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St. Lucia

Report to the Government

Eighth actuarial review of the National Insurance Fund as of 30 June 2003

International Financial and Actuarial Service
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Foreword

The St. Lucia National Insurance Corporation (NIC) began operations in April 1979 introducing the National Insurance Fund, which it continues to administer today. The NIF is a partially funded, defined-benefit system of social security offering short-term, long-term and employment injury benefits along with hospitalisation coverage for certain insured persons. It replaced the previous Provident fund system that had existed since 1970. The Board responsible for the administration of the NIF reports to the Prime Minister.

Section 22 of the *National Insurance Act*, requires that an actuarial review of the St. Lucia National Insurance Fund (NIF) be conducted at least every three years. This is the eighth review of the Fund and it has been performed as at 30 June 2003, three years after the previous review.

In 1999, the International Labour Organisation (ILO) and six Caribbean countries, including St. Lucia, entered into bilateral agreements under which the social security scheme of each country would receive two actuarial reviews and training for its in-house actuarial and statistical personnel. This five-year programme is known as the ILO Umbrella Programme for Actuarial Reviews to Selected Countries of the Caribbean.

The main objectives of this review are to determine the long-term financial condition of the NIF and to review contribution and benefit provisions, making recommendations where appropriate. During discussions in St. Lucia, requests were made for specific issues to be dealt with in the report. These and other matters have been included in Section 4.

This report is divided into two sections – the main report and the appendices. The main report contains an analysis of past experience and results of population, economic and NIF projections up to 2063. This is followed by a brief discussion of several policy and operational issues and investments. The appendices that follow contain a summary of key National Insurance contribution and benefit provisions, a description of the methodology used for the valuation, key data inputs and assumptions, an analysis of the experience of the two Benefit Branches during the inter-valuation period, and detailed tables of the NIC finances for 2001 to 2003.

Contents

Abbreviations and acronyms

IAS	International Accounting Standards
EC$	Eastern Caribbean Dollar
EIB	Employment Injury Benefits
GAP	General Average Premium
GDP	Gross Domestic Product
ICE	Indexed Career Earnings
ILO	International Labour Office
LTB	Long-term Benefits
NIC	National Insurance Corporation
NIF	National Insurance Fund/scheme
PAYG	Pay-as-you-go
STB	Short-term benefits
TFR	Total fertility rate

Exchange rate

As of 30 June 2003: US$1 = EC$2.67

Acknowledgements

The ILO Umbrella Programme's Project Actuary, Mr. Derek Osborne, was appointed by the ILO to undertake this assignment. Mr. Osborne visited St. Lucia in February 2004 to gather the necessary data. He had discussions with the Chairman, the Director, and the management and staff of the NIC, as well as representatives of workers and employers' organisations.

This actuarial review is the product of contributions by Albert Cenac, Desmond Dujon-Henry and Paul Kallicharan, St. Lucia's national counterparts under the ILO Umbrella Programme. Their tasks included gathering the data and assisting the actuary during his visit to St. Lucia.

The Financial, Actuarial and Statistical Services Branch of the ILO assumed responsibility for the supervision, review and editing of this actuarial review.

The ILO is grateful to the national counterparts and staff of the National Insurance Corporation for their collaboration and assistance provided throughout this project.

The ILO Director-General wishes to express his sincere thanks to the Director of the National Insurance Corporation, Ms. Emma Hippolyte, for her collaboration and assistance provided throughout the project.

Executive summary

Some of the benefits that current National Insurance contributors anticipate receiving will be paid more than fifty years from today. Therefore, to determine whether or not St. Lucia's social security system is sustainable over the long-term, actuarial reviews are conducted every three years. In these reviews an examination of the National Insurance Fund's (NIF) current and projected future financial status is made. The actuary is also expected to recommend steps that may be taken to help ensure that the scheme remains solvent for future generations, while providing meaningful benefits to current workers and pensioners.

During its first twenty-five years, the National Insurance Corporation (NIC) has experienced steady growth in contribution and investment income, benefit expenditure and reserves. However, over the past five years, the number of contributors has remained at around 40,000 while the number of pensioners has increased by almost 40 per cent from 2,600 in 1999 to 3,600 in 2003. At the end of the 2003 financial year, National Insurance reserves stood at EC$737 million or 21 times total expenditure in 2002-2003. Relative to the economy, total reserves were 39 per cent of GDP. While this is a relatively high level of funding, total assets are less than the present value of total benefits already earned by past and present contributors, a position consistent with the design and financing method adopted for most social security pension systems.

During the past several years, several reforms aimed at enhancing the financial sustainability of the NIF have been made. These changes came out of recommendations made in the Sixth Actuarial Review and included gradual increases to the normal pension age and the qualifying number of contributions required for a Retirement pension. While the Board and Government are to be complimented for the proactive measures aimed at strengthening St. Lucia's social security system financially, emphasis on securing long-term finances appears to have resulted in a potential reduction in benefits given that some pension qualifying conditions may be considered overly restrictive.

With birth rates declining and increased longevity among the elderly, future National Insurance finances will show a different pattern from those of its first twenty-five years. While reserves are expected to continue growing for some time, the consequences of a declining contributor-pensioner ratio and a contribution rate that is below the true cost of all benefits will gradually emerge as the scheme matures. Along with a review of the NIF's financial position as of 30 June 2003, this report includes projections of income, expenditure and reserves through 2063. The following charts illustrate the projected trend for NIC reserves along with contribution and projected expenditure rates assuming that the contribution rate and benefit provisions remain unchanged.

The key results of the financial and demographic projections based on the contribution and benefit provisions in place as of valuation date[1] are:

– The population will increase from 158,000 in 2001 to just over 210,000 by 2063.
– The ageing of the general population will have a major impact on the ratio of workers to retirees. For National Insurance, it is projected that the number of contributors for each pensioner will fall from 11.0 in 2003 to only 2.2 in 2063.
– Contribution income is expected to be sufficient to meet total expenditure through 2023.

[1] Provisions are still valid as of 1 July 2003.

Chart ES.1. Projected reserves, 2003 – 2063

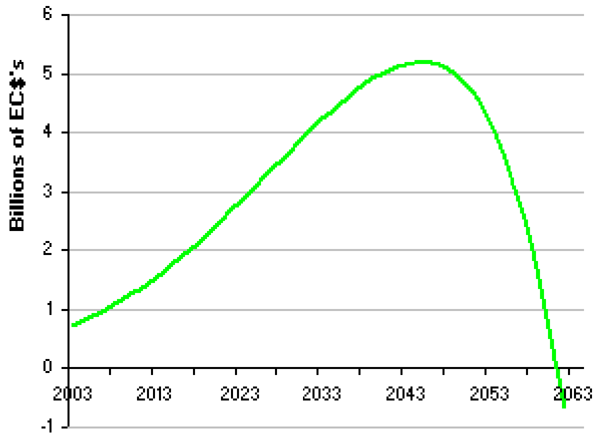
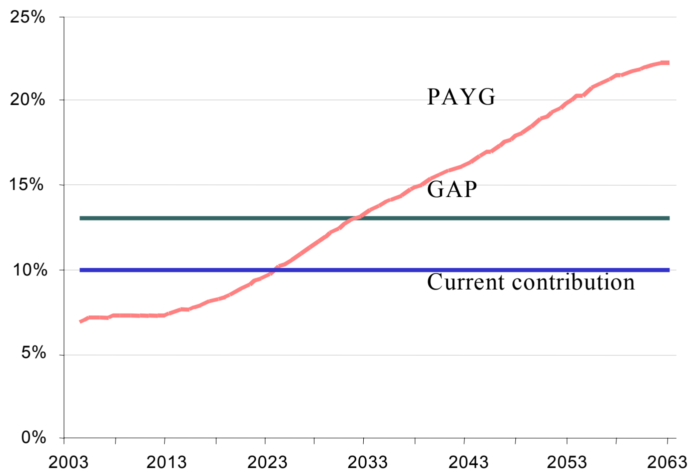


Chart ES.2. Contribution and expenditure rates, 2003 - 2063



– Reserves are expected to begin decreasing in 2048 when total expenditure will exceed total income for the first time. In 2062, projected reserves will be depleted.

– The pay-as-you-go (PAYG) rate, or the contribution rate that would be required to produce just enough income to meet expenditure if there is no Fund, will increase gradually from 6.9 per cent in 2003 to 22.2 per cent in 2063.

– Beginning in 2003, 13.1 per cent is the constant contribution rate that will make the present value of contributions equal to the present value of expenditure through 2063.

The projection results described above show a marked improvement in long-term finances when compared with the Seventh Actuarial Review, which projected Fund depletion in 2034. The main reasons for the significant change in the year that the Fund is projected to be depleted are the increases being made to the normal pension age, the higher number of contributions required for Retirement pension and the reduction in the maximum pension from 65 per cent to 60 per cent of average insurable wages.

With a projection period of sixty years, there is some uncertainty that actual experience will be either better or worse than projected. There are many economic and demographic factors that will influence future income and expenditure. So too will changes to rules governing contributions and benefits also affect actual finances. However, with Fund depletion not expected for almost sixty years, variances between assumptions and actual experience that result in more or less favourable estimates of when deficits will begin and when the Fund will be depleted are not likely to have a material difference on the conclusions and recommendations made in this report.

The implications of a projected depletion of reserves and future contribution rates that could possibly be in excess of 22 per cent should not be ignored. But the primary challenges facing the NIC at this time are the relatively low coverage of the working population (due mainly to the exclusion of civil servants and low compliance rates among self-employed persons), stringent pension qualifying conditions that appear to be limiting the number of persons being awarded pensions and income replacement rates that may be giving undue privilege to those just barely meeting the minimum qualifying conditions. No recommendation is being made to adjust the contribution rate at this time. Instead, most of the recommendations made throughout this report, and summarised below, focus primarily on ensuring adequate coverage, benefit adequacy and equity and maintaining pension relevance.

Recommendations

(1) Wage ceiling increases should occur annually in line with changes in average wages with the rules governing such increases placed in Regulations. To estimate changes in average national wages, a national wage index should be created by the government's Statistics Department. Until such an index is available, national insurance data may be used as a proxy. (Section 4.1)

(2) An across-the-board increase to pensions-in-payment ranging from 2 per cent to 12 per cent, depending on the year the pension was awarded, should be granted. Lump-sum grants, maternity and funeral grants and the minimum pension rate should also be increased. Thereafter, pensions-in-payment and set benefit rates should be automatically adjusted annually in line with average inflation over the previous three years, with the rules that govern the timing and the amount of each adjustment placed in Regulations. (Section 4.1)

(3) Review the age at which a surviving spouse may receive a pension for more than one year. This age was recently increased from 55 to pensionable age. (Section 4.3)

(4) If the change that is presently being considered in the Retirement pension formula to one that uses earnings over one's career is not implemented, then pension accrual rates should be revised so that pensions accrue more gradually instead of the current higher payment rate (40 per cent) for those who meet the minimum contribution requirement (now 144 months). Also, consideration should be given to reducing the number of months required to qualify for a pension to 120 but with a 25 per cent or 30 per cent pension rate instead of 40 per cent. These latter changes will result in fewer grants and more pensions and thus enhanced security among the elderly population. (Section 4.4)

(5) Review the formula used to determine Retirement and Invalidity grants to account for both employee and employer contributions and accrued interest. Presently, only 50% of total NIC contributions paid without interest is refunded. Based on the contribution histories of recent awards, a suitable formula could be devised. (Section 4.5)

(6) Government should seek advice on ways of incorporating all civil servants into NIC coverage, and of coordinating the payment of pensions of the two groups. While the recent inclusion of persons who joined the public service after January 2003 was a positive step, gaps in pension coverage still exist as some public officers may not qualify for a pension when they leave the service. (Section 4.6)

(7) The Board should seek to significantly improve the level of participation among the self-employed by firstly making NIC self-employed coverage mandatory. In addition, efforts at increasing education on the importance of compliance among this group, creating linkages with government departments that issue permits and/or licenses to self-employed persons, and developing a simplified approach to the way self-employed persons are required to contribute should be considered. (Section 4.7)

(8) For investments, the Board should continue to gradually place additional funds outside of St. Lucia with a medium-term target of having 20 per cent to 25 per cent of the portfolio in regional and international investments. For local investments, a prudent asset mix, as provided for in the Fund's Investment Policy, should be maintained.. (Section 1.4)

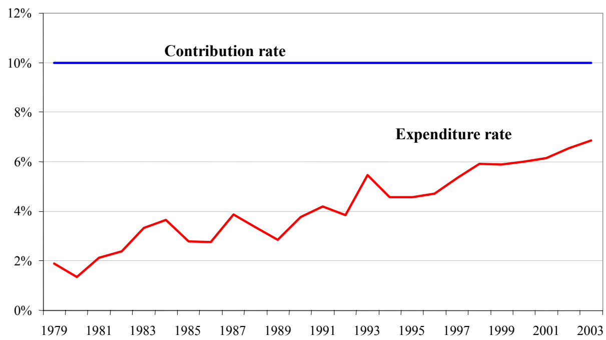
Among regional social security systems, the St. Lucia National Insurance Fund is one of the best funded and best prepared to meet the increasing costs of an ageing population and maturing pension system. However, the proportion of the working population covered is lower than that of most other systems and some pension qualifying conditions are among the most stringent. In the coming years, therefore, in addition to increasing compliance among the self-employed, emphasis should be placed on achieving a suitable balance between strong finances and equitable and relevant benefits. For Retirement pensions, this could possibly be achieved by providing for the payment of slightly less generous Retirement pensions to more elderly insured persons. The ILO supports plans by Government to enhance the overall level of social protection offered through an unemployment benefit, a social health insurance and a pension system geared towards farmers and fishers (the subject of separate ILO studies). These additional programmes, together with socially relevant and financially sustainable national pensions, should enhance the socio-economic well-being of all St. Lucians for generations to come.

