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Trinidad and Tobago

Report to the Government

Seventh Actuarial Review of the National Insurance System as of 30 June 2005

International Financial and Actuarial Service
Social Security Department
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Abbreviations and acronyms

AIDS	Acquired Immune Deficiency Syndrome
IAS	International Accounting Standards
CSO	Central Statistics Office
EIB	Employment Injury Benefits
GAP	General Average Premium
GDP	Gross Domestic Product
HIV	Human Immunodeficiency Virus
ICE	Indexed Career Earnings
ILO	International Labour Office/Organisation
ILO/FACTS	International Financial and Actuarial Service of the ILO
LTB	Long-term Benefits
NIF	National Insurance Fund
NIS	National Insurance System
NIBTT	National Insurance Board of Trinidad and Tobago
OAP	Old-age Pension
PAYG	Pay-as-you-go
PV	Present value
STB	Short-term benefits
TFR	Total fertility rate
TT$	Trinidad and Tobago Dollar

Exchange rate

As of 30 June 2005:	US$1 = TT$6.00

Executive summary

This is a summary of the main findings and recommendations of the Seventh Actuarial Review of the NIS as of 30 June 2005 undertaken by the International Labour Office, in accordance with section 70 of the National Insurance Act.

Highlights of the Seventh Actuarial Review

Past performance review

Following the recommendations of the Sixth Actuarial Review (2000)[1], a number of improvements to benefit provisions were adopted and the contribution rate was increased from 8.4 per cent to 9.9 per cent in three unequal steps in January of each year from 2004 to 2006. The most important reforms were the introduction of a minimum retirement pension and the increase of the pension accrual rate granted in respect of contribution periods beyond 750 weeks.

Solid economic performance is likely explaining why the number of contributors has increased more than expected, as has the number of benefit recipients. The implementation of the minimum retirement pension appears to have generated unexpected claims.

The two key findings of the financial analysis of NIBTT performance since the Sixth Actuarial Review include the following:

- Over the five-year period between the Sixth and Seventh Actuarial Reviews, the observed net annual cash flows fall short of that forecasted by approximately TT$60 million. This observed deviation represents in the end only a relatively low 1.3 per cent of revenues or 3.4 per cent of expenditures for the five-year period.

- 'Unrealized gains on assets' have fluctuated significantly during the inter-valuation period from 2000/01 to 2004/05. At the valuation date of 30 June 2005, they represented a positive impact on NIBTT reserves such that they generated a favourable surplus deviation of TT$2 billion in comparison to the forecast made as of 30 June 2000. This surplus in assets appears in the "Revaluation reserve" of the NIBTT that is considered to be fairly volatile given its nature.

Overall, the financial situation at 30 June 2005 is considered nearly equivalent to the forecast of 30 June 2000.

Actuarial projections

The "base scenario" under the present actuarial review is based on a series of assumptions and the NIBTT database as well as its benefit and financing provisions as of 30 June 2005 with one important adjustment to account for the lack of precision in the legal provisions as to the basis for indexation of benefits and other financial parameters such as the ceiling and classes of insurable earnings. The NIBTT and ILO agreed on the indexation basis for the base scenario such that the minimum pension will be increased from TT$1,000 to

[1] Report by the Government Actuary's Department on the Review of the National Insurance System of Trinidad and Tobago as of 30 June 2000, London, UK.

TT$2,000[2] and the ceiling on insurable earnings will be fixed at two times the average salary as of January 2008. This scenario represents the preference of the NIBTT in spite of the ILO recommendation of a different approach to indexation as mentioned later in this report (see recommendation number 3.c below).

The recent years of sustained economic growth have affected the medium-term perspectives of the present actuarial review. They can be considered relatively optimistic. In view of the inevitable inflationary pressures that create a certain degree of economic uncertainty, especially in the short-term, the macro-economic projection framework had to be set for the projections of the present actuarial valuation despite possible erratic developments of key economic variables that could occur during the next five years. In this respect, care must be exercised when interpreting the results of the present actuarial review as the focus should remain on long-term trends rather than on a forecast of short-term expectations. Regular monitoring of NIBTT experience is key, especially for the Long-term Benefits Branch (LTBB), and requires strengthening NIBTT in-house actuarial expertise.

The database adopted as of 30 June 2005 has been provided by the NIBTT and verified by the ILO Senior Actuary. It is considered acceptable to fit the requirements of the projection model used for the present actuarial valuation.

Under the base scenario, the highlights of the financial projections are as follows in the event where actual experience in future would be in line with the assumptions presented under the "base scenario":

- For the next two decades, the pay-as-you-go (PAYG) cost of the system in terms of insurable earnings is expected to increase very slowly. This slow progression is explained by the delayed impact of the measure, adopted in 1999, for the revaluing of career earnings for the purpose of calculating pensions. The full impact will only be felt after 20 years.

