by 2063 – the Deficit would be about 10% higher and the life of the Fund (period to full depletion) would be reduced by 4 years.

It is important to note that while increased coverage can improve the sustainability of the Fund; this is highly dependent on the profile of the new contributors. An influx of old and/or low paid employees would put tremendous strain on the Fund. Additionally, even if new contributors match the profile of the current contributors, as the benefits increase without commensurate increase in the contributions, new contributors further jeopardize the sustainability of the Scheme.

Impact of Higher Inflation

2.38 Another key assumption is the rate of inflation. The base assumption is that inflation will increase at 8% per annum but given the past experience it is easy to see how inflation could be much higher and we also projected the benefits and contributions with inflation of 10% per annum. The higher inflation would be expected to lead to higher investment returns, salary increases and pension increases and when these are taken into account, the Deficit increases to $566 B (from $384 B) and the Fund would be expected to be exhausted about one year later.

Fund to be Safe-Guarded

2.39 Finally, please keep in mind that only benefits and contributions up to 2063 are reflected in this study. That is, contributions are included from many contributors who would have received no benefits up to the end of the review period. By 2063 there will be only 1 or 2 contributors per pensioner; hence it is very important that the Fund is prudently invested and safe-guarded for the payment of benefits.

3. INTRODUCTION AND BACKGROUND

The National Insurance Scheme (NIS)

3.1 The National Insurance Scheme meets a vital need in the country and contributes greatly to the economic stability and the well-being of thousands of seniors. Data from the Financial Services Commission's website indicate that as at 2013 March approximately 67,000 persons are members of occupational (private sector) pension schemes and 28,000 in individual account approved retirement schemes. The White Paper on the Reform of Public Sector Pensions indicates around 80,000 public sector workers in the various public sector pension schemes. Data from the Statistical Institute of Jamaica shows the total Labour Force at approximately 1.3 million and the Employed Labour Force at 1.1 million as at 2013 April.

3.2 The data indicate that most of the employed labour force do not participate in formal pension arrangements. Also there is the matter that many of those who participate in the occupational pension schemes will not receive pensions (since legislation allows plan members to withdraw contributions as they move from one employer to another and consequently forfeit any plan benefit). Therefore the success of the Scheme is important. To be considered successful the Scheme must provide wider coverage, adequate pensions and be sustainable long-term.

Benefits

3.3 The National Insurance Scheme (NIS) was established in 1966 as a compulsory contributory, funded social security scheme to cover the entire adult population (aged 18 years and over) in the workforce. All Employed Persons, including Domestic Workers (DWs), Agricultural Workers, Seasonal Workers, and Self Employed Persons (SEPs) should contribute between ages 18 to 65[2] (females) and ages 18 to 70 (males).

3.4 The assets of the Sugar Workers' Pension Fund and the Sugar Workers' Pensioners (SWPs) then receiving pensions from that fund were transferred to the NIS in 1966. Coverage was extended to Self Employed Persons (SEPs) in 1969. Maternity Allowance (MA) was added for special categories of female workers in 1979/80. The cohort of the general population which was too old to contribute to NIS was granted a lifetime Special Anniversary Pension (SAP) at the same rate as the lowest Basic Rate (FR) Old Age Pension, starting from 1991. Medical Insurance Benefits (NI Gold) were introduced for all NIS Pensioners from 2003 December.

[2] Changed to 70 years from 2016

3.5 The NIS provides long term benefits to/in respect of persons insured under the Scheme and their survivors, as follows:

Pensions	Grants/Short Term Benefits
Old Age Retirement (OAP)	Old Age Retirement (OAG)
Invalidity Retirement (IP)	Invalidity Retirement (IG)
Widow's/Widower's (W/WP)	Widow's/Widower's (W/WG)
Orphan's/Special Child's (O/SC)	Orphan's/Special Child's (O/SC)
Sugar Workers (SWP) and Special Anniversary Pensioners (SAP)	Employment Injury Benefits (EIB)

Details of the benefits are included in **Appendix 5**.

3.6 Except for SWPs and SAPs, to be eligible, a minimum number of NIS Contributions must have been paid by, and in respect of, the insured person, or in the case of survivors' benefits, by the deceased relative. Grants may be payable in cases where the requisite minimum contribution conditions (for entitlement to pensions) are not met.

3.7 On attainment of age 65 (female) or 70 (male) the OAP is payable regardless of employment status. There is no time limit on claims for Old Age Grant or Invalidity Grant. The Normal Retirement Age (NRA) for the Old Age Pension for females is increasing monthly from 60 years in 2011 March to 65 years in 2016 March.

3.8 The EIBs are mainly pensions starting from the onset of certified disablement (Temporary Incapacity, Disablement Pension, Employment Injury and Death Benefit). EIBs were added in 1970 and essentially replaced the benefits which up to then had been met under the Workmen's Compensation Law. The SEPs, JDF Employees and DWs are not eligible for EIBs. Only female DWs are eligible for Maternity Allowance.

3.9 Except for any identified exclusions, NIS benefits are unisex and common-law marriages rank like legal marriages for widows'/widowers' benefits. The NIS does not provide unemployment or severance benefits. Both severance pay and maternity leave pay are prescribed in other legislation.

3.10 The main benefits are two-tiered consisting of a Basic Flat Rate (FR) component and Additional Wage Related (WR) component. A minimum contribution record (156 weeks) must be satisfied in order to qualify for benefits.

3.11 Flat Rate pensions and grants are routinely increased, but the WR pension has only once been increased (in 1990); when the accrual rate for the weekly WR Pension was changed from five (5) cents to six (6) cents for each thirteen dollars ($13) of contributions paid. The formula translates to 1.2% of the career average earnings up to the IWC, up to 2003 and 1% thereafter, (due to the reduction in the contribution rate from 5% to 4%). However, in the data submitted for the valuation, the Members' records still show Contributions of 5% Salaries up to the IWC, so it is not clear whether Retirees are being over-paid.

3.12 Until 1996.1.1 there was little difference in the weekly FR pensions in each of the three classes (see below).

EFFECTIVE PERIOD	01.04.90 to 29.09.91	30.09.91 to 09.05.92	10.05.92 to 31.12.95
▪ Full Rate	40	60	84
▪ "3/4" Rate	38.2	58.2	80
▪ "1/2" Rate	37	57	78

3.13 Effective 1996 January 1, the 3/4 and 1/2 Flat Rate amounts were changed to be 75% and 50%, respectively, of the Full Rate benefit. **Table 3_I** shows the levels of Flat Rate benefits over the period 2001 February to the Review Date.

TABLE 3_I
AMOUNTS OF NIS FLAT RATE BENEFITS: 2001 to 2013

EFFECTIVE PERIOD	01.02.01 to 03.06.30	03.07.10 to 06.04.02	06.04.03 to 08.04.06	08.04.07 to 10.06.30	10.07.01 to 13.01.09	13.01.10 to Present
WEEKLY BENEFITS	**$ p.w.**	**$ p.w.**	**$ p.w.**	**$p.w.**	**$p.w.**	**$p.w.**
OAP,IP,W/WP						
▪ **Full Rate**	600	900	1,500	2,000	2,400	2,800
▪ **"3/4" Rate**	450	675	1,125	1,500	1,800	2,100
▪ **"1/2" Rate**	300	450	750	1,000	1,200	1,400
SA	200	300	500	670	800	900
IP/EIB (max)	1,330	1,970	2,015	2,500/ 3,100	3,200	3,200
SWP & SAP	300	450	750	1,000	1,200	1,400
O/SC	1,050	1,575	2,625	3,500	4,200	4,900
GRANTS	**$**	**$**	**$**	**$**	**$**	**$**
Maternity	Maximum Eight Weeks' Minimum Wage					
Funeral	18,000	30,000	40,000	60,000	70,000	80,000
OA/I/WW	5,400	8,100	20,000	30,000	40,000	50,000
O/SC	9,750	14,625	30,000	40,000	48,000	55,000

3.14 The WR Pension component has not kept up with inflation in the way the total Pensions have. For a contributor retiring in April 2013, the maximum Flat Rate Pension would be $2,800 per week and the maximum Wage-Related Pension would be approximately $1,600 per week. The total of $4,400 per week is almost 90% of the National Minimum Wage (NMW) of $5,000 per week.

3.15 For someone who retired in April 2001, the weekly Flat Rate Pension is the same $2,800 but the maximum Additional Wage Related Pension is only $340. When the FR Pension is increased, the increase applies to existing and new Retirees but the WR Pensions of existing retirees are not increased after commencement. The total pension of $3,140 ($2,800 + $340) in 2013 for the Contributor who retired in 2001 represents an average annual increase over the 12 years of 12.75%. Over the period the Flat Rate Pension has increased by 17.6% p.a. but the Wage Related Pension has remained fixed. Inflation between 2001 April and 2013 March was 11.0% per annum. Therefore, overall the pensions have more than kept pace with inflation. However, the pension of $3,140 per week is only 63% of the NMW (that is, quite inadequate).

Contributions

3.16 The NIS is a compulsory, contributory, funded social security system which mandates contributions by insured persons and Employers. For employees, NIS contributions are payable by payroll deductions which, for most of the currency of the Scheme and for the majority of insured persons, require matching Employers' contributions. The payroll deductions and Employers' contributions for most categories of workers are to be paid monthly to Tax Administration Jamaica. Other payments are by Stamp Cards.

3.17 Although NIS is supposed to be compulsory for the entire labour force, it operates as compulsory only for employees subject to Pay As You Earn (PAYE) taxation; from whose salaries the contributions are automatically withheld. It is believed that there is a certain amount of workers from whom contributions are withheld but not remitted to Tax Administration Jamaica, but the extent of this problem is unknown. Based on the data provided for this review, during the 2010 Calendar Year there were 280,961 contributors, around 25% of the employed Labour Force in that year.

3.18 Before 1990 the NIS Contribution Rate for a Registered Insured Person was two-tiered; a flat rate component which varied by category of insured person and a Wage Related component based on salaries within a prescribed wage band (Insurable Wage).

3.19 The flat rate component was abandoned in 1990 for all but DWs, JDF Employees, Parliamentarians and Voluntary Contributors, and the prescribed wage band was also abandoned in that year. Since 1990 the Wage Related contribution has been computed on all earnings up to the Insurable Wage Ceiling (IWC). Since 2010 August, JDF and Members of Parliament have contributed at the same rate as other Employed Persons.

3.20 Voluntary NIS contributions may be made by a RIP under age 65 (female) or 70 (male) in order to make up any shortfall in the number of contributions and thus satisfy the minimum criteria for benefit award. The contribution is $100 per week.

3.21 Self-Employed Persons initially contribute at the flat rate of $100 per week, but are later assessed, based on tax returns, the balance of 5% of salary up to the IWC.

3.22 Over the life of the NIS, the IWC has changed as follows:

TABLE 3_II
INSURABLE WAGE CEILING – 1966 to 2013

Period	Insurable Wage Ceiling (IWC)		Period	Insurable Wage Ceiling (IWC)	
	$p.w.	$p.a.		$p.w.	$p.a.
1966.04.01 – 1975.10.31	40	2,080	1996.2.1 – 2003.9.30	4,810	250,000
1975.11.1 – 1979.7.31	80	4,160	2003.10.1 – 2010.8.1	9,620	500,000
1979.8.1 – 1990.3.31	150	7,800	2010.8.2 – 2013.1.6	19,231	1,000,000
1990.4.1 –1996.1.31	290	15,080	2013.1.7 to date	28,846	1,500,000

3.23 The maximum WR contributions since the enactment of the NIS are shown in **Table 3_III**, below.

TABLE 3_III
MAXIMUM WAGE RELATED CONTRIBUTIONS – 1966 to 2013

Period	Employee	Employer	Period	Employee	Employer
	$p.w.	$p.w.		$p.w.	$p.w.
1966.04.01 – 1975.10.31	1.15	1.25	1996.2.1 – 2003.9.30	120.19	120.19
1975.11.1 – 1979.7.31	2.15	2.25	2003.10.1 – 2010.8.1	240.50	240.50
1979.8.1 – 1990.3.31	3.90	4.00	2010.8.2 – 2013.1.6	383.29	383.29
1990.4.1 –1996.1.31	7.25	7.25	2013.1.7 to date	574.93	574.93

3.24 From 2003 October 1, twenty per cent (20%) of the total NIS contribution has been earmarked for the National Health Fund (NHF). Since 2003 October, increases in the IWC have been significant and consistent – 200% over the period (equivalent to 11.46% per annum). Even at the current level, the Jamaica NIS contribution rate is the lowest in CARICOM.

The NI Fund (NIF)

Management of the Fund

3.25 The NIS is not a Pay As You Go (**PAYG**) arrangement. It is a funded Scheme. The intent is that the amounts contributed should be prudently invested and accumulated to pay the benefits as the contributors retire. As at the Review Date the Fund had market value of $63 billion although, largely as a consequence of the 2013 National Debt Exchange (NDX) in which the Scheme participated, the market value of the Fund was $8 billion less than the $71 billion at the previous fiscal year end.

3.26 Under the NIS Act, the Ministry of Finance & Planning (MoFP) has responsibility for the assets of the NI Fund (the NIF or the Fund). A Board, appointed in 1990, advises the Minister of Finance and the Minister of Labour and Social Security on the investments of the NIF. Given the size of the Fund, asset purchases and sales are significant and are subject to the approval of the Ministry of Finance and the Cabinet. The Government's Procurement Policy requires that large construction related investments are routed through the National Contracts Commission and thence to Cabinet for approval.

3.27 The diversification of the portfolio and production of annual audited financial statements of the Fund (Investment Operations), from 1998/99, attest to the positive impact of the Advisory Board. This is a part of its mandate which includes:

- the maintenance of an appropriate portfolio mix;
- the proper financial administration of the Fund; and
- the production of timely financial statements and audited reports.

Performance of the Fund

3.28 At the Review Date (2013 March 31), the Fund stood at $63.50 billion, having grown from $39.22 billion at 2005 March 31. Note however, that expressed in relation to GDP, the Fund has declined; from 5.64% GDP (nominal) to 4.75% GDP over the eight (8) years.

3.29 For most of the period prior to 1990 when the National Insurance Board (NIB) was first appointed, the investment portfolio consisted primarily of Government Local Registered Stocks. By the Review Date the assets comprised all the major classes available locally, (Government Securities, Loans and Mortgages, Real Estate and listed Equities).

3.30 The average gross yield on the assets of the Fund over the five year period ending on the Review Date was 9.45% p.a., compared to 18.03% p.a. over the preceding 5 years. In addition to the reduction in market value as a consequence of the NDX (Section 3.25) the annual income from the fixed income securities is expected to decline.

3.31 Since the 2006/2007 Scheme Year, annual expenditure on benefits has exceeded the contributions paid into the Fund as shown in **Table 3_IV** below:

TABLE 3_IV
COMPARISON OF INVESTMENT INCOME, CONTRIBUTIONS, BENEFITS AND EXPENSES

Year Ending March 31	Investment Income[3]	Contributions	Benefits	Expenses	Net Income
2006	4,417	4,073	3,544	423	4,523
2007	6,664	4,929	5,760	486	5,348
2008	5,962	5,650	6,560	559	4,493
2009	2,966	5,651	8,777	596	(756)
2010	12,989	5,511	9,163	689	8,648
2011	8,130	7,622	10,789	624	4,340
2012	7,634	9,455	11,453	627	5,009
2013	(4,471)	9,543	12,334	769	(8,031)

2005 Actuarial Review

3.32 Section 41(1) (a) of the National Insurance Act, 1965 requires an actuarial review of the NIS at five-yearly intervals. Eckler conducted the last actuarial review of the NIS as at 2005 March 31. The report on the 2005 Review, conducted between 2009 February and May, was submitted to the MLSS, on 2009 June 1.

3.33 Recommendations from that Report are set out below along with an indication of whether the recommendation has been adopted.

2005 Actuarial Review	
Recommendation	Adopted?
(i) Consistent biennial increases of the Flat Rate pensions and Grants as the pensioners had already become used to these.	Yes. Pensions increased in 2010 July and 2013 January.
(ii) The Additional WR Pension should also be increased	No.
Higher Contributions:	
(iii) Raise the IWC to $1 million p.a. from 2010 April 1 (say) and by a further 2.5% per annum, thereafter.	Partly; IWC increased to $1M in 2010 August and further to $1.5M in 2013 January.

[3] Including Unrealized Capital Appreciation/ Depreciation

2005 Actuarial Review	
Recommendation	Adopted?
(iv) Restore the joint NIS contribution rate to 5% Salary up to the IWC (that is, de-link NIS funding from the NHF).	No
(v) Increase the 5% joint NIS contribution rate by 0.5% annually up to 10% wages within the IWC in 2020/21 (5% insurable wages by insured employees and 5% by their employers).	No
(vi) Flat Rate Contributions to be regularly uplifted.	Partly, changed from $20 per week to $50 per week; effective 2010 August and further increased to $100 per week effective 2013 January.
(vii) Prudent Investment Management of the Assets – The benefits and expenses are met from contributions and investment income. If the investments do not perform as expected the shortfall will have to be made up from additional contributions or the benefits cannot be increased or might have to be reduced.	Hard to tell – the fund lost substantial value in the NDX.
(viii) Increased Coverage and Better Compliance – the contributors represent less than 20% of the population of working ages and the pensioners less than 50% of the population of pensionable ages (43 years after the establishment of the Scheme).	Partly – attempt to increase compliance by unifying the NIS with other statutory deductions.
(ix) Administration needs to be expanded to the maintenance of full records and analysis of all the benefits and their cessation (by death, remarriage, adulthood, recovery etc.).	No improvement noticed in the administration. As at the date of this report, Members' records had been updated only up to 2010 December 31.
(x) Late Application for the Old Age Pension should not be penalized – the contributor should be paid all the pensions due according to the eligibility conditions in the Act.	Partly – 3 years of retroactive payments permitted.
(xi) Females NRA should be increased to the same as the males' over a period of 5 years.	Yes. The NRA for females in being increased gradually to 65 years by 2016 March 31.

Material Changes in Benefits and Contributions over the Life of the Scheme

3.34 Material changes in the benefits/contributions and operations of the Scheme since its establishment:

(i) Employment Injury Benefits (EIBs) were added in 1970 and essentially replaced the benefits which up to then had been met under the Workmen's Compensation Law (Section 3.8);

(ii) Maternity Allowance added for Domestic Workers and certain workers with certified exporters[4] in 1979/80 (Section 3.4);

(iii) Wage Related Pension accrual rate increased in 1990 (Section 3.11);

(iv) Method of computing the reduced (3/4 and 1/2) Flat Rate Pensions changed in 1996 (Sections 3.12 and 3.13);

(v) Board appointed in 1990 to oversee the management of the assets of the Fund and the investments diversified in 1998/99 (Sections 3.26 and 3.27);

(vi) 20% Contributions earmarked for the National Health Fund (NHF) in 2003 October (Section 3.24);

(vii) Medical and Dental/Optical Benefits (NI Gold) were added under the Scheme in 2003 December (see Section 3.4);

(viii) FR contributions abandoned for all but a few categories of workers in 2010 August – JDF and Parliamentarians contribute at regular rate since 2010 August (Section 3.19);

(ix) The normal retirement age for females is being increased from 60 to 65 years over the period from 2011 April to 2016 March in monthly increments (Section 3.7).

[4] Workers with certified exporters no longer receive this benefit

4. RESULTS

Data and Base Assumptions

4.1 MLSS provided data as at the Review Date showing 98,329 Pensioners, receiving pensions totalling $11.16 billion per annum ($215 million per week). In addition, we computed pensions and grants of approximately $2.67 billion for 27,517 persons over the NRA who did not contribute in 2010 but were not confirmed as Pensioners. We assumed that one-half of these have already claimed and are either included in the Pensioners' payroll, or have received Grants. We assumed that claims would be made by the other one-half; approximately $1.33 billion in 2013/2014 decreasing to only $5 million in 2050. By 2063, this group of persons is expected to be deceased.

4.2 Data on active Contributors of the Scheme was provided as at 2010 December 31 and this data show only 280,961 persons contributing to the Scheme in 2010. This represents around 25% of the Employed Labour Force in that year. For this actuarial review we assumed that contributors in 2008 and 2009 who did not contribute in 2010 (147,302) would have resumed contributing by the Review Date resulting in almost 40% of the Employed Labour Force contributing at the Review Date. Contributors in years prior to 2008 who had no contributions in 2010 are included with their benefits payable as and when due, but no future contributions are included for these.

4.3 The key assumptions are set out in Sections 2.5 and 2.6 and details on the rationale for the assumptions in Appendix 3. Results on the Base Assumptions are presented in this Section, followed by Scenarios in Section 5.

Surplus/(Deficit) in the Fund in Respect of Pensioners at the Review Date

4.4 The Present (discounted) Value of the pensions based on long-term discount rate of 8.5% per annum was $128.5 billion as at the Review Date. The Market Value of the Fund as at the same date was $63.50 billion. **Thus, as at the review date there was a deficiency of $65.0 billion in respect of current pensioners.** This deficiency was approximately 5% GDP ($1,336.044 billion based on current prices), $148,358 per contributor and $58,700 per member of the Employed Labour Force.

Surplus/(Deficit) in the Fund in Respect of Pensioners and Contributors Eligible to Claim Benefits

4.5 In respect of Pensioners at the Review Date and those already eligible to claim, we computed deficit of $82 billion (6% GDP) as at the Review Date, as follows:

TABLE 4_I	
Surplus / (Deficit) In Respect of Pensioners and Contributors Eligible to Claim Benefits as at the Review Date	
Liability[5] for:	$ Billion
▪ Pensions in Payment	128.5
▪ Persons Already Eligible to Claim	17.2
▪ Total	145.7
Market Value of the Fund	63.5
Surplus / (Deficit)	(82.2)
GDP	1,336.04
Deficit as % GDP	6.2%
Number of Contributors	438,128[6]
Deficit per Contributor	$187,616

4.6 In addition to the pension benefits the Scheme provides Health Insurance benefits through an Administrative Services Only Arrangement (NI Gold). We did not receive data in respect of NI Gold. We estimated future claims as the amount in the 2013 financial statements increasing annually at the rate of inflation. The estimated Present Value as at the Review Date of these benefits is $19 billion, bringing the total Deficit to $101.2 billion.

Surplus/(Deficit) Inclusive of Claims from New Retirees and Contributions over the Review Period

4.7 In respect of active contributors at the Review Date and new contributors after this date, the present value as at the Review Date of their benefits net of their future contributions total $283 B, bringing the total Deficit to $384 B (28.8% GDP) as shown in Table 4_II, below. **The Deficit ignores contributions and benefits payable after the end of the Review Period.** The Fund would be exhausted by 2033.

[5] Excludes NI Gold
[6] Estimated contributors at the Review Date from 280,961 actually contributing in 2010 plus 147,302 contributors in 2008 and 2009 who did not contribute in 2010 plus 60,450 assumed new contributors in 2011/2012 and 2012/2013.

TABLE 4_II SURPLUS / (DEFICIT) CURRENT BENEFITS AND CONTRIBUTIONS						
As at March 31	PV Benefits	PV Contributions	Expected Market Value of the Fund	Surplus/ (Deficit)	Nominal GDP	Surplus/ (Deficit) as % GDP
	($ Billions)					%
2013	943	495	64	(384)	1,336	28.76
2014	1,023	537	67	(419)	1,443	29.01
2015	1,095	570	71	(454)	1,558	29.14
2020	1,539	762	93	(684)	2,290	29.88
2025	2,143	1,006	103	(1,034)	3,364	30.74
2030	2,932	1,304	60	(1,567)	4,943	31.70
2033	3,495	1,508	(28)	(2,014)	6,227	32.35
2035	3,903	1,653	(131)	(2,382)	7,263	32.80
2040	4,998	2,034	(661)	(3,625)	10,672	33.97
2045	6,054	2,402	(1,866)	(5,517)	15,681	35.19
2050	6,724	2,653	(4,325)	(8,395)	23,041	36.44
2055	6,357	2,580	(8,957)	(12,733)	33,855	37.61
2060	4,055	1,747	(16,883)	(19,190)	49,744	38.58
2063	1,257	562	(23,824)	(24,519)	62,663	39.13

Benefit Adequacy

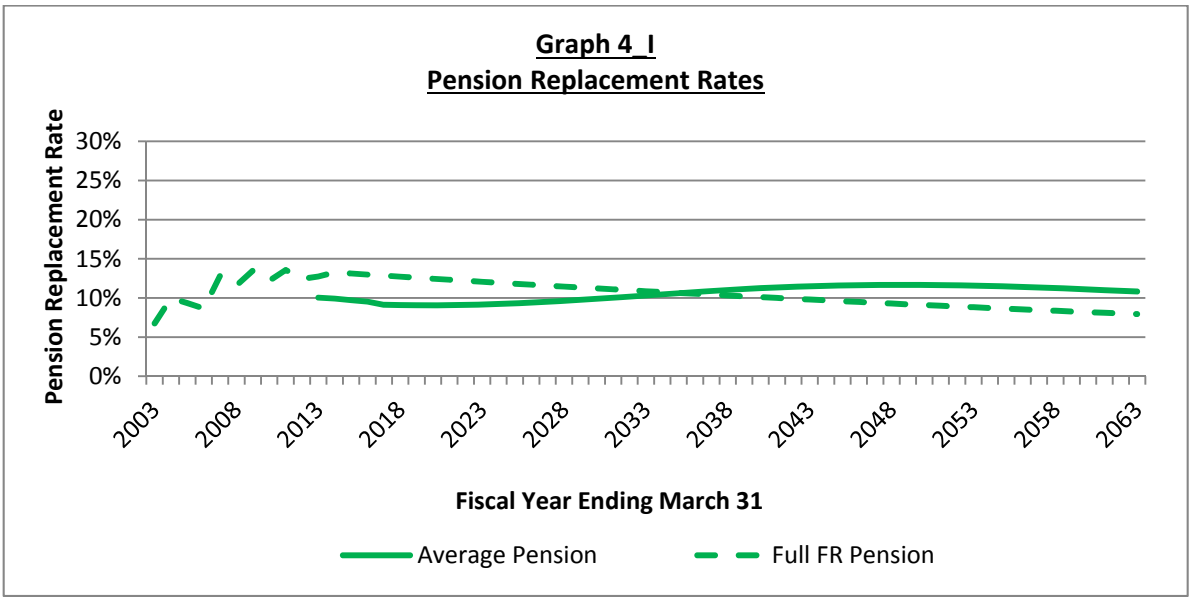
4.8 The **NIS** Pension is defined in two parts – a Flat Rate (FR) portion; depending only on the average number of contributions made throughout one's Eligibility Period (age 18 to NRA) and a wage related (WR) portion that depends on the actual amount contributed. As at the Review Date (2013 April 1), the FR was the bigger part of the pension. This serves the social insurance purpose of providing a base level of income for the lowest earners.

4.9 The maximum NIS Pension as at the Review Date (that is the benefit to someone who contributed from earliest eligibility in 1966 up to his retirement in 2013 April and always contributed at the maximum level) was $4,400 per week; Flat Rate (FR) of $2,800 per week plus Wage Related (WR) of $1,600 per week. If this retiree is married, there would also be a Spouse's Allowance (SA) of $900 per week, bringing the pension to a little more than the National Minimum Wage (NMW) as at the Review Date of $5,000 per week. This retiree would have been earning a salary of at least $1.5 million in 2013 January and the maximum pension would thus represent an Income Replacement Rate (IRR) of 18.4% with the SA, or 15.3% without the SA.

4.10 At the lowest income levels and for the Flat Rate only Contributors, the maximum pension would be $2,800 per week (FR) plus $900 per week (SA); that is a total of $3,700 per week. The IRR (that is, the portion of the salary replaced by the pension) would be 74% of the NMW. If the SA is not payable, as in most cases, then the IRR is only 56% of the NMW. In other words the NIS pensions are inadequate at all income levels.