1. Review of financial experience and other activities

1.1 Financial experience, 1979 – 2003

The following two charts illustrate various aspects of the NIC's financial experience between 1979 and 2003[2]. As well, they highlight the gradual maturing of St. Lucia's social security system. The first chart compares annual contribution and expenditure rates while the second illustrates the change in NIC's relative funding level over time. While the increasing trend for expenditure shown in Chart 1.1 is consistent with the type of social security scheme and the financing method adopted at inception, the reserve-to-expenditure ratio shown in Chart 1.2 has actually increased during the past decade, contrary to usual expectations.

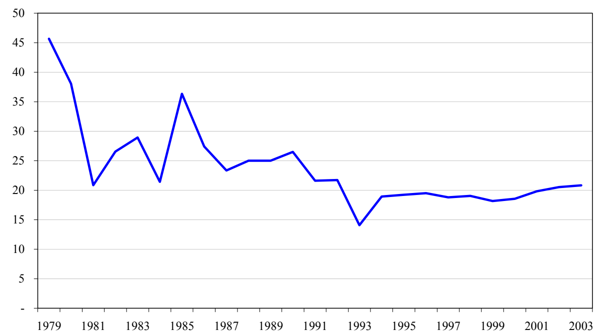
Chart 1.1 Contributions and expenditure as % of insurable wages, 1979 - 2003



When expenditure is expressed as a percentage of insurable earnings, it can be readily compared with the contribution rate. While the contribution rate has remained at 10% since inception, expenditure has trended upwards, with continued upward movement expected.

With the contribution rate higher than the expenditure rate, contributions alone are currently sufficient to meet expenditure.

Chart 1.2 Reserve-to-expenditure ratio, 1979 - 2003



The reserve-to-expenditure ratio (RER) reflects the size of the year-end reserve relative to that year's expenditure and is a useful measure of how well a social security scheme is funded at any time.

As seen from the chart, funding levels trended downwards up to 1999, but have since increased slightly to 20.8 in 2003.

1.2 Activities since the *Seventh Actuarial Review*

With effect from 3 March 2003, a complete set of new National Insurance Regulations was enacted following a comprehensive review of the provisions governing NIC coverage, contributions and benefit provisions. The new Regulations include many changes to policy provisions and operational procedures, which were implemented and then factored into the projections of the *Seventh Actuarial Review*.

[2] Financial years end on 30 June.

In March 2002, the Government of St. Lucia established a Task Force to examine the feasibility of introducing national heath insurance, a pension plan for farmers and fishers and unemployment insurance. The ILO assisted the Task Force in the preparation of its findings and recommendations to Government.

With effect from February 2003, newly appointed civil servants are required to register and contribute to the NIC. Appointments prior to this date participate in the government non-contributory pension plan and are adequately covered for other contingencies for which NIC benefits cover private-sector workers.[3]

After an extended period of relatively high economic growth, the St. Lucian economy experienced a downturn in 2001, a slight expansion in 2002 and real growth of 3.7 per cent in 2003. For the NIC, economic conditions impacted contribution income, which was flat during the period. The number of active contributors decreased slightly in each year from 41,200 in 2000 to 39,400 in 2003. The following table provides a summary of income and expenditure.

Table 1.1. Summary of NIC finances, 2001 – 2003 (millions of EC$)

	2001	2002	2003
Income			
Contributions	51.5	50.4	51.6
Investment	36.8	29.7	40.4
Other	2.3	3.2	2.2
Total	90.6	83.3	94.2
Expenditure			
Benefits	21.9	23.7	25.5
Medical Health Programme	3.0	3.0	3.0
Administrative	6.8	6.4	6.9
Total	31.7	33.1	35.4
Excess of Income over Expenditure	58.9	50.2	58.8
Effect of adopting IAS 40[1]	-	33.5	-
Year–end reserves	627.6	677.8	736.6

[1] International Accounting Standard.

Compared with the financial projections of the *Seventh Actuarial Review*, total income was slightly less than projected due mainly to lower investment income in 2002. This was due to a provision that was made for loan losses. Expenditure was also slightly lower than expected because the pension increase that was assumed to take place in 2002 did not occur. In total, the 2003 year-end reserve was EC$4 million less than projected but with the IAS 40 adjustment, was EC$30 million more than projected. A detailed analysis of benefit experience may be found in Appendix III and detailed income, expenditure and reserve figures are in Appendix IV.

[3] Civil servants are covered for sick & maternity leave and retirement & invalidity pensions but are not covered for survivors' benefit and hospitalization.

For a few categories, the following table provides a comparison of financial experience and a brief statement of change between 2000 and 2003.

Table 1.2. Financial indicators, 2000 and 2003 (as percentage)

	2000	2003	Assessment
Contribution rate	10	10	Fixed since 1979.
Expenditure rate	6.0	6.9	Increase expected as system matures.
Investment income expressed as % of insurable earnings	6.7	7.8	Growing fund on which investment income is earned making significant contribution to overall revenues.
3-year average nominal yield on reserves	6.3	5.7	Low returns in 2002 contributed to reduced average.
3-year average real yield on reserves	3.1	4.8	Inflation low in recent years.
Administrative expenses as % of insurable wages	1.3	1.3	Acceptable.
Reserve-to-expenditure ratio	18.6	20.8	Increase due mainly to lower-than-expected pension increases and large investment earnings.

1.3 Design and performance indicators

Given the broad range of objectives of a social security scheme, the evaluation of performance could be rather difficult. Such an assessment should consider the achievement of the scheme's overall goals as they pertain to the level of coverage and the provision of adequate and reasonable benefits and pensions, as well as how efficiently it is administered and how prepared it may be to meet rising costs over time. Table 1.3 provides a summary of several key indicators of coverage, benefit levels and operational performance that highlight changes between 2000 and 2003.

As illustrated, the first seven indicators show the level of social protection coverage presently offered by NIC and its overall significance relative to the population and economic factors. Most noteworthy among these indicators is the very low level of coverage especially among the self-employed, and the significant decrease in the contributor/pensioner ratio over the past three years.

1.4 Investment portfolio

As at June 2003, NIC investments stood at EC$690.0 million, up from EC$507.4 million at year-end 2000. Table 1.4 provides a summary of the investment mix at year-end 2003 and 2000.

Table 1.3. Current NIC design parameters and performance indicators between 2003 and 2003

		2000	2003	Assessment
1	Ratio of ceiling to average insurable wage	2.3	3.4	Ceiling at high end of acceptable range.
2	Minimum pension as a % of average insurable wage	15.3	13.7	Slightly low. Minimum not increased since 1999.
3	Average old-age pension as % of average insurable wage	40	39	Pensions not adjusted since 1999 and new pensions slightly lower than in the past due to revised pension provisions.
4	Active insured persons as % of employed population	65	63	Low. Partly due to exclusion of most civil servants who account for around 10% of employed population.
5	% of self-employed persons making NIC contributions (rough estimate)	3 to 5		Very low. Significant improvement needed.
6	Number of contributors per pensioner	14.4	10.8	# of contributors almost level for past 5 years while # pensioners increased by nearly 40%.
7	NIC benefits as % of GDP	1.2	1.5	Gradual increases expected.
8	NIC reserves as % of GDP	29	40	National Insurance Fund growing at a much faster pace than economy.

Table 1.4. Summary of investments, year-ends 2003 and 2000 (millions of EC$'s)

Investment category	2003		2000	
	$	%	$	%
Treasury bills	41.7	6.0	14.9	2.9
Notes and bonds – local	40.1	5.8	18.6	3.7
Loans	167.0	24.2	170.4	33.6
Fixed deposits	203.6	29.5	195.3	38.6
Shares – local	37.7	5.5	18.0	3.5
Properties	90.4	13.1	53.4	10.5
Subsidiary companies	28.3	4.1	4.4	0.9
Bonds – regional	49.8	7.2	12.7	2.5
Shares – regional	5.1	0.7	0.2	0.0
International bonds and equities	26.3	3.8	19.5	3.8
Total	690.0	100.0	507.4	100.0

During the three-year inter-valuation period the diversification of the portfolio has improved, with key changes being:

- While the 10.3 per cent amount lent to Government is still only a small portion of the fund, government borrowing from the NIC more than doubled from EC$33.5 million to EC$74.6 million.
- There was a large increase in the proportion of the portfolio invested outside St. Lucia – 14.1 per cent up from 4.5 per cent in 2000.
- There was a significant increase in the amount held in properties, partly due to revaluations that took place in 2001.

– Although still a small portion of the portfolio, there was a significant increase in NIC's shareholding in subsidiary companies.

Given the limited opportunities for investments within St. Lucia and NIC's long-term investment horizon, the overall portfolio is considered to be adequately diversified and in keeping with the internationally accepted criteria of safety, liquidity, yield and social utility. However, the Board should be cautious when considering investments that will further increase proportions held in properties, subsidiary companies and government securities and should consider gradually increasing external investments from 20 per cent to 25 per cent of the portfolio.

2. Population and economic projections

Future National Insurance Fund (NIF) income and expenditure will be closely linked to changes in the size and age structure of the population, employment levels, economic and wage growth, inflation, and rates of return on investments. Therefore, to best estimate future NIF finances, projections of St. Lucia's total population and economic activity are required. Population projections provide estimates of the size and composition of the labour force, while projections of gross domestic product (GDP) and worker productivity growth indicate how many workers are needed in the economy and what their likely incomes will be. Since these factors are both directly and indirectly interrelated – for example, changes in population directly affect the economy and economic performance impacts personal behaviour such as migration – population and economic projections are performed together to ensure that inter-related assumptions used produce consistent results.

For this review, 60-year projections of the population, economy and NIC finances have been performed. The assumptions for these projections have been developed following an analysis of past trends and a review of plausible future experience. The population and economic projections are an intermediary step to derive NIC projections. A summary of the assumptions and projections related to general demographics and economics is discussed. Further details may be found in Appendix II.

2.1 Demographic assumptions

The determinants of future population changes are fertility, mortality and net migration. Fertility rates determine the number of births, while mortality rates determine how many, and at what ages people are expected to die. Net migration represents the difference between the number of persons who permanently enter and leave St. Lucia and is the most volatile of the three factors.

The last official population census took place in 2001 in which the resident population was estimated at around 158,000. Between 1991 and 2001 the population increased by around 22,000 persons for an annual growth rate of approximately 1.5 per cent per annum. Since the number of births exceeded the number of deaths over the same period by over 24,000, net migration during the inter-census period appeared to have been small, at an average of around 270 persons per year.

The total fertility rate (TFR) represents the average number of children each woman of childbearing age would have if she had all her children in a particular year. If there is no migration, a TFR of 2.1 is required for each generation to replace itself. In 2002, St. Lucia's TFR was estimated at 2.0, having fallen from 3.5 in 1985 and 2.9 in 1995.

Life expectancy at birth in 2003 has been estimated at 72.8 for males and 77.8 for females. While further improvements in life expectancy are expected, the increasing prevalence of HIV and AIDS in St. Lucia may retard the rate of previously expected improvements. For these projections improvements in mortality are assumed to occur in accordance with UN estimates. While deaths due to HIV and AIDS have not been explicitly accounted for, the rate of mortality improvements chosen considers the effects of the HIV/AIDS pandemic. Perhaps the more important life expectancies for the NIC are those at age 60 when the most costly pensions become payable. In 2003, life expectancies at age 60 are estimated at 20 and 23 for males and females, respectively.

2.2 Economic assumptions

The economic projections prepared for this report assume stable and positive economic growth and labour productivity in all years. Although simplistic, they approximate usual economic cycles and volatility that encompass periods of expansion and recession. They also account for projected changes in the population and labour force that will provide the capacity for additional output through more workers and increased productivity. The following table indicates the principal demographic and economic assumptions used in this actuarial review. Further details may be found in Appendix II.