- Over the same 20-year period, the impact of population ageing builds up. Given the low fertility rate and the increasing longevity of the general population, the number of working-age persons per pension-age person will decline from 9.3 to 2.3 over the projection period of 50 years. At the same time, the number of NIBTT retirement pensioners will triple while the number of contributors is expected to slightly decrease.

- Due to the combined effect of the above-mentioned demographic factors and the delayed effect of the indexing of career earnings 20 years from now, the benefits-to-earnings ratio is expected to begin increasing more steeply starting around 2035 and the PAYG cost is projected to double from 15 per cent to 30 per cent of insurable earnings between then and 2055. This trend impacts most significantly on the Long-term Benefits Branch. During the projection period to 2055, the benefits-to-earnings ratio of both the Short-term Benefits Branch and Employment Injury Branch ranges between 1 to 2 per cent only.

- If the level of the contribution rate is maintained at its current level of 9.9 per cent of insurable earnings, contribution income of the NIBTT will be sufficient under the base scenario to meet expenditures until 2008/09 and again in the years 2012/13 (due to the planned increase of the ceiling of insurable earnings) to 2019/20. Thereafter, part of annual investment income will be required to meet the excess of

[2] The minimum retirement pension would vary linearly from TT$2,000 to TT$2,500 in line with the class of earnings used for the calculation of the pension.

annual expenditure over annual contribution income such that the reserve will increase at a slower pace. The reserve funds are expected to begin decreasing in 2037/38 such that by 2045/46 they could be fully depleted.

- According to sensitivity tests, the financial balance is significantly more vulnerable to economic than demographic factors. In particular, the reserve funds accumulation is subject to significant fluctuations that arise from volatility of investment yields irrespective of the capacity to generate the expected average yield over a long period. Timing of fluctuations in the investment yield would potentially have a significant impact on the accumulation of the reserve funds.

Obviously, the projected depletion of the NIBTT reserve fund under the base scenario will unlikely occur as the NIBTT authorities will surely adopt corrective measures in time to prevent such an unfavourable situation.

Corrective measures relying on the increase of the contribution rate are unlikely to be much feasible beyond a certain level. This observation is made in reference to the experience of a number of countries of relevance to Trinidad and Tobago where ageing is considered to have reached its full impact and where it is often found to be difficult to increase contribution rates for social security benefit schemes much beyond 20 per cent of insurable earnings. This foreign experience is worthwhile considering in view of the projected long-term PAYG cost rate of the NIBTT (see Table 3.2 under Chapter 3). A PAYG rate of around 30 per cent of insurable earnings would require maintaining assets that generate steady investment income equivalent to 10 per cent of insurable earnings, leaving 20 per cent to be financed from contributions. Under the assumption of a long-term investment yield of 7 per cent, this would require a reserve fund equal to approximately 1.4 times insurable earnings. In this context, the present level of the NIBTT reserve would be insufficient. There is little empirical evidence available in mature social security schemes to assess the probability of success of such a funding strategy.

The report presents the results under an alternative scenario whereby the contribution rate could be increased in three stages, each being implemented at 15-year intervals starting in 2010/11. In the last stage covering the period from 2040/41 to 2054/55, the contribution rate would reach 23.9 per cent of insurable earnings.

Corrective measures on the benefit expenditure side include the increase of the effective retirement age, which is significantly lower than the normal retirement age of 65. This is an issue that needs to be addressed sooner than later. Indeed, while the law stipulates a normal retirement age of 65, a full pension can effectively be paid at age 60. This is early by international standards, especially compared to high-income countries.

As far as recommended improvements to the level of benefit protection are concerned, the report analyses the financial impact of modifications to benefits that have been submitted to NIBTT by the stakeholders. Whilst their relevance varies considerably from one to another, the recommendations of this report focus only on the most desirable ones.

The impact of adjusting upward all pensions-in-payment as of 30 June 2005 to account for price inflation observed from 2000 to 2005 has been modelled. The required adjustment to compensate for the loss in purchasing power due to inflation from 2000 to 2005 should be approximately 25 per cent. In addition, projection results are presented for the case where classes of earnings are similarly adjusted in line with price inflation and more classes of earnings are introduced with the aim of the ceiling on insurable earnings being at a level that would match the goal of the NIBTT to protect workers' earnings up to a level equivalent to two-times the national average wage.