Max Pension at National Minimum Wage = FR of $2,800 + SA of $900 = $3,700 = 74% NMW
Max Pension at IWC = FR of $2,800 + WR of $1,600 + SA of $900 = $5,300 = 18.4% IWC

4.11 The Average NIS Pension compared to the National Average Wage (Pension Replacement Rate) is shown in Graph 4_I, below, assuming 30,000 new contributors. The graph shows that over the projection period the average pension (all pensioners) represents a replacement rate of 10% to 11% (although falling for a short while to 9% and also increasing for a few years to 12%).



4.12 As at the Review Date, the average pension was less than the full FR pension, as around 45% of the Pensioners were receiving the 1/2 FR pension with the remainder, split evenly, receiving the Full FR and 3/4 FR pensions. As contributions increase, the WR component becomes more significant, eventually causing the average pension to exceed the full FR pension.

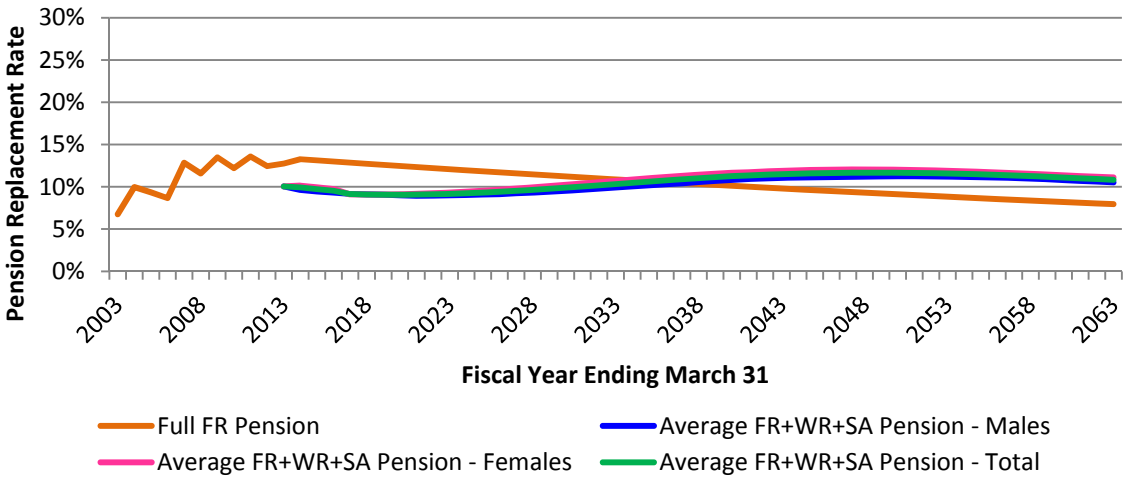
Gender Participation

4.13 The data show women participating at a greater number than men. Among the old age pensioners – 56% were females and 44% males and among contributors in 2010 – 55% were females and 45% males. Among the active contributors the average age of the males and females was similar – 38.1 years (males) and 37.5 years (females). We assumed that new contributors would be distributed similarly – 55% females and 45% males – and also, that their age distribution would be as for the 2010 contributors.

4.14 The retirement age of the females is increasing to 65 years (same as the males') by 2016. We assumed that females, having been accustomed to the earlier retirement age of 60 years, will retire as soon as eligible (by age 65) but the males will continue to defer retirement (yielding retirement age of 66 years).

4.15 The PRRs are shown by Gender in Graph 4_II below. For the most part, the average pension of the females is about 5% – 8% higher than that of the males.

Graph 4_II
Pension Replacement Rates by Gender



Required Contribution Rate to fund the Current Benefits

4.16 The Wage Related (WR) pension under the Scheme accrues at the rate of six (6) cents for each thirteen dollars ($13) of contributions paid; that is 1% of the salary on which contributions are paid. Below we show New Entrant Contribution Rates for the Wage Related Pension only, assuming salary of $750,000 per annum. The IWC is assumed to increase annually in line with inflation. Under the Scheme the WR Pensions are not increased, hence no increases are assumed.

TABLE 4_III JOINT CONTRIBUTION RATE FOR THE WAGE RELATED PENSION ONLY 2013 SALARY OF $750,000 PER ANNUM					
Age at Entry	**Contribution Rate**		**Age at Entry**	**Contribution Rate**	
	Males	**Females**		**Males**	**Females**
20	1.9	2.0	40	3.3	3.5
25	2.1	2.3	45	3.8	4.1
30	2.4	2.6	50	4.5	4.9
35	2.8	3.0	55	Not Eligible	

4.17 The 4% joint contribution rate is sufficient to fund the Wage Related Pension, at entry ages below 45 years, but cannot support all the additional benefits payable from the Scheme. The joint contribution rates for all the benefits; that is, **Additional Wage Related** and **Flat Rate Pensions**, **Spouse's Allowance** and **Widows'/Widowers' Pensions** are shown in Table 4_IV, below. The FR pensions are assumed to increase at 6.5% per annum. Because the FR pensions are not dependent on salary, the contribution rate is impacted by the salary; hence the rates are shown at several income levels.

TABLE 4_IV JOINT CONTRIBUTION RATE FOR ALL THE BENEFITS					
Age at Entry	**Contribution Rate**		**Age at Entry**	**Contribution Rate**	
	Males	**Females**		**Males**	**Females**
Salary of $250,000 per annum					
20	17.0	17.4	40	32.9	33.8
25	20.5	21.0	45	34.1	35.3
30	20.6	21.2	50	48.2	49.8
35	25.7	26.4	55	Not Eligible for Pension	
Salary of $500,000 per annum					
20	9.5	9.8	40	18.2	18.7
25	11.4	11.7	45	19.1	19.8
30	11.6	12.0	50	26.5	27.4
35	14.3	14.8	55	Not Eligible for Pension	
Salary of $750,000 per annum					
20	7.0	7.2	40	13.3	13.7
25	8.3	8.6	45	14.1	14.6
30	8.6	8.9	50	19.3	20.0
35	10.5	10.9	55	Not Eligible for Pension	

TABLE 4_IV JOINT CONTRIBUTION RATE FOR ALL THE BENEFITS					
Age at Entry	**Contribution Rate**		**Age at Entry**	**Contribution Rate**	
	Males	**Females**		**Males**	**Females**
Salary of $1,000,000 per annum					
20	5.7	5.9	40	10.8	11.2
25	6.8	7.0	45	11.6	12.0
30	7.1	7.3	50	15.7	16.2
35	8.7	8.9	55	Not Eligible for Pension	
Salary of $1,500,000 per annum and Higher					
20	4.5	4.7	40	8.4	8.7
25	5.3	5.5	45	9.1	9.4
30	5.6	5.8	50	12.1	12.5
35	6.8	7.0	55	Not Eligible for Pension	

4.18 Table 4_IV illustrates:

(i) At lower income levels where the FR pension is dominant the required contribution rate is very high (26% for a new contributor at age 35 with $250,000 Salary versus 15% with Salary of $500,000 and 11% with $750,000).

(ii) We have shown the contribution rates for males and females, however the benefits include surviving spouses' pensions, hence the rates are similar for males and females.

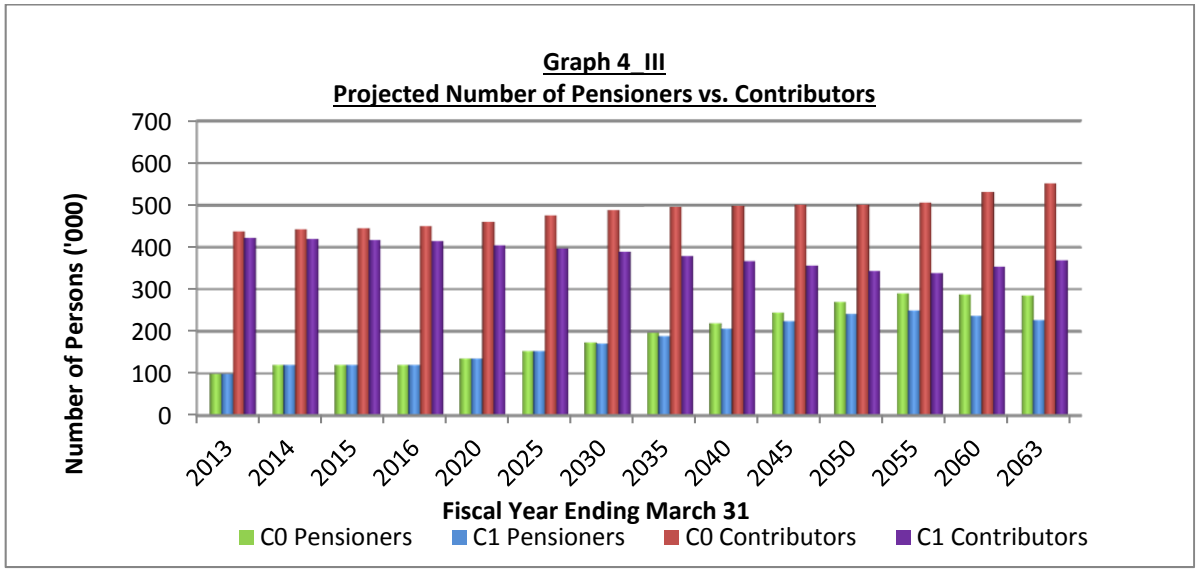
(iii) At all salary levels the required contribution increases with age of commencement of contributions to the Scheme (**bringing in a large group of older contributors could be disastrous as this would put severe strain on the Fund**).

4.19 The NIS is a defined benefit arrangement (that is the benefits are based on formula and paid from the Scheme rather than whatever can be secured on the open insurance market with the contributions accumulated for the Contributor). In this type of scheme the typical practice is the average contribution rate applies to all. Therefore we have computed the average Contribution Rate for a group of new contributors with the same age and salary distribution as contributors already in the Scheme. The Required Contribution Rate to adequately fund the future accrual of pensions is 12.5% Salary, up to the IWC.

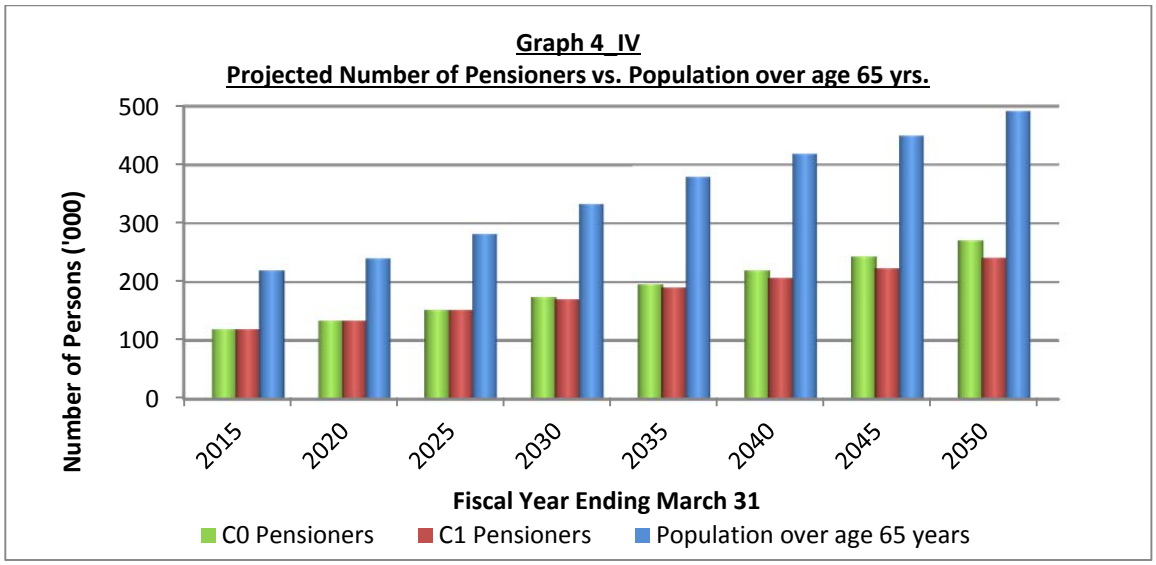
4.20 In addition to the contributions required to fund the benefits, an additional 1% to 1.5% Salary is estimated for funding NI Gold (health benefits) and the administrative expenses of the Scheme, bringing the total required contribution rate to **13.5% Salary to 14.0% Salary**, up to the **IWC**. Thus to adequately fund the Scheme with the current benefits, the contribution rate should be at least 13.5% Salary up to the IWC ($1.5 million).

Pension Coverage

4.21 The projected numbers of pensioners and contributors[7] over the Review Period are shown in Graph 4_III below. The contributors at the end of the Review Period are survivors of new contributors since 2010; all those already contributing in that year having retired or died or otherwise left the Scheme.



4.22 The graph shows that the ratio of four (4) contributors per pensioner in 2013 is expected to decline to approximately two (2) contributors per pensioner in 2063. Graph 4_IV shows the number of Pensioners versus the Population over age 65 years (from Vision 2030, prepared by the PIOJ).



[7] Contributors in 2013 and later years include those who contributed in 2008 and 2009 but not in 2010 and were assumed to have resumed contributions in 2011.

5. SCENARIOS

5.1 The valuation results presented in Section 4 are based on assumptions that may not be realized. In this section we present results based on some alternative assumptions. The key demographic assumption is coverage – number of new contributors in each year. With respect to the economic assumptions, the rate of inflation is particularly important as it influences the rate of return on the assets, rate of salary increase, rate of increase in the IWC and rate of pension increases; hence changes in the rate of inflation will lead to changes in these other variables. Only key results are presented.

Higher/Lower Expenditure

5.2 The Surplus/(Deficit) in Section 4 are on the assumption of FR pension increases of 6.5% p.a. With higher (9% p.a.) or lower (4% p.a.) increases, the Surplus/(Deficit) would be as shown in Tables 5_I and 5_II below. With the higher Expenditure, the Deficit increases from $384B to $1,017B, while with the lower Expenditure it falls to $93B.

TABLE 5_I
SURPLUS / (DEFICIT)
CURRENT BENEFITS AND CONTRIBUTIONS – HIGHER EXPENDITURE

As at March 31	PV Benefits	PV Contributions	Expected Market Value of the Fund	Surplus/ (Deficit)	Nominal GDP	Surplus/ (Deficit) as % GDP
	($ Billions)					%
2013	1,576	495	64	(1,017)	1,336	76.14
2014	1,710	537	67	(1,105)	1,443	76.61
2015	1,840	570	71	(1,200)	1,558	76.98
2020	2,653	762	83	(1,808)	2,290	78.96
2025	3,788	1,006	52	(2,730)	3,364	81.13
2028	4,658	1,179	(19)	(3,498)	4,238	82.54
2030	5,326	1,304	(108)	(4,129)	4,943	83.53
2035	7,310	1,653	(603)	(6,260)	7,263	86.19
2040	9,688	2,034	(1,855)	(9,509)	10,672	89.10
2045	12,194	2,402	(4,671)	(14,463)	15,681	92.23
2050	14,128	2,653	(10,553)	(22,028)	23,041	95.60
2055	13,981	2,580	(22,130)	(33,531)	33,855	99.04
2060	9,329	1,747	(43,265)	(50,848)	49,744	102.22
2063	2,967	562	(62,817)	(65,222)	62,663	104.08

TABLE 5_II SURPLUS / (DEFICIT) CURRENT BENEFITS AND CONTRIBUTIONS – LOWER EXPENDITURE						
As at March 31	PV Benefits	PV Contributions	Expected Market Value of the Fund	Surplus/ (Deficit)	Nominal GDP	Surplus/ (Deficit) as % GDP
	($ Billions)					%
2013	651	495	64	(93)	1,336	6.92
2014	706	537	67	(102)	1,443	7.07
2015	752	570	71	(110)	1,558	7.08
2020	1,029	762	102	(165)	2,290	7.21
2025	1,401	1,006	145	(249)	3,364	7.41
2030	1,876	1,304	192	(380)	4,943	7.68
2035	2,445	1,653	210	(582)	7,263	8.01
2040	3,063	2,034	135	(894)	10,672	8.38
2044	3,526	2,333	(66)	(1,259)	14,520	8.67
2045	3,627	2,402	(146)	(1,371)	15,681	8.74
2050	3,937	2,653	(813)	(2,097)	23,041	9.10
2055	3,638	2,580	(2,115)	(3,173)	33,855	9.37
2060	2,280	1,747	(4,195)	(4,728)	49,744	9.51
2063	702	562	(5,858)	(5,997)	62,663	9.57

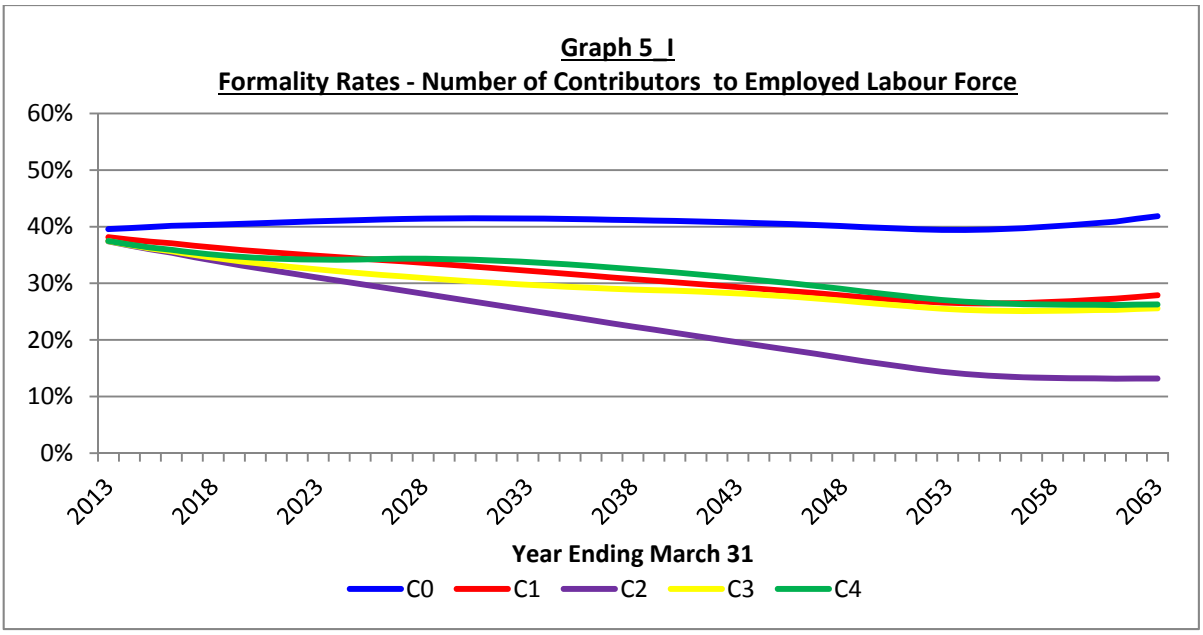
5.3 With the higher expenditure, the life of the Fund would be reduced by 5 years (exhausted in 2028) but extended for 11 years (to 2044) with the lower expenditure.

Fewer Contributors

5.4 The data submitted for the valuation show an average of 30,000 new contributors each year. We considered various numbers of New Contributors, as follows:

- C0 – 30,000 increasing annually by 1.5% for 15 years and 1.0% thereafter
- C1 – 20,000 increasing annually by 1.5% for 15 years and 1.0% thereafter
- C2 – 15,000 per year
- C3 – 15,000 increasing by 2.5% per year to a maximum of 30,000
- C4 – 15,000 increasing by 5.0% per year to max of 30,000.

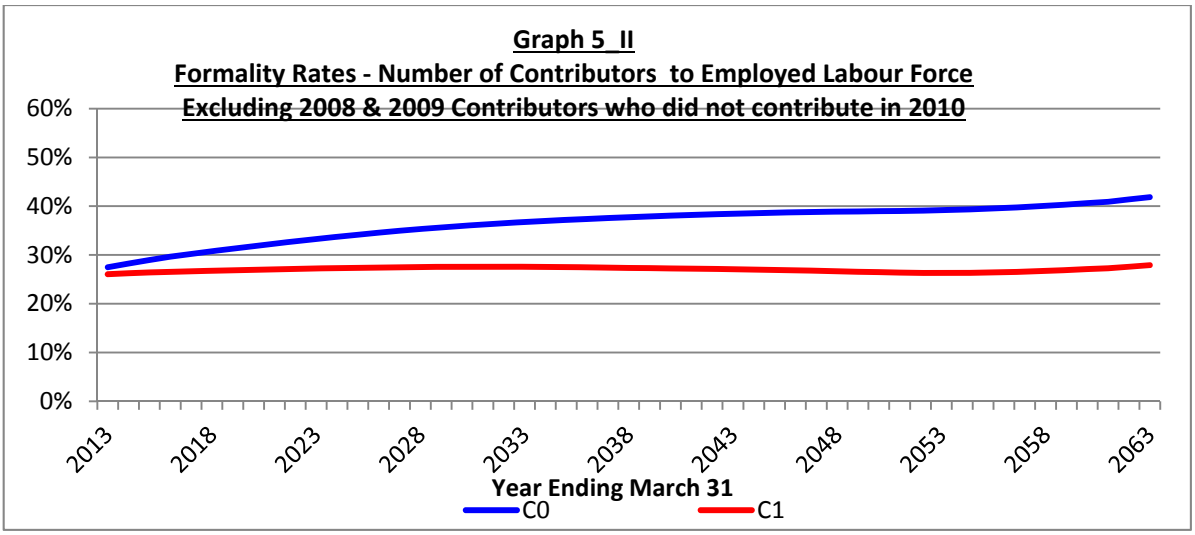
5.5 Assuming that cessation of contributions is consistent with the experience of the current contributors, we show in Graph 5_I below, the numbers of contributors over the projection period compared to the employed Labour Force (Formality Rate). The 2013 employed Labour Force is assumed to increase at 0.35% per annum (Appendix 3, page 100).



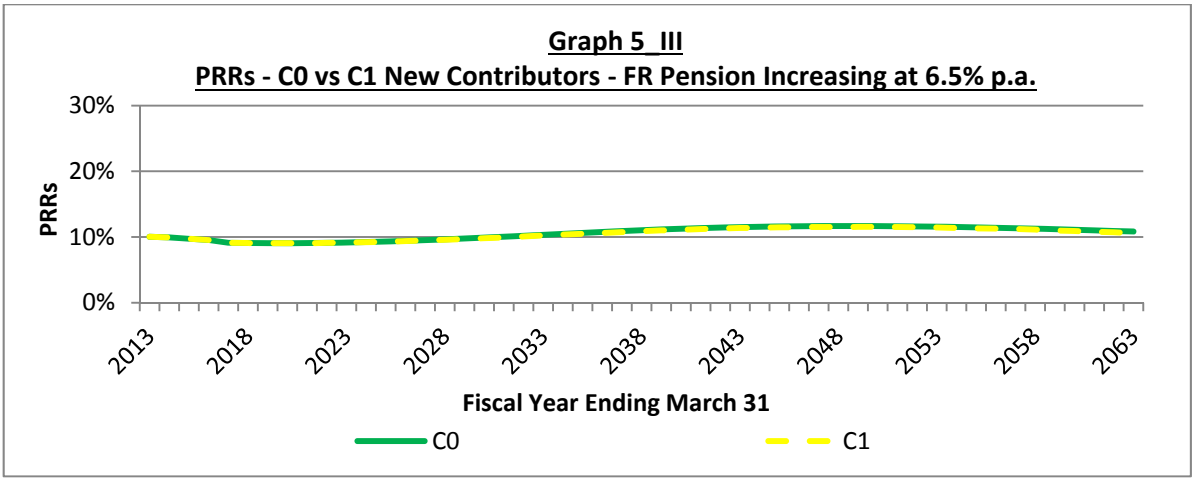
5.6 As noted in Section 4.2, the 2010 data provided for the valuation show 280,961 contributors in that year (only 25% of the employed Labour Force). In addition to the new contributors we assumed that some persons who had contributed in earlier years, but did not contribute in 2010 would resume contributing (147,302), resulting in about 40% of the Employed Labour Force contributing at the Review Date. C0 new contributors represent continuation of coverage at the same level (around 40%) throughout the Review period. With Scenarios C1, C3 or C4, the coverage would decline to around 28% at the end of the Review Period, around the same as the coverage at the Review Date, exclusive of the 147,302 from 2008 and 2009. With Scenario C2 the coverage at the end of the Review Period would have declined to only 13%. Note that by 2063 all of the 2010 and earlier contributors have stopped contributing, died, received grants or are receiving pensions; thus the contributors in 2063 are all new contributors in the Review Period.

5.7 We concluded that Scenario C2 leads to an improbable result and Scenarios C3 and C4 yield practically the same results as C1. Therefore for the projections we assumed new entrants per Scenario C0 (Base) and C1 (Fewer Contributors). In Section 4, the results are based on C0 new contributors. In Sections 5.8 to 5.13 some comparative results based on Scenario C1 are provided.

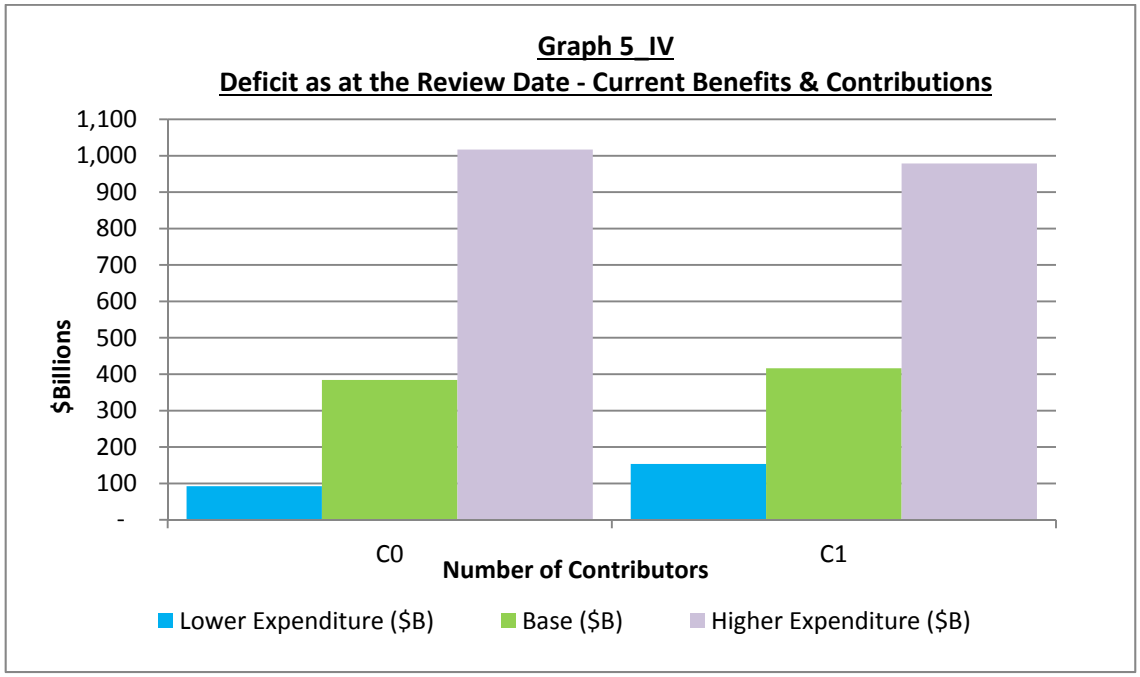
5.8 Graph 5_II below shows the Formality Rates with C0 and C1 new contributors, assuming that those persons who contributed in earlier years but not in 2010 do **not** resume contributing.