Table 2.1. Principal assumptions for population and economic projections

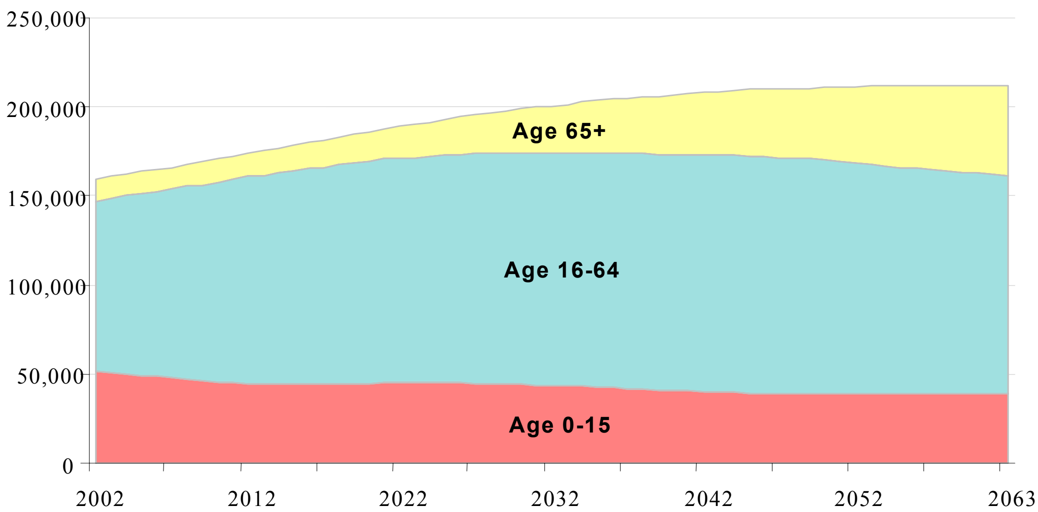
Ultimate fertility (from 2.2)		1.9 in 2021
Mortality improvements [1]		Slow
Net outward migration		Decreasing from 400 in 2001 to 300 in 2021, then to 150 in 2041 and to 0 by 2061.
Real GDP growth (%)	Short-term	2.5
	Medium-term	2.0
	Long-term	1.25
Long-term inflation (%)		2.5 p.a.

[1] United Nations, 2004.

2.3 Projection results

The following chart illustrates St. Lucia's projected population up to 2063 separated into the three main age categories, children, working-age and pension-age. The changes in the relative size of each age group, whereby it is observed that there are fewer children and many more pension-age persons, illustrate the forecasted ageing of St. Lucia's population. This is a direct result of reducing birth rates, improvements in longevity and the migration of mainly working- age persons.

Chart 2.1. Projected general population, 2002 - 2063



Highlights of the population projections are:

– The total population will increase to just over 210,000 in the later 2040's, remaining relatively constant thereafter.
– There will be a more than 25 per cent reduction in the number of children but more than three times as many pension-age persons in 2063 as there were in 2003.
– Around 2050, St. Lucia will have more pension-age residents than children.
– The number of working-age persons for each pension-age resident will fall from 5.6 to 2.5.

Table 2.2. Projected general population, 2001 - 2063

Year	Total	Age			Ratio of persons 16-64 to 65 & over
		0-15	16-64	65 & over	
2001	157,898	52,738	93,197	11,963	7.8
2003	160,709	51,219	97,294	12,196	8.0
2004	162,089	50,437	99,350	12,302	8.1
2005	163,504	49,687	101,410	12,407	8.2
2006	164,947	48,945	103,487	12,515	8.3
2007	166,411	48,202	105,585	12,624	8.4
2008	167,890	47,465	107,689	12,736	8.5
2013	175,456	44,835	116,932	13,689	8.5
2023	190,182	45,587	126,196	18,399	6.9
2033	201,588	43,779	129,986	27,823	4.7
2043	208,316	40,334	132,482	35,500	3.7
2053	211,592	39,550	128,383	43,659	2.9
2063	211,429	38,850	122,622	49,957	2.5

As pension payments to the elderly already represent 75 per cent of benefit payments under the NIC, the above projected change in the population age structure will bear very significant long-term consequences on the NIC. Population ageing will also create major challenges for the Government, as a larger and older society will place increased and different demands on physical infrastructure, health and other social programmes. Therefore, proactive measures by both Government and the NIC are required to ensure that the needs of future generations will be sufficiently met.

3. National Insurance financial and demographic projections

This section presents and analyses projections of National Insurance finances up to 2063. The purpose of these projections is twofold. Firstly, they are used to identify long-term trends for contributions, benefits and the reserve, so that the financial viability of the National Insurance Fund (NIF) may be assessed. Secondly, by using these projections as a base, the sensitivity of the results to changes in the assumptions, and/or contribution and benefit provisions may be identified.

These projections are based on results of the population and economic projections presented in Section 2, several NIC-specific assumptions as well as the contribution and benefit provisions in place on 1 July 2003. While increases to the contribution ceiling and pensions-in-payment are not legislated, periodic adjustments are expected, and thus have been assumed.

The main assumptions that have been made are:

– Age-specific coverage rates will increase over the projection period by 20 per cent and 25 per cent for males and females, respectively, as new civil servants and others register and contribute to the NIC.

– The insurable wage ceiling will increase annually in line with changes in average wages in St. Lucia beginning in 2006.

– Pensions-in-payment will increase by an average of 10 per cent in 2005-2006 and annually thereafter by the assumed inflation rate of 2.5 per cent. Minimum monthly pensions for Retirement and Invalidity are assumed to increase in 2005-2006 to EC$250.

– Short-term Benefits Branch expenditure will increase from 0.77 per cent to 1 per cent of insurable wages between 2003 and 2063.

– The long-term net yield on reserves is assumed to be 5.0 per cent per annum, approximately ½ per cent below average returns between 2001-2002 and 2003-2004.

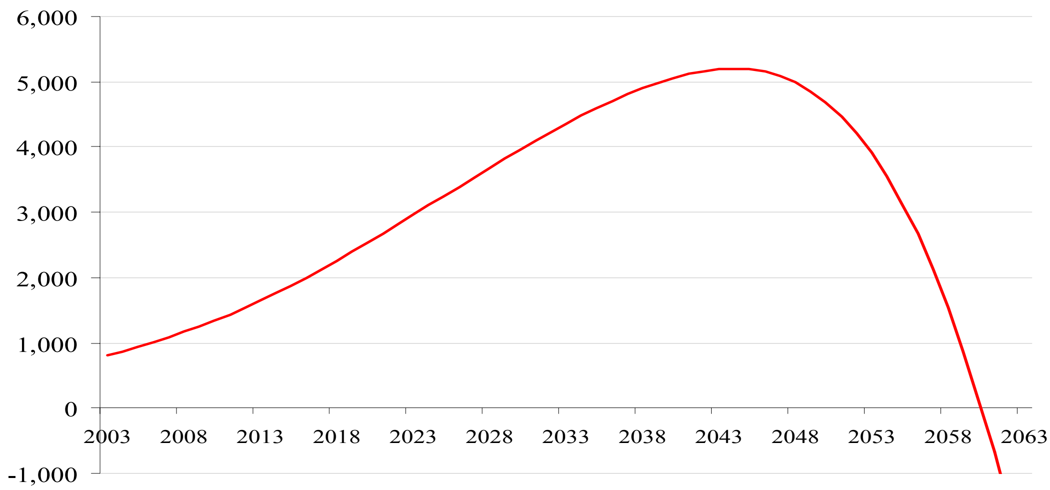
– Administrative costs are assumed to decline from 1.25 per cent to 1.0 per cent between 2003 and 2023, remaining constant thereafter.

3.1 Projection results

For accounting purposes, National Insurance finances are separated into the Short-term and Long-term Benefit Branches, representing the two major benefit types that are offered. However, provisions exist for transferring reserves between Branches and changing income allocations. Therefore, shortfalls in one Branch may be met from surplus reserves of the other. For this report, the projections for the two benefit Branches have been consolidated so that the complete financial picture may be shown.

Projected total National Insurance benefit reserves are illustrated in the following chart.

Chart 3.1. NIC projected reserves, 2003 - 2063 (millions of EC$'s)



As illustrated, reserves are projected to continue growing through the mid-2040's, reaching more than six times their 2003 level. If the contribution rate is not increased periodically, reserves will eventually reach their maximum level when total expenditure first exceeds total income. Thereafter, assets will have to be sold to meet expenditure and reserves will decrease quickly as the liquidation of investments continues. In partially funded, defined-benefit schemes such as the National Insurance, the trend for reserves illustrated in Chart 3.1 is normal if the contribution rate remains below the true cost of benefits while the number of contributors per pensioner falls.

The following table summarises the years in which key financial events are expected to occur.

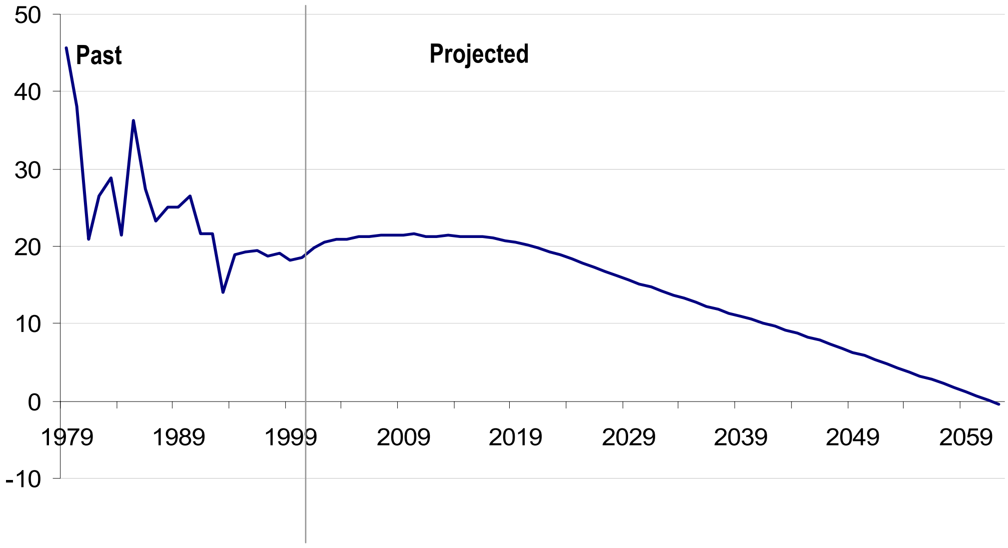
Table 3.1. Key NIC projection results

	Year
Year expenditure first exceeds contribution income	2024
Year expenditure first exceeds total income	2048
Year reserves depleted	2062

When compared with the projection results of the Seventh Actuarial Review in which Fund depletion was projected to occur in 2034, these projections indicate the significant effect that recent amendments have on long-term finances. The main reasons for this positive impact are the gradual increases of the normal pension age, the higher number of contributions required for Retirement pension and the reduction in the maximum pension from 65 per cent to 60 per cent of average insurable wages.

While total reserves are projected to continue increasing for another twenty years, NIC's relative level of funding is expected to remain close to its present level of just over twenty times annual expenditure for several more years before gradually decreasing to zero. The following chart illustrates the past and projected trends for the reserve-to-expenditure ratio.

Chart 3.2. Past and projected NIC reserve-to-expenditure ratios, 1979 - 2059



Numerical details of the financial and demographic projections are provided in Tables 3.2 to 3.4. For selected years between 2003 and 2063 these tables show:

– projected income and expenditure, year-end reserves and the reserve-to-expenditure ratio,

– projected benefit expenditure by major benefit type in EC dollars and as a percentage of insurable wages and GDP, and

– projected number of contributors and pensioners by year and major benefit type.