Recommendations

In general terms, the recommendations focus on the need to revisit the social security income replacement objectives of the national social protection system and subsequently the means to achieve better harmonization of the policies and operations between the NIBTT pension system and the Old-Age Pension programme to avoid inequities and distortions. NIBTT could ensure that the respective roles of the national insurance system and the social assistance programme to the old are well understood by all parties through a consultative process with tripartite constituents. A clear policy on the income redistribution role of the NIBTT could be agreed on so as to arrive at a balanced benefit design that redistributes income through the minimum pension on the one hand, and that encourages workers to continue contributing through the earnings-related feature of the pension formula on the other hand. In addition, the policy could revisit up to what level of individual earnings the national insurance system could replace insurable earnings. It seems that the scheme should be redesigned so as to ensure that both the objectives of poverty alleviation, income replacement and incentives to contribute are maintained for all classes of earners. Such a policy could be developed bearing in mind the contributory capacity of employers and workers as well as the long-term financial sustainability of the scheme that could not be endangered.

Although Trinidad and Tobago 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 ILO Convention No. 102 of 1952 on Minimum Standards of Social Security which still reflects generally accepted principles of social security at the international level.

The main recommendations of this report are as follows:

(1) **Pensions-in-payment: Indexation for past inflation.** Pensions-in-payment as of 30 June 2005 should be adjusted in line with price inflation that is observed to have amounted to 25 per cent since the Sixth Actuarial Review (2000). Recommended tables are shown in Appendix IV.

(2) **Earnings classes: Indexation for past inflation and review of the system**

a) Given the existing system of earnings classes is maintained, limits defining earnings classes should be increased in line with price inflation. These adjustments should be applied as of January 2008.

b) The number of earnings classes should be increased from 12 to 16 to ensure that earnings of at least twice the national average wage are covered. This measure could be applied as of January 2008.

c) Given the capacity of computer facilities now available, there is no administrative reason justifying the maintenance of the present earnings class system. NIBTT should undertake a feasibility study to move to a system based on the exact wages of workers to determine their eligibility and benefit entitlements.

(3) **Minimum retirement pension: Adjustment for past inflation and other improvements**

a) The ILO recommends the increase of the level of the minimum retirement pension to TT$1,500 to be applicable only to the basic part of the retirement pension. The projected long-term financial impact of this immediate measure

appear limited as NIBTT reserves would be depleted only two years earlier than under the base scenario, i.e. around year 2043/44.[3] The contribution rate should be increased to account for the financial impact resulting from this adjustment. This recommendation should be read with the recommendation to consider the need of further long-term increases to the contribution rate, as presented below.

b) The provision of the minimum pension as presently envisaged substantially diminishes the earnings-related nature of the NIBTT scheme for at least the next decade if nothing is done such that it almost turns the system into a flat benefit system for retirement pensions. This inevitably negatively affects the credibility of the public pension system among the general public.

c) It is understood that the minimum retirement pension will apply to fewer and fewer new retirement pensioners as a result of the application of the measure to revalue career wages will mature. In the short term, the ILO recommends considering an alternative to the minimum pension provision as modelled under the base scenario – it assumes an increase from TT$1,000 to TT$2,000, as per NIBTT request - which would mean applying a minimum pension to the basic part of the pension only.

(4) **Introduction of an automatic indexation mechanism.** The current practice for the adjustment of benefits-in-payment and the ceiling on insurable earnings follows an ad hoc basis adopted every five years or so. It does not respond to the needs of benefit recipients and they see the purchasing power of their benefits decreasing over time. It is recommended that all NIBTT financial parameters governing benefit and financing provisions should in future be adjusted every year as well as on a basis that refers to an easily identifiable public index that at a minimum takes account of price inflation. The ceiling on insurable earnings could be adjusted according to a wage index. The Central Statistical Office could ensure that proper statistical data on earnings are published.

(5) **Increasing the contribution rate in the near future.** Subject to adoption of the ILO recommendation to increase the minimum pension, it is recommended to increase the contribution rate to 11.4 per cent of insurable earnings. Such an increase should be implemented in January 2008. The corresponding rate under implementation of the minimum retirement pension of the base scenario would be 10.8 cent.

(6) **Ensuring long-term financial equilibrium.** In the mid-term, due to population ageing, pressure on the cost of long-term benefits is unavoidable. As the PAYG cost rate at the end of the projection period in 2055 or so may be considered unsustainable at a level near 30 per cent of insurable earnings, it is recommended that a strategy be elaborated to adopt reforms – either by way of increasing contribution income and/or reducing benefit promises – in order that the long-term financial sustainability of the NIBTT be ensured. Particular attention should be given to the development of a strategy to gradually increase the contribution rate over the next three decades whilst favouring the increase of the retirement age from 60 to 65 over time in small increments.