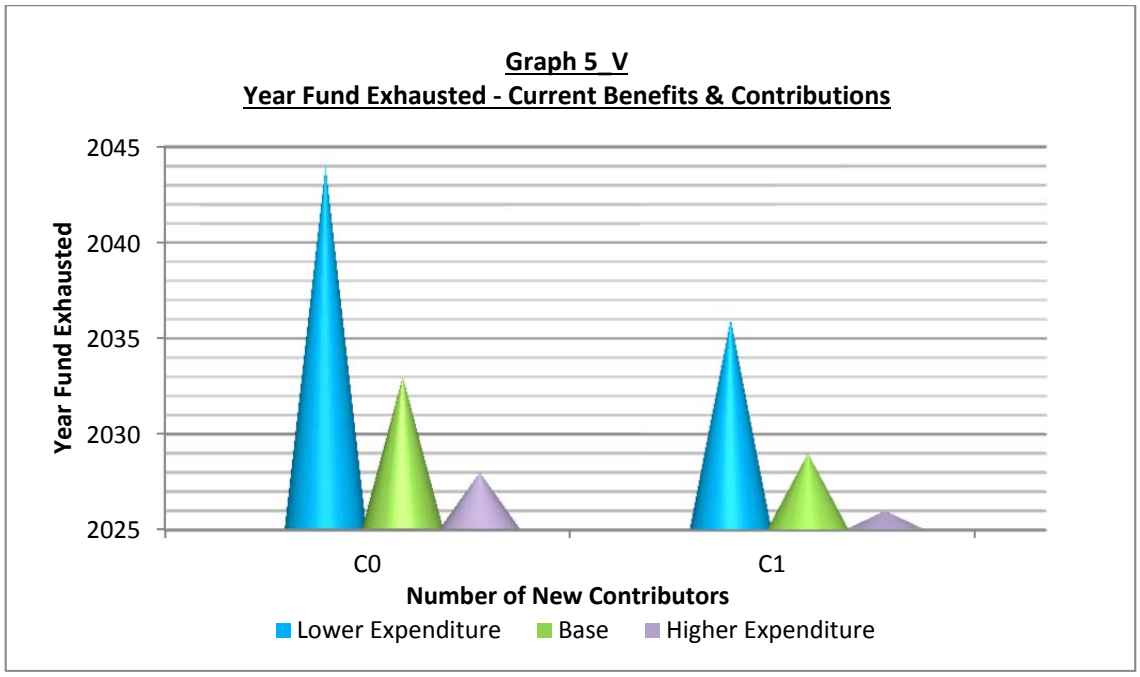


5.9 The Pension Replacement Rates with C1 vs C0 contributors' are shown in Graph 5_III below. The PRRs are practically the same. That is, the average pension is not impacted by the number of new contributors.



5.10 In Table 4_II, page 31, the Surplus/(Deficit) based on the current benefits and contributions, assuming C0 new contributors are shown. With fewer new contributors the Deficit as at the Review Date increases from $384 B to $416 B. Also, the life of the Fund would be shortened – the Fund becoming negative in 2033 with C0 new contributors, but in 2029 with C1 (Graphs 5_IV and 5_V, page 41). **The conclusion is that a greater number of new contributors will extend the life of the Fund. However, this is based on the benefits and contributions, and the assumption that the profile of the new contributors is similar to that of the current contributors. For example, if the new contributors are older or lower paid or if the contributions are insufficient to fund the benefits the new contributors would put additional strain on the Fund and reduce its lifetime**.





5.11 Excluding the 147,302 persons brought back from 2008 & 2009 as per Section 4.2, the Deficit would be about $30 B lower but the life of the Fund would be exhausted 3 – 4 years earlier as their contributions increase the cash flows for several years before they begin to claim benefits.

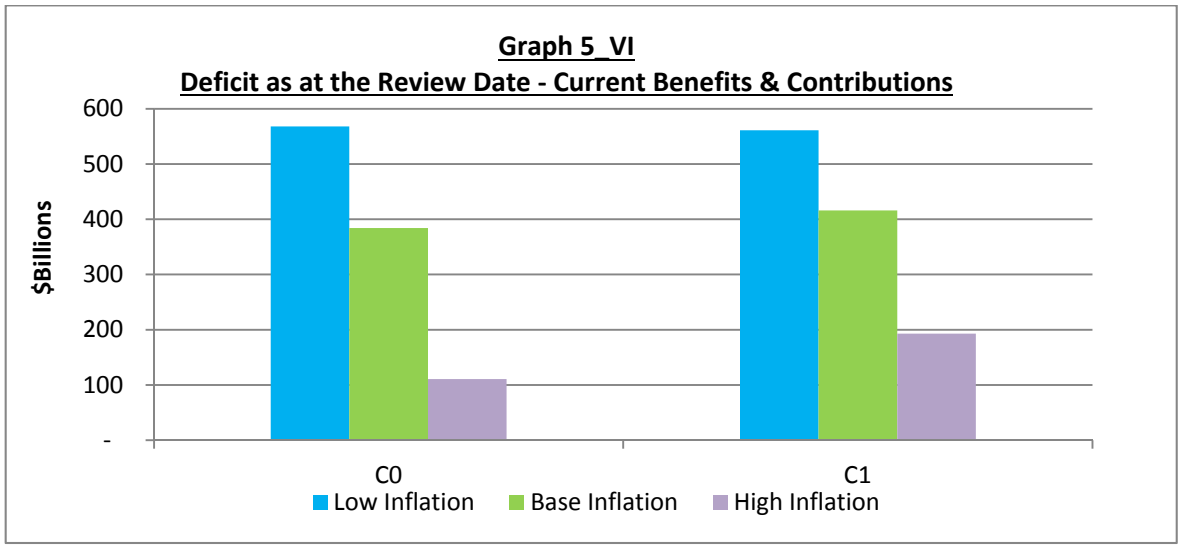
5.12 The results including and excluding contributions from the 2008 & 2009 contributors are compared below.

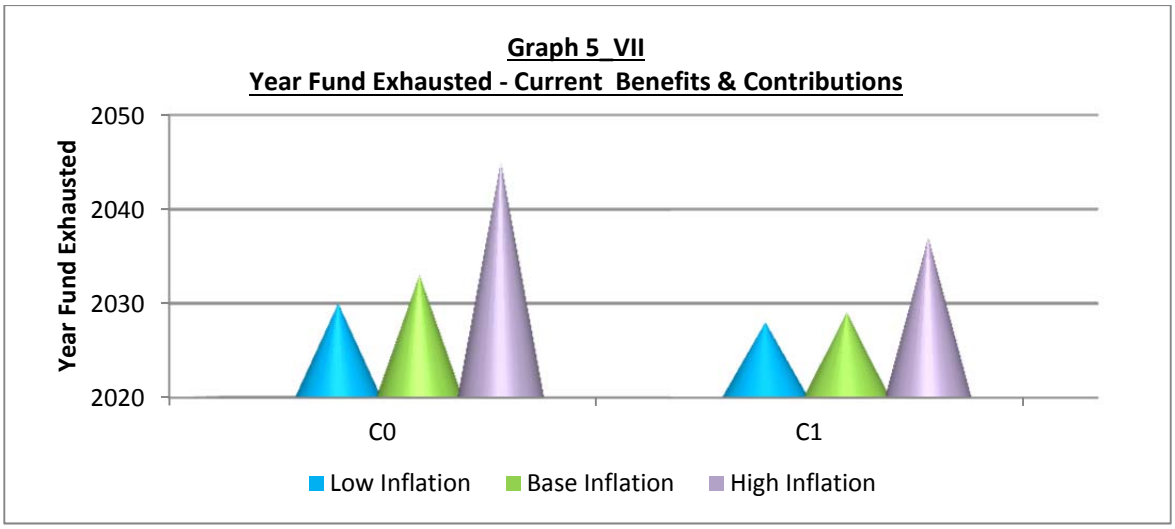
Current Benefits and Contributions	Surplus / (Deficit) at Review Date ($B)		Year Ending March 31 In Which Fund Exhausted	
	C0	C1	C0	C1
Including Contributions from the 2008 & 2009 Contributors	(384)	(416)	2033	2029
Excluding Contributions from the 2008 & 2009 Contributors	(351)	(383)	2029	2026

5.13 **On the base economic assumptions, with fewer new contributors (C1), and no contributions from the 2008 & 2009 re-entries, the Fund is expected to be exhausted in less than 15 years.**

Inflation of 10% and 6% Per Annum

5.14 The results presented in Section 4 and in Sections 5.8 to 5.13 above are based on inflation of 8% per annum. With 10% Inflation, the annual increase in salaries would be 9.62% and the Expected Return on the Assets would be 9.5% (rounded) per annum. With inflation of 6% per annum, salary increases would be 5.63% p.a. and the Expected Return on the Assets would be 8% per annum. In both Scenarios the IWC is assumed to increase at the rate of Inflation. The results based on inflation of 10% per annum and 6% per annum are compared to those with Inflation of 8% in Graph 5_VI (Deficit) and Graph 5_VII (Year Fund Exhausted) below.





5.15 The Deficit is lowest with Inflation of 10% per annum as the salary and IWC (and hence the contributions) are higher while the FR Pension increases remain at the same rate (6.5% p.a.).

Higher Inflation and Higher Expenditure

5.16 With the higher inflation (10% p.a.) and higher expenditure (9% p.a.), the Deficit as at the Review Date is $566B and the Fund would be exhausted by 2034 versus Deficit of $600B and the Fund exhausted 4 years earlier with the lower coverage (C1).

Summary of Results

5.17 The results are summarized below.

Current Benefits and Contributions	Surplus / (Deficit) at Review Date ($B)			Year Ending March 31 In Which Fund Exhausted		
	Inflation					
	Low	Base	High	Low	Base	High
Higher Coverage (C0)						
Lower Expenditure (4.0% p.a.)	Not Modelled	(93)	105	Not Modelled	2044	After 2063
Base Expenditure (6.5% p.a.)	(568)	(384)	(111)	2030	2033	2045
Higher Expenditure (9.0% p.a.)	(1,318)	(1,017)	(566)	2027	2028	2034
Lower Coverage (C1)						
Lower Expenditure (4.0% p.a.)	Not Modelled	(153)	2	Not Modelled	2036	2058
Base Expenditure (6.5% p.a.)	(561)	(416)	(193)	2028	2029	2037
Higher Expenditure (9.0% p.a.)	(1,225)	(979)	(600)	2025	2026	2030

6. RECOMMENDATIONS

The National Insurance Scheme (NIS) and the National Insurance Fund (NIF)

6.1 As noted in Sections 3.1 and 3.2 pension coverage in Jamaica is very limited; with less than 10% of the Labour Force participating in occupational pension and individual account approved retirement schemes in 2013 March. Old Age pensions are important to the economic stability of the country and the NIS, if successful, could be the source of these pensions. **To be considered successful the Scheme must provide wide coverage, adequate pensions and be sustainable long-term**.

6.2 The NIS is not a Pay As You Go (**PAYG**) arrangement; it is a funded Scheme. The intent is that the amounts contributed should be prudently invested and accumulated to pay the benefits as the contributors retire. As at the Review Date the Fund had market value of $63 billion although, largely as a consequence of the NDX in which the Scheme participated, the Market Value of the Fund was $8 billion less than the $71 billion at the previous fiscal year end.

6.3 **As at the Review Date the Market Value of the Fund was $65 billion less than the discounted value of the pensions already in payment**. This is an untenable situation. If the contributions are not increased then the cash flow could be negative by 2025 and the Fund exhausted by 2033. If the contributions are increased it is very important that positive cash flows are invested and the Fund preserved solely for the purpose of providing the benefits as outlined in the Act. The Fund should be prudently invested and not diverted for other purposes.

Sustainability of the Scheme

6.4 The NIS pension is in two components – a Flat Rate (FR) portion depending only on the number of contributions made by the contributor during his eligibility period (age 18 to the Normal Retirement Age (NRA)) and a Wage Related (WR) portion that depends on actual contributions paid to the Scheme. The practice under the Scheme is to increase the FR pensions, on a regular (although not annual) basis and to also increase the contributions by increasing the Insurable Wage Ceiling (IWC) periodically. The WR pensions are not usually increased. In our analyses, we assumed that contributions would be increased annually by way of uplift of the IWC and the FR pensions would also be increased annually, but the WR pensions would not be increased.

6.5 We projected the cash flows assuming that the IWC would be increased at full inflation each year and varying levels of FR pension increases (continuation of current conditions – 6.5% p.a.; lower expenditure – 4% p.a. and higher expenditure – 9% p.a.). We projected Inflation of 8% per annum (base) and lower and higher (6% and 10%).

Assuming current conditions maintained, there is Deficit of $384 Billion as at the Review Date. In fact, in respect of just the Pensioners as at the Review Date, there is Deficit of $65 Billion. The Fund would be expected to be fully depleted by 2033.

With the lower expenditure the Deficit would be $93 B (Fund exhausted in 2044) while with higher expenditure the Deficit would be $1,017 B (Fund exhausted in 2028).

Adequacy of Benefits under the Scheme

6.6 The benefits have been increased significantly over the last few years, but are still largely inadequate at any Income Level. As at the Review Date the full FR pension was $2,800 per week (56% of the NMW) and the maximum WR pension was $1,600 per week (only payable to someone who has always contributed at the IWC). On an individual basis, current income replacement rates range from 56% Salary, equal to the NMW at the Review Date of $5,000 per week, to 15.3% Salary at the IWC of $1.5M. At the national level, the Pension Replacement Rate is only 11% Labour Compensation. Thus, the benefit levels need to be increased and the pensions in payments must also be regularly increased to maintain purchasing power.

The Fund is not sustainable with the current benefits, so the inadequacy of the pensions cannot be addressed without significant increase in the Funding, via improved investment returns increased contributions and/or other sources.

Investment Returns

6.7 Investment income is an important source of funding and high returns in the past have helped to meet the cost of the benefits. However future returns are not expected to be at the same levels. Investments outside of Jamaica are restricted, notwithstanding we contemplated investment strategies that include foreign investments. Even on the most favourable investment strategy developed for the Scheme, investment returns will not extend the life of the Fund by more than one year (see Annex 2).

6.8 Our conclusion is that while good investment returns can extend the life of the Fund any extension is likely to be marginal. The sustainability of the Fund will not be greatly improved by changing the investment strategy. The investment returns cannot be sufficiently increased to meet the funding shortfall. We recommend that if the Scheme is to remain viable over the long-term the funding will have to be increased or the benefits reduced. Unless another source of funding can be identified, the contributions will have to be increased just to fund the current benefits.

Increased Contributions

Increase the IWC

6.9 Over the life of the Scheme increases in contributions have been via increases in the Insurable Wage Ceiling. **However increases in the IWC will not materially extend the life of the Scheme even if there are no changes in the benefits**. As the IWC is increased, fewer contributors are impacted hence the additional income tapers off. If the Scheme is to be sustainable, the contribution rate (currently 4%) will have to be increased. In fact, even if the ceiling were fully removed, the contribution rate of 4% would still not be sufficient to fund the benefits.

Increase in the Contribution Rate

6.10 Based on our calculations, and the assumptions and data used for this review, the contribution rate required to adequately fund the current benefits is 13.5% – 14.0% Salary up to the current IWC of $1.5 million per annum (increasing annually in line with inflation). While it is unlikely that this contribution rate increase could be effected, some increase must be implemented if the Scheme is to be viable. The benefits are quite inadequate and the current contributions can be expected to sustain the Fund with these benefit levels for only another 20 or so years. Recommendations for contribution rate increases will be included in the Road Map.

ANNEX I

PROJECTED CASH FLOWS

Below are the cash flows corresponding to the results presented in Sections 4, 5 and 6.

TABLE CF_I
CURRENT BENEFITS AND CONTRIBUTIONS (4% SALARY UP TO $1.5M)

Year Ending March 31	Fund at EOY[8] ($ Millions)	Cash Flow in Year Ending March 31 ($ Millions)				
		Contributions	Benefits	Expenses	Interest	Net Cash Flow
2013	63,502	9,543	(12,334)	(769)	(4,471)	(8,031)
2014	67,192	13,296	(13,671)	(1,263)	5,328	3,690
2015	71,180	14,198	(14,502)	(1,349)	5,641	3,988
2016	75,513	15,166	(15,373)	(1,441)	5,980	4,332
2020	92,752	20,624	(21,978)	(1,959)	7,396	4,083
2025	102,530	30,791	(36,630)	(2,925)	8,376	(388)
2030	59,934	45,748	(63,143)	(4,346)	5,547	(16,194)
2033	(27,575)	57,623	(88,311)	(5,474)	(744)	(36,906)
2035	(131,468)	67,124	(109,856)	(6,377)	(8,376)	(57,485)
2040	(661,484)	97,763	(187,041)	(9,287)	(47,960)	(146,526)
2045	(1,865,796)	142,502	(307,725)	(13,538)	(139,166)	(317,927)
2050	(4,324,671)	208,290	(494,323)	(19,788)	(326,820)	(632,641)
2055	(8,956,662)	311,118	(750,848)	(29,556)	(683,292)	(1,152,578)
2060	(16,882,593)	478,461	(1,043,584)	(45,454)	(1,298,683)	(1,909,259)
2063	(23,824,065)	621,523	(1,257,217)	(59,045)	(1,839,188)	(2,533,926)

TABLE CF_II
CURRENT BENEFITS AND CONTRIBUTIONS – LOWER EXPENDITURE

Year Ending March 31	Fund at EOY ($ Millions)	Cash Flow in Year Ending March 31 ($ Millions)				
		Contributions	Benefits	Expenses	Interest	Net Cash Flow
2013	63,502	9,543	(12,334)	(769)	(4,471)	(8,031)
2014	67,192	13,296	(13,671)	(1,263)	5,328	3,690
2015	71,495	14,198	(14,200)	(1,349)	5,654	4,303
2016	76,513	15,166	(14,741)	(1,441)	6,034	5,018

[8] End of Year

TABLE CF_II CURRENT BENEFITS AND CONTRIBUTIONS – LOWER EXPENDITURE						
Year Ending March 31	Fund at EOY ($ Millions)	Cash Flow in Year Ending March 31 ($ Millions)				
		Contributions	Benefits	Expenses	Interest	Net Cash Flow
2020	102,047	20,624	(19,482)	(1,959)	8,026	7,209
2025	145,343	30,791	(29,897)	(2,925)	11,466	9,435
2030	192,091	45,748	(48,140)	(4,346)	15,313	8,575
2035	210,412	67,124	(79,057)	(6,377)	17,201	(1,109)
2040	134,542	97,763	(127,800)	(9,287)	12,081	(27,244)
2044	(66,086)	132,121	(183,343)	(12,551)	(2,679)	(66,453)
2045	(145,812)	142,502	(200,051)	(13,538)	(8,639)	(79,725)
2050	(812,761)	208,290	(306,442)	(19,788)	(59,053)	(176,992)
2055	(2,114,851)	311,118	(442,973)	(29,556)	(159,357)	(320,768)
2060	(4,195,166)	478,461	(591,342)	(45,454)	(322,451)	(480,787)
2063	(5,857,667)	621,523	(701,862)	(59,045)	(453,436)	(592,819)

TABLE CF_III CURRENT BENEFITS AND CONTRIBUTIONS – HIGHER EXPENDITURE						
Year Ending March 31	Fund at EOY[9] ($ Millions)	Cash Flow in Year Ending March 31 ($ Millions)				
		Contributions	Benefits	Expenses	Interest	Net Cash Flow
2013	63,502	9,543	(12,334)	(769)	(4,471)	(8,031)
2014	67,192	13,296	(13,671)	(1,263)	5,328	3,690
2015	70,865	14,198	(14,804)	(1,349)	5,628	3,673
2016	74,496	15,166	(16,020)	(1,441)	5,926	3,631
2020	82,702	20,624	(24,786)	(1,959)	6,719	598
2021	81,803	22,349	(27,831)	(2,123)	6,706	(899)
2025	52,431	30,791	(45,143)	(2,925)	4,784	(12,493)
2028	(18,696)	39,110	(65,571)	(3,715)	(283)	(30,460)
2030	(107,729)	45,748	(84,475)	(4,346)	(6,752)	(49,825)
2035	(602,686)	67,124	(159,091)	(6,377)	(43,363)	(141,707)
2040	(1,854,931)	97,763	(293,510)	(9,287)	(137,286)	(342,321)

[9] End of Year

TABLE CF_III CURRENT BENEFITS AND CONTRIBUTIONS – HIGHER EXPENDITURE						
Year Ending March 31	Fund at EOY[9] ($ Millions)	Cash Flow in Year Ending March 31 ($ Millions)				
		Contributions	Benefits	Expenses	Interest	Net Cash Flow
2045	(4,671,052)	142,502	(525,278)	(13,538)	(350,411)	(746,724)
2050	(10,552,962)	208,290	(921,065)	(19,788)	(798,035)	(1,530,598)
2055	(22,130,359)	311,118	(1,536,920)	(29,556)	(1,684,542)	(2,939,900)
2060	(43,264,937)	478,461	(2,341,494)	(45,454)	(3,314,663)	(5,223,150)
2063	(62,817,374)	621,523	(2,966,864)	(59,045)	(4,826,996)	(7,231,382)

TABLE CF_IV CURRENT BENEFITS AND CONTRIBUTIONS – *C1 NEW CONTRIBUTORS*						
Year Ending March 31	Fund at EOY	Cash Flow in Year Ending March 31 ($ Millions)				
		Contributions	Benefits	Expenses	Interest	Net Cash Flow
2013	63,502	9,543	(12,334)	(769)	(4,471)	(8,031)
2014	66,581	12,649	(13,671)	(1,202)	5,303	3,079
2015	69,698	13,329	(14,502)	(1,266)	5,556	3,117
2016	72,864	14,063	(15,373)	(1,336)	5,812	3,166
2020	81,372	18,275	(21,978)	(1,736)	6,588	1,148
2022	80,339	21,010	(26,802)	(1,996)	6,599	(1,189)
2025	65,505	25,947	(36,383)	(2,465)	5,637	(7,263)
2029	(196)	34,380	(55,397)	(3,266)	936	(23,348)
2030	(29,752)	36,844	(61,678)	(3,500)	(1,221)	(29,555)
2035	(315,851)	51,761	(105,008)	(4,917)	(22,466)	(80,630)
2040	(1,000,967)	72,217	(174,539)	(6,861)	(74,140)	(183,323)
2045	(2,439,977)	101,074	(279,739)	(9,602)	(183,776)	(372,043)
2050	(5,225,979)	142,414	(437,019)	(13,529)	(397,339)	(705,473)
2055	(10,266,581)	208,102	(640,662)	(19,770)	(786,576)	(1,238,907)
2060	(18,628,286)	318,975	(845,706)	(30,303)	(1,437,540)	(1,994,573)
2063	(25,807,115)	414,350	(986,170)	(39,363)	(1,997,815)	(2,608,999)

TABLE CF_V CURRENT BENEFITS AND CONTRIBUTIONS – LOWER EXPENDITURE *C1 NEW CONTRIBUTORS*						
Year Ending March 31	Fund at EOY	Cash Flow in Year Ending March 31 ($ Millions)				
		Contributions	Benefits	Expenses	Interest	Net Cash Flow
2013	63,502	9,543	(12,334)	(769)	(4,471)	(8,031)
2014	66,581	12,649	(13,671)	(1,202)	5,303	3,079
2015	70,013	13,329	(14,200)	(1,266)	5,569	3,432
2016	73,865	14,063	(14,741)	(1,336)	5,866	3,852
2020	90,667	18,275	(19,482)	(1,736)	7,218	4,275
2025	108,238	25,947	(29,688)	(2,465)	8,723	2,517
2028	109,304	32,061	(38,947)	(3,046)	8,952	(980)
2030	101,313	36,844	(46,979)	(3,500)	8,471	(5,164)
2035	19,763	51,761	(75,440)	(4,917)	2,668	(25,928)
2036	(12,573)	55,361	(82,731)	(5,259)	293	(32,336)
2040	(229,427)	72,217	(118,968)	(6,861)	(15,874)	(69,485)
2045	(796,582)	101,074	(181,209)	(9,602)	(58,890)	(148,628)
2050	(1,920,821)	142,414	(269,371)	(13,529)	(144,976)	(285,462)
2055	(3,927,394)	208,102	(373,863)	(19,770)	(300,409)	(485,940)
2060	(7,067,355)	318,975	(470,514)	(30,303)	(546,541)	(728,383)
2063	(9,608,128)	414,350	(538,996)	(39,363)	(746,286)	(910,296)

TABLE CF_VI CURRENT BENEFITS AND CONTRIBUTIONS – HIGHER EXPENDITURE *C1 NEW CONTRIBUTORS*						
Year Ending March 31	Fund at EOY	Cash Flow in Year Ending March 31 ($ Millions)				
		Contributions	Benefits	Expenses	Interest	Net Cash Flow
2013	63,502	9,543	(12,334)	(769)	(4,471)	(8,031)
2014	66,581	12,649	(13,671)	(1,202)	5,303	3,079
2015	69,383	13,329	(14,804)	(1,266)	5,543	2,802
2016	71,848	14,063	(16,020)	(1,336)	5,758	2,465
2019	73,658	17,048	(22,117)	(1,620)	6,032	(656)

TABLE CF_VI CURRENT BENEFITS AND CONTRIBUTIONS – HIGHER EXPENDITURE *C1 NEW CONTRIBUTORS*						
Year Ending March 31	Fund at EOY	Cash Flow in Year Ending March 31 ($ Millions)				
		Contributions	Benefits	Expenses	Interest	Net Cash Flow
2020	71,322	18,275	(24,786)	(1,736)	5,910	(2,336)
2025	15,506	25,947	(44,848)	(2,465)	2,052	(19,314)
2026	(9,705)	27,844	(50,646)	(2,645)	236	(25,211)
2030	(195,929)	36,844	(82,577)	(3,500)	(13,421)	(62,654)
2035	(777,718)	51,761	(152,275)	(4,917)	(56,797)	(162,229)
2040	(2,154,344)	72,217	(274,413)	(6,861)	(160,585)	(369,641)
2045	(5,107,912)	101,074	(478,816)	(9,602)	(384,987)	(772,331)
2050	(11,048,467)	142,414	(817,803)	(13,529)	(838,563)	(1,527,481)
2055	(22,361,389)	208,102	(1,321,859)	(19,770)	(1,707,413)	(2,840,940)
2060	(42,370,438)	318,975	(1,922,488)	(30,303)	(3,255,346)	(4,889,161)
2063	(60,439,435)	414,350	(2,362,784)	(39,363)	(4,657,024)	(6,644,821)

TABLE CF_VII CURRENT BENEFITS AND CONTRIBUTIONS – INFLATION 6% P.A.						
Year Ending March 31	Fund at EOY	Cash Flow in Year Ending March 31 in $ Millions				
		Contributions	Benefits	Expenses	Interest	Net Cash Flow
2013	63,502	9,543	(12,334)	(769)	(4,471)	(8,031)
2014	66,813	13,216	(13,662)	(1,256)	5,012	3,311
2015	70,299	14,029	(14,483)	(1,333)	5,274	3,486
2016	73,987	14,896	(15,343)	(1,415)	5,549	3,688
2020	86,352	19,372	(21,879)	(1,840)	6,557	2,210
2022	87,355	21,813	(26,664)	(2,072)	6,727	(196)
2025	74,800	26,057	(36,258)	(2,475)	6,010	(6,666)
2030	(22,310)	34,867	(61,833)	(3,312)	(531)	(30,809)
2035	(325,563)	46,065	(105,807)	(4,376)	(21,741)	(85,859)
2040	(1,056,292)	60,355	(176,440)	(5,734)	(73,732)	(195,551)