Table 3.2. Projected NIC benefit expenditure, 2003 - 2063 (millions of EC$'s)

Year	Pensions, grants & benefits						Benefits as a % of:	
	Retirement	Invalidity	Survivors'	Death & Disablement	Short-term	Med.	Insurable wages	GDP
2003	17.2	2.0	2.3	0.0	4.0	3.0	5.5%	1.5%
2004	18.5	2.1	2.5	0.1	4.3	3.0	4.6%	1.5%
2005	21.0	2.3	2.7	0.1	4.5	3.2	5.9%	1.6%
2006	22.8	2.6	3.0	0.1	4.8	3.4	6.0%	1.6%
2007	24.3	2.9	3.2	0.1	5.1	3.6	6.0%	1.7%
2008	26.4	3.3	3.4	0.1	5.5	3.8	6.1%	1.7%
2009	28.1	3.6	3.6	0.1	5.9	4.1	6.1%	1.8%
2013	37.7	5.4	4.5	0.1	7.8	5.4	6.3%	2.0%
2023	90.3	13.1	8.5	0.4	12.8	8.4	8.8%	2.8%
2033	211.1	25.2	16.0	0.8	20.2	12.6	12.5%	4.0%
2043	401.7	45.3	28.4	1.5	31.6	18.8	15.4%	5.1%
2053	731.1	74.8	46.9	2.7	47.0	26.9	19.0%	6.3%
2063	1,186.6	106.7	74.3	4.5	69.9	38.4	21.2%	7.3%

Table 3.3. Projected NIC income, expenditure and reserves, 2003 - 2063 (millions of EC$'s)

Year	Revenue				Expenditure			Annual surplus /(deficit)	Reserves	
	Contribution income	Investment income	Other income	Total	Benefits	Administrative & other expenses	Total		Year-end	No. of times current year's expenditure
2003	51.6	40.4	2.2	94.2	28.5	6.9	35.4	58.8	736.7	20.8
2004	56.1	43.4	6.3	105.8	30.4	7.5	37.9	67.9	804.0	20.9
2005	57.6	46.8	2.3	106.7	33.8	7.1	40.9	65.8	869.8	21.3
2006	61.4	48.4	2.5	112.3	36.7	7.5	44.2	68.1	937.9	21.2
2007	65.3	51.3	2.6	119.1	39.2	7.9	47.1	72.0	1,010.0	21.4
2008	69.7	54.2	2.8	126.7	42.4	8.4	50.8	75.9	1,085.9	21.4
2009	74.8	57.1	3.0	134.9	45.3	8.9	54.2	80.7	1,166.5	21.5
2013	97.4	72.7	3.9	174.0	60.9	11.1	72.0	102.0	1,540.6	21.4
2023	151.9	133.8	6.1	291.8	133.5	15.4	148.9	142.9	2,813.2	18.9
2033	228.3	203.2	9.1	440.6	285.8	22.8	308.6	132.0	4,228.5	13.7
2043	342.3	251.0	13.7	607.0	527.2	34.2	561.4	45.6	5,163.2	9.2
2053	488.9	212.2	19.6	720.7	929.4	48.9	978.3	(257.6)	4,214.3	4.3
2063	698.7	(54.2)	27.9	672.4	1,480.3	69.9	1,550.2	(877.8)	0	0

Table 3.4. Projected NIC contributors and pensioners at year-end, 2003 - 2063

Year	# of contributors	# of Pensioners				Total # of pensioners	Ratio of contributors to pensioners
		Age	Invalidity	Survivors'	Death & disablement		
2003	39,392	2,536	280	750	20	**3,586**	**11.0**
2004	39,417	2,657	283	877	22	**3,839**	**10.3**
2005	40,459	2,777	297	940	24	**4,038**	**10.0**
2006	41,517	2,844	322	1,003	26	**4,195**	**9.9**
2007	42,406	2,915	349	1,058	27	**4,349**	**9.8**
2008	43,295	3,051	378	1,109	29	**4,567**	**9.5**
2009	44,352	3,135	408	1,159	31	**4,733**	**9.4**
2013	47,979	3,624	542	1,281	37	**5,484**	**8.7**
2023	55,038	6,545	931	1,674	58	**9,208**	**6.0**
2033	61,347	11,812	1,278	2,225	84	**15,399**	**4.0**
2043	68,388	16,546	1,649	2,780	115	**21,090**	**3.2**
2053	68,935	22,072	1,977	3,211	145	**27,405**	**2.5**
2063	68,845	26,070	2,035	3,545	167	**31,817**	**2.2**

The projected ageing of the general population is also noticeable in demographic projections of the NIC-insured population. As shown above, the number of contributors is expected to increase by 75 per cent from around 40,000 to nearly 70,000 by 2063 while the number of pensioners is projected to increase almost ten-fold, to nearly 32,000. As shown in the last column of Table 3.4, the number of contributors relative to the number of pensioners is projected to fall dramatically from 11.0 in 2003 to 2.2 in 2063. This phenomenon is mainly explained by the combined effect of the maturing of the NIC scheme and population ageing, as previously mentioned. [4]

As NIC benefits are only partially funded, future generations of contributors will help meet the benefit costs of previous generations. With the projected decline in the number of contributors to pensioners, and the expected trends for income and expenditure, the projected future generations of workers will be of smaller relative size whilst being required to pay higher contribution rates than their predecessors in view of the projected demographic shift.

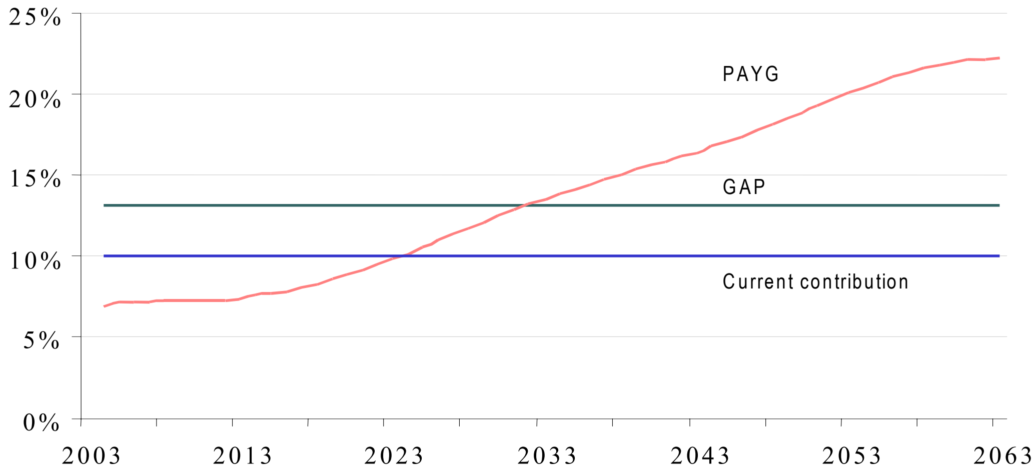
3.2 Projected benefit costs

The cost of National Insurance benefits and administrative expenditure may be viewed from several perspectives. Firstly, each year's total expenditure can be expressed as a percentage of that year's insurable earnings. This is often referred to as the pay-as-you-go (PAYG) rate and is the answer to the question "What contribution rate is required to exactly meet that year's expenditure?" Since inception the PAYG rate has been well below the actual contribution rate, but is increasing gradually.

[4] See section 2.3 where the corresponding ratio of working-age persons to pension-age persons in the general population is projected to reduce from 5.6 to 2.5 over the same period.

The second rate, called the general average premium (GAP), is the average level contribution rate required over the next 60 years to fully cover total expenditure during that period. This rate may be looked at as the long-term cost of the complete National Insurance benefits package. In Chart 3.3 the relationships between the PAYG rate, the GAP and the present contribution rate, can be readily noted.

Chart 3.3. Projected contribution rates, 2003 – 2063 (% of insurable earnings)



As shown above, the current contribution rate of 10 per cent of insurable earnings is 3 percentage points above the PAYG rate in 2002-2003 but is insufficient in the long term as it is 3.1 percentage points below the GAP. The present contribution rate will become insufficient starting in year 2024 when annual contributions will be less than annual expenditure. Thereafter, investment income, and eventually proceeds from the sale of assets, will be required to meet benefit payments and administrative costs if no increase to the contribution rate is applied. If the NIF becomes depleted, there would be no investment income, and thus contribution rates higher than 22 per cent will be required to meet current expenditure. The following table shows the GAP and PAYG cost rates for selected years.

Table 3.5. Projected general average premium rate and pay-as-you-go cost rates, 2003 - 2063 (as % of insurable earnings)

GAP	PAYG			
	In 2003	In 2023	In 2043	In 2063
12.8	6.9	9.8	16.4	22.2

3.3 Sensitivity tests

The long-term projections of NIC finances include an extensive set of demographic, economic and scheme-specific assumptions, some of which are more sensitive than others. Undoubtedly, actual experience will differ from the projections thus far presented depending on circumstances (fertility, GDP growth, wage growth, inflation) as well as NIC-related experience (number of contributors and new pensioners, frequency and amount of ceiling and pension adjustments, returns on investments, etc.).

This section analyses two additional projections of National Insurance finances, showing the effect on long-term costs of different assumptions for which NIC management and government policy can impact. Change in the GAP may be considered the change in the long-term cost of NIC benefits.

3.3.1 Smaller pension adjustments

One of the critical assumptions of these projections is the frequency and amount of pension increases. While regular pension adjustments are not legislated, it is envisaged that from time to time pensions will be adjusted to offset reduced purchasing power due to inflation. (Based on past experience, adjustments have lagged behind actual inflation.) Annual pension increases have been provided for at the assumed inflation rate of 2.5 per cent. If instead pension increases average 2.0 per cent per annum – either because inflation is low or actual increases are less than inflation – long-term costs will be slightly lower with the GAP being 12.6 per cent instead of 13.1 per cent and the PAYG rate in 2063 would be 21.1 per cent instead of 22.2 per cent.

3.3.2 Lower or higher rates of returns on reserves

As at June 2003, National Insurance benefit reserves stood at EC$737 million and net rates of return (investment expenses included) on these reserves averaged 5.7 per cent over the previous three years. For the projections previously discussed, it was assumed that the net long-term returns on reserves would be 5.0 per cent, slightly lower than current returns. If however, net long-term returns of 5.5 per cent (or 3 per cent above assumed inflation) can be realised, reserves would be not be exhausted before the end of the projection period and the GAP would be 12.7 per cent instead of 13.1 per cent. On the other hand, if net nominal long-term returns average 4.5 per cent per annum, the GAP would be 13.5 per cent and reserves would be exhausted in 2058. This shows that although return on reserves does not have that much effect on when reserves will be depleted, it does impact the contribution rate required to finance future benefits.

Table 3.6. Sensitivity tests of NIC projections, 2003 - 2063

Projection scenario	GAP (% of insurable earnings)	Year when reserve exhausted
Projections based on present provisions and baseline assumptions	*13.1*	*2062*
– Annual pension increases of 2%, instead of 2½%	12.6	Not before 2063
– 4.5% long-term return on reserves, instead of 5.0% p.a.	13.5	2058
– 5.5% long-term return on reserves, instead of 5.0% p.a.	12.7	Not before 2063

4. Policy and administrative issues

The policy recommendations made under this part of the report are based on general social security practice as well as on the Workmen's Compensation (Agriculture) Convention, 1921 (No. 12), the Workmen's Compensation (Accidents) Convention, 1925 (No. 17) and the Equality of Treatment (Accident Compensation) Convention, 1925 (No. 19), to which St. Lucia is a signatory party. In addition, the recommendations are based on the ILO Social Security (Minimum Standards) Convention No. 102 as this Convention lays down minimum standards and worldwide-agreed basic principles in social security. The minimum standards include a replacement rate of 40 per cent of former earnings after 30 years of contributions in the case of old-age pension, and 40 per cent of former earnings after 15 years of contributions in case of invalidity or survivors' pension. The core principles of C. 102 are solidarity, the pooling of risk, defined benefits and the general responsibility of the state for the provision of benefits and proper administration of schemes.

4.1 Indexation of wage ceiling, pensions-in-payment and set benefit rates

The last wage ceiling adjustment took effect in January 2001 with pensions last increased in late 2004, having gone five years before this most recent adjustment. During periods when these factors are not increased, the effects of wage and price inflation make NIC insurance coverage and pensions less relevant. Therefore, increases to the wage ceiling, minimum and other pensions, and all fixed-EC dollar amounts should occur regularly with an explicit policy on the basis for such increases.

While the level of the wage ceiling (EC$5,000 per month) is currently considered adequate, the minimum pension of EC$200 per month is considered low. (While pensions in payment were increased in 2004, the minimum pension rate was not changed,) Once the wage ceiling and minimum pension rate are considered appropriate by local authorities, it is recommended that future increases occur annually with the rules that govern such increases placed in regulations. This will ensure that insurance coverage and the income security that benefits and pensions provide maintain relevance over time. Failing this, pensioners' standard of living will erode with inflation and NIC will lose relevance to higher-income contributors as their earnings increase. The regular adjustment of pensions-in-payment is also required by Article 65 (10) and Article 66 (8)) of C. 102.

A suitable provision for increasing all indexes could see them change each 1 July.

For adjustments to the wage ceiling, it is recommended that the Government's Statistics Department create a national wage index and that annual ceiling adjustments be the change in the wage index during the previous calendar year. For the ceiling which was 3.4 times average insurable wages in 2003, no increase is considered necessary if annual increases will be adopted by 2006 or before. If the Board decides to retain the ad hoc approach to ceiling increases, then an adjustment in 2006 based on estimated wage increases between 2001 and 2005 would be appropriate.

For pensions and grants the amount of each increase could be actual inflation over a recent 12-month period or the average rate of inflation over the most recent three years. This latter approach will result in less volatile increases and is preferred. For example, if annual increases were awarded based on average inflation in the previous three years, the 2004 adjustment would be 0.9 per cent. To avoid large adjustments should inflation be high for an extended period, thus potentially impacting negatively on NIC finances, a maximum of say 5 per cent may be placed on any single adjustment. Government can then decide whether or not to grant a larger increase based on actuarial advice. Similar provisions for annual increases to pensions and grants were recently enacted in Barbados.

Even if regular legislated adjustments are introduced, it is recommended that pensions and grants be increased now so that they may be raised to at least their 1999 levels. Cumulative inflation from 1999 to 2003 is estimated at 10 per cent and thus a pension increase of up to 10 per cent should be considered. If an across-the-board pension increase is granted, the amount of the increase should not be the same for all pensioners. Instead, the adjustment should be based on the date the pension was awarded or last increased, which ever is later. This will ensure that each adjustment compensates the pensioner for the effect inflation has had on the pension since it was awarded or last increased.

Following are the recommended rate increases for pensions for other than those paid at the minimum rate, on the basis that the adjustments take place in early 2005.

Table 4.1. Recommended individual pension adjustment rates to be applied as soon as possible

Year pension was awarded	Adjustment amount (%)
Before 2000	+12
2000	+10
2001	+08
2002	+06
2003	+04
2004	+02

For the minimum Retirement/Invalidity pension, consideration should be given to increasing it by 25 per cent, i.e. to raise the current minimum from EC$200 to EC$250 per month. This higher minimum pension would bring a more meaningful basic income as it is approximately 17 per cent of average insurable wages.

4.2 Modifying the pension formula

Although St. Lucia is not yet a party to any social security instrument of the ILO, when reforms are considered, the ILO encourages policy makers to refer to the ILO Convention No. 102 of 1952 on Minimum Standards of Social Security reflecting still general accepted principles of social security at the international level as reconfirmed in the context of the 2001 International Labour Conference. With regard to pension reform, the following minimum standards should serve as guidelines:

- The normal retirement age should not exceed 65 unless there is evidence that life expectancy at older ages has significantly increased.

- The old age pension shall amount to at least 40 per cent of former earnings after completing a contributory service (employment) of 30 years.

- Insured workers accumulating less than 30 years of contributory service (employment) but more than 15 years should be entitled to a prorate pension in relation to the above point.

- A pension may be suspended in case a pensioner is engaged in a gainful activity or receiving another pension.

The present pension formula follows a five-year, final-average-earnings basis. This implies the relationship between contributions and benefits is not strictly direct as found in the case of private insurance. This is characteristic of social insurance whereby the state's responsibility in providing income security for the elderly must take account of various social objectives.

The extent to which income redistribution objectives are pursued may be reflected through the age pension formula notably:

- the definition of the minimum pension,
- the maximum level of earnings insurable by the system – the ceiling,
- the reference earnings used to determine the pension, and
- the schedule of benefit accrual rates according to the contributory record.

It is worth quoting the ILO pension policy of 2000.[5] **"The principle of solidarity is what justifies the existence of social security pension schemes in addition to individual protection measures, including those based on insurance mechanisms or individual savings. This principle applies first and foremost to financing techniques."** The minimum pension and ceiling aspects do not need further review at this stage. The remainder of this section will focus on the review of income replacement objectives so as to arrive at a more coherent review of the extension of the period of reference earnings (third element) and the changes in the accrual rates (fourth element).

4.2.1 Income replacement objective of the Social Security programme of St. Lucia

It is recommended to review in further depth the objective of the NIC in terms of what is the target career length and income replacement level.

The ILO Convention No. 102 of 1952 on Minimum Standards of Social Security states the principles of solidarity and pooling of risks. The present final average pension formula satisfies these principles whereas a pension formula moving towards a pure career-average earnings basis would move away from these basic social security principles and more towards individualistic approaches as found in private insurance.

At present, the NIC seems to focus its income replacement objective on workers having completed a relatively short career ($28^2/_3$ years) so that they receive a pension representing 60 per cent of their five-year best-average insurable earnings. The target career length expected to be protected by the NIC may be verified against actual average employment profiles found in St. Lucia to ensure most people work on average for close to 30 years in St. Lucia. In the event where migrant working practices are widespread, account should be taken of the typical profiles to be protected by the NIC when defining the income replacement objective of the system.

The agreed upon income replacement objective of the NIC should take into account the future cost implication on the overall scheme and overall desired affordability. If the estimated present NIC benefit provisions are considered too expensive, from the perspective of tripartite partners, with a general average premium of 13.1 percent of

[5] See Gillion, C., Turner, J., Bailey, C. and Latulippe, D. (2000): *Social Security Pensions – Development and reform*. ILO Geneva, pp. 400-401.

insurable earnings, then policy makers should consult with stakeholders to determine what is an acceptable contribution rate in the long term. On the basis of this affordable contribution rate and a better idea of the main design parameters of the pension formula, it is possible to define more realistic expectations in terms of income replacement in old age and to determine accordingly a new pension formula meeting the intended objective.

Utmost care must be taken in comparing the present pension accrual rates with possible future ones by taking into account the impact of the possible extension in the reference period for past insurable earnings. Hence, it is important to determine for all career profiles what a pension of today equivalent to 60 per cent of the five-year final-average insurable earnings, for example, would be on the basis of a longer reference period used to calculate pensions – much likely requiring a higher flat benefit accrual rate to remain equivalent.

Not only higher income earners but also middle and lower income classes will be affected by such changes in the method of calculating pensions. If the main aim is to reduce the overall long-term cost of the scheme, benefit reductions should be carefully assessed to ensure they do not fall below the replacement rate for old-age pensions as prescribed by C. 102. According to Articles 28 and 29 in conjunction with the Schedule to part X of C. 102: the old-age pension shall amount to at least 40 per cent of the former earnings of the beneficiary with a career of 30 years, whereas the reference former earnings at the moment of retirement have to be equal to the earnings for a male manually-skilled employee. As employees usually earn less at the beginning of their working life, the pension will be much lower when using an indexed carrier earnings formula.

To assess the potential effect that a change in pension formula to one that uses indexed career insurable wages would have, the contribution and benefit details of nineteen randomly selected recent Retirement pensioners were analysed. With the exception of one person who is now receiving the minimum pension, all of the remaining eighteen persons would have received a smaller pension. On average, the indexed career earnings pension with an accrual rate of 1.5 per cent per annum resulted in pensions that were 36 per cent smaller than the current pensions when compared with the accrual rate pattern of several other Caribbean countries, (30 per cent after ten years and 1 per cent thereafter) the decrease would have been only 16 per cent. At present, someone with a 30-year service career gets a pension replacement rate of 58 per cent. The above 36 per cent reduction would mean this replacement rate would be 37 per cent, which is less than the prescribed ILO minimum replacement rate of 40 per cent, in principle.

For the National Insurance Fund, if a change in pension formula is phased in over a twenty-year period and the ultimate average new pension is 36 per cent lower than it is now, the general average premium would decline from 13.1 per cent to 10.8 per cent of insured wages. Given the current contribution rate of 10 per cent, this change would likely bring close to complete long-term sustainability as the Fund would be approximately ten times annual expenditure in 2062. However, given that the average relative pension would be much lower than it is now along with the concerns raised in Section 4.5 regarding the high proportion of Retirement pension applicants that receive grants, consideration could be given to liberalising the qualifying conditions for Retirement pension back to ten years if the change to an indexed career earnings pension is made. This relaxation would take the general average premium to 11.4 per cent of insured wages. Over time, this would allow more persons to qualify for a pension although of a slightly smaller amount.

It should also be mentioned that the adoption of an indexed career-average earnings pension formula requires an elaborate administration system able to adjust all paid contributions during the whole career.

4.2.2 *Extending the reference period for past insurable earnings*

The public social security system normally defines reference earnings to account for the following factors, which can sometimes become contradictory:

- the need to ensure there is a minimum link between earnings used in the past to collect contributions and earnings used to determine future pensions; and
- the need to provide meaningful income replacement in relation to the living standards enjoyed in the later years of active life prior to retirement.

At present the pension formula in St. Lucia is based on the average of the best five years of insurable earnings. Whilst this can help insured workers obtain a pension more closely related to their final living standard preceding retirement, this provides a limited link between the pension definition and the contributory earnings over someone's career. It also provides more possibility for the abuses where employers and workers agree to declare higher insurable earnings in the years immediately preceding retirement so that a higher pension can be obtained. [6]

This is a problem caused by a lack of regular and systematic adjustments to account for inflation and not the pension formula (cf. section 4.1).

It is recommended that the possibility be considered of gradually extending the reference period. In order to ensure the level of pensions remains relevant and to save NIC's credibility as a social security institution, an extension to approximately ten years may be advisable at the start. Consideration may be given to the desirability and feasibility of later introducing an indexed career-average earnings pension formula. This later approach may not be so desirable if it is shown that nearly all income groups end up receiving a lower pension in the end – unless the primary objective of the NIC is to maintain a very low contribution rate (see below).

The proposed approach takes into account the actual insurable earnings upon which contributions were collected throughout someone's reference period in the past and re-valued to reflect their real value at the time of calculating the pension.

Most countries in Latin America and The Caribbean use a final-average earnings pension formula at present whilst most OECD countries, where national statistics databases are well developed, provide some form of average indexed career-earnings pensions. The extension of the reference period for past insurable earnings should be achieved over a gradual period to account for the lack of past time series on national average wage data. A gradual phasing-in of the extension would also diminish the potential impact of a sudden increase in the ceiling on reference earnings if occurring just before entitlement to a pension – given that the present problem of lack of indexation is not fixed (cf. Section 4.1). The extension of the reference period would require the establishment of an official national average wage statistic.

In most OECD countries, special provisions exist to account for the years during which a worker may receive lower earnings due to irregular employment (part-time and temporary

[6] It is also noted that ad hoc wage-ceiling increases that occur irregularly, as in the past, unfairly benefit some higher income earners who happen to retire immediately after such an ad hoc increase is enforced – as opposed to insured persons with a similar earnings profile who happen to retire before such an ad hoc increase in the wage-ceiling and hence obtain a lower lifetime pension when compared to the luckier ones.

work), spells of unemployment or childrearing. This means the worst years of annual earnings are taken out from the full set of annual earnings to calculate the indexed career average earnings for calculation of the pension.

4.2.3 Reviewing the schedule of pension accrual rates

The present pension formula in St. Lucia provides a higher income replacement rate for the first twelve years of insurance, the minimum required to qualify for an age pension, compared to the following years of credited service. This implies that an insured person retiring with a record of twelve years of service would receive a pension representing 40 per cent of his/her best five-year average insurable earnings, implying an annual pension accrual rate of $3^1/_3$ per cent on average. The insured person retiring with a record of $28^2/_3$ years or more of insurable service would receive a pension equivalent to 60 per cent of his/her best five-year average insurable earnings, implying an annual pension accrual rate of 2.1 per cent on average. For a 40-year career, the annual pension accrual rate would be 1.5 per cent.

Table 4.1 Benefit accrual rates per year of credited contributory service
(per cent of 5-year final-average-earnings)

Years of credited contributory service	Benefit accrual rate per year of credited contributory service
1-12	$3^1/_3$
13 and above	1.2

The present schedule of pension accrual rates favours careers with shorter service. As the NIC was only introduced in 1979, it provides a minimum income replacement protection for those who could only accumulate a limited number of years of insurable service. It satisfies the minimum standards of the ILO Convention No. 102 recommending, in broad terms, that a worker with a fifteen-year record should receive a pension equivalent to 40 per cent of his/her average insurable earnings.

Some countries – mostly found in OECD countries – use a flat benefit accrual rate for each year of credited service instead of a schedule of decreasing rates.

4.3 Survivors' benefits

Among the recent amendments made was a change to the age at which a widow or widower without dependent children must have attained to qualify for a lifetime Survivors' pension. This age was increased from 55 to pensionable age (61 in 2003-2004 but increasing to 65 in 2015). As a result, many surviving spouses may be left without any income because their advanced age and/or possible lack of skills preclude them from finding employment. Therefore, a review of the qualifying conditions and payment periods for Survivor pensions should also be made. According to Article 63 (2a) of C. 102, a reduced benefit has to be paid to the widow of a deceased member after five years of contributions or employment of this member. The benefit may, however, be made conditional on the widow being presumed to be incapable of self-support (Article 60 (1) of C. 102).

4.4 Employment injury benefits

St. Lucia is since 1980 legally bound by the Workmen's Compensation (Accidents) Convention, 1925 (No. 17), which prescribes amongst others that additional compensation is granted in cases where the injury results in incapacity of such a nature that the injured workman must have the constant help of another person (Article 9 of C. 17). Furthermore, Articles 9 and 10 of C. 17 prescribes that medical aid as well as necessary surgical and pharmaceutical aid, including the supply and renewal of artificial limbs and surgical appliances have to be granted to injured workers without the application of any ceiling to the amount of this aid. It is recommended, in order to fulfil these international obligations[7], to review the employment injury legislation in view of granting additional compensation in the above-mentioned case and removing the ceiling to the amount of the above-mentioned aid.

4.5 Grants versus pensions

A comparison between the number of pensions and grants awarded in the three-year period 2001 to 2003 is shown in Table 4.2 below. As may be noted, there were actually more Retirement grants awarded in the last three years than pensions with 36 per cent and 41 per cent of awarded Invalidity and Survivors' benefits being grants.