TABLE CF_VII CURRENT BENEFITS AND CONTRIBUTIONS – INFLATION 6% P.A.						
2045	(2,589,507)	79,119	(283,742)	(7,516)	(183,958)	(396,098)
2050	(5,550,045)	104,019	(444,854)	(9,882)	(398,125)	(748,842)
2055	(10,915,324)	139,792	(660,596)	(13,280)	(788,762)	(1,322,846)
2060	(19,949,137)	193,164	(895,315)	(18,351)	(1,451,029)	(2,171,530)
2063	(27,831,262)	235,309	(1,058,040)	(22,354)	(2,030,276)	(2,875,360)

TABLE CF_VIII CURRENT BENEFITS AND CONTRIBUTIONS – INFLATION 10% P.A.						
Year Ending March 31	Fund at EOY	Cash Flow in Year Ending March 31 in $ Millions				
		Contributions	Benefits	Expenses	Interest	Net Cash Flow
2013	63,502	9,543	(12,334)	(769)	(4,471)	(8,031)
2014	68,557	14,084	(13,680)	(1,338)	5,988	5,055
2015	74,619	15,570	(14,522)	(1,479)	6,492	6,062
2016	81,891	17,216	(15,406)	(1,636)	7,097	7,271
2020	121,303	25,440	(22,153)	(2,417)	10,486	11,356
2025	194,260	41,216	(37,463)	(3,915)	16,861	16,698
2030	288,017	66,422	(66,057)	(6,310)	25,246	19,300
2035	363,039	105,693	(118,237)	(10,041)	32,476	9,891
2037	368,161	126,931	(148,687)	(12,058)	33,408	(407)
2040	316,614	166,826	(207,844)	(15,849)	29,936	(26,931)
2045	(55,589)	263,337	(353,818)	(25,017)	187	(115,311)
2050	(1,138,764)	416,666	(589,631)	(39,583)	(89,577)	(302,125)
2055	(3,531,300)	673,810	(927,615)	(64,012)	(292,582)	(610,399)
2060	(7,671,503)	1,122,010	(1,341,194)	(106,591)	(651,432)	(977,208)
2063	(11,108,658)	1,528,508	(1,665,784)	(145,208)	(951,511)	(1,233,995)

TABLE CF_IX CURRENT BENEFITS AND CONTRIBUTIONS HIGHER INFLATION AND HIGHER EXPENDITURE						
Year Ending March 31	Fund at EOY	Cash Flow in Year Ending March 31 in $ Millions				
		Contributions	Benefits	Expenses	Interest	Net Cash Flow
2013	63,502	9,543	(12,334)	(769)	(4,471)	(8,031)
2014	68,557	14,084	(13,680)	(1,338)	5,988	5,055
2015	74,303	15,570	(14,824)	(1,479)	6,478	5,745
2016	80,866	17,216	(16,053)	(1,636)	7,036	6,564
2020	111,050	25,440	(24,960)	(2,417)	9,719	7,781
2025	142,396	41,216	(45,976)	(3,915)	12,730	4,055
2027	143,173	49,948	(59,320)	(4,745)	13,034	(1,082)
2030	112,042	66,422	(87,389)	(6,310)	10,904	(16,373)
2034	(57,231)	96,361	(147,361)	(9,154)	(2,356)	(62,509)
2035	(137,899)	105,693	(167,472)	(10,041)	(8,848)	(80,668)
2040	(967,620)	166,826	(314,313)	(15,849)	(76,863)	(240,199)
2045	(3,110,599)	263,337	(571,370)	(25,017)	(255,422)	(588,472)
2050	(8,003,458)	416,666	(1,016,373)	(39,583)	(666,632)	(1,305,922)
2055	(18,233,128)	673,810	(1,713,687)	(64,012)	(1,533,984)	(2,637,873)
2060	(37,541,752)	1,122,010	(2,639,105)	(106,591)	(3,186,613)	(4,810,299)
2063	(55,695,967)	1,528,508	(3,375,432)	(145,208)	(4,745,654)	(6,737,785)

TABLE CF_X CURRENT BENEFITS AND CONTRIBUTIONS – INFLATION 10% P.A. *C1 NEW CONTRIBUTORS*						
Year Ending March 31	Fund at EOY	Cash Flow in Year Ending March 31 ($ Millions)				
		Contributions	Benefits	Expenses	Interest	Net Cash Flow
2013	63,502	9,543	(12,334)	(769)	(4,471)	(8,031)
2014	67,907	13,399	(13,680)	(1,273)	5,959	4,405
2015	73,004	14,617	(14,522)	(1,389)	6,390	5,097
2016	78,933	15,962	(15,406)	(1,516)	6,890	5,929
2020	107,559	22,534	(22,153)	(2,141)	9,408	7,648
2023	131,223	29,193	(30,084)	(2,773)	11,544	7,879
2025	146,010	34,724	(37,199)	(3,299)	12,918	7,144
2030	161,392	53,493	(64,455)	(5,082)	14,698	(1,346)

TABLE CF_X CURRENT BENEFITS AND CONTRIBUTIONS – INFLATION 10% P.A. *C1 NEW CONTRIBUTORS*						
Year Ending March 31	Fund at EOY	Cash Flow in Year Ending March 31 ($ Millions)				
		Contributions	Benefits	Expenses	Interest	Net Cash Flow
2035	78,219	81,522	(112,795)	(7,745)	8,479	(30,539)
2037	(14,441)	96,233	(140,475)	(9,142)	1,063	(52,321)
2040	(265,020)	123,290	(193,393)	(11,713)	(19,444)	(101,259)
2045	(1,166,671)	186,868	(320,388)	(17,752)	(94,656)	(245,928)
2050	(3,158,181)	284,963	(518,536)	(27,072)	(262,691)	(523,335)
2055	(7,055,590)	450,712	(784,832)	(42,818)	(595,778)	(972,715)
2060	(13,629,924)	748,009	(1,072,737)	(71,061)	(1,165,336)	(1,561,125)
2063	(19,200,249)	1,019,008	(1,287,795)	(96,806)	(1,649,916)	(2,015,508)

TABLE CF_XI CURRENT BENEFITS AND CONTRIBUTIONS HIGHER INFLATION AND HIGHER EXPENDITURE – *C1 NEW CONTRIBUTORS*						
Year Ending March 31	Fund at EOY	Cash Flow in Year Ending March 31 in $ Millions				
		Contributions	Benefits	Expenses	Interest	Net Cash Flow
2013	63,502	9,543	(12,334)	(769)	(4,471)	(8,031)
2014	67,907	13,399	(13,680)	(1,273)	5,959	4,405
2015	72,687	14,617	(14,824)	(1,389)	6,375	4,780
2016	77,908	15,962	(16,053)	(1,516)	6,829	5,221
2020	97,306	22,534	(24,960)	(2,141)	8,640	4,073
2023	102,091	29,193	(35,737)	(2,773)	9,261	(56)
2025	94,247	34,724	(45,665)	(3,299)	8,794	(5,445)
2030	(13,064)	53,493	(85,354)	(5,082)	469	(36,474)
2035	(413,072)	81,522	(160,062)	(7,745)	(32,094)	(118,379)
2040	(1,507,522)	123,290	(293,267)	(11,713)	(122,908)	(304,598)
2045	(4,077,279)	186,868	(519,464)	(17,752)	(338,539)	(688,888)
2050	(9,591,918)	284,963	(899,320)	(27,072)	(804,351)	(1,445,779)
2055	(20,599,994)	450,712	(1,466,029)	(42,818)	(1,741,313)	(2,799,448)
2060	(40,637,544)	748,009	(2,149,519)	(71,061)	(3,461,753)	(4,934,324)
2063	(59,026,821)	1,019,008	(2,664,408)	(96,806)	(5,045,473)	(6,787,679)

ANNEX 2
ASSET MIX ANALYSIS

Background

We have been asked to assess the benefits and risks of the Jamaica National Insurance Fund's (NIF) current investment strategy relative to key objectives and to comment on the financial impact of potential alternative asset mix strategies. To carry out this assessment, we've projected the future investment performance of the Fund under different deterministic economic and capital market scenarios, taking into account the projected contributions, benefit payments and expenses provided to us. We've also provided qualitative analysis related to the current and alternative investment strategies and discussed at a high level some potential implementation issues.

NIF's Objectives

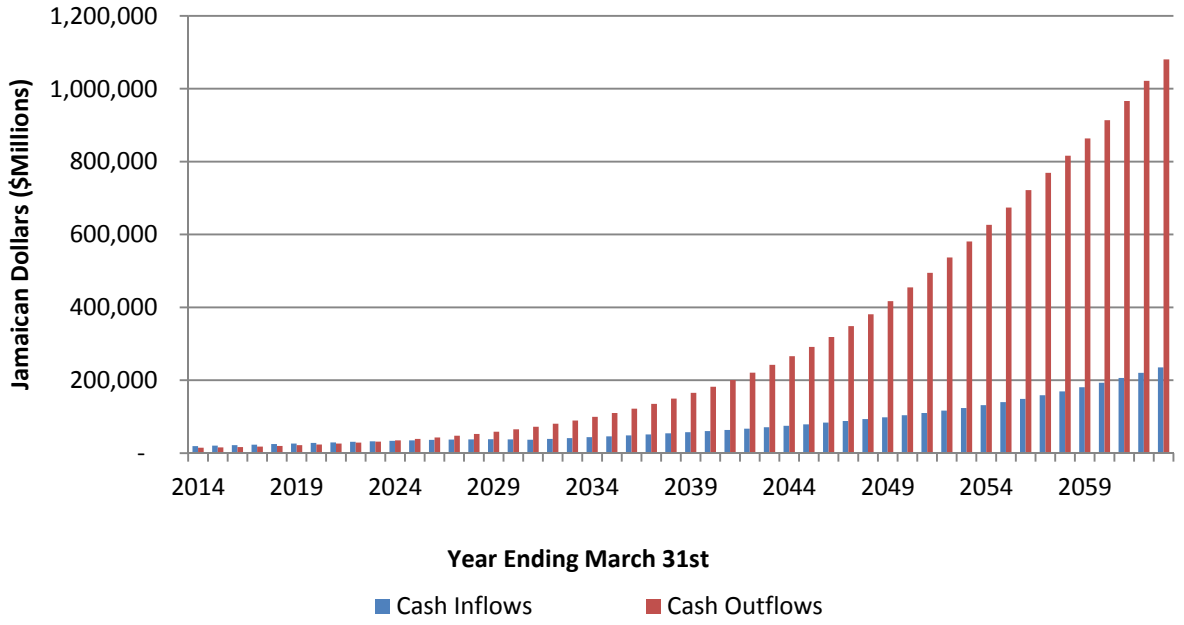
We have assumed the NIF's primary objective is to maximize the value of the assets. Accordingly, we have evaluated the impact that different strategies have on extending the life of the fund, or stating this in a different way, delaying the full depletion of assets. The performance objective evaluated in the analysis of this report has focused on the length of time before assets are projected to be depleted under the different scenarios for the alternative asset mixes. This outcome is closely aligned with the objectives of the NIF to maintain positive net cash flows. Once the net cash flows turn negative (i.e., benefits and expenses being paid out exceed contributions and investment earnings), the fund is generally expected to be fully depleted in 6 to 10 years from that point in time. Given that benefit payments are expected to increase at a faster rate than contributions for the majority of the 50 year projection period (as shown in Figure 1 below), no investment strategy is able to avoid the depletion of the NIF's assets under the scenarios contemplated, given the current contribution and benefit provisions. However, different investment strategies can act to delay the date that the assets are expected to be fully depleted.

The projected cash flows shown in Figure 1 below are based on the cash flows developed by our actuarial team in Jamaica, in conjunction with the NIF and are designed to reflect NIF's current asset mix and current asset classes employed, as at March 31, 2013, which consists of:

- 72% Jamaican fixed income;
- 12% Jamaican equities; and
- 16% Jamaican real estate, mortgages and loans.

This investment strategy is expected to have a long-term annualized return of 8.5% in our Baseline scenario, which assumes a consistent long-term inflation level of 8%.

Figure 1: Baseline Scenario – Cash Flows Including Investment Earnings



Deterministic Scenarios

Given the importance of inflation levels to both projected NIF contributions and benefit payments, we have developed our deterministic scenarios based on alternative outcomes for Jamaican inflation over long time horizons (i.e., the entire 50 year projection period). Under these alternative assumptions, the rate of Jamaican inflation is assumed to be influenced by Jamaican capital markets and the strength of the Jamaican economy. Higher inflation is assumed to result from weaker global economic conditions, whereas low inflation is assumed to be a result of stronger global economic conditions. These economic assumptions were developed in conjunction with the actuarial consulting team in Jamaica, based on observed historical experience and future expectations. The details of the scenarios are as follows:

	Baseline	High Inflation	Low Inflation
Jamaican inflation	8.0%	10.0%	6.0%
Jamaican fixed income portfolio yield	8.4%	10.4%	7.4%
Jamaican equities return	10.8%	8.3%	13.3%
Jamaican real estate, mortgages and loans return	7.0%	7.0%	7.0%

The High Inflation scenario assumes that Jamaican inflation immediately increases by 2%. Under this scenario, the shift up in inflation is assumed to be matched by an equal shift up in Jamaican bond yields (i.e., a parallel yield curve shift up by 2% in the first year). The increase in bond yields is assumed to result in a -7.6% bond return during the year of the yield curve shift, based on a bond portfolio duration of 8 (i.e., -7.6% = 8.4% - 8 x 2%). The annual return for Jamaican equities in the High Inflation scenario is assumed to return 2.5% less than under the Baseline scenario, due to the poorer economic conditions. The annual return for Jamaican real estate, mortgages and loans was assumed to remain unchanged under the High Inflation scenario given the expected offsetting impact of higher interest rates for mortgages and loans, and marginal ability to increase rental income, which was assumed to fully offset any capital depreciation of real estate assets and increased vacancy levels.

The Low Inflation scenario assumes that Jamaican inflation decreases by 2%, which is assumed to result in only a 1% decrease in Jamaican bond yields (i.e., a parallel yield curve shift down by 1%). We did not assume a one-for-one relationship with inflation and bond yields in this case, due to the expectation that “real” bond yields (i.e., the yield above inflation) will move to more favourable levels if inflation risk reduces. Similar to the High Inflation scenario, the return for Jamaican equities was assumed to increase by 2.5% above the Baseline scenario in the Low Inflation scenario and the return for Jamaican real estate, mortgages and loans was again assumed to remain unchanged due to offsetting factors.

We use the Baseline scenario and the Low Inflation and High Inflation scenarios to evaluate the expected financial position of the fund under the current asset mix and alternative asset mix strategies. The different deterministic economic and capital market assumptions provide an analysis of the sensitivity of each policy mix to changes in the current different economic environment.

We feel the economic and capital market assumptions made for the different scenarios described above are reasonable expectations given the assumed conditions underlying the scenarios; however, alternative assumptions could be supported. The very long time horizon for the analysis and the concentrated nature of the Jamaican economy and Jamaican asset classes included within the fund poses challenges when selecting assumptions for the deterministic scenarios.

Initial Investment Strategies Analyzed

We initially analyzed alternative asset allocation strategies consisting entirely of the asset classes currently utilized by the Fund, which we've categorized as:

- Jamaican fixed income;
- Jamaican equities; and
- Jamaican real estate, mortgages and loans.

We assumed that all investments are in securities issued by Jamaican entities, even though a nominal allocation to foreign securities exists. We did not make any allowances for Jamaican securities denominated in U.S. dollars (USD), based on the assumption that "expected" returns for USD denominated securities are approximately equivalent to corresponding JMD denominated securities, once accounting for expected changes in the exchange rate. We consider the decision regarding USD versus JMD denominated securities to be an implementation consideration, which we discuss later in this report.

We first explored the impact of reducing the allocation to Jamaican fixed income, relative to the current allocation, as at March 31, 2013 (the "Current" asset mix). We evaluated the following asset mixes:

	Current	60/20/20	50/20/30	50/30/20
Jamaican fixed income	72%	60%	50%	50%
Jamaican equities	12%	20%	20%	30%
Jamaican real estate, mortgages and loans	16%	20%	30%	20%

The 50/20/30 asset mix is consistent with the Fund's current target asset allocation as outlined in the NIF Investment Policy General Guidelines. Due to the conservative nature of the NIF and the importance of benefit stability, we did not consider allocations to fixed income below 50%.

The 20-year expected annualized returns for the fund for the different asset mixes is as follows under the different economic scenarios:

20-year Annualized Returns	Current	60/20/20	50/20/30	50/30/20
Baseline	8.5%	8.6%	8.5%	8.8%
High Inflation	8.9%	8.7%	8.5%	8.6%
Low Inflation	8.4%	8.8%	8.7%	9.3%

The expected annualized returns shown above highlight the assumed offsetting impact of exposure to equities and fixed income based on the asset class assumptions under the different scenarios, in that the annualized returns differ by only small amounts over a 20-year time horizon. However, larger differences occur over shorter time horizons, as illustrated by the 5-year annualized returns for the fund below:

5-year Annualized Returns	Current	60/20/20	50/20/30	50/30/20
Baseline	8.5%	8.6%	8.5%	8.8%
High Inflation	6.9%	7.0%	7.1%	7.2%
Low Inflation	9.3%	9.6%	9.3%	10.0%

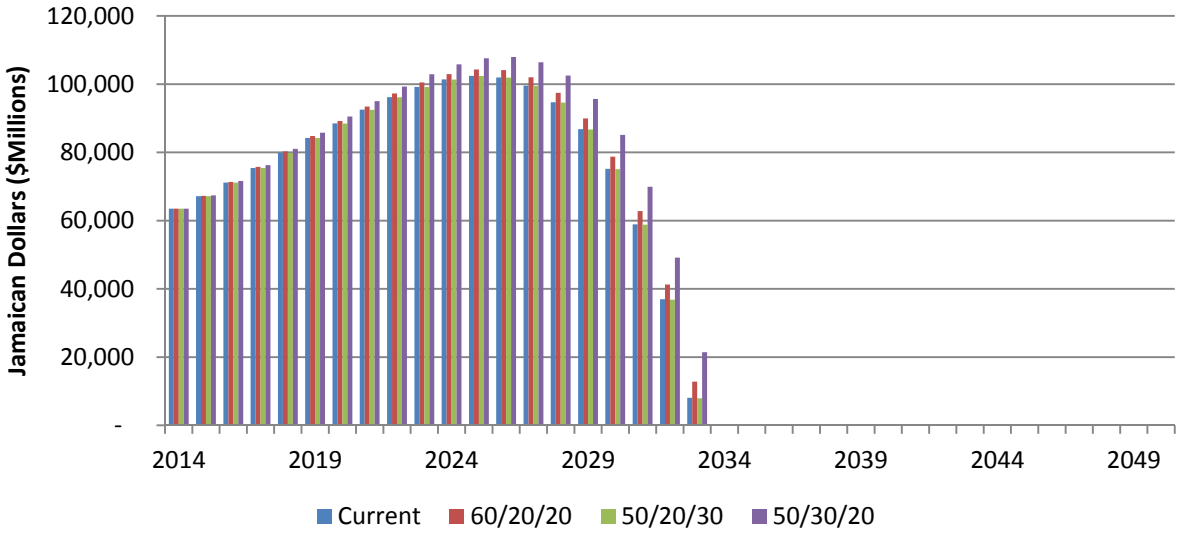
Results for Initial Investment Strategies

The following charts illustrate the projected progression of the NIF's assets over time under the different economic scenarios described earlier, where the scenario applies for all years, for the Current and each alternative asset mix. The tables highlight the year in which assets are depleted, as well as the year in which cash flows become negative.

A key finding of the analysis below is that higher inflation produces more favourable results than lower inflation, despite the assumed poorer economic and capital market conditions, when inflation is above the current 8% expected level. This result is a function of how projected contributions and benefit payments are impacted by inflation. Therefore, when assessing the performance of the asset mixes, we focused more on the Baseline and Low Inflation scenarios, since the year of depletion improves significantly under all asset mixes under the High Inflation scenario.

The allocation with 50% to Jamaican fixed income, 30% to Jamaican equities and 20% to Jamaican real estate, mortgages and loans (the 50/30/20 asset mix) performs best under the Baseline and Low Inflation scenarios with asset levels projected to be substantially higher than those for the other asset mixes in later years. However this only results in a small improvement in funding levels and at most an additional year until assets are depleted.

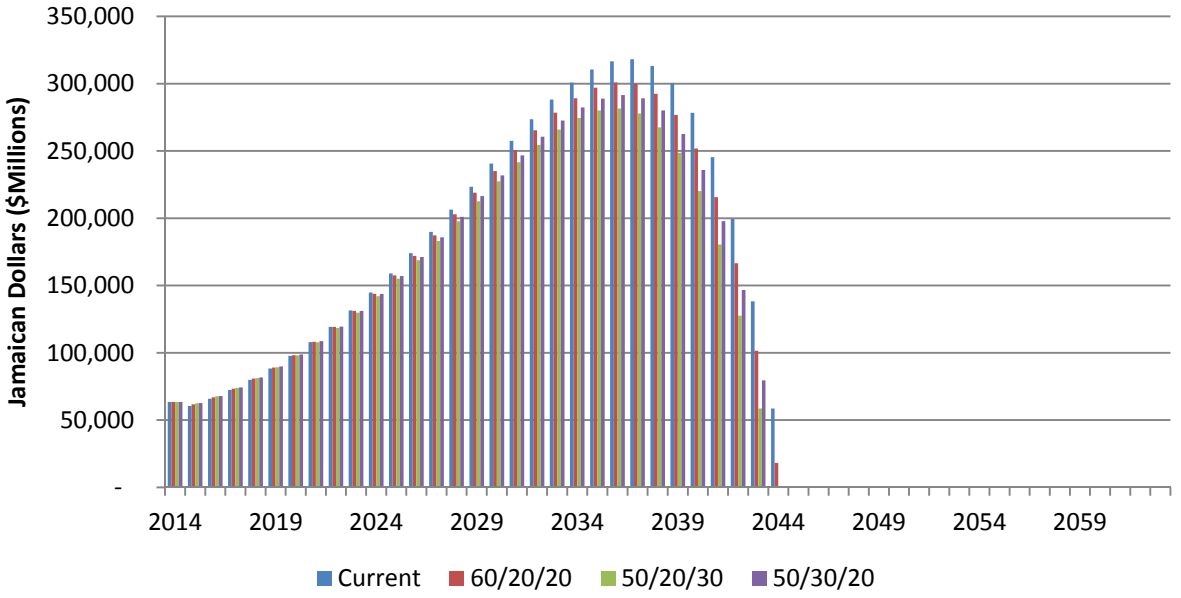
Figure 2: Baseline Scenario – All Years – Projected Assets



Baseline Scenario – All Years

	Current	60/20/20	50/20/30	50/30/20
Asset Depletion	2034	2034	2034	**2034**
Negative Cash Flow	2025	2025	2025	**2026**

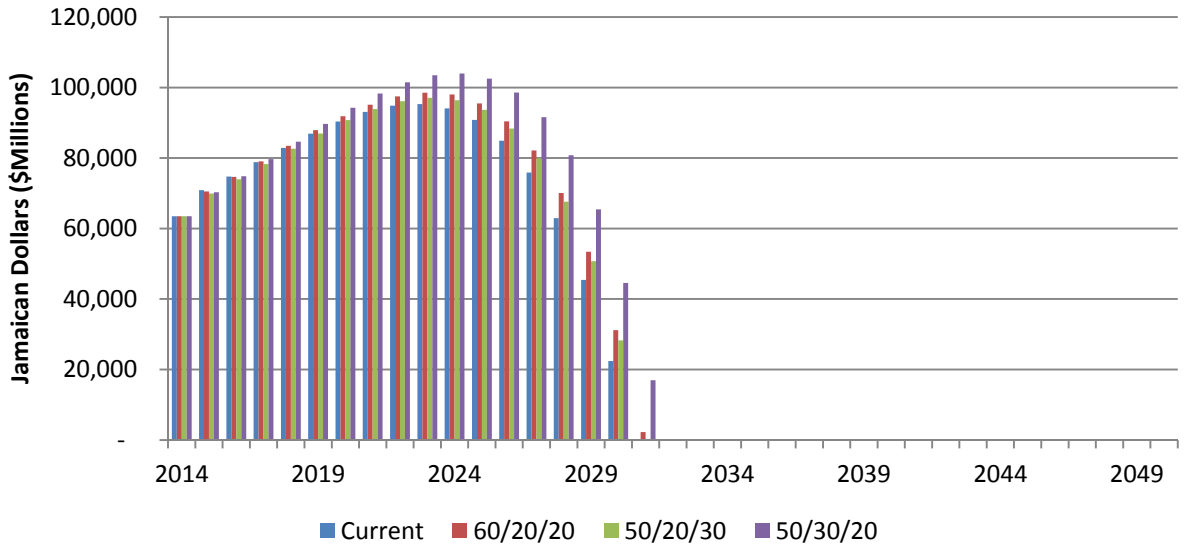
Figure 3: High Inflation Scenario – All Years – Projected Assets



High Inflation Scenario – All Years

	Current	60/20/20	50/20/30	50/30/20
Asset Depletion	**2045**	**2045**	2044	2044
Negative Cash Flow	**2037**	2036	2036	2036

Figure 4: Low Inflation Scenario – All Years – Projected Assets



Low Inflation Scenario – All Years

	Current	60/20/20	50/20/30	50/30/20
Asset Depletion	2031	**2032**	2031	**2032**
Negative Cash Flow	2023	2023	2023	**2024**

Asset Mix Conclusions

Under both the Baseline and Low Inflation scenarios an increase in the equity allocation is expected to improve the long term positioning of the fund. The only economic scenario where increasing the equity allocation is less favourable is under the High Inflation scenario. However, a high inflation environment will produce superior long term funding positions under all of the mixes, compared to the Baseline and Low Inflation scenarios, due the improvement in the cash flows. If the investment policy permits an increase in equities, this analysis would support that asset mix shift.

Impact of Increasing Allocation to Foreign Investments

Next we considered introducing a substantial allocation to foreign investments. We explored moving a portion of the Jamaican fixed income allocation to global bonds (government and corporate bonds for developed markets), as well as moving a portion of the Jamaican equities allocation to global equities (developed markets). Alternatively, emerging market debt and equities could also be considered, as these asset classes would provide a higher expected long-term return than developed market equities and provide comparable risk characteristics to Jamaican bonds and equities, while offering additional diversification benefits.

Our long-term expected annual return assumptions for the global developed market asset classes, along with the currency return due to expected depreciation of the Jamaican dollar against the U.S. dollar, are as follows:

	Long-term Expected Annual Return (in USD)	Long-term Expected Annual Return (in JMD)
Global bonds	4.0%	9.0%
Global equities	7.4%	12.4%
Currency (JMD vs. USD)	5.0%	n/a

After accounting for the expected depreciation in the Jamaican dollar against the U.S. dollar (based on the historical experience over the past ten years), global equities offer compelling returns relative to Jamaican equities. In contrast, global bonds only offer a modest improvement in returns over Jamaican equities. It's important to note that the exposure to foreign currency introduces potential foreign exchange volatility in addition to that of the asset class itself. If there were concerns over the unexpected appreciation of the JMD relative to the USD, currency hedging could be explored, although the hedging cost would represent a drag on performance.

However, given the long-term trend of regular depreciation of the JMD relative to the USD, currency hedging would not appear to be desirable. Our Baseline global bond long-term return assumption assumes that bond yields gradually rise closer to historical levels. The table below summarizes the assumed returns for all asset classes under the three different economic scenarios.

	Baseline	High Inflation	Low Inflation
Inflation	8.0%	10.0%	6.0%
Fixed income portfolio yield	8.4%	10.4%	7.4%
Equities return	10.8%	8.3%	13.3%
Real estate, mortgages and loans return	7.0%	7.0%	7.0%
Global bonds (unhedged in JMD)	9.0%	8.0%	10.0%
Global equities (unhedged in JMD)	12.4%	9.9%	14.9%

Under the High (Low) Inflation scenarios global economic and capital market conditions are expected to be weaker (better) than in the Baseline scenario. In the High Inflation scenario, poor global economic conditions are expected to keep global developed market bond yields at lower levels than those assumed under the Baseline scenario, resulting in a 1% lower return over the long term. Similarly, the Low Inflation scenario is assumed to cause global bond yields to return to higher levels more quickly, resulting in global bond returns at a 1% higher level over the long-term. Global equities are assumed to move in line with Jamaican equities in the High and Low Inflation scenarios.

We looked at the following alternative asset mixes:

	Current with 20GB	60/20/20 with 20GB	50/20/30 with 20GB	50/30/20 with 20GB	Current with 20GE	60/20/20 with 20GE	50/20/30 with 20GE	50/30/20 with 20GE
Jamaican fixed income	52%	40%	30%	30%	72%	60%	50%	50%
Jamaican equities	12%	20%	20%	30%	0%	0%	0%	10%
Jamaican real estate, mortgages and loans	16%	20%	30%	20%	16%	20%	30%	20%
Global bonds	**20%**	**20%**	**20%**	**20%**	0%	0%	0%	0%
Global equities	0%	0%	0%	0%	**12%**	**20%**	**20%**	**20%**
Baseline scenario 20-year annualized returns	8.6%	8.7%	8.6%	9.0%	8.7%	8.9%	8.8%	9.2%

The table below shows the improvement in the year assets are depleted by introducing an allocation to either global equity or global bonds, compared to the result for the corresponding asset mix when only Jamaican investments are assumed.

	Current with 20GB	60/20/20 with 20GB	50/20/30 with 20GB	50/30/20 with 20GB	Current with 20GE	60/20/20 with 20GE	50/20/30 with 20GE	50/30/20 with 20GE
Baseline	0	0	0	0	0	0	0	0
High Inflation	-1	-1	0	0	1	0	1	1
Low Inflation	1	0	1	0	0	0	1	0

The introduction of global equities is expected to provide an incremental improvement in results in the Low and High Inflation scenarios while having a neutral impact in the Baseline. Given the high inflation climate in Jamaica, introducing an allocation to global equity would be advisable.

The results above show some benefit of global bonds in the Low Inflation scenario, but a negative impact in the High Inflation scenario and no impact under the Baseline scenario. Accordingly introducing an allocation to global bonds would not be advisable.

It's important to note that our deterministic scenarios do not fully capture the potential benefits of diversification. Global equities and global bonds are themselves diversified across developed markets but they offer further diversification to the extent that global equities and bonds behave differently from Jamaican equities and bonds.

Our analysis also doesn't take into account potential added value due to active investment management of global bonds or equities. The opportunity of active management added value is much greater for global investments compared to Jamaican investments given the much broader universe of securities.

For simplicity, our above analysis does not contemplate how the currency return (JMD vs. USD) would be impacted. However, the High Inflation scenario has Jamaican bond yields increasing and developed market yields staying lower than under the Baseline scenario, so the JMD would be expected to depreciate at a faster rate, which would improve returns for global bonds and equities. The opposite would be true in the Low Inflation scenario.

Other Bond Portfolio Considerations

Decisions regarding investing in JMD versus USD denominated Jamaican fixed income securities will depend on the future relative risk and return expectations of these alternative investments, which will likely vary with capital market and economic conditions. A key factor in this assessment will be the risk of the JMD depreciating relative to the USD at a slower rate than is currently priced in, or the potential of the JMD appreciating versus the USD.

Similarly, the decision to invest in Jamaican fixed rate bonds or CPI-indexed bonds should consider the implied break-even inflation rate priced into CPI-indexed bond yields compared to actual expected inflation levels. If the break-even inflation rate is below future inflation expectations, CPI-indexed bonds offer a way to gain greater certainty regarding the expected performance of the bond portfolio in relation to changes in inflation.

However, our analysis showed that higher inflation actually creates a more favourable environment, based on how contribution and benefit levels are impacted by inflation, so there is not a strong need to protect the portfolio against unexpected high inflation levels. Other important considerations include the liquidity of CPI-indexed bonds relative to fixed rate alternatives and how this will potentially impact pricing and transaction costs.

Conclusions

Given the adverse impact of lower inflation on projected cash flows, the investment strategy for the NIF should carefully consider how performance could behave in low inflation environments. Given the assumed nature and dynamics of the Jamaican economy as it relates to inflation, our analysis supports increasing the NIF's equity allocation provided long term return expectations remain in line with those assumed throughout our report. However, we believe it's prudent to maintain a substantial allocation to Jamaican fixed income securities in order to provide the potential for diversification, particularly during equity market corrections.

Based on our analysis, an asset mix consisting of 50% to 60% Jamaican fixed income, 20% to 30% Jamaican equities and 10% to 30% Jamaican real estate, mortgages and loans would be recommended. Furthermore we would expect the long-term financial position to be more favourable if the allocation to Jamaican real estate, mortgages and loans were at the lower limit, given the relatively low return expectations for this asset class.

Introducing explicit allocations to global investments offers higher potential returns and diversification benefits, particularly for global equities. However, adding a global investments allocation would need to be carefully evaluated, given the public policy and local economic impact associated with reduced domestic investment levels. Another critical consideration is the expected performance of the Jamaican dollar relative to developed market currencies (particularly the U.S. dollar), given the potentially significant impact currency fluctuations could have on the returns of foreign investments. If global investments were considered, we'd recommend that a pooled global equity fund be utilized and the size and nature of the mandate(s) would need to be evaluated in order to determine the impact of expected investment performance net of fees.

APPENDIX 1
DATA USED IN THE REVIEW

Sources of Data

(i) We received data in respect of Pensioners and Contributors. The MLSS advised that it had complete data in respect of the Pensioners, and provided this data, however MLSS had data in respect of the Contributors only up to 2010 December 31. Since 2011 January, the Government of Jamaica (GoJ) amalgamated the collections and returns of Income Tax and the contributions to the National Housing Trust (NHT) and the NIS and it had been our expectation that Tax Administration Jamaica (TAJ) or NHT would have been able to supplement the data available from the MLSS. However, we were advised that neither TAJ nor NHT had the data available, hence we used the 2010 Contributors' data as the basis for the Review.

(ii) Unless specifically noted, the source of the data summarized in this Section and the remainder of the Report is the MLSS.

Pensioners

(iii) MLSS provided data as at the Review Date showing 98,329 Pensioners, receiving pensions totalling $11.16 billion per annum ($215 million per week). Most were Old Age, followed by Widows/Widowers. Changes in these two categories of Pensioners since the 2005 Review Date are as follows:

TABLE A1-1
RECONCILIATION OF PENSIONERS FROM 2005.04.01 TO 2013.03.31

	Old Age	Widow/Widower
Number at 2005.03.31	53,139	14,978
New Pensioners	34,800	9,201
Deaths/Cessation of Pensions	(15,683)	(5,419)
Pensioners at the Review Date	72,256	18,760

(iv) Changes in the other categories of Pensioners were as follows:

- Invalidity – from 4,014 to 5,745
- Orphans and Special Children – from 36 to 69
- Employment Injury – from 1,570 to 1,464
- Sugar Workers – from 92 to 16
- Special Anniversary – from 219 to 19.

(v) The Pensioners are distributed by type of pension and weekly amounts in **Table A1-2** below.

TABLE A1-2
NIS PENSIONERS IN RECEIPT OF PENSIONS AS AT 2013 MARCH 31
DISTRIBUTED BY TYPE AND AMOUNTS ($'000 per week)

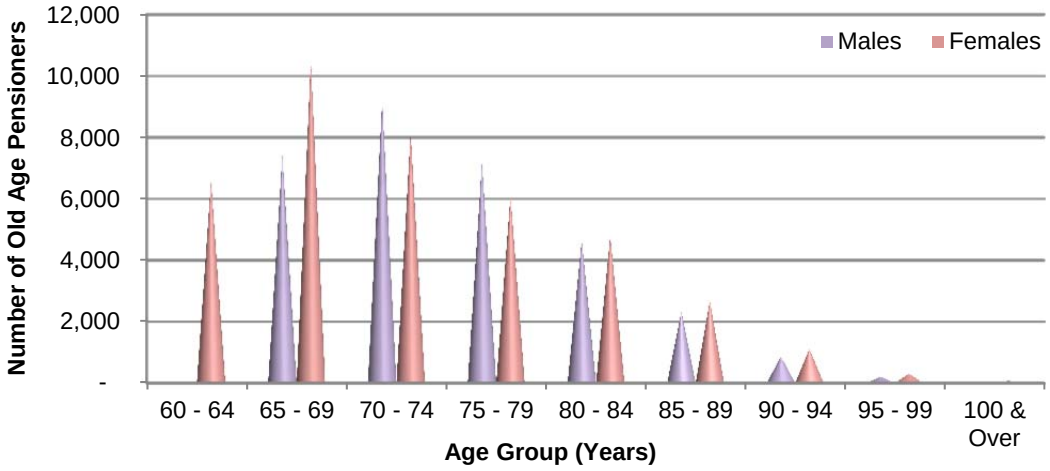
Benefit Type / Basic Rate	No. of Persons	Basic (FR) Pensions	Additional (WR) Pensions	Spouses' Allowances	Total Pensions
	#	$'000 p.w.	$'000 p.w.	$'000 p.w.	$'000 p.w.
Old Age					
Basic "1/2" Rate	32,831	45,961	2,565	2,062	50,588
Basic "3/4" Rate	19,764	41,503	3,887	1,416	46,805
Basic Full Rate	19,661	55,050	6,429	1,144	62,623
Sub-Total	**72,256**	**142,514**	**12,881**	**4,622**	**160,016**
Widow(er)s					
Basic "1/2" Rate	6,556	9,177	207	-	9,384
Basic "3/4" Rate	5,585	11,729	294	-	12,022
Basic Full Rate	6,619	18,533	327	-	18,860
Sub-Total	**18,760**	**39,439**	**827**	**-**	**40,266**
Invalidity					
Basic "1/2" Rate	2,383	3,336	303	104	3,743
Basic "3/4" Rate	1,792	3,763	391	104	4,258
Basic Full Rate	1,570	4,396	493	127	5,016
Sub-Total	**5,745**	**11,495**	**1,188**	**335**	**13,017**
Employment Injury	1,464	961			961
Orphans & Special Children	69	338			338
Sugar Workers	16	22			22
Special Anniversary	19	27			27
TOTAL	**98,329**	**194,796**	**14,896**	**4,956**	**214,648**

(vi) The different categories of pensioners and their pensions as at the Review Date are distributed by sex and age groups below.

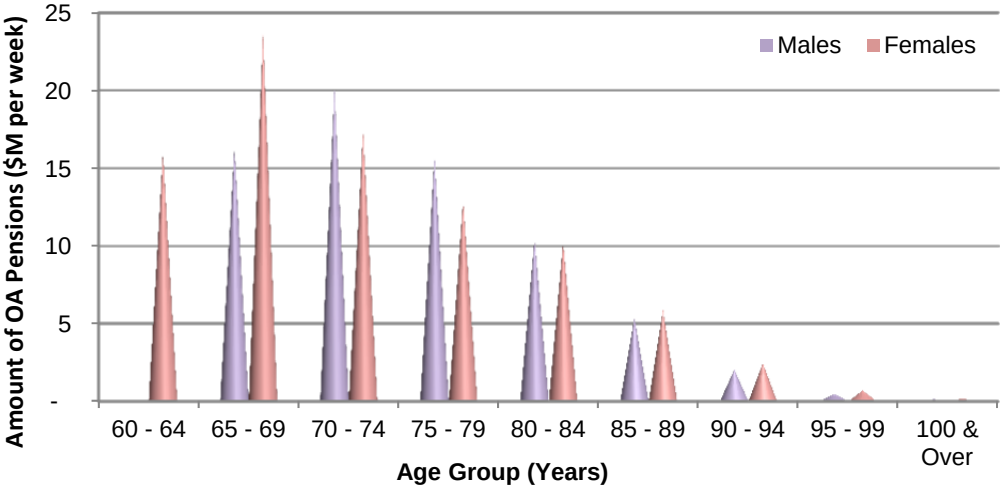
Old Age Pensioners (OAPs)

(vii) As at the Review Date, there were 72,256 OAPs receiving Basic Rate Pensions of $142.51 million per week and Additional Pensions of $12.88 million per week. In addition, Spouses' Allowances payable to OAPs totalled $4.62 million per week (approximately one third the Additional Pensions). The OAPs and their pensions are distributed by sex and age group in **Graphs A1-1A** and **A1-1B** below.

Graph A1-1A
Distribution of Old Age Pensioners as at 2013.3.31 by Sex and Age Group



Graph A1-1B
Distribution of Old Age Pensions as at 2013.3.31 by Sex and Age Group

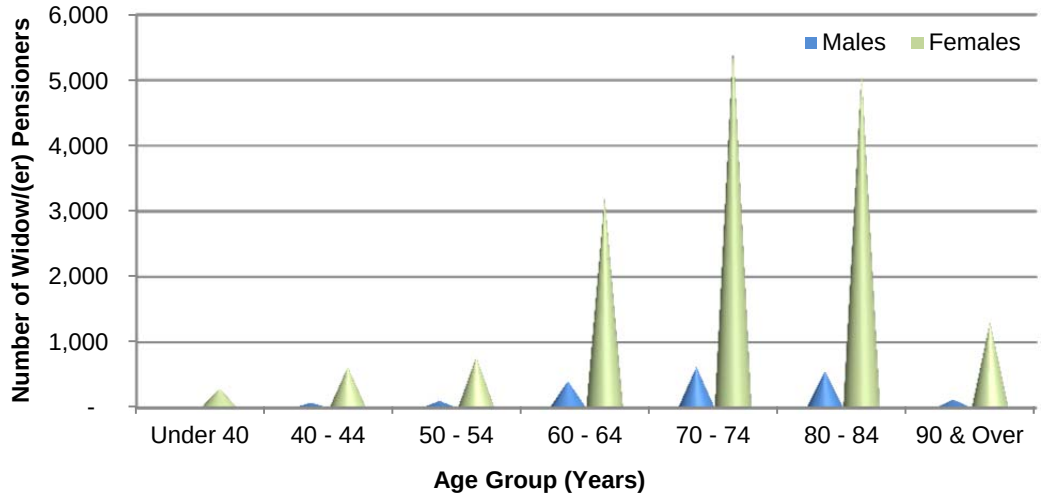


(viii) Of the 316,000 persons in the population over age 65 years, 65,651 (25%) were receiving pensions. Most of these were in the age group 65 – 69 years. In fact 41,866 (58%), receiving $93.36 million per week, were between ages 60 and 74 years.

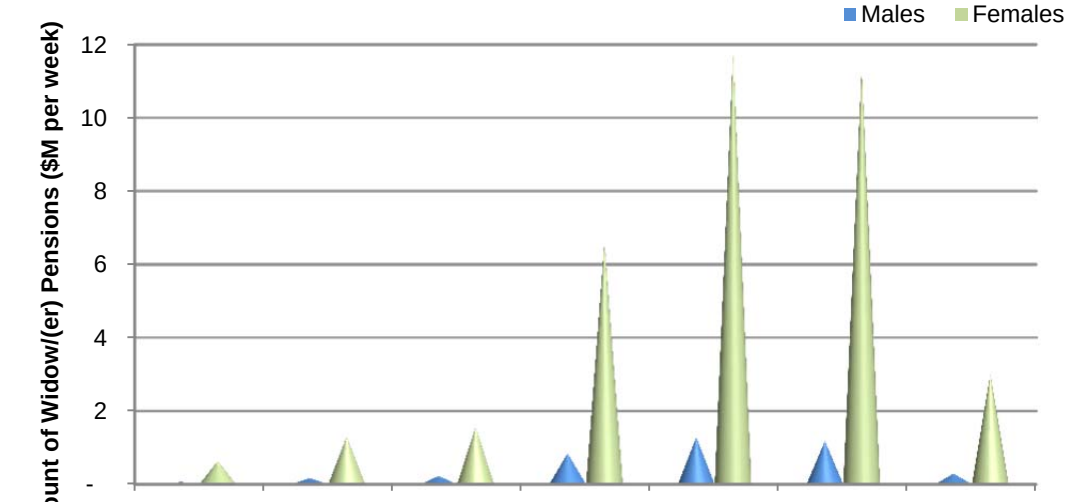
Widow/Widower Pensioners

(ix) As at the Review Date there were 18,760 W/W Pensioners receiving weekly Flat Rate Pensions of $39.44 million and Additional Wage Related Pensions of $827,000 (average FR – $2,102 plus WR – $44 per week). The distributions of the W/W Pensioners and their pensions by sex and age are shown in Graphs A1-2A and A1-2B, below.

Graph A1-2A
Distribution of Widow/(er) Pensioners as at 2013.3.31 by Sex and Age Group



Graph A1-2B
Distribution of Widow/(er) Pensions as at 2013.3.31 by Sex and Age Group

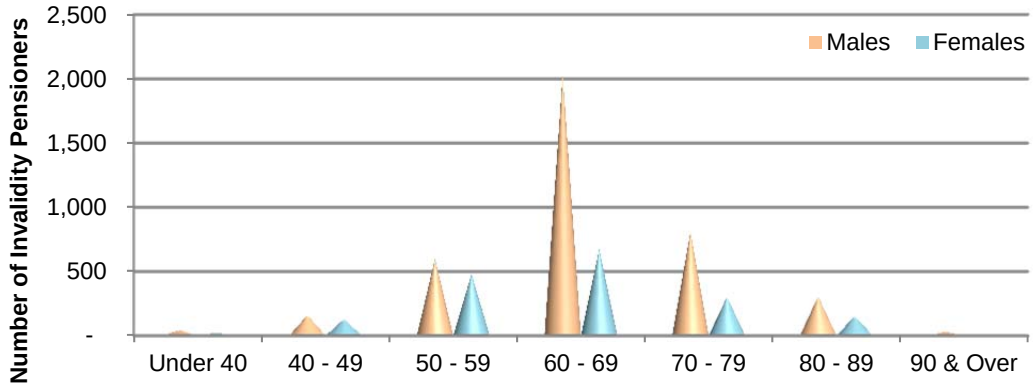


Invalidity Pensioners

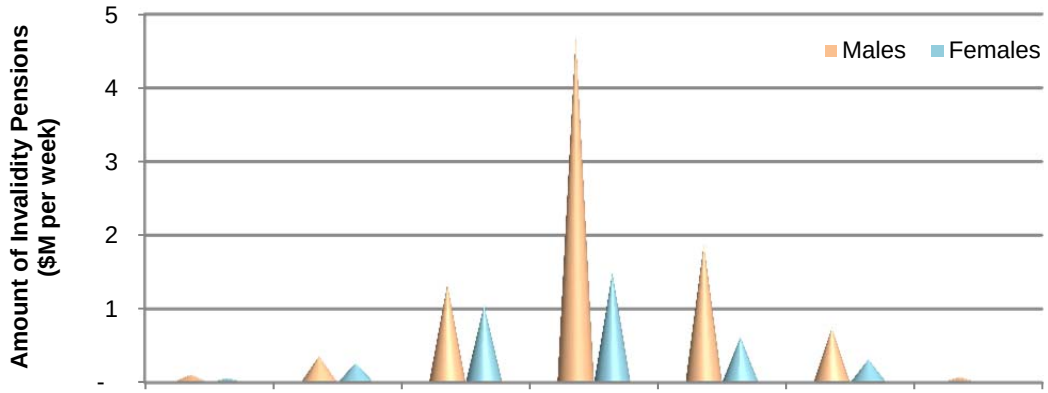
(x) As at the Review Date, there were 5,745 Invalidity Pensioners receiving weekly Flat Rate Pensions of $11.50 million; WR of $1.19 million and $334,800 in Spouses' Allowances.

(xi) The data included Invalidity Pensioners over age 65 (males) and 60 (females), although the NIS Act stipulates that on attaining the specified normal retirement age (NRA), an Invalidity Pensioner should be transferred to the status of OAP. We were advised that the practice is to transfer to the OAP group only those Invalidity Pensioners who earned sufficient contribution credits during incapacity to secure Old Age pensions higher than their Invalidity Pensions. The IPs and their pensions are distributed by sex and age group in **Graphs A1-3A** and **A1-3B** below.

Graph A1-3A
Distribution of Invalidity Pensioners as at 2013.3.31 by Sex and Age Group



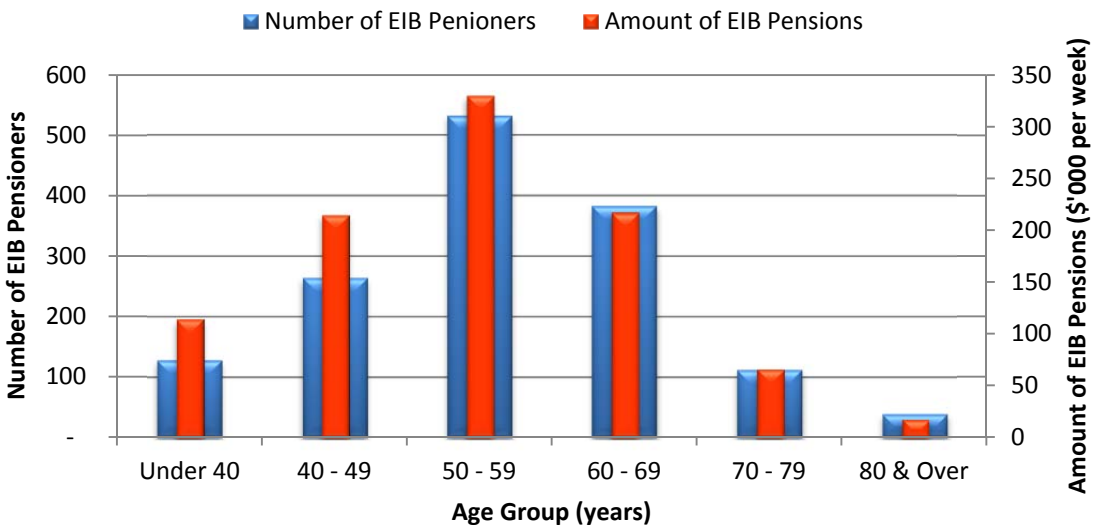
Graph A1-3B
Distribution of Invalidity Pensions as at 2013.3.31 by Sex and Age Group



Employment Injury Benefits (EIBs)

(xii) As at the Review Date, there were 1,464 EIB Pensioners receiving $960,820 per week. The EIB is payable to an employee who is injured during the course of insurable employment, with the exception of Members of the Jamaica Defence Force, Domestic Workers and Self-Employed persons. EIBs and their pensions are distributed by age groups in **Graph A1-4**, below.

Graph A1-4
Distribution of EIB Pensioners by Age Group and Pensions



Orphans and Special Children

(xiii) Sixty-nine (69) orphans and special children were included in the data. As at the Review Date, the outgo for these benefits totalled $338,100. The rate of benefit for Orphans and Special Children has been the highest payable from as far back as 1991.

Special Anniversary and Sugar Workers Pensioners

(xiv) Both the SAP and SWP groups contracted over the review period to 19 and 16 Pensioners respectively, receiving $26,600 (SAP) and $22,400 (SWP) weekly. The SAPs were the centenarian survivors of the cohort born in Jamaica in 1905 or earlier (amended in 2008 to include all persons born in 1907 or earlier), who had applied for and been awarded the non-contributory Special Anniversary Pensions which were introduced in 1991. The 16 SWPs are the survivors of the 11,747 Sugar Workers Pensioners who were transferred to the NIS in 1966, together with the assets of $2.7 million then remaining in their former pension fund.

Retirements

(xv) Registered Insured Persons (RIPs) have the option of retiring at any age within a 5 year period of the Normal Retirement Age. At age 70 (males) and 65 (females)[10], the pension can commence even if the RIP is employed. Regardless, the RIP must actually claim the benefit in order for payment to commence.

(xvi) In **Table A1-3** below, we show the number of claimants by age of claim over the 3 years up to the Review Date. The rising age for the females is expected, since in fiscal year 2010/2011, the females' NRA was increased from 60 to 65 years (periodically up to 2016).

(xvii) In these three years, the trend of late retirements observed in the prior period and noted in the 2005 report (7% of females at age 60, 76% at or over age 65 years and 25% males at age 65 years, 36% at or over 70 years) was reversed. This was expected as public education and the starting pensions have increased significantly.

TABLE A1-3
AGE AT COMMENCEMENT OF PENSION FOR OAPS WHO RETIRED IN THE 2010/11 TO 2012/2013 FISCAL YEARS

Year of Award	AGE AT AWARD – MALES								
	<65	65	66	67	68	69	70	>70	Total
2010/2011	74	1,358	135	65	51	40	111	16	1,850
	4.0%	73.4%	7.3%	3.5%	2.8%	2.2%	6.0%	0.9%	100%
2011/2012	18	1,258	101	64	41	32	84	10	1,608
	1.1%	78.2%	6.3%	4.0%	2.5%	2.0%	5.2%	0.6%	100%
2012/2013	3	426	52	25	21	11	26	3	567
	0.5%	75.1%	9.2%	4.4%	3.7%	1.9%	4.6%	0.5%	100%
3 Years	95	3,042	288	154	113	83	221	29	4,025
% of Claims	2.4%	75.6%	7.2%	3.8%	2.8%	2.1%	5.5%	0.7%	100%
Year of Award	AGE AT AWARD – FEMALES								
	<60	60	61	62	63	64	65	> 65	Total
2010/2011	2	1,319	435	151	81	71	252	28	2,339
	0.1%	56.4%	18.6%	6.5%	3.5%	3.0%	10.8%	1.2%	100%
2011/2012	1	439	364	116	69	39	207	12	1,247
	0.1%	35.2%	29.2%	9.3%	5.5%	3.1%	16.6%	1.0%	100%
2012/2013	0	3	370	56	40	21	50	13	553
	0.0%	0.5%	66.9%	10.1%	7.2%	3.8%	9.0%	2.4%	100%
3 Years	3	1,761	1,169	323	190	131	509	53	4,139
% of Claims	0.1%	42.5%	28.2%	7.8%	4.6%	3.2%	12.3%	1.3%	100%

[10] Increasing to 70 years in 2016 March

(xviii) Based on the data summarized in **Table A1-3**, the average age at commencement of pension was as follows:

Average Age at Commencement of Pension (Years)				
Year	**2010/2011**	**2011/2012**	**2012/2013**	**3-Year Average**
Males	65.6	65.6	65.7	65.6
Females	61.2	61.7	61.9	61.4

Amounts of Pensions

(xix) As at the Review Date, the average OAP was $2,151 per week ($1,972 basic FR and $178 additional WR). Less than 20,000 (27%) of the Pensioners were receiving the Full FR pension of $2,800 per week. The average WR pension in this group was $327 per week. The highest pension of this group (that is for someone receiving the maximum WR pension) is $4,400 per week. This compares to the National Minimum Wage of $5,000 per week. Additionally, based on the 2010 Jamaica Survey of Living Conditions, a pensioner receiving this amount would be living above the poverty line.

(xx) The average and highest pensions as at the Review Date are shown below.