Table 4.2. NIC pension and grant awards, 2001 to 2003

Categories of beneficiaries	No. awards		Average grant	No. months of minimum pensions
	Pensions	Grants		
Retirement	674	684	1,869	9.3
Invalidity	136	78	2,205	11.0
Survivors'	158	112	2,264	11.3

For a system that uses contributions that date back 34 years, the award of more Retirement grants than pensions is likely a result of one or more of poor compliance, stringent qualifying conditions and irregular work patterns for many insured persons. An in depth analysis of the employment and contribution histories of persons awarded grants is suggested. With the gradual increase in the minimum contribution requirement for Retirement pension to 180 month (15 years), the gap between the number of Retirement grants awarded relative to Retirement pensions may widen.

The purpose of the NIC is to provide income security to those who are presumed to be in need. As shown above, the value of the grants being awarded does not provide such security. Therefore, to allow more persons to qualify for pensions without major increases in costs, consideration should be given to having the minimum qualifying condition for Retirement pension set at 120 months with a change in the benefit accrual pattern for pensions. Presently, the benefit rate after 12 years of contributions is 40 per cent, with an additional of 1 per cent for each extra year of contributions. If this minimum were reduced to 30 per cent or even 25 per cent after ten years – as found in Antigua – then smaller pensions may be paid to more persons without any major increase in overall benefit costs.

It is understood that consideration is currently being given to an approach for calculating Retirement pensions using wages over one's career. If this approach is adopted, then there will be a more gradual accrual of pension benefits than under the current formula.

[7] See also the observation of the ILO Committee of Experts on the Application of Conventions and Recommendations, 2002/73rd session

4.6 Retirement and invalidity grants

Regarding grants, there was also a concern raised among staff and insured persons in St. Lucia about the method used to calculate grants. Currently, the amount paid is the balance (if any) in the National Provident Fund at the date of commencement of the repealed *Act* (April 1979) with interest, plus 100 per cent of the employee's portion of contributions to the NIF without interest. As indicated in the previous section, the average lump-sum Retirement and Invalidity grants represented less than 12 months of pension payments.

While there is no internationally acceptable method for calculating grants, the payment of accrued employer and employee contributions with interest would be excessive given that administrative costs need to be covered; as well there may have been other benefit payments made to the claimant. On the other hand, excluding employer contributions altogether as well as interest on the insured's contributions appears stringent. Therefore, consideration should be given to an approach that produces a result in between these two extremes.

4.7 Public servants

Prior to February 2003, established, long-serving civil servants were not required to register with and contribute to the NIC and thus were also not entitled to any NIC benefits. Their exclusion was felt to be acceptable as they are entitled to a pension paid from the state consolidated fund and receive full pay when on sick or maternity leave. Along with the change in NIC coverage status for new public officers, newly appointed civil servants are not entitled to the government pension.

While the public service pension provisions are more than adequate for a long-serving officer, those who leave the service before qualifying for a pension or join at an advanced age and qualify for only a small pension, may not have sufficient years of service in the private sector to have qualified for an NIC pension. Therefore, the continued non-coverage of public officers who joined the service prior to February 2003 creates potential gaps in coverage for mobile employees. NIC and government provisions should be adjusted to allow portability of pension rights for mobile workers.

Apparently, several requests have been made by Government in past years for lump-sum transfers to be made to NIC so that contributions may be credited for the period of service with the Government. Thus far no such agreement or transfer of funds has taken place. While such a transfer of funds could achieve the ultimate objective of securing a larger pension in old age, there are other more comprehensive options that may be explored. Ideally, the preferred alternative should be one that incorporates all civil servants into the NIC, if only for the purpose of prospective entitlements. One such approach is to provide pensions to former civil servants based on the current defined-benefit approach but payable from two sources, i.e. the NIF and the state consolidated fund. Defined-benefit objectives would require that a certain benefit rate be paid based on the number of years of service. Once the total pension is calculated, NIC would determine what its obligation is and pay that amount, with the remainder coming from the state consolidated fund.

To ensure that all gaps in coverage for persons who move between the public and private sectors are adequately filled, Government should have a study conducted on alternative ways of providing adequate pensions and social security coverage for its current and new employees. An actuarial valuation and projections of the public service pension plan may also assist Government in its long-term financial planning as pensions to former employees will consume a growing part of revenue as the public service workforce ages.

4.8 Self-employed coverage

It is estimated that approximately 30 per cent of St. Lucia's workforce or some 18,000 persons are self-employed. For NIC, where self-employed participation is voluntary, fewer than 500 self-employed persons make contributions each year. While the attitudes of self-employed persons vary and the reasons for not contributing are many, the consequence of not securing higher participation by the self-employed will manifest itself in the future when a large percentage of the elderly population is left without a reliable source of income in old age. Therefore, to avoid high levels of poverty among the elderly and/or expensive government assistance programmes in the future, special initiatives are required to raise the level of coverage for both high- and low-income self-employed persons.

For the self-employed category, NIC should not only view compliance among the self-employed simply from the perspective of collecting contributions but also from that of "people and pensions". This implies that inspectors and public relations campaigns should focus on the advantages of being covered and the long-term consequences if not covered in a changing society where there will be fewer children able to personally support their parents. Additionally, a review of the contribution and benefit structure that presently exists for all workers – employed and self-employed – should be made, as the income patterns of self-employment are different from those of regular employment. Also, the record keeping and support that an employer provides is non-existent for many self-employed. Therefore, a structure that is more attractive and consistent with their types of employment is required.

To enhance coverage among the self-employed, making NIC coverage for the self-employed mandatory could be the first step as suggested in a separate ILO study. However, such a change may not increase participation significantly as experience in other regional countries attest. Therefore, the Board should also seek to:

– conduct extensive educational campaigns regarding the need for self-employed persons to contribute to the NIC and provide for their retirement,
– implement a simplified contribution system that is more consistent with the nature of self-employed persons and their income patterns and,
– amend benefit rules for self-employed so that the increased contribution flexibility provided does not create avenues for obtaining excessive benefits.

The ILO is preparing a report outlining ways of better providing immediate income support in the form of pensions to farmers and fishers as they constitute the majority not effectively covered by NIS as per the Law, namely through reinforced motivation to comply with the mandatory participation in the NIC for those who can afford it. With the suggestions made above regarding a simplified approach to contributions and a different way of calculating benefits for self-employed persons, the ILO once again supports the retention of the NIC's defined-benefit pension system for all workers instead of creating a separate defined-contribution system (provisional fund) for fishers and farmers.[8] The ILO, however, recommends that a study be made of the possible introduction of universal or social assistance pensions in the long run.

[8] ILO (forthcoming): *Report to the Government on extending pensions to farmers, fishers and ex-farmers of St. Lucia.*

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Appendix I: Summary of provisions of the NIC as of valuation date

Prior to the introduction of the National Insurance Corporation in 1979, a National Provident Fund had operated since 1970. Upon conversion to the new system, individual NPF balances were transferred as credited contribution months under the NIC. Such a simple conversion was possible because the 10 per cent NPF contribution rate was maintained.

Until January 2000, the *National Insurance Act*, *No. 10 of 1978* and the National Insurance Regulations of 1984 provided the statutory instruments of operation for the NIC. In January 2001, the *National Insurance Act*, *No. 18 of 2000* took effect and new National Insurance Regulations, No. 22 of 2003, were introduced in 2003.

The following summary provides a general overview of the key coverage, contribution and benefit provisions as of July 2003.

I.1 Benefits, coverage and financing

The St. Lucia National Insurance Corporation provides for the following benefits:

Long-term benefits:

Age/Retirement, Invalidity and Survivors'.

Short-term benefits:

Sickness, Maternity Allowance & Grant, Funeral Grant and Hospitalisation & Medical.

Employment injury benefits:

Injury, Disablement, Medical Expenses, Death and Funeral Grant.

Employed, self-employed and voluntary insured persons aged 16 to pensionable age (61 in 2003-2004 and increasing gradually to 65) are covered for the above contingencies as follows:

Employed persons:

All contingencies.

Self-employed persons:

All contingencies except Employment Injury Benefits.

Voluntary contributors:

Hospitalisation & Medical Benefit, Maternity Allowance & Grant, Funeral Grant and Age Benefit

Earnings used for determining contributions and benefits are limited to EC$5,000 per month. Earnings include basic salary and all other remuneration in cash or kind such as overtime, all allowances, commissions or profits on sales and service charges.

Table I.1 Increase in monthly ceiling on insurable wages since 1979

Period	EC$
1979-1984	700
1985-1990	1,000
1991-1992	2,500
1993-2000	3,000
2001 to present	5,000

Contributions are computed as a percentage of insurable earnings. The contribution rate for employed persons is 10 per cent – 5 per cent paid by the employee and 5 per cent by the employer. Self-employed and voluntarily-insured persons pay the full 10 per cent contribution rate.

I.2 Summary of benefits provisions

I.2.1. Long-term benefits

(a) Retirement pensions

Contribution requirement:

144 paid monthly contributions. The number of required contributions will increase to 180 as shown below:

- January 2003 – December 2005 144
- January 2006 – December 2008 156
- January 2009 – December 2011 168
- January 2012 and after 180

Age requirement:

Pensionable age in 2003-2004 is 61 but will be increasing to 65 as illustrated below. Early Retirement pensions are available from age 60 but only if the applicant is no longer gainfully employed.

- January 2003 – December 2005 61
- January 2006 – December 2008 62
- January 2009 – December 2011 63
- January 2012 – December 2014 64
- January 2015 and after 65

Amount of benefit:

40 per cent of average insurable earnings over the best 5 years, plus 0.1 per cent of average insurable earnings for each month paid or credited in excess of the minimum contributory requirement. For Early retirement pension, the amount calculated above is reduced by ½ per cent for each month below normal pensionable age.

Maximum pension:

60% of average insurable earnings over the best 5 years.

Minimum pension:

EC$200 per month. The minimum was last increased in 1999, having been at EC$125 from 1992 to 1998.

Average insurable earnings:

The average of the best five years of insurable earnings prior to the commencement of the pension, but where such average exceeds EC$36,000 then the EC$ average shall be computed as follows:

– January to December 2003	36,000 + 30% of excess over EC$36,000
– January to December 2004	36,000 + 40% of excess over EC$36,000
– January to December 2005	36,000 + 50% of excess over EC$36,000
– January to December 2006	36,000 + 60% of excess over EC$36,000
– January to December 2007	36,000 + 60% of excess over EC$36,000

(b) Retirement grants

Contribution requirement:

Less than the number of contribution months required for a Retirement pension illustrated above.

Eligibility:

Other than for the contribution requirement, applicant must be eligible for Retirement Pension.

Amount of benefit:

Balance (if any) in the National Provident Fund at the date of commencement of the repealed Act with interest to date pensionable age is attained, plus 100% of the employee's portion of contributions to the NIF without interest. This amount is paid as a lump sum.

(c) Invalidity pensions

Contribution requirement:

Not less than 60 monthly contributions with at least 36 consecutive monthly contributions in the 72 months immediately preceding the month of invalidity, or not less than the contribution requirement for Retirement pension.

Eligibility:

The applicant is:

- under pensionable age,
- no longer qualifies for Sickness Benefit,
- medically declared an invalid, other than as a result of an employment injury.

Amount of benefit:

If less than the (144 in 2003-2004) but more than 59 months paid, 35% of average insurable earnings. If more contributions than the minimum contribution requirement for Retirement pension have been paid, 40% of average insurable earnings plus 0.1% of average insurable earnings for each contribution month in excess of the minimum Retirement contribution requirement.

Minimum pension:

EC$200.00 per month.

Duration of pension:

As long as invalidity continues.

(d) Invalidity grants

Contribution requirement:

Less than 60 paid monthly contributions.

Eligibility:

Other than for the contribution requirement, the applicant must be eligible for Invalidity Benefit.

Amount of benefit:

Balance (if any) in the National Provident Fund at the date of commencement of the repealed Act with interest to date at which pensionable age is attained, plus 100% of the employee's portion of contributions to the NIF without interest. This amount is paid as a lump sum.

(e) Survivors' benefits

Contribution requirement:

The deceased, at time of death, was either receiving a Retirement or Invalidity pension, had made enough contributions to qualify for a Retirement or Invalidity pension, would have been eligible for a pension at the time of death.

Eligibility:

Widow or widower married for at least three years (includes common-law spouse), child(ren) under 16, 18 if in full-time education, invalid children of any age, and parents or grand parents of at least pensionable age if there are no other dependants.

Amount of benefit:

The proportion of the deceased spouse's pension entitlement paid or payable shown below:

- Widow or widower: 50%, 75% if no other dependants exist;
- Children: 50%;
- Parents: 50%.

Maximum benefit:

100% of the deceased person's entitlement at the time of death, or the Invalidity pension that would have been payable to the deceased person at the time of his/her death.

Duration of benefit:

- Widow or widower, pensionable age or over, at time of spouse's death, married for at least 3 years:
  - life pension
- Widow or widower, pensionable age or over, at time of spouse's death, married for at least 3 years and is invalid:
  - life pension or until the beneficiary is entitled to a larger Age pension in his/her own right.