TABLE A1-4
AVERAGE AND HIGHEST PENSIONS AT THE REVIEW DATE BY TYPE OF PENSION

Type of Pension	AVERAGE PENSIONS AS AT THE REVIEW DATE (per week)			HIGHEST PENSIONS AS AT THE REVIEW DATE (per week)		
	Flat Rate	Wage Related	Total	Flat Rate	Wage Related	Total
OA	1,972	178	2,151	2,800	1,600	4,400
W/W	2,102	44	2,146	2,800	800	3,600
IP	2,001	207	2,208	2,800	1,600	4,400
EIB	656	-	656	3,200	-	3,200

(xxi) SAPs/SWs and O/SCs all receive the same $1,400 per week and $4,900 per week, respectively. The Spouse's Allowance is not included in the above totals – the additional amount, where applicable, would be $900 per week.

(xxii) The significant difference between the Basic Flat Rate and Additional Wage Related Pension levels is partly due to the periodic increases in the Basic Flat Rate pensions. The Additional Wage Related Pensions in payment have been increased only once, in 1990, when the accrual was changed from $0.05 to $0.06 per $13 of contributions. About 10% of each category of pensioner was receiving only the Basic Flat Rate pension; this is expected since some groups (for example domestic workers) pay only flat rate contributions.

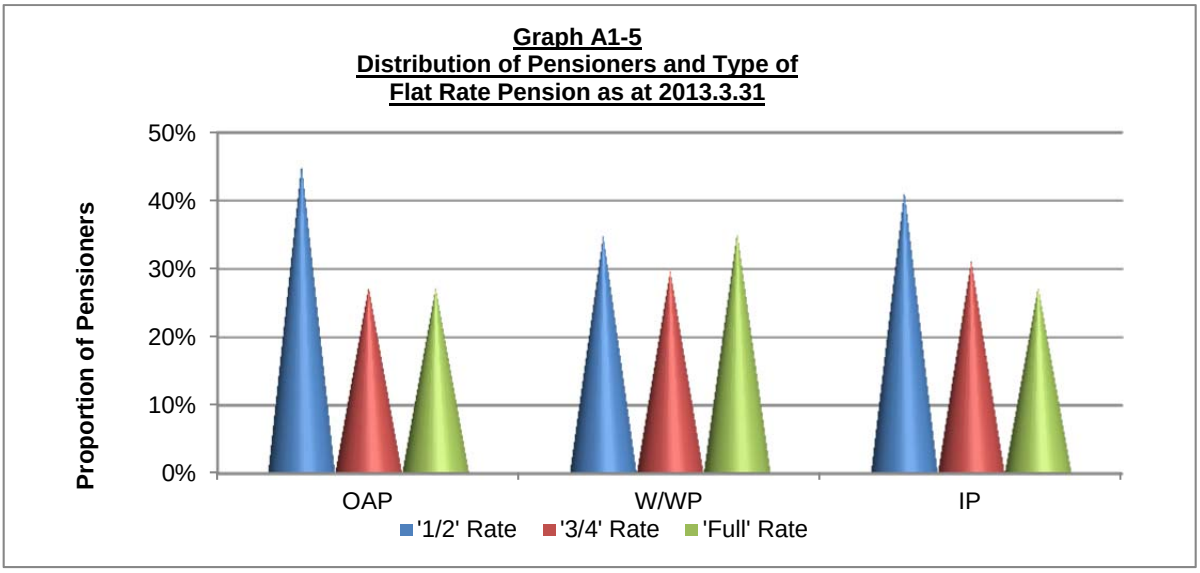
(xxiii) Those who qualified for the highest level of Basic Flat Rate Pension also had larger Additional Wage Related pensions (average $327 per week, but $78 per week for those receiving the 1/2 Flat Rate pension). For the Invalidity Pensioners receiving the Full Flat Rate Pension, the average Additional WR Pension was $314 per week. As at the Review Date, 19,661 Old Age Pensioners were receiving the highest pension.

Distribution of Pensioners by Gender

(xxiv) The split between males and females among the main categories of Pensioners is shown in **Graphs A1-1, A1-2** and **A1-3** on pages 68, 69 and 70, respectively. Among the OAPs, 44% (31,939) were males receiving some $66.58 million per week while the females (40,317 or 56% of the total) were receiving $88.82 million per week. For the W/W Pensioners the ratio was 10% males to 90% females (implying that male spouses are not claiming the benefits). Male Invalidity Pensioners outnumbered the females, 69% (males) to 31% (females). Below we show the split by gender as at the Review Date and the average Flat Rate pension of males versus females.

Category of Pensioner	Male/Female Split (%)		Average FR Pension ($ per week)	
	Males	Females	Males	Females
OAP	44	56	1,932	2,004
IP	69	31	2,020	1,957
W/WP	10	90	2,011	2,113

(xxv) **Graph A1-5** below shows the distribution of Pensioners by category and type of FR pensions.



Former Contributors over the NRA but not Receiving Pensions

(xxvi) The Contributors' data file provided to us for the valuation had 551,635 persons immediately eligible for pensions and with their last contributions prior to 2010. Current Pensioners were not removed from the file and it was difficult to identify them since their NIS numbers were not included in the data (we identified only 24,829). However, from the 551,635 we removed 215,964 who did not have the qualifying number of contributions to receive benefit and 2,249 who were deceased. We assumed that all of those over age 75 (281,076 persons) are already on pension, have received grants or were not eligible for benefit. After excluding these we computed pensions and grants of approximately $2.67 billion for 27,517 persons over the NRA who did not contribute in 2010 but were not confirmed as Pensioners. We assumed that one-half of these have already claimed and are either included in the Pensioners' payroll, or have received Grants. We also assumed that claims would be made by the other one-half approximately $1.33 billion in 2013/2014 decreasing to only $5 million in 2050. By 2063, this group of persons is expected to be deceased,

Registered Insured Persons (RIPs)

(xxvii) The MLSS, through the many branch offices of the NIS, routinely registers insurable persons. We received data on the RIPs: name, NIS number, employer reference number, date of birth, commencement year of contributions, number of weeks' contributions each calendar year, amount of contributions each year, and for later years the salary earned as reported by the Employer on the Annual Returns. The data showed almost 2.5 million RIPs and we were advised that this includes pensioners, contributors, persons who have ceased contributing and those who have never contributed. It is believed that most eligible persons register, even though many do not make contributions.

New Contributors

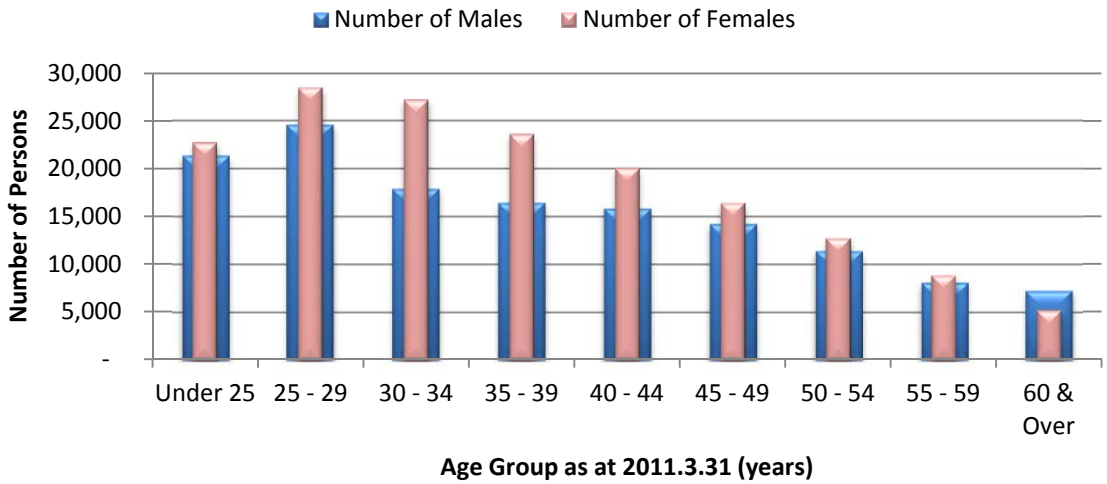
(xxviii) The 2.5 million RIPs include 177,871 new contributors over the 5 years from the 2005 Review Date. The numbers of new contributors in each year, since 1996 are shown in **Table A1-5** below.

TABLE A1-5 NEW CONTRIBUTORS IN 15-YEAR PERIOD: 1996-2010							
Year Ending March 31	Males	Females	Males & Females	Year Ending March 31	Males	Females	Males & Females
1996	13,558	17,896	31,454	2004	15,099	16,708	31,807
1997	11,584	20,645	32,229	2005	14,416	15,424	29,840
1998	10,289	17,803	28,092	2006	18,405	20,551	38,956
1999	11,010	15,474	26,484	2007	20,188	20,855	41,043
2000	12,228	14,334	26,562	2008	18,052	22,065	40,117
2001	13,401	15,971	29,372	2009	13,857	16,771	30,628
2002	14,165	16,873	31,038	2010	13,308	13,819	27,127
2003	16,713	17,850	34,563	1996 - 2010	216,273	263,039	479,312

Contributors

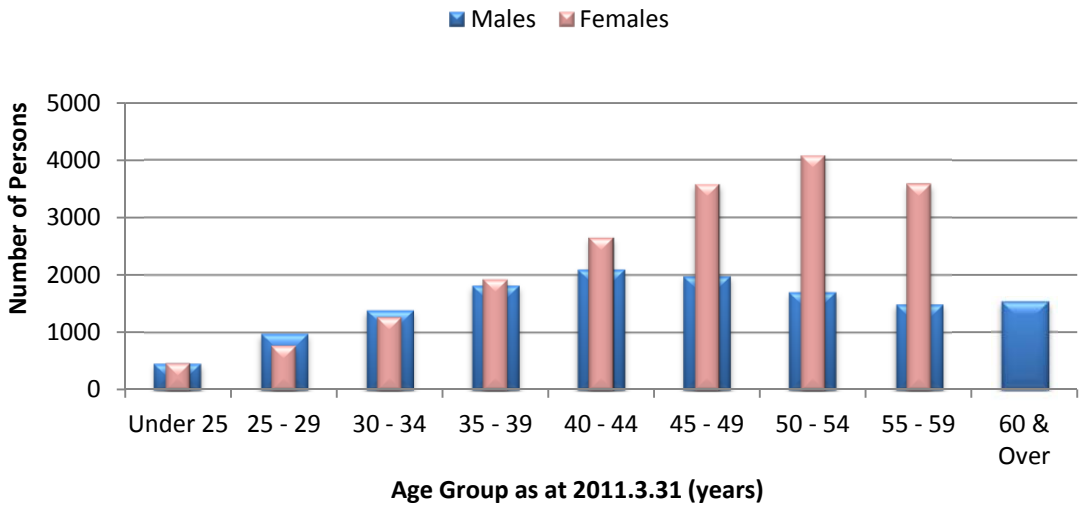
(xxix) We were also provided with a 2010 Contributors file showing 387,833 persons. However the total number of contributors in this file was substantially different from the number of 2010 contributors in the RIPs file. We were not able to fully reconcile the differences. From the 387,833 of this group we removed 87,138 persons (24,238 duplicates, 26,442 without NIS numbers or Dates of Birth, 4,316 over NRA without contributions in 2010, 182 deceased and 31,960 under NRA but with no 2010 contributions), leaving 300,695. To these we added 2,038 persons giving a total of 302,733 contributors. The 302,733 are distributed by gender and age groups in **Graph A1-6**, below.

Graph A1-6
Distribution of Registered Insured Persons by Gender and Age Group



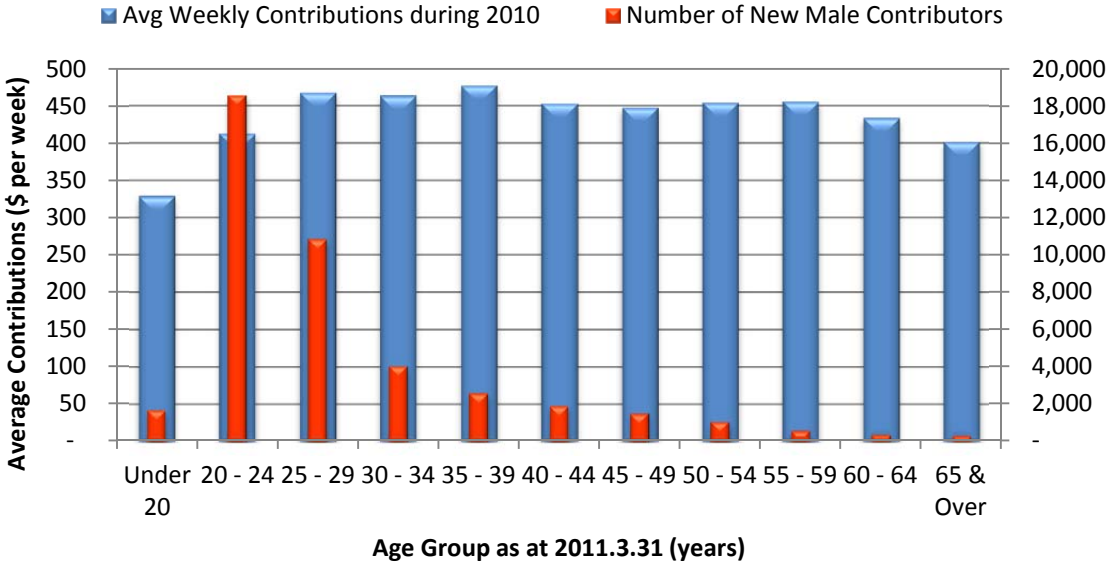
(xxx) The 31,960 Contributors under the NRA with no contributions during 2010 are distributed by sex and age groups in **Graph A1-7** below.

Graph A1-7
Distribution of Contributors as at 2011.3.31 with No Contributions in the 2010 Fiscal Year by Gender and Age Group

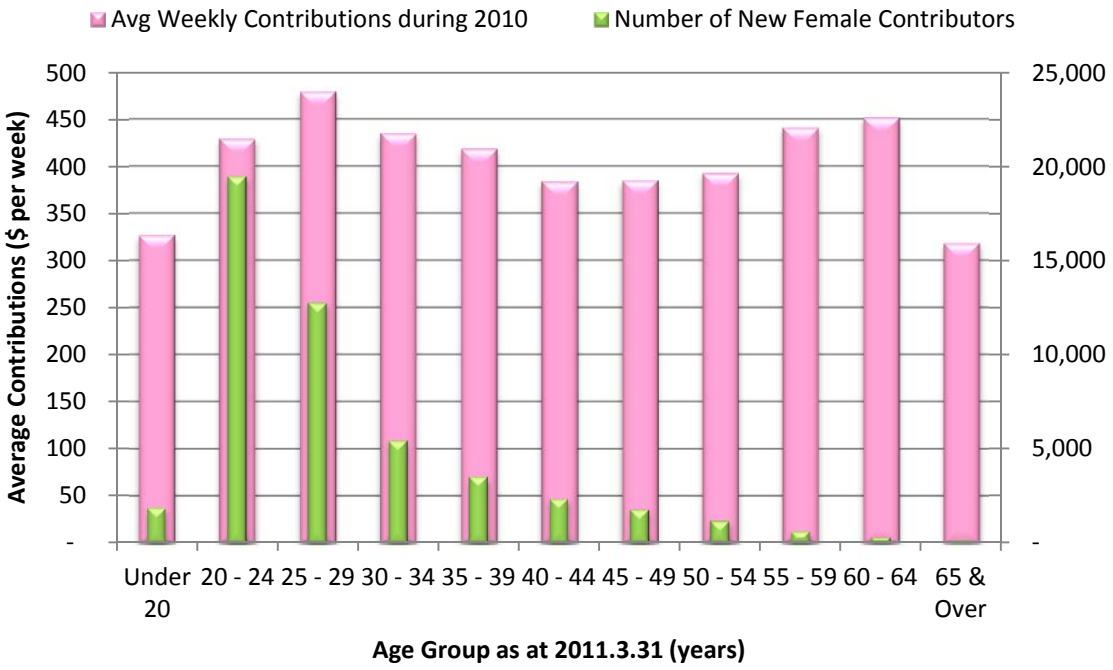


(xxxi) The 2010 Contributors include 92,920 persons who started to contribute after 2005. These are distributed by Sex and Age Group in **Graph A1-8A** and **A1-8B**, below.

Graph A1-8A
Distribution of New Male Contributors by Age Group and Average Weekly Contributions in 2010



Graph A1-8B
Distribution of New Female Contributors by Age Group and Average Weekly Contributions in 2010



Key Statistics of Contributors

(xxxii) Key statistics of the 302,733 Contributors are summarized in **Table A1-6**, below.

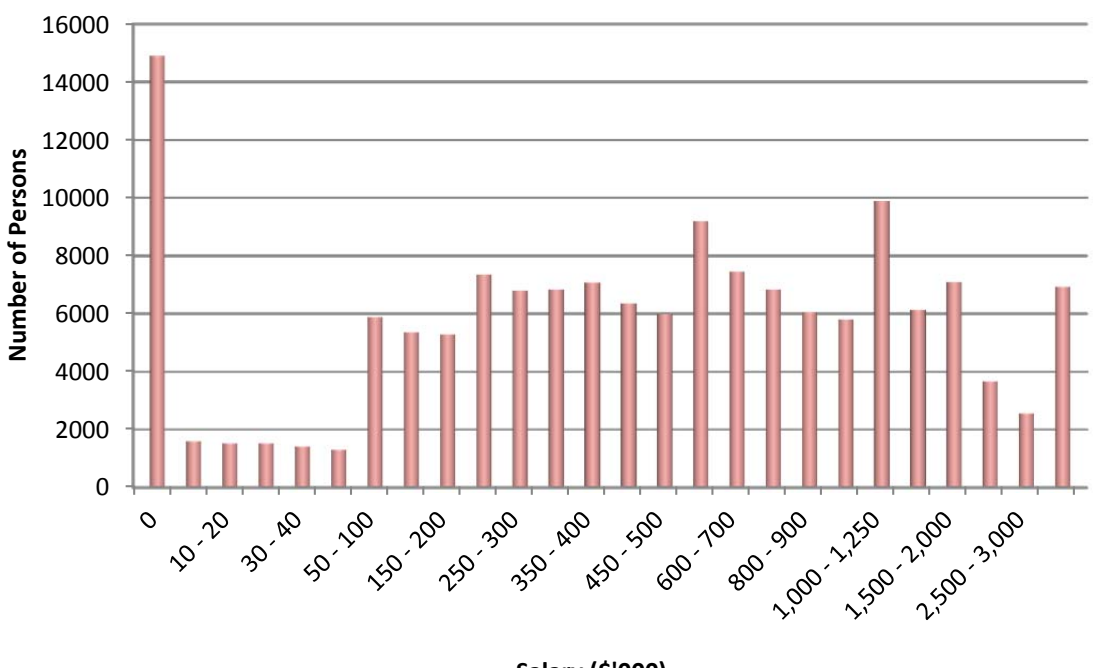
TABLE A1-6
KEY STATISTICS OF CONTRIBUTORS

	MALES	FEMALES	MALES & FEMALES
Number of Contributors	137,327	165,406	302,733
Average Age (years) as at 2011.3.31	38.1	37.5	37.8
Average Contributory Period (weeks)	410	403	406
Average No. of Weeks Contribution per Year	41	42	41
Total 2010 Contributions ($M)	3,010	3,549	6,559
Average 2010 Contribution ($ per week)	508	496	501
Total Contributions to 2010.12.31 ($M)	14,964	18,049	33,013

(xxxiii) The 2010 Contributors and their Salaries are distributed by Sex and Wage Band in **Graphs A1-9A** and **A1-9B** below.

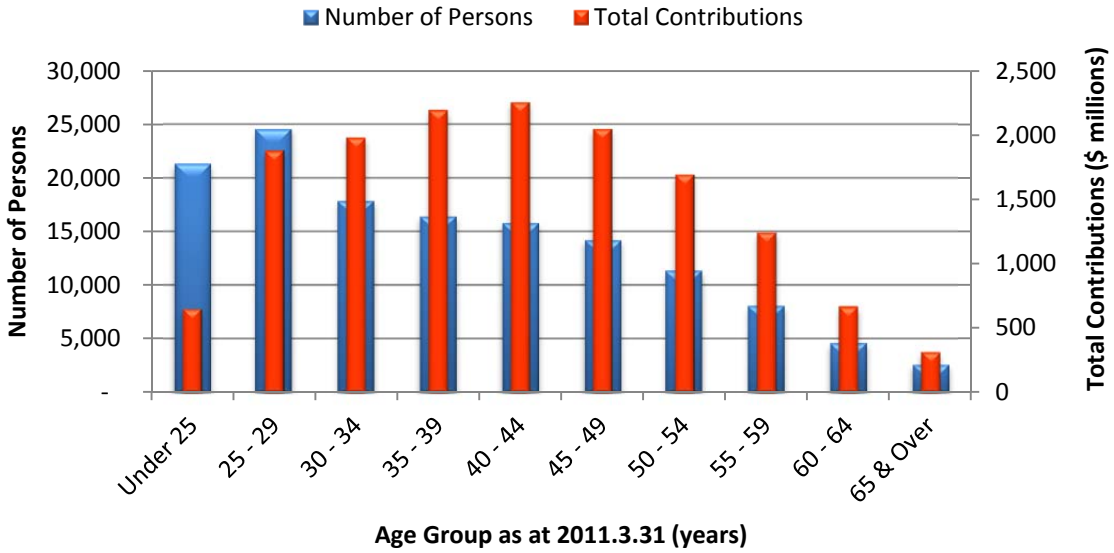
Graph A1-9A
Distribution of Male Contributors by Salary

Graph A1-9B
Distribution of Female Contributors Salary

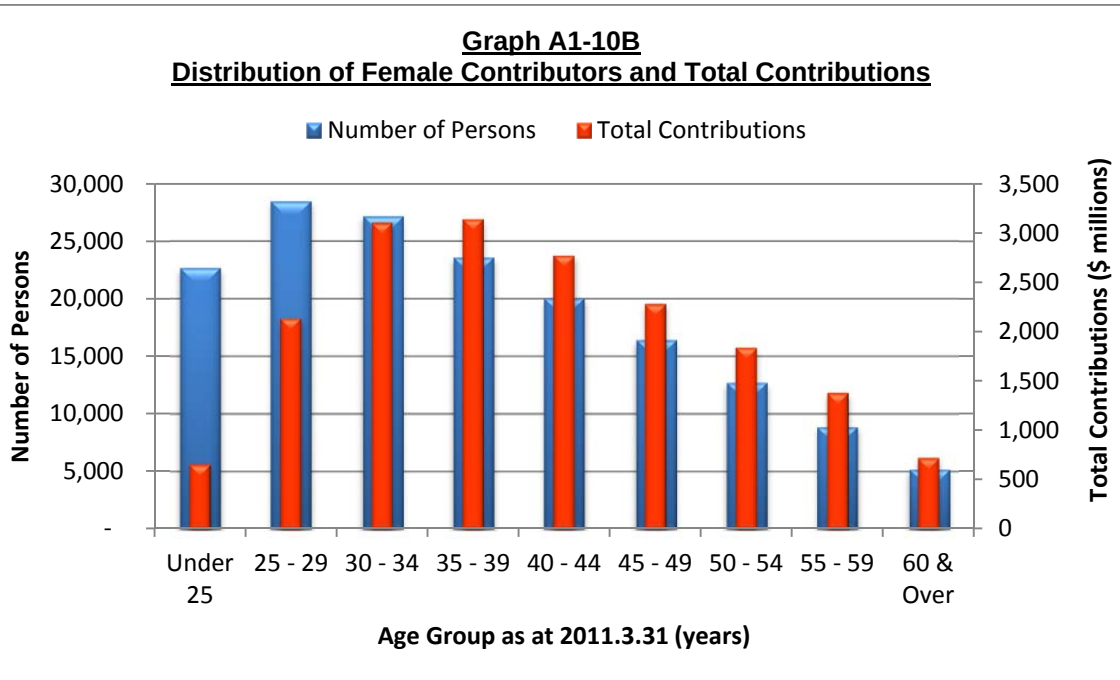


(xxxiv) The 2010 Contributors and their total contributions are distributed by sex and age group in **Graphs A1-10A** and **A1-10B**, below.

Graph A1-10A
Distribution of Male Contributors and Total Contributions

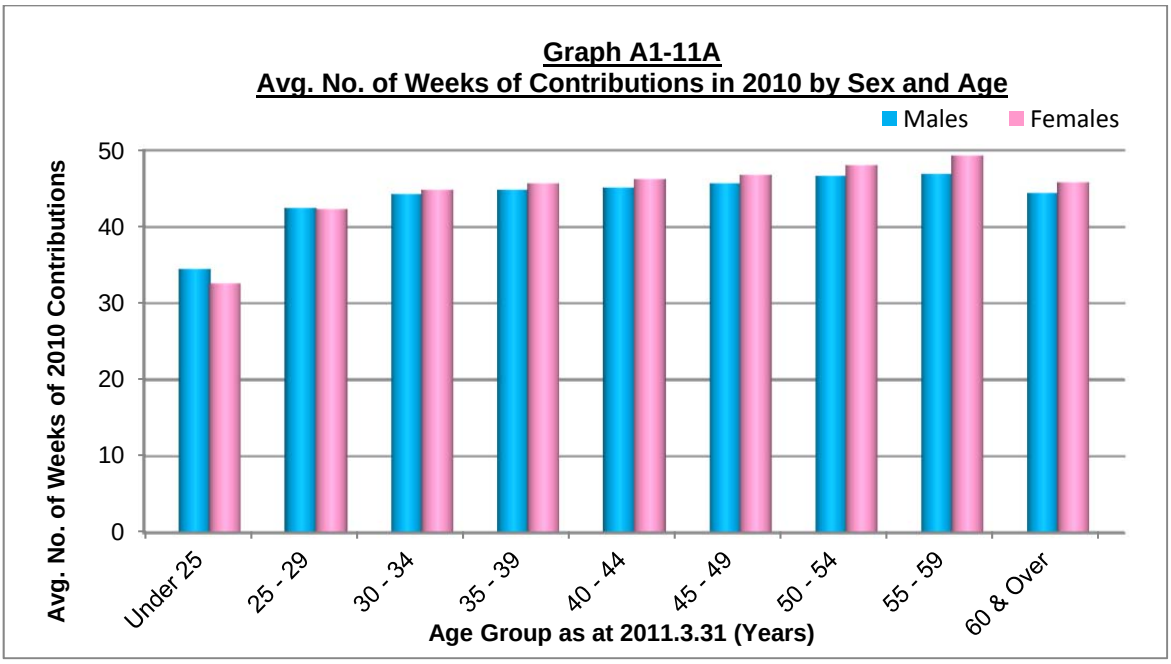


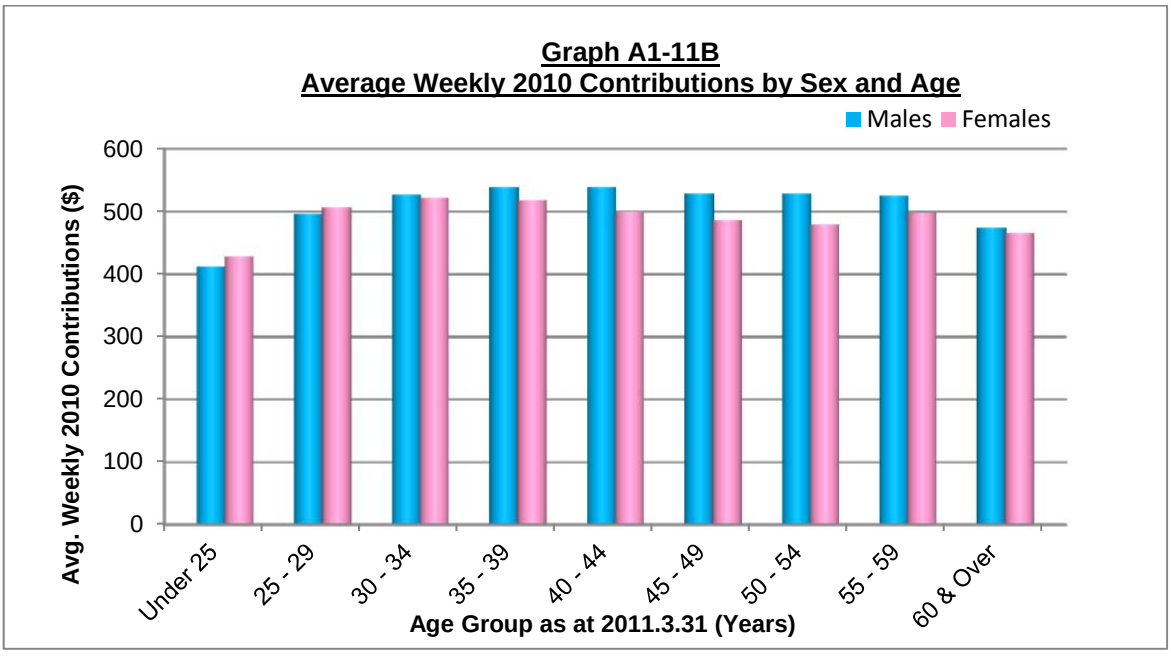
Graph A1-10B
Distribution of Female Contributors and Total Contributions



(xxxv) Based on the data supplied, just over 980 contributors are over the maximum retirement ages, but still contributing. We were advised that late contributions are refunded.