- For a widow or widower under pensionable age who is invalid:
    - pension for as long as invalidity continues, or for life once pensionable age has been attained.
- For a widow or widower under pensionable age:
    - one year;
- For a widow or widower with eligible children:
    - until the children of the marriage cease to be dependant
- All pensions payable to widows or widowers shall cease upon remarriage or cohabitation with a person as his or her spouse.
- For children, up to their 16th birthday, or 18th birthday if in full-time education. If invalid, for as long as invalidity continues.

(e) Survivors' grants

Contribution requirement:

The deceased, at time of death, had made fewer than enough contributions to qualify for a Retirement or Invalidity pension.

Eligibility:

Other than for the contribution requirement of the deceased, the applicant must be eligible for survivors' pension.

Amount of benefit:

The proportion of the Invalidity or Retirement Grant payable as shown below:

- Widow or widower: 50%, 75% if no other dependants exist
- Children: 50%;
- Parents: 50%;

I.2.2. Short-term benefits

(a) Sickness benefits

Eligibility requirements:

The insured must be:

- rendered temporarily incapable of work as a result of specific disease, or physical or mental disability that is not employment-related, nor caused by habitual drug or alcohol use;
- paid contributions for at least 2 months in the 4 months preceding commencement of incapacity, and not less than 6 months since his or her registration.
- engaged in insurable employment immediately prior to the day on which incapacity commenced
- be under pensionable age and be absent from work.

Waiting period:

3 days. Two periods of illness separated by less than eight weeks are treated as one.

Amount of benefit:

65% of average insurable earnings in the last 4 months before the beginning of the period of incapacity. Sickness benefit is not payable during a period when the claimant receives full pay from his/her employer.

Duration of benefit:

Maximum of 6 months.

(b) Maternity benefits

Eligibility requirement:

The insured must:

– be in insurable employment prior to her claim for maternity allowance;
– have paid contributions for 7 months in the 10 months immediately preceding the month of expected confinement.

Amount of benefit:

65% of average insurable earnings during the 10 months immediately preceding the month before the month of expected confinement. Maternity benefit is not payable where the claimant receives full pay from her employer.

Duration of benefit:

3 months, starting with the month preceding the month of expected confinement, or if later, the month the benefit is claimed, but no later than the month of actual confinement.

(c) Maternity grants

Eligibility requirement:

– A woman or her husband has contributed for at least 7 months in the 10 months immediately preceding the month before the month of expected confinement. Husband includes a man cohabiting with the woman for a continuous period of at least 5 years.

Amount of grant:

EC$600. The Maternity Grant has increased on an ad hoc basis as follows, in EC$:

1979 – 1984	50.00
1984 – 1990	200.00
1990 – 1992	250.00
1992 – 2000	450.00
2001 – present	600.00

(d) Funeral grants

Eligibility:

The insured person, at the time of his/her death, or the death of a spouse or dependant child had either:

– made enough contributions to satisfy the contribution conditions for any benefit, excluding a grant or allowance, or
– paid at least 6 monthly contributions in the past 12 months preceding his/her death, or
– has paid total contributions of at least the amount of the grant.

Amount of grant:

EC$1,750 for the insured, EC$1,500 for a spouse. For dependant children the amount ranges based on age from EC$150 for a child under 2 to EC$1,500 for a child 11 and over. The funeral grant for the insured has been increased on an ad hoc basis as follows (in EC$):

1979 – 1984	200.00
1984 – 1990	600.00
1990 – 1992	1,200.00
1992 – 2000	1,500.00
2001 – present	1,750.00

(e) Hospitalisation and medical benefits

National Insurance contributors requiring hospitalisation and medical treatment at approved hospitals in St. Lucia will receive free treatment only if they meet the contribution conditions for Sickness Benefit. In return for providing medical services and supplies to insured persons, the NIC transfers to the Government of St. Lucia an agreed amount each quarter.

I.2.3. Employment injury benefits

(a) Injury benefits

Eligibility:

Incapable of work as a result of an accident or a prescribed disease arising out of insured employment, or as a result of an employment-related illness. There are no qualifying contribution requirements for Employment Injury benefits.

Amount of benefit:

65% of insurable earnings in the month in which the injury was sustained, or the average of the best 2 months in the 4 months of contributions before the month in which the injury was sustained.

Duration of benefit:

Maximum of 12 months or until the award of a permanent disability benefit, if earlier.

(b) Disablement benefits

Eligibility:

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

Amount of benefit:

The payment of a pension or a lump sum is based on the percentage loss of faculty suffered.

- If degree of disablement is less than 30%, a grant equal to the disablement benefit payable for a period of 60 months is paid.
- If degree of disablement is 30% or more, a monthly benefit of the injury benefit amount times the degree of disablement is paid.
- If a claimant assessed at less than 100% disablement enters any hospital for the purpose of receiving approved treatment or rehabilitation, the benefit shall be payable as if he/she had been assessed at 100% for the period of treatment.

(c) Death benefits

Eligibility:

Widow or widower married for at least 6 months (includes common-law spouse), child(ren) under 16, 18 if in full-time education, invalid children of any age, parents of at least pensionable age if there is no spouse or dependent children, and other relatives if no other dependants exists.

Amount of benefit:

The proportion of the Invalidity pension paid or payable shown below:

- Widow or widower: 50%, 75% if no other dependents exist;
- Children: 50%;
- Parents: 50%.

If no dependents exist, an amount may be payable to his/her creditors or estate. This sum shall not exceed the smaller of reasonable expenses for medical attendance of the deceased arising from the relevant accident and reasonable burial expenses, or 12 months of any pension the deceased would have been entitled to receive had he/she claimed.

Maximum benefit:

100% of the Invalidity pension that was or would have been payable to the deceased person at the time of his/her death.

Duration of benefit:

- Widow or widower: pension for life or until re-marriage or cohabitation with a person of the opposite sex as his or her spouse.
- For children: up to their 16th birthday, or 18th birthday if in full-time education or apprenticeship. If invalid, for as long as invalidity continues.
- For parents: for life or until circumstances change where the person would no longer have been dependant on the deceased persons had he/she survived.

(d) Medical expenses

Expenses covered:

"Reasonable" medical expenses for medical, surgical, dental and hospital treatment and the supply of medicines, as a result of an employment injury or prescribed disease, subject to a maximum of EC$20,000.

Appendix II: Methodology, data and assumptions

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

The actuarial valuation begins with a projection of St. Lucia' future demographic and economic environment. Next, projection factors specifically related to the NIC are determined and used in combination with the demographic/economic framework to estimate future cash flows and reserves. Assumption selection takes into account both recent experience and future expectations, with emphasis placed on long-term trends rather than giving undue weight to recent experience.

II.1 Modelling the demographic and economic developments

The general St. Lucia population has been projected beginning with totals obtained from the preliminary results of the 2001 national census and by applying appropriate mortality, fertility and migration assumptions. The total fertility rate is assumed to decrease from 2.0 in 2003 to 1.9 in 2021, remaining constant thereafter. Table AII.1 shows ultimate age-specific and total fertility rates.

Table AII.1. Age-specific and total fertility rate assumptions, 2003 – 2021

	2001	2002	2003
Total benefits (EC$ millions)	21.8	23.6	25.5
Pensions & grants (% of insurable earnings)			
Retirement	2.70	3.04	3.34
Invalidity	0.34	0.38	0.39
Survivors'	0.38	0.44	0.44
Disablement	0.01	0.01	0.01
Administrative expenses	1.04	1.01	1.07
Total	4.47	4.88	5.25

Mortality rates have been determined using the mortality patterns obtained from the *1999-2001 Barbados Life Table*. Life expectancy at birth in 2001 has been assumed at 72.5 and 77.9 for males and females, respectively. Improvements in life expectancy have been assumed to follow the "slow" rate as established by the United Nations. Sample mortality rates and life expectancies at birth and ages 60 and 65 for sample years are provided in Table AII.2.

Table AII.2. Mortality rates and life expectancy, 2003 - 2063

Age	Males			Females		
	2003	2033	2063	2003	2033	2063
0	0.0141	0.0095	0.0075	0.0106	0.0083	0.0065
5	0.0004	0.0002	0.0001	0.0002	0.0001	0.0001
15	0.0007	0.0004	0.0003	0.0003	0.0002	0.0002
25	0.0019	0.0011	0.0008	0.0009	0.0008	0.0007
35	0.0028	0.0018	0.0014	0.0014	0.0012	0.0010
45	0.0051	0.0035	0.0028	0.0023	0.0019	0.0016
55	0.0096	0.0072	0.0060	0.0049	0.0041	0.0034
65	0.0184	0.0147	0.0128	0.0097	0.0079	0.0064
75	0.0449	0.0383	0.0349	0.0272	0.0225	0.0186
85	0.1208	0.1104	0.1048	0.0832	0.0748	0.0673
95	0.2605	0.2534	0.2494	0.2157	0.2049	0.1947
Life Expectancy at:						
Birth	**72.5**	**76.0**	**77.7**	**77.9**	**81.2**	**83.0**
Age 60	**19.9**	**21.2**	**22.0**	**22.9**	**25.2**	**26.4**
Age 65	**16.3**	**17.4**	**18.0**	**19.1**	**21.1**	**23.8**

Net migration (in minus out) for each scenario is assumed to decline over the projection period at varying rates and reaching a different ultimate level. The following table shows the age distribution of net migration for the first projection year 2001 and 2021. Age-specific rates for other years may be obtained by using the same proportions, as applicable for the years shown below.

Table A.II.3. Net immigration, 2001 - 2061

Age Group	2001		2021		2041		2061	
	Male	Female	Male	Female	Male	Female	Male	Female
0 - 9	(16)	(17)	(12)	(13)	(6)	(6)	-	-
10 - 19	(13)	(19)	(10)	(14)	(5)	(7)	-	-
20 - 29	(84)	(103)	(63)	(78)	(31)	(39)	-	-
30 - 39	(55)	(52)	(41)	(39)	(21)	(20)	-	-
40 - 49	(18)	(13)	(14)	(10)	(7)	(5)	-	-
50 - 59	(5)	(3)	(4)	(2)	(2)	(1)	-	-
60 - 69	(1)	(1)	(1)	(0)	(0)	(0)	-	-
70+	(0)	(0)	(0)	(0)	(0)	(0)	-	-
All Ages	**(192)**	**(208)**	**(144)**	**(156)**	**(72)**	**(78)**	**-**	**-**

The projection of the labour force, i.e. the number of people available for work, is obtained by applying assumed labour force participation rates to the projected number of persons in the total population. Between 2001 and 2062, age-specific labour force participation rates are assumed to increase at advanced ages for males and females. Table AII.4 below shows the assumed age-specific labour force participation rates in 2002 and 2063. Between these two years, rates are assumed to change linearly.

Table AII.4. Projected age-specific and total labour force participation rates, 2002 - 2063

Age	Males 2003	Males 2063	Females 2002	Females 2062
17	38%	38%	37%	38%
22	92%	92%	84%	88%
27	94%	94%	84%	88%
32	95%	95%	84%	88%
37	96%	96%	83%	87%
42	96%	96%	80%	83%
47	95%	96%	74%	80%
52	89%	95%	66%	74%
57	78%	89%	55%	66%
62	63%	78%	42%	55%

Year	Males	Females
2003	80%	67%
2013	82%	69%
2023	83%	70%
2033	83%	69%
2043	83%	69%
2053	83%	70%
2063	84%	71%

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

Estimates of increases in total wages as well as the average wage earned are required. Annual average real-wage increases are assumed equal to the increase in labour productivity as it is expected that wages will adjust to efficiency levels over time. Such increases are assumed to be gradual over the projection period from ½ per cent to 1.5 per cent. The inflation assumption affects nominal average wage increases.

II.2 Projection approach of NIF income and expenditure

This actuarial review addresses all NIC revenue and expenditure items. For the Short-term and Employment Injury Benefits Branches, income and expenditure are projected as a percentage of insurable earnings. For the Long-term Benefits Branch, projections of pensions are performed following a year-by-year cohort methodology. For each year up to 2063, the number of contributors and pensioners, and the EC dollar value of contributions, benefits and administrative expenditure, is estimated.

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

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

II.3 NIC database as of valuation date and scheme-specific assumptions

The data required for the valuation of the National Insurance Fund is extensive. As of 30 June 2003, required data includes the insured population by active and inactive status, the distribution of insurable wages among contributors, the distribution of paid and credited contributions and pensions-in-payment, all segregated by age and sex.

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

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

Details of NIC-specific input data and the key assumptions used in this report are provided in tables AII.5 through AII.10.