(xxxvi) **Graph A1-11A**, below, shows the average number of weeks' contributions in 2010 and **Graph A1-11B** shows the average amount of 2010 NIS Contributions by age groups and sex. The maximum weekly contribution for 2010, inclusive of the portion payable to the **NHF**, is $681.

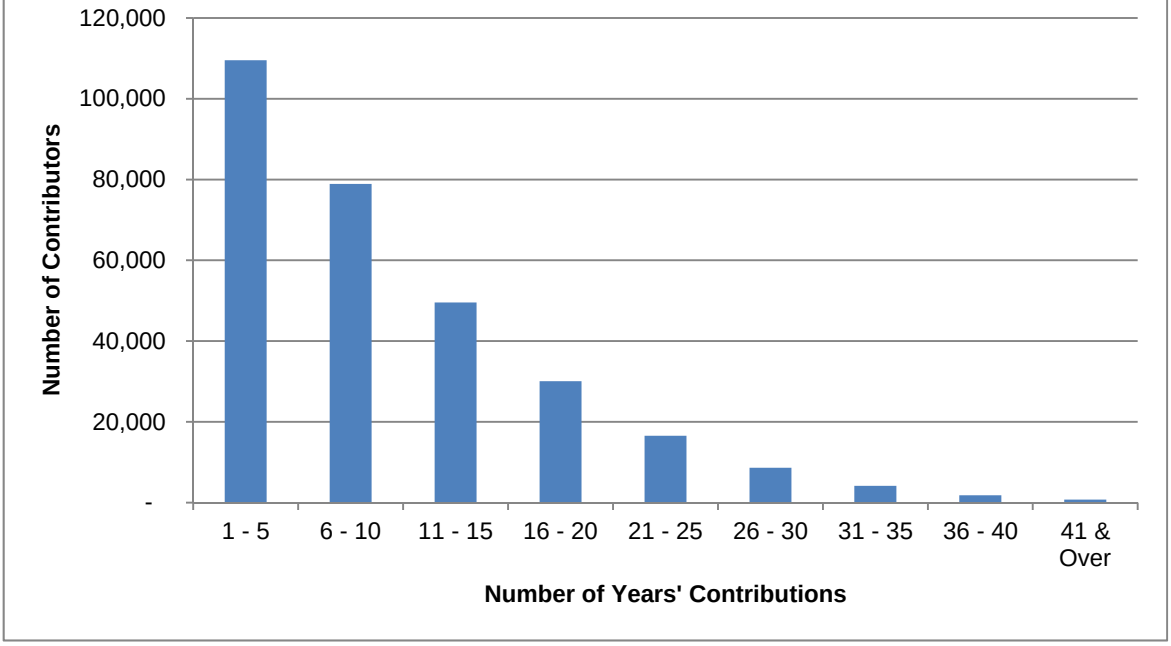


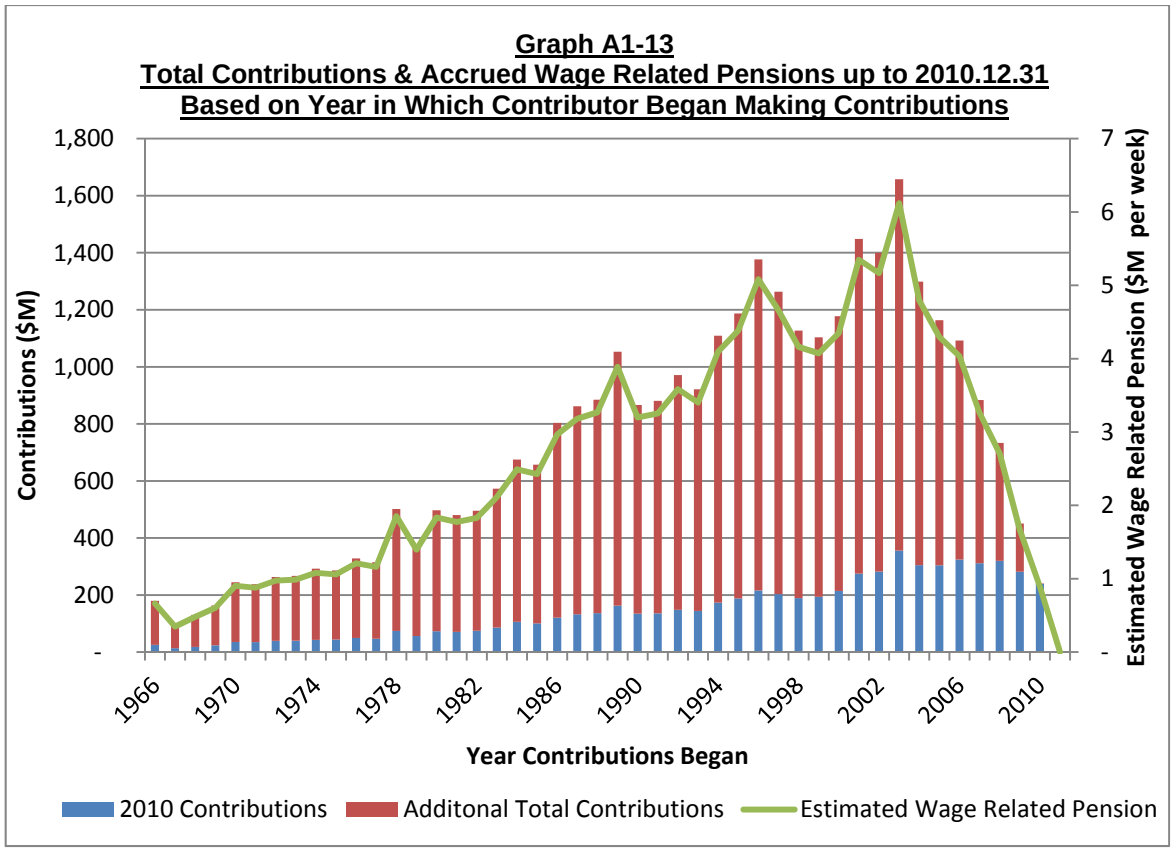


(xxxvii) We estimated the weekly accrued WR Pensions of contributors in 2010 and these are shown, by Contribution Years, in **Table A1-7** below and **Graphs A1-12** and **A1-13**, pages 82 and 83. Contributions include amounts transferrable to the **NHF**.

TABLE A1-7 2010 CONTRIBUTIONS, TOTAL CONTRIBUTIONS TO 2010 AND ESTIMATED 2010 ACCRUED WAGE RELATED PENSIONS				
No. of Years' Contributions	**No. of Contributors in CY 2010**	**Joint Contributions in CY 2010**	**Total Joint Contributions up to CY 2010**	**Estimated 2010 Accrued WR Pensions**
Years	**#**	**$M**	**$M**	**$M p.w.**
1-5	109,513	1,722	3,878	14.3
6-10	78,920	1,840	8,398	31.0
11-15	49,567	1,257	7,743	28.6
16-20	30,058	815	5,854	21.6
21-25	16,572	469	3,557	13.1
26-30	8,634	249	1,970	7.3
31-35	4,155	119	976	3.6
36-40	1,845	52	447	1.6
41 & Over	757	21	190	0.7
Unknown	2,712	15	Not Available	Not Available
TOTAL	**302,733**	**6,559**	**33,013**	**121.9**

Graph A1-12
Number of Contributors in 2010





The fluctuations in the Accrued WR pension could be attributable to gaps in the data for contribution years.

NI Gold Claims

(xxxviii) In the period since the commencement of the NI Gold Plan to 2009.2.28 the claims data indicate that the utilization was as follows:

▪ Prescription drugs	42%
▪ Medical and surgical care	53%
▪ Dental /Optical	4%
▪ Diagnostics Procedures	1%

Data Limitations

(xxxix) We had some concerns with data. The significant ones and the way they were addressed are set out below:

- There were differences in the 2010 Contributors file supplied by MLSS and the file of the total RIPs, also supplied by MLSS. The summaries above are based on the 2010 contributors file, adjusted as noted in paragraph (xxviii), but the projections are based on the RIPs file.
- The data was submitted with sex indicated as unknown for a number of persons. This applied to 9,327 of the 302,733 contributors for 2010. We assumed these persons were all females.
- Dates of birth were not provided for 20,845 persons. We estimated these from the NIS numbers.
- We noticed that there were 7,821 persons in the 2010 Contributors data whom we were not able to identify in the RIPs file. We excluded them from the valuation.
- There were over 5 million records with no NIS numbers. It is not possible to tell how many persons these represent. These are excluded from the valuation.
- There were a large number of persons in the RIPs file eligible for pensions and with last contributions prior to 2010. We cross-checked the RIPs file with the Pensioners data but found only a few. The check is difficult since the NIS numbers are not retained in the Pensioners' records. We assumed that all of those over age 75 are already on pension. We computed pensions and grants of approximately $2.6 billion for 89,500 persons. We assumed that most of these have already claimed and are either included in the Pensioners' payroll, or have received Grants. We included payments of approximately $1 billion in the projections. The inclusion of this amount reduces the exhaustion period of the Fund by approximately two years.

APPENDIX 2
FINANCIAL INFORMATION

Data Received

(i) We received the following financial information:

- Audited Financial Statements (NIS Board-Investment Operations) for all fiscal years up to 2012 March 31;
- In-House Management Accounts prepared by the MLSS (the Secretariat) for fiscal year ending 2013 March 31;
- Schedules of the Assets held by the Fund as at 2013 January, February and March, showing Market and Book Values, Coupons, Maturity Dates, etc.

The audited Accounts are prepared to conform to International Financial Reporting Standards.

(ii) The expenditure for benefits in the Audited Accounts is not presented by type of benefit and administrative expenses and expenditure for NI Gold are not tracked separately, as is the case in the In-House Management Accounts.

Revenue Accounts

(iii) The Fund grew from $39.215 billion at 31 March 2005 to $63.502 billion at 2013 March 31. The main source of income over the 8 years was Contributions of $52.434 billion, followed by Investment Income and Market Value Appreciation/Depreciation of $45.373 billion. As at the Review Date the Fund was equivalent to approximately 4.75% of the Gross Domestic Product (GDP), 2012/2013 prices.

(iv) **Table A2-1**, page 86, shows summaries of the Accounts, from the 2005/2006 fiscal year.

TABLE A2-1 CONSOLIDATED REVENUE ACCOUNTS FOR THE PERIOD 2005 APRIL 1 TO 2013 MARCH 31									
	Year Ended March 31								2005.4.1 to 2013.3.31[11]
	2006	2007	2008	2009	2010	2011	2012	2013[12]	
	$M	$M	$M	$M	$M	$M	$M	$M	$M
FUND AT START OF PERIOD	**39,215**	**43,716**	**49,801**	**54,294**	**53,538**	**62,186**	**66,525**	**71,534**	**39,215**
ADJUSTMENT	**(23)**	**737**	**-**	**-**	**-**	**-**	**-**	**-**	**714**
INCOME									
Contributions	4,073	4,929	5,650	5,651	5,511	7,622	9,455	9,543	**52,434**
Investment Income	4,887	4,675	5,133	6,206	7,400	5,100	5,042	5,526	**43,970**
Realized Gains/(Losses)	530	4	140	257	105	(16)	(9)	(4,870)	**(3,858)**
Unrealized Gains/(Losses)	(2,118)	953	1,879	(1,451)	1,477	759	1,629	(1,681)	**1,448**
Foreign Exchange Gains/(Losses)	462	195	343	2,035	157	(502)	196	1,294	**4,180**
Change in Fair Value Reserve	656	835	(1,532)	(4,082)	3,849	2,789	776	(4,740)	**(1,449)**
Total Income	**8,490**	**11,593**	**11,612**	**8,617**	**18,500**	**15,752**	**17,089**	**5,072**	**96,725**
EXPENDITURE									
NIS Benefits	3,293	5,458	6,258	8,516	8,832	10,405	11,045	11,900	65,706
NI Gold Benefits	251	302	302	261	331	384	408	434	2,674
Administrative Expenses									
- Secretariat									
♦ Operational Expenses	22	18	43	16	35	23	42	61	260
♦ Depreciation	10	11	11	12	12	11	13		80
♦ Other	2	2	5	4	5	5	4		27
- Scheme	388	454	501	563	637	585	569	708	4,405
Total Expenditure	**3,966**	**6,245**	**7,119**	**9,373**	**9,852**	**11,413**	**12,080**	**13,103**	**73,152**
NET INCOME	**4,523**	**5,348**	**4,493**	**(756)**	**8,648**	**4,340**	**5,009**	**(8,031)**	**23,573**
FUND AT END OF PERIOD	**43,716**	**49,801**	**54,294**	**53,538**	**62,186**	**66,525**	**71,534**	**63,502**	**63,502**

[11] Apparent Summation Errors due to rounding
[12] "In-House" Statements

Income

(v) Over the first five years since 2005 March 31, the Investment Income was significant, peaking at $7.4 billion, meanwhile the contribution more than doubled - from $4.1 billion in 2005/2006 to $9.5 billion in 2012/2013. Up to 2009/2010 each of these was the dominant income source in some years, but since 2010/2011 Contributions have significantly exceeded the Investment Income in each year. The Fund has significant holdings in Real Estate, Equities and foreign currency bonds and as expected there were huge fluctuations in market values and hence appreciation/depreciation.

(vi) Of note, there were two GoJ debt exchanges during the period; in February 2010 (JDX) and February 2013 (NDX). As a result of the JDX the Fund realized significant market appreciation (over $1 billion), but the converse was true with the NDX, where the Fund realized losses exceeding $4 billion. Additionally, in 2012/2013 with overall poor market performance there was unrealized depreciation of over $1.5 billion and reduction in the Fair Value Reserve (FVR) of some $4.7 billion.

Benefits' Expenditure

(vii) On the expenditure side, the benefits outgo tripled over the 8 years from $3.6 billion in 2005/06 to $12.3 billion in 2012/13. **Table A2-1** shows marked increases in the benefit payments in three years (2006/2007, 2008/2009 and 2010/2011) when there were increases in the Flat Rate benefits and Grants. In 2007/2008, hurricane relief of approximately $580 million was paid to 80,000 Pensioners and 90,000 families who are beneficiaries under the PATH programme.

(viii) Since 2006/2007 the NIS Benefits have exceeded the Contributions. For 2006/2007 and 2007/2008, the Benefits are around 10% higher than the Contributions, however this jumps to approximately 50% for 2008/2009 and 60% for 2009/2010 Years. The IWC was increased in 2010 August and the effect of this is seen from 2010/2011 – benefits only 17% to 37% higher than the Contributions.

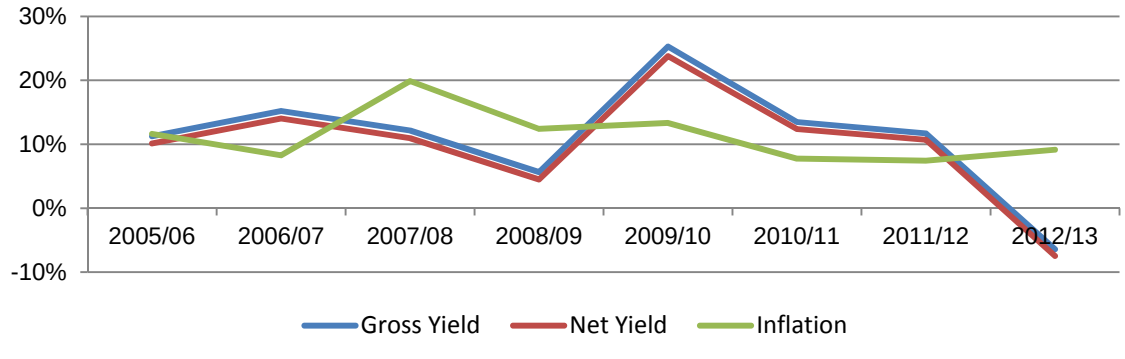
(ix) The Benefit expenditure in each fiscal year since 2005 April 1 and the Fund as at the end of the year are shown as percentages of GDP (2012/2013 prices) in **Table A2-2** below. The Benefits increased from 0.54% GDP in 2004/2005 to 0.92% in 2012/13. In the same period the NI Fund moved from 5.64% GDP at 2005 March 31 to 4.75% at 2013 March 31.

TABLE A2-2 NIS BENEFITS & SIZE OF NI FUND AS A PERCENTAGE OF GDP						
Fiscal Year Ending 31 March	NIS Benefits	GDP (Market Prices)	GDP (2012/2013 Prices)	NIS Benefits / GDP	Size of NI Fund	
					Amount	% GDP
	$B	$B	$B	%	$B	%
2005	3.778	695	1,306	0.54%	39.215	5.64%
2006	3.544	784	1,341	0.45%	43.059	5.49%
2007	5.759	811	1,361	0.71%	49.801	6.14%
2008	6.560	914	1,349	0.72%	54.294	5.94%
2009	8.777	1,012	1,313	0.87%	53.538	5.29%
2010	9.163	1,091	1,297	0.84%	62.186	5.70%
2011	10.789	1,172	1,310	0.92%	66.525	5.68%
2012	11.453	1,260	1,323	0.91%	71.534	5.68%
2013	12.334	1,336	1,336	0.92%	63.502	4.75%

Yields on the NI Fund

(x) The average gross and net yield (including realized and unrealized market depreciation/appreciation, foreign exchange gain/loss and changes in the Fair Value Reserve) over the 8 years preceding the Review Date were 10.7% and 9.5% per annum, respectively. Average Inflation over the same period was 11.2% p.a. That is, even on a gross yield basis, the average return was below inflation. The yields are compared to inflation in **Graph A2-1** below.

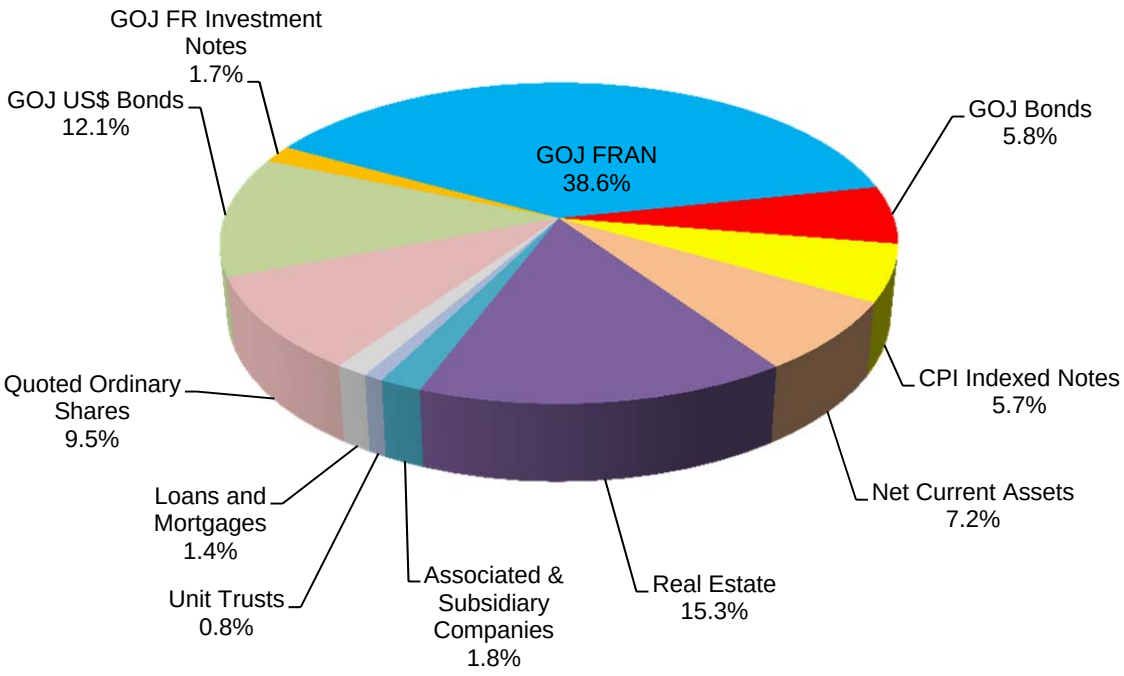
Graph A2-1
NI Fund - Yields vs. Inflation in Fiscal Years 2005/06 to 2012/13



Distribution of the Assets of the Fund

(xi) The Market Value of the Fund is distributed by Type of Security in **Graph A2-2**, below.

Graph A2-2
Distribution of Assets as at 2013.3.31
by Type of Security



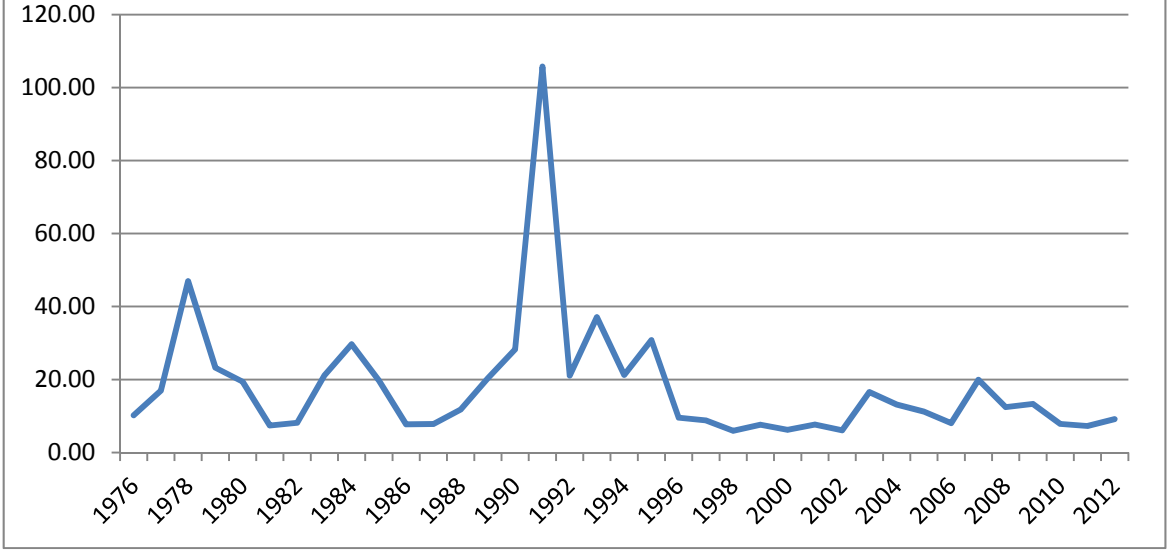
APPENDIX 3
RATIONALE FOR SELECTION OF ASSUMPTIONS

(i) In order to project the future income and expenditure of the Fund it is necessary to make assumptions about future events. The key assumptions adopted for the projections are set out below. In each case, our Best Estimate assumption is used in a Base Scenario. In some instances, other assumptions representing variations from the Best Estimate are also used.

Inflation

(ii) We discussed the long-term inflation expectations with representatives of the Planning Institute of Jamaica (PIOJ) and they recommended 8% per annum. Although inflation is not used directly in the calculations it forms the basis for other assumptions such as salary increases and pension increases. Inflation over the 37 fiscal years (1976/1977 to 2012/2013), as provided by STATIN, are shown in **Graph A3-1**, below.

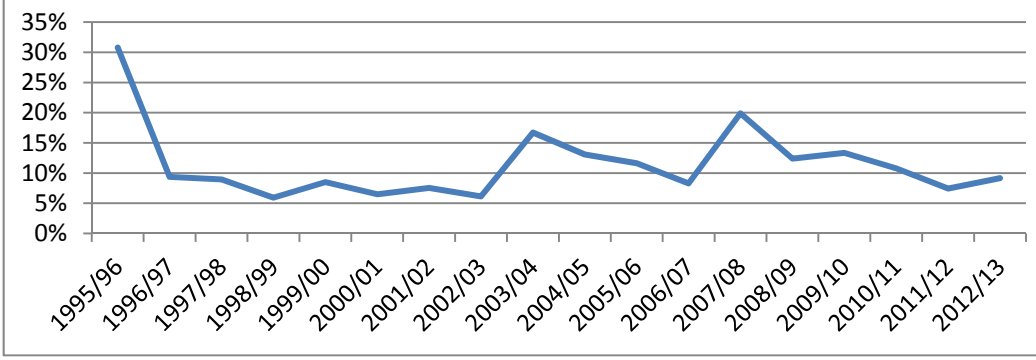
Graph A3-1
Annual Inflation from 1976/77 to 2012/13



(iii) The annual rates have fluctuated widely, but the average over the 37 years ending on the Review Date is 17% per annum. However, the rates have trended down; over the shorter period from 1996/1997 the average is 10.2% per annum, 10.0% per year over the last 5 years and 8% per annum over the last three years. The historical rates are significantly higher than the 8% recommended by the PIOJ, but the rates have declined significantly in recent years.

(iv) The rates since 1995 are shown below.

Graph A3-2
Annual Inflation from 1995/96 to 2012/13



(v) We have set the rate of 8% per annum recommended by the PIOJ, as the Best Estimate Assumption and included other scenarios as follows:

Scenario	Long-Term Inflation
Base	8% per annum
Higher	10% per annum
Lower	6% per annum

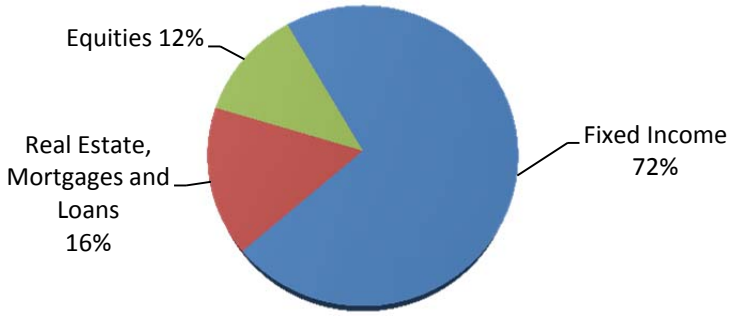
Fund Yields

(vi) In developing an appropriate gross discount rate we consider:

- The return expectation of the fund's underlying asset mix;
- Any active management premium expectation;
- Provisions for adverse deviations.

(vii) We begin by developing a return expectation for each of the asset classes held by the fund. As at 2013 March 31, the asset mix of the Fund was as shown below:

Graph A3-3
Asset Mix as at March 31, 2013



Fixed Income

(viii) The fixed income landscape in Jamaica has changed dramatically over the last several years with two government debt restructurings that have seen yields decline from more than 20% to current levels of around 8.5%. In fact, new GoJ bond issues have been at coupons ranging from 6.6% (T Bills) to 7.3% (1-Year). As a result, we do not consider historical yields to be a good indicator of future return expectations for fixed income investments. Rather, in this environment it is more appropriate to tie the forecast for fixed income returns on current yields for bonds and on current issue coupon rates.