Table AII.5. Projected NIC coverage rates, 2003 - 2063 (active insured persons as % of employed population)

Age	Males		Females	
	2003	2063	2003	2063
17	65%	78%	58%	72%
22	69%	82%	87%	109%
27	66%	79%	82%	102%
32	56%	67%	77%	96%
37	52%	63%	70%	87%
42	47%	56%	65%	82%
47	44%	53%	68%	85%
52	46%	55%	57%	72%
57	52%	62%	54%	67%
62	34%	41%	45%	56%

Year	Males	Females
2003	53%	70%
2013	55%	73%
2023	54%	73%
2033	55%	74%
2043	56%	76%
2053	56%	77%
2063	58%	80%

Table AII.6. Active insured population, earnings and past credits as of valuation date (2003)

Age	# of Active Insureds		Average Monthly Insurable Earnings		Average # of Years of Past Credits	
	Male	Female	Male	Female	Male	Female
15 - 19	1,104	998	673	615	0.7	0.6
20 - 24	3,536	3,673	1,213	1,097	2.5	2.3
25 - 29	3,309	3,685	1,609	1,362	5.5	5.2
30 - 34	2,826	3,178	1,886	1,374	8.3	8.0
35 - 39	2,605	2,994	1,912	1,387	10.2	9.9
40 - 44	2,102	2,246	1,960	1,410	13.0	11.9
45 - 49	1,524	1,554	2,005	1,367	15.0	13.9
50 - 54	1,146	993	2,034	1,397	16.6	17.0
55 - 59	841	648	1,824	1,137	16.1	16.9
60 - 64	253	177	1,564	1,227	15.7	15.6
All Ages	**19,247**	**20,145**	**1,670**	**1,282**	**8.5**	**8.0**

Table AII.7. Pensions-in-payment as of valuation date (June 2003)

Age	Retirement Pension		Invalidity Pension		Survivors Pensions		Disablement Pension	
	Male	Female	Male	Female	Male	Female	Male	Female
0 - 4	-	-	-	-	6	10	-	-
5 - 9	-	-	-	-	19	55	-	-
10 - 14	-	-	-	-	93	108	-	-
15 - 19	-	-	-	-	59	67	-	-
20 - 24	-	-	-	-	1	4	-	-
25 - 29	-	-	-	1	-	1	-	-
30 - 34	-	-	-	-	-	3	1	-
35 - 39	-	-	4	4	4	18	1	-
40 - 44	-	-	7	4	1	14	-	-
45 - 49	-	-	15	18	4	21	-	-
50 - 54	-	-	38	16	-	13	-	-
55 - 59	-	-	45	48	6	33	-	-
60 - 64	432	293	33	15	5	42	1	-
65 - 69	495	354	13	8	6	51	1	-
70 - 74	368	217	4	5	5	52	-	-
75 - 79	206	123	2	-	4	38	-	-
80 - 84	20	25	-	-	3	20	-	-
85 - 89	2	1	-	-	-	-	-	-
90 - 94	-	-	-	-	-	-	-	-
95 - 99	-	-	-	-	-	-	-	-
# of Pensioners	**1,523**	**1,013**	**161**	**119**	**216**	**550**	**4**	**-**
Avg Monthly Pension	**$ 663**	**432**	**$ 742**	**$ 444**	**$ 164**	**$ 251**	**$ 470**	**$ -**

The following table shows assumed density factors, or the average portion of the year for which contributions are made for non-civil servants.

Table AII.8. Density of contributions [1] (as percentage)

Age	Males	Females
17	52	49
22	70	73
27	76	78
32	77	80
37	79	83
42	80	85
47	80	86
52	82	86
57	83	90

[1] Calculated as average number of monthly contributions divided by 12.

The following table shows the expected incidence rates of insured persons qualifying for Invalidity benefits.

Table AII.9. Rates of entry into invalidity (per thousand active-insured persons)

Age	Males	Females
17	-	-
22	-	-
27	0.022	0.040
32	0.090	0.160
37	0.317	0.195
42	0.294	0.403
47	2.466	2.668
52	5.352	4.425
57	9.359	16.500

Table AII.10, shows the assumed probability of Survivor benefit claims and the average ages of new claimants, groups by the age of the deceased.

Table AII.10. Probability of a deceased having eligible survivors and their average ages

Age	Males		Females	
	Probability of Eligible Spouse	Avg # of Eligible Children	Probability of Eligible Spouse	Avg # of Eligible Children
17	0%	-	0%	-
22	0%	0.0	0%	0.1
27	0%	0.1	0%	0.3
32	41%	0.5	21%	0.7
37	38%	0.9	19%	1.4
42	38%	1.4	19%	1.3
47	25%	1.3	13%	1.2
52	25%	0.8	13%	0.9
57	25%	0.5	13%	0.2
62	38%	0.6	13%	0.1
67	38%	0.2	0%	-
72	38%	0.2	0%	-
77	38%	0.2	0%	-
82	0%	0.1	0%	-
87	0%	0.0	0%	-

Appendix III: Benefit experience and branch analysis

The National Insurance Corporation (NIC) administers three major types of benefits – long-term or pensions, short-term and employment injury. While the projections presented in Section 3 combined all NIC benefit expenditure, internal accounting procedures separate them into two branches – one for pensions and the other non-pension benefits. This allows for better monitoring of experience and separate financing methods as each benefit type has different characteristics and funding objectives. Each branch is also expected to meet its expenditure from its income and accumulated reserves.

III.1 Long-term Benefits Branch

The Long-term Benefits (LTB) Branch presently receives the largest share of contribution income, 83 per cent, equivalent to 8.3 per cent of insurable wages. Benefits payable from this branch are Retirement, Invalidity, Survivors', Disablement and Death pensions and grants. Approximately 75 per cent of NIC benefit expenditure relates to this branch, since most pensions are payable for life. As a result, LTB branch expenditure will continue to increase as more pensioners with larger pensions are added.

At 30 June 2003, LTB branch reserves stood at EC$718.6 million or 26.6 times expenditure in 2002-2003. (The amount of reserves relative to annual expenditure is a useful measure of how well benefits are funded.)

Expenditure for the four benefit types under the LTB Branch for financial years ended 2001 to 2003 (expressed as a percentage of insurable wages) along with administrative expenditure is shown in Table III.1. (See Appendix IV.)

Table III.1. Long-term Benefits Branch expenditure - % of insurable wages, 2001 - 2003

	2001	2002	2003
Total benefits (EC$ millions)	21.8	23.6	25.5
Pensions & grants (% of insurable earnings)			
Retirement	2.70	3.04	3.34
Invalidity	0.34	0.38	0.39
Survivors'	0.38	0.44	0.44
Disablement	0.01	0.01	0.01
Administrative expenses	1.04	1.01	1.07
Total	4.47	4.88	5.25

As shown, LTB branch expenditure increased each year but remains well below the 8.3 per cent of insurable earnings allocated in contributions.

The following table highlights pension activity between year-ends 2001 and 2003. With the exception of Disablement pensions for which there were no movements, the number of pensioners in payment increased while the average pension amount increased for Retirement and Survivors' pensions but decreased for Invalidity pensions.

Table III.2. **Pensions- in-payment, awarded and terminated, 2001 - 2003**

	Paid in June 2000	Awarded 2000 - 2003	Terminated 2000 - 2003	Paid in June 2003	Average monthly pension (EC$)	
					June 2000	June 2003
Old-age	2,030	674	163	2,541	524	571
Invalidity	192	136	48	280	631	615
Survivors'	542	239	195	586	209	252
Disablement	5	-	-	5	432	432

Details of long-term projections of both the number of pensioners and expenditure are presented in Section 3. Given the long-term nature of pension benefits, expenditure will continue to increase, eventually surpassing income if the contribution rate is not changed. Since it is expected that the STB branch will hold only small reserves, if the LTB Branch becomes exhausted, depletion of the entire National Insurance Fund would follow shortly thereafter. Therefore, future contribution rate increases will be required, with most of the increased revenue allocated to the LTB Branch.

III.2 Short-term Benefits Branch

Unlike the LTB Branch, the STB Branch is financed on a PAYG basis. That is, current income is expected to meet current expenditure, with only a small reserve required to cover fluctuations in income and/or expenditure. Over time, the cost of benefits in this branch is not expected to increase significantly, and if it does, small adjustments to the allocation of contribution income between branches may be made.

Analysis of the STB Branch is limited to determining whether or not the present portion of contribution income allocated is sufficient to meet projected payouts until the next actuarial review. By comparing total branch expenditure in recent years as a percentage of insurable earnings to the proportion of insurable wages allocated to that branch, the adequacy of the present allocation is assessed. If the percentage of contribution and investment income allocated is expected to meet the projected cost of benefits for the next five years, the allocation rate is considered adequate.

The benefits covered under the STB Branch are Sickness, Maternity Allowance (benefit and grant), Injury, Funeral grant, Confinement Fees and contributions under the Medical Health Programme. Each year, 17 per cent of contribution income (equivalent to 1.7 per cent of insurable wages) and investment income on Branch reserves are allocated to this branch. Costs for the benefits listed above and a portion of administrative expenditure are charged to the STB Branch. On 30 June 2003, Branch reserves stood at EC$18.1 million, or 2.2 times branch expenditure in 2002/03.

A summary of STB Branch experience for financial years 2001 to 2003 is provided in Tables III.2 through III.7.

Table III.3. Sickness benefit experience, 2001 - 2003

Year-end	# claims awarded per 1,000 insured persons	Average benefit duration (days)	Average weekly benefit (EC$)	Cost as % of insurable wages
2001	108	8.9	213	0.27
2002	117	8.5	230	0.30
2003	107	9.4	226	0.29

Table III.4. Maternity allowance experience, 2001 - 2003

Year	# births	# benefits awarded	# grants awarded	Cost as % of insurable wages
2001	2,788	909	1,059	0.46
2002	2,529	788	914	0.44
2003	2,483	792	890	0.42

Note: # births shown are for the calendar year.

Table III.5. Maternity benefit experience, 2001 - 2003

Year-end	# claims awarded per 1,000 insured persons	Average benefit duration (days)	Average weekly benefit (EC$)	Cost as % of insurable wages
2001	21	77	176	0.37
2002	18.	76	203	0.36
2003	18	77	197	0.35

Table III.6. Injury benefit experience, 2001 - 2003

Year-end	# claims awarded per 1,000 insured persons	Average benefit duration (days)	Average weekly benefit (EC$)	Cost as % of insurable wages
2001	3.2	22	185	0.02
2002	3.0	27	222	0.02
2003	2.1	13	286	0.01

Table III.7 Funeral grant experience, 2001 - 2003

Year	# deaths	# grants awarded	Cost as % of insurable wages
2001	998	150	0.05
2002	957	162	0.06
2003	1,049	142	0.05

Note: # deaths indicated are for the calendar year.

Table III.8. Administrative and total expenditure – STB Branch, 2001 - 2003

Year	As % of insurable wages		
	Medical Health Programme	Administrative expenses	Total Branch expenditure
2001	0.58	0.27	1.66
2002	0.60	0.26	1.68
2003	0.58	0.26	1.62

With an allocation of 1.7 per cent of insurable earnings plus investment returns, the STB Branch incurred small surpluses each year. Estimates of STB Branch annual expenditure for the next three years are shown in Table III.8.

Table III.9. Projected STB Branch costs

Benefit /expense	As % of insurable wages
Sickness benefit	0.30
Maternity allowance & grant	0.40
Funeral grant	0.05
Injury benefit	0.02
Medical Health Programme	0.60
Administrative expenses	0.28
Total	1.65

As at June 2003, the STB branch had reserves of 2.2 times annual expenditure, which is just slightly above recommended levels. With expenditure for the next few years expected to be just less than the contribution allocation of 1.7 per cent of insurable wages, no change in allocation rates or transfer of reserves is being recommended at this time.

Appendix IV: NIC income, expenditure and reserves, 2001 – 2003

	2001	2002	2003
Income	**90,642,271**	**83,282,649**	**94,216,914**
Contribution	51,541,398	50,386,607	51,597,616
Investment	36,771,826	29,650,488	40,378,485
Other	2,329,047	3,245,554	2,240,813
Expenditure	**31,641,341**	**33,012,280**	**35,386,912**
Benefits			
Sickness	1,399,604	1,491,407	1,490,847
Maternity allowances & grants	2,395,780	2,222,342	2,189,542
Confinement fees (birth)	34,872	34,320	25,250
Employment injury	80,423	117,176	51,201
Funeral grants	248,000	279,962	244,950
Retirement pensions & grants	13,895,504	15,330,372	17,207,879
Invalidity pensions & grants	1,775,237	1,890,310	2,026,890
Survivors' pensions & grants	1,963,318	2,206,580	2,252,119
Disablement pensions & grants	53,270	65,920	30,941
Medical health Programme allocation	3,000,000	3,000,000	3,000,000
Administrative expenses	6,795,333	6,373,891	6,867,293
Excess of income over expenditure	59,000,930	50,270,369	58,830,002
Fair value adjustment on adoption of IAS 40		**33,529,417**	
Reserve at year-end	**627,620,063**	**677,890,430**	**736,720,432**
Short-term Benefits Branch	15,198,611	16,344,844	18,117,142
Long-term Benefits Branch	612,421,450	661,545,586	718,603,290