(ix) The current weighted average portfolio yield (based on the data provided, as at March 31, 2013) is 8.4%.

Fixed Income Investments	**% of Fixed Income Portfolio**	**Average Yield**
Original Term to Maturity less than 1 year	14.4%	4.5%
Original Term to Maturity of at least 1 year	85.6%	9.0%
Total	**100.0%**	**8.4%**

Accordingly, our Best Estimate Assumption of the expected return for the fixed income portfolio is 8.4%.

Equities

(x) For the development of the equity return, we analysed the long-term historic risk premium inherent in the equities of emerging market economies over emerging market debt. This historical equity risk premium over the last 10 years has averaged approximately 8.1% but over the last 4 years has averaged only 2.4%.

(xi) In Jamaica, the Stock Market has underperformed inflation (and hence bonds); average increase of 6.6% per annum in the JSE over the last 20 years compared to average inflation of 13%. Notwithstanding, with the recent significant reductions in bond yield and inflation, the expectation is that equities will outperform bonds and for our Best Estimate Assumption we have used the emerging markets equity risk premium of 2.4% above the bond returns; that is expected long-term Equity Returns of 10.8% per annum.

Real Estate

(xii) We consider real estate to have characteristics similar to equities (in terms of capital appreciation) and characteristics similar to fixed income (in terms of the regular rent generated by the properties). The long-term return assumption is tied to the level of rental income generated by the portfolio.

(xiii) The target return on real estate in a typical Jamaican pension fund investment policy is the rate of inflation plus 1% to 3%. Given the lower quality nature of the property portfolio held by the NIF (comprised primarily of hotels and property rented to the government) historical gross rental yields have been lower than this target – ranging from 2.5% (year ending March 31, 2012) to 5.9% (year ending 2010.3.31); average 4.9% over the last eight years. Thus even with the recent changes in the bond portfolio, we expect the Real Estate to underperform relative to bonds and set the Best Estimate RE return at 7.0% per annum.

Expected Fund Return

(xiv) Based on the 2013.3.31 asset mix of the fund, and the above return expectation for each asset class the expected gross long-term rate of return, assuming no material changes to asset mix, is 8.5% per annum, as follows:

Asset Class	% of Portfolio	Expected Return
Fixed Income	72.2%	8.4%
Equities	11.7%	10.8%
Real Estate, Mortgages and Loans	16.0%	7.0%
Total	100.0%	8.5%

Investment and Non-Investment Expenses

(xv) Based on the experience of the fund over the last 7 years, total expenses average approximately 1% per annum, (1.09%, but 0.92% in the more recent years 2011-2012). Expenses will not be set off against the Fund Yield, but projected separately.

Active Management Premium

(xvi) We have assumed that there is no premium from active management.

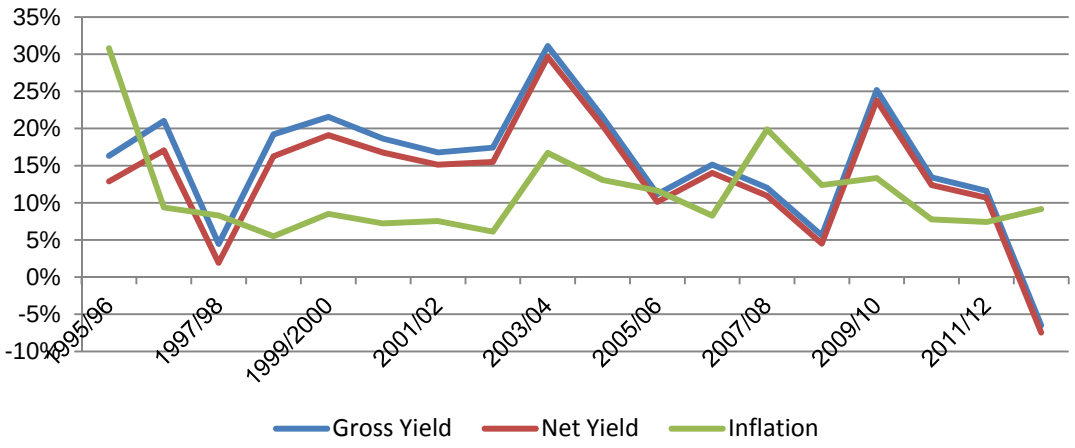
Assumed Long-Term Rate of Return

(xvii) Based on the above analysis, our Best Estimate assumption of the long-term rate of return is 8.5% per annum. In addition to our Best Estimate assumption the income will be projected on two (2) additional scenarios, with the Long Term Rate of Return as follows:

- Base 8.5% per annum
- Scenario 2 9.5% p.a.(based on expected fund yields with the higher inflation scenario)
- Scenario 3 8.0% p.a.(based on expected fund yields with the lower inflation scenario)

(xviii) The actual fund yields over the last 8 years are compared to inflation below.

Graph A3-4
NI Fund - Yields vs. Inflation in Fiscal Years 1995/96 to 2012/13



Salary Growth

(xix) Expected future salary increases are generally based on the following:

- Inflation
- Productivity
- Normal progress of employees within a given group and promotions.

(xx) However, in Jamaica, it is not uncommon for salary increases to trail Inflation. Population data from 2005 to 2012 from the Statistical Institute of Jamaica shows average earnings for large establishments (excluding Government of Jamaica, Agriculture, Free zones and Private Educational Services) increasing by 9.3% per annum versus inflation of 11.0% per annum. We understand that data is not available for the entire working population.

(xxi) We note as well that the GOJ has been successful in obtaining Memoranda of Understanding (MOU) with various public sector groups. The current MOU expires in 2015. These groups represent a large proportion of the Contributors to the Scheme and their salary increases, at least for the next couple of years, will be lower than inflation (0% in some cases). Additionally, when there are no salary increases in the Public Sector the increases in the Private Sector tend to be lower.

(xxii) Notwithstanding, over the long-term, Labour Compensation is not expected to fall materially below inflation. Taking into account the proposed growth in the Labour Force, salary increases were estimated as shown below to achieve Labour Compensation increasing at the rate of inflation over the review period.

- Base Inflation 7.62% p.a.
- Higher Inflation 9.62% p.a.
- Lower Inflation 5.63% p.a.

Pension Increases

(xxiii) We assumed that FR pensions and Grants would be increased as follows:

- **Base** 6.5% p.a. (to reflect current conditions maintained - with all the assumptions taken together)
- Higher Expenditure 9.0% p.a.
- Lower Expenditure 4.0% p.a.

Administrative Expenses

(xxiv) The expenses of the Scheme over the 8 years preceding the Review Date are shown in **Table A3-1**, below:

TABLE A3-1
EXPENSES VERSUS CONTRIBUTIONS

Year Ending March 31	Secretariat (Fund Management) $M	Admin Expenses $M	Total $M	Cont'ns $M	Ratio of Expenses to Contributions
2006	34.23	388.39	422.62	4,073	10.40%
2007	31.21	454.35	485.56	4,929	9.90%
2008	58.24	500.91	559.15	5,650	9.90%
2009	32.49	563.48	595.97	5,651	10.50%
2010	52.02	636.88	688.9	5,511	12.50%
2011	39.1	584.66	623.76	7,622	8.20%
2012	57.94	568.84	626.79	9,455	6.60%
2013	60.99	707.88	768.87	9,543	8.10%
Total	**6,420**	**6,420**	**7,013**	**74,897**	**9.36%**

(xxv) The data show that over the 8 years up to the Review Date, the Admin Expenses were 9.36% of the contributions. We have assumed that the Expenses will continue at the same level.

Insurable Wage Ceiling

(xxvi) The Insurable Wage Ceiling increased twice in the 8 years up to the Review Date (as shown in **Table 3_II**, page 24), translating to annual increases of 14.7%. Over the same period the average annual rate of inflation was 11.2%. Although the Insurable Wage Ceiling has been increasing faster than inflation we have assumed that this will not continue and future increases are assumed to be at the rate of inflation.

NI Gold

(xxvii) The data included the total NI Gold benefits paid in each fiscal year up to 2012/2013. We assumed that these would increase at the assumed rate of inflation per year.

2010 Contributors

(xxviii) We were provided with two separate files for the "contributors" in the 2010 calendar year (one containing the contributions and salary records and the other the demographic data) and we combined the files. As noted in Appendix 1, paragraph (xxix), 31,960 contributors under the NRA and 4,316 persons over the NRA had no 2010 contributions. We assumed that all 4,316 were retired and calculated pensions for those not already included as pensioners.

(xxix) With respect to the 31,960, they may have contributed and their contributions not uploaded to the database or they may not have contributed due to unemployment, migration or some other factor. From these 31,960 and also persons not included as 2010 contributors, we included those whose last contributions were in 2008 or later. That is, we assumed that persons who had no contributions in years prior to 2008 would not resume contributing but all those who contributed in 2008 or later, would recommence contributing.

New Contributors

(xxx) Based on the data provided, there were 177,871 new Contributors during the 5 years since 2005, 92,920 of which contributed during 2010. The number of new contributors in each of the 15 years up to 2010 is shown in **Table A1-5**, page 76. On average, there were nearly 32,000 new contributors each year. We have assumed 30,000 new contributors in each year starting 2011/2012 (split 55% females and 45% males; consistent with the current split) increasing by 1.5% each year for 15 years and 1.0% each year thereafter. This assumed number of new contributors will lead to around 40% of the Employed Labour Force contributing in 2063. Additionally, we considered scenarios (see Sections 5.8 to 5.13) leading to lower coverage.

Marital Status

(xxxi) Where the marital status of the Registered Insured Person is given as married it is assumed that he will be married at retirement or earlier death. Where the marital status is shown as single or unknown it is assumed that 70% will be married at retirement or earlier death. For the Pensioners, where the marital status is single or widowed it is assumed that this will not change and where the status is unknown 70% is assumed to married.

Age at Commencement of Pension

(xxxii) Males may retire and claim benefits from age 66 years and females from age 62 years. In Appendix 1, paragraph (xviii), we show that over the three years ending on the Review Date the average age at commencement of the Old Age Pension was 65.6 for Males and 61.4 for females. We expect the age for males to get even closer to age 65 and that most females, having been accustomed to age 60 NRA will claim by age 65. In all scenarios we have assumed that males will retire at age 66 years and females at age 65 years.

GDP Growth

(xxxiii) GDP for each of the eight years ending on the Review Date is shown in **Table A2-2**, page 88. We sought input from the Ministry of Finance and Planning Institute of Jamaica with respect to future GDP growth, but received no guidance on this matter. We have assumed that GDP would increase at the rate of Inflation.

Withdrawal

(xxxiv) We developed withdrawal rates, sample shown below, from the actual data.

Duration	Rate (%)	Duration	Rate (%)	Duration	Rate (%)
1	7.0	15	2.9	30	0.7
5	6.0	20	2.1	35	0.4
10	4.3	25	1.1	40	0.1

Mortality

(xxxv) The Statistical Institute of Jamaica provided mortality rates based on a 2011 census. We projected improvements in mortality using the Society of Actuaries' scale AA.

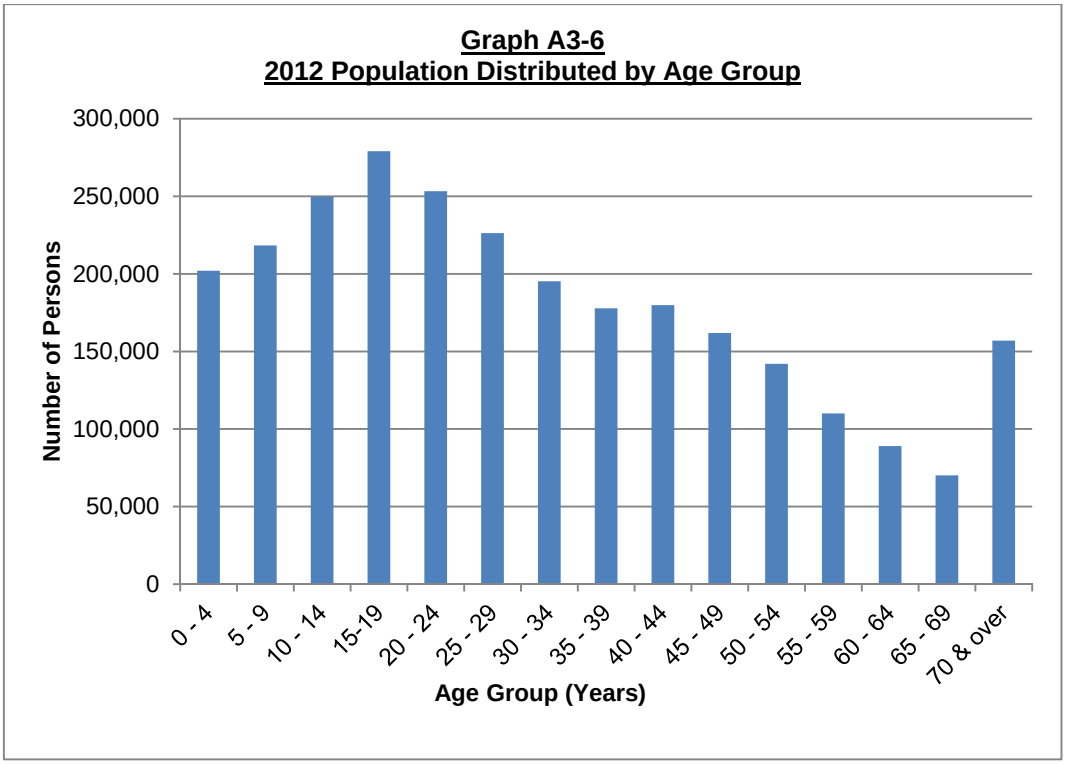
MALES (Rates per 1,000 Lives)							
Age	**Year**						
	2013	**2015**	**2020**	**2030**	**2040**	**2050**	**2060**
20	2.550	3.175	3.175	4.246	3.335	4.745	10.560
25	4.214	4.587	4.693	3.809	3.690	7.493	14.253
30	4.871	4.813	4.464	3.880	5.632	12.036	23.421
35	4.732	4.577	4.211	4.517	8.716	16.578	44.364
40	4.507	4.428	4.512	6.685	13.719	26.695	71.669
45	4.734	4.867	5.528	10.138	19.283	48.075	119.816
50	5.709	6.115	7.936	15.637	30.427	76.115	177.804
55	7.737	8.646	11.792	22.429	52.096	123.471	1,000.00
60	11.212	12.717	17.823	34.681	80.836	181.399	1,000.00
65	16.625	19.028	26.089	56.453	127.236	1,000.00	1,000.00
70	24.721	28.137	39.530	85.850	185.067	1,000.00	1,000.00
75	36.905	42.202	61.174	131.117	1,000.00	1,000.00	1,000.00
FEMALES (Rates per 1,000 Lives)							
Age	**Year**						
	2013	**2015**	**2020**	**2030**	**2040**	**2050**	**2060**
20	0.349	0.392	0.619	1.263	1.742	4.482	9.598
25	0.554	0.657	1.033	1.666	2.611	6.555	14.781
30	0.911	1.075	1.440	2.089	4.713	10.091	23.220
35	1.379	1.537	1.938	3.006	6.892	15.697	38.827
40	1.911	2.090	2.505	4.955	10.610	24.909	75.415
45	2.556	2.743	3.462	7.246	16.671	41.653	131.692
50	3.372	3.714	5.210	11.155	26.722	78.499	237.144
55	4.684	5.342	7.618	17.705	44.684	135.709	1,000.00
60	6.732	7.812	11.729	28.667	81.709	239.529	1,000.00
65	10.168	12.026	18.803	47.936	139.848	1,000.00	1,000.00
70	16.187	19.378	30.753	85.050	241.937	1,000.00	1,000.00
75	26.324	31.852	51.424	144.114	1,000.00	1,000.00	1,000.00

Population Growth

(xxxvi) Data from the Statistical Institute of Jamaica showed that based on the 2011 Census, the population was 2,697,983, representing growth of 0.36% per annum since the last census in 2001. We have assumed continuation of this growth rate[13] for 30 years (until 2042) and then one-half this rate for the remainder of the Review Period resulting in the estimated population a little lower than the PIOJ's 'High Projection'[14] as follows:

Year Ending December 31	Population	Year Ending December 31	Population	Year Ending December 31	Population
2011	2,697,983	2020	2,788,334	2045	3,026,949
2012	2,711,476[15]	2025	2,837,473	2050	3,053,528
2013	2,720,966	2030	2,887,477	2055	3,080,340
2014	2,730,490	2035	2,938,363	2060	3,107,387
2015	2,740,046	2040	2,990,145	2063	3,123,730

(xxxvii) The 2012 population distributed by age group in Graph A3_6 below:



[13] Rounded to 0.35% per annum
[14] Vision 2030 Jamaica National Development Plan, Population Sector Plan
[15] Actual

Labour Force

(xxxviii) Data from the Statistical Institute of Jamaica showed that as at 2013 April, the Labour Force was 1,322,500 and the Employed Labour Force was 1,107,400 (unemployment rate of approximately 16%) and we have assumed that this rate of unemployment will continue. Data from the PIOJ show that over the 9.25 years to 2013 March the annual average growth rate of the labour Force was 1.96%, but only 0.67% for the later 5.25 years to the Review Date. We have assumed constant future growth in the Labour Force of one-half the growth of the last 5 years (0.35% per year). This takes into account the declining population growth (0.467% to negative .043% by 2050) being projected by the PIOJ.

Year Ending March 31	Labour Force		Year Ending March 31	Labour Force	
	Total	Employed		Total	Employed
2011	1,248,500[16]	1,088,900	2030	1,403,431	1,175,168
2012	1,261,200	1,093,200	2035	1,428,164	1,195,878
2013	1,322,500	1,107,400	2040	1,453,332	1,216,953
2014	1,327,129	1,111,276	2045	1,478,944	1,238,399
2015	1,331,774	1,115,166	2050	1,505,007	1,260,223
2016	1,336,435	1,119,069	2055	1,531,530	1,282,432
2020	1,355,243	1,134,818	2060	1,558,520	1,305,032
2025	1,379,127	1,154,817	2063	1,574,942	1,318,783

Graph A3-7
Distribution of Labour Force at 2013 January by Sex and Age Group

[16] Actual – 2011 October

APPENDIX 4
MEETING PARTICIPANTS

MLSS
Mr. Denzil Thorpe
Mr. Amin Fagan
Ms. Portia Magnus
PIOJ
Mr. Donald Simpson
Ms. Deidra Coy
Ms. Collette Robinson
Ms. Shelly Ann Edwards
NIF
Mrs. Audrey Ellis-Lettman
STATIN
Mrs. Juliet McCalla-Smith
UWI
Ms. Nakesha Allen
Ms.Tamaya Christie
ECKLER
Mrs. Constance Hall
Mr. Phillip Whittaker
Ms. Anika Peart
Ms. Josanne Mohammed
Ms. Orlene Thomas

Eckler

APPENDIX 5
TERMS AND CONDITIONS FOR NIS BENEFITS

Old Age Benefits

The Old Age benefit is either a pension or a grant depending on the Registered Insured Person's (**RIP**'s) contribution record. The pension or grant is payable on retirement from work at or after age 62 – increasing to 65 in 2016 – for females and 65 (males). At age 65 – increasing to age 70 in 2010 – (females) and age 70 (males), the pension or grant is payable regardless of whether the RIP is actually retired. The **RIP** must claim the benefit in order for payment to be made.

Old Age (OA) Pension

The weekly Old Age Pension (**OAP**) is two-tiered: comprising a Basic Rate Pension (formerly called Flat Rate (FR)) and an Additional Pension (formerly called Wage Related (WR)). In order to qualify for the Basic Rate Pension the RIP must satisfy the following contribution conditions:

- Not less than 156 weekly NIS contributions have been paid
- The yearly average of the weekly NIS contributions paid (from 1966 or attainment of age 18 years, whichever is later) must be at least 13.

The Basic Rate Pension level varies depending on the average number of weekly contributions made during the contributory years. Three levels have applied since the NIS began:

Yearly Average Number of Contributions	Basic Rate (FR) Pension
39 weeks and Over	Full Rate
26 but less than 39 weeks	"3/4" Rate
13 but less than 26 weeks	"1/2" Rate
Less than 13 weeks	None

Additional (WR) Pension

The Additional Pension (**AP**) is determined by reference to the total Wage-Related contributions paid by and in respect of the insured person. Persons who pay only flat rate contributions are not eligible for this component. At the Review Date, the AP pension accrual rate was 6 cents per week for every $13 of wage related contributions paid by and in respect of the RIP. Expressed another way, the **AP** accrues at the rate of 1.0% career average earnings per year of contributions (where "career average earnings" is the average pay within the IWC). Up to October 2003, the **AP** accrual had been 1.2% career average earnings up to the IWC.

Spouse's Allowance

A married male Old Age Pensioner is entitled to Spouse's Allowance in respect of a living spouse who is within 5 years of the Normal Retirement Age. The female spouse must have been married to the Pensioner for at least 3 years and the male spouse for at least 5 years. Additionally, the spouse must be dependent on the Pensioner and the male spouse must be incapacitated.

Payment of Pension

The OA pension is payable weekly from date of award until death. A maximum of three (3) years' retroactive payments may be made in the case of a late claim.

Old Age Grant (OAG)

The OAG (lump sum) is payable to a **RIP** who eligible to claim the OAP but has less than 156 weeks' contributions paid and/or average 13 weeks' contributions per year over his work life.

Invalidity Benefits

The invalidity benefit is in the form of a pension (IP) or a grant (IG) depending on the insured person's contribution record. The pension or grant is payable to persons over age 18 years but below the Normal Retirement Age who are incapable of work due to a specific disease or permanent incapacity.

Invalidity Pension (IP)

The Invalidity Pension is computed on the same basis as the OAP except that the contribution record is determined at the time of the expiry of 26 weeks after the date of commencement of incapacity.

On attainment of the Normal Retirement Age, if the pensioner is still incapacitated he becomes eligible for an OAP. The OAP could be higher than the IP, since credits for contributions may be given during the currency of the Invalidity Pension.

A Spouse's Allowance is also payable to eligible Invalidity Pensioners; determined in the same manner as for OA Pensioners.

Invalidity Grant (IG)

The terms and conditions for receipt of an IG are the same as for the OAG except that the reference point for determining the contribution record is as for the IP.

Widow's and Widower's Benefits

Eligibility

The widow's or widower's benefit is in the form of a pension (W/WP) or a grant (W/WG) depending on the deceased person's contribution record determined at the date of death. The deceased insured person at the time of death should be a RIP or a pensioner (Old Age, Invalidity or Employment Injury). Other conditions apply depending on the sex of the spouse. The W/WP may be for a single year or for the lifetime of the surviving spouse if she/he remains unmarried.

The benefit would be available to a widow if at the death of her husband she:

(i) was within 5 years of the NRA and had been married to him for not less than three years, or
(ii) had been married for not less than three years and incapable of work due to some specific disease or bodily or mental disablement and the incapacity is likely to be permanent, or
(iii) was pregnant by her late husband, or
(iv) Had the care of a child (of his or of their marriage) under the age of 18 years.

Similarly, the benefit would be payable to a widower if at the time of the wife's death:

(v) they had been married for not less than three years, and
(vi) The widower was within 5 years of the NRA or is incapable of working or has the care of a child (of her own or of the marriage) less than 18 years.

Where the contribution conditions for a pension are met, the pension commences from the date of the RIP's or the pensioner's death and continues so long as the widow/widower continues to satisfy the above conditions.

Widow's and Widower's Pension

The W/WP is computed on the same basis as the OAP except that the contribution record is determined at the time of death of the spouse. An insured person may be awarded both a W/WP and an OAP or IP based on her/his own contribution record. The Basic Rate W/WP is the same as the OAP but the AP is at one half the rates.

Widow's and Widower's Grant (W/WG)

The W/WG is payable where the RIP is not eligible for a pension because of insufficient contributions – by number and density. The lump sum is the same as an OAG or IG.

Orphan's and Special Child's Pension (O&SCP)

The **O&SCP** is payable for an Orphan or a Special Child (born out of wedlock and whose mother is dead) of an RIP who satisfied the contribution requirements for an OAP or IP. The pension ceases on the child's attainment of age 18 and is payable to the person having care of the child.

Sugar Workers' Pensions (SWP)

Sugar workers who were in receipt of pensions from the Sugar Workers Pension Scheme at the commencement of the NIS are entitled to a flat rate pension from 1966/67. Since 1996 it has been at the Basic "1/2" Rate.

Special Anniversary Pensions (SAP)

Persons who were born in Jamaica in 1906 or earlier, being too old to contribute to the Scheme at its commencement, are entitled to a non-contributory, lifetime Old Age Pension. In order to receive a SAP, the person must apply. Since 1999 this pension has been at the same rate as the Basic "1/2" Rate.

Employment Injury Benefits (EIB)

Employment Injury Disablement Pensions are payable in respect of accident or occupational disease suffered by an insured, employed person in the course of insurable employment. The level of the pension depends on the degree of disablement. The incapacity first gives right to an Employment Injury Benefit for at least 12 months at the end of which time, the person may become entitled to the Employment Injury Disablement Pension. Unlike all other pensions payable under the Scheme, the Employment Injury Disablement Pension is linked to total weekly remuneration, within the IWC, over the 13 weeks preceding the accident, subject to a maximum.

Maximums are stipulated from time to time and are calendar year specific. The maximum since 2005 are as follows:

- $2,425 per week for incidents occurring in 2005
- $2,500 per week for incidents arising in 2006
- $3,100 per week for incidents arising in 2007 and
- $3,172 per week for incidents arising in 2008.

Funeral Grant

This benefit is payable on the death of an insured person or a person in receipt of a pension or their spouses.

Maternity Allowance

This benefit is payable to domestic workers or workers with certified exporters who satisfy the required contribution condition. The benefit is in the form of a lump sum equivalent to eight weeks' minimum wage.

Health Insurance (NI Gold Health Plan)

The schedule of Benefits payable to NIS Pensioners, who apply and are awarded the NI Gold Health Benefits, is at Appendix 6. This has been in place since 2003 December. A Pensioner may use his NI Gold card to directly access most of the scheduled benefits (medical, surgical, dental, optical, hospitalization or diagnostic) or pay and claim reimbursement of the expense from the insurance company which administers the programme. Spouses and children do not qualify for NI Gold benefits.

APPENDIX 6

NI GOLD: HEALTH BENEFITS FOR NIS PENSIONERS

DESCRIPTION OF BENEFITS	
HOSPITALIZATION	
Daily Room & Board (per night)	$800
Maximum No. of Nights	*70*
Hospital Miscellaneous Expenses	$6,000
Hospital Out-Patient Services	$2,000
SURGICAL BENEFITS	
Surgeon's Fee	$30,000
- Co-pay	*$1,000*
Asst. Surgeon's Fee	$12,000
- Co-pay	*$500*
Anaesthetists' Fee	$12,000
- Co-pay	*$500*
DOCTOR'S VISITS	
Office Visits	$500
Maximum No. per day	*1*
Home Visits (Emergency Only)	$500
In-Hospital Visits	$500
Maximum No. per day	*1*
Consultant's Fee (on referral)	$1,000
DIAGNOSTICS PROCEDURES	
Lab & X-ray, ECG/EKG etc. (per annum)	$4,000
PRESCRIBED DRUGS (per annum)	$5,000
- Co-pay	*10%*
DENTAL & OPTICAL (per annum)	$3,000
- Co-pay	*10%*