(7) **NIBTT proposals to improve long-term benefits**. The ILO recommendations here consist more into observations on the envisaged parametric reforms by the NIBTT

[3] It is recalled the base scenario used as an indexation basis following an NIBTT request to increase the minimum pension from TT$1,000 to TT$2,000 by January 2008.

whose financial impact has been assessed in the context of the present review whilst more detailed comments can be found in Section 4.1.1:

a) The NIBTT proposals to increase the minimum retirement grant and the minimum survivors' pensions to widow(er)s and parents are considered desirable subject to appropriate funding.

b) The NIBTT proposals to modify the earnings basis for the calculation of retirement, invalidity and survivors' pensions and to eligibility conditions are not recommended in a piecemeal manner. This should be analysed in the broader context of a reform of the pension formula.

c) The NIBTT proposals to change eligibility requirements for survivors' benefits and the link between invalidity and retirement are not recommended.

(8) **Improving benefit protection in case of sickness, maternity and employment injury**

a) Eligibility provisions for sickness and maternity benefits require that ten weekly contributions be accumulated in the 13 weeks preceding occurrence. These should be reviewed to improve the proportion of eligible persons while avoiding risks of abuse. An analysis of the profiles of workers who have been denied rights on eligibility grounds should be undertaken to identify the provisions that would satisfy the needs of workers at reasonable cost.

b) An insured person suffering a work injury can have access to benefits by virtue of work legislation in addition to those paid by the NIBTT. NIBTT should seek to harmonize its legislation so as to avoid risk of abuse or overcompensation.

c) The objectives of income replacement at retirement age for disability pensioners due to work-related injury should be clarified. An injured worker should not be penalized at retirement age because of loss of earning capacity due to a work accident.

d) At the request of NIBTT, this actuarial valuation analyses the financial impact of certain changes to sickness, maternity and employment injury benefits (Sections 4.1.2 and 4.1.3). Increase of the maternity grant from TT$4,000 to TT$5,000, use of the father's contribution records to determine eligibility to maternity grants and doubling the maternity grant in case of multiple births and reimbursement of magnetic resonance imaging examinations to injured workers are considered desirable improvements that should be implemented subject to appropriate funding. Payment of full salary for injury allowance benefit is not recommended.

(9) **Improving funeral grants.** At the request of NIBTT, this actuarial valuation analyzes the financial impact of certain changes to funeral grants. An increase from TT$4,000 to TT$5,000 and the awarding of a funeral grant not higher than TT$2,500 at death of insured's spouse and child are considered desirable improvements that should be implemented subject to appropriate funding.

(10) **Administrative expenditure**. Section 22 of the National Insurance Act stipulates that administrative expenditure should not exceed the actuary's recommendations made during periodic reviews of NIS.

a) Actuaries can provide significant advice in all aspects of social security schemes. However, in the matter of administrative expenditures especially when the administering entity has reached a certain stage of maturity, it is questionable

whether the Actuary's opinion should be given precedence over the combined efforts of budget people and the governing body of a social security institution. Thus, it is recommended that the appropriateness of Section 22 of the National Insurance Act be reviewed. It is noted that an administrative review of the NIBTT is presently undertaken by the ILO and could formulate more specific recommendations in this respect.

b) Table 4.5 provides a forecast of the ratio of benefit expenditures to contribution income beyond the next actuarial review. The ratios provided can be considered as reasonable benchmarks around which fluctuations can be expected.

(11) **Adjustments and improvements related to financial statements.** The financial statements illustrate separate accounts that are maintained for each of the three benefit branches. The recommendations on parameters for the allocation of income and the maintenance of reserves are as follows:

a) Subject to the application of a 11.4 per cent contribution rate, the recommended allocation of contribution income between benefit branches as of financial year 2007/08 and thereafter is: 89 per cent to the Long-term Benefit Branch, 6 per cent to the Short-term Benefit Branch, and 5 per cent to the Employment Injury Benefit Branch.

b) It is recommended that administrative expenditure be distributed by benefit branch according to contribution income and benefit expenditure in equal proportions until a more accurate system can be developed.

c) The Accumulated reserve is considered to be subject to misinterpretation since it can cause readers of the financial statements to believe NIBTT is in a surplus position when in fact it is not. It is recommended to eliminate it and to apply the following coefficients to benefit expenditures to determine reserve funds by benefits branch: 2 for the Short-term Benefit Branch and 10 for the Employment Injury Benefit branch and the remaining excess of income over expenditures allocated to the Long-term Benefit Branch.

(13) **Internal actuarial expertise of NIBTT for strengthening NIBTT financial governance.** It is recommended that NIBTT permanently integrate an Actuarial Department in its administrative structure. Its role should be clearly defined to include, inter alia, the regular monitoring of NIBTT experience, especially for the Long-term Benefits Branch (LTBB). It is recommended to strengthen NIBTT in-house actuarial expertise. The ILO remains available to provide support and other forms of capacity-building support on an ad hoc basis.

Introduction

Section 70 of the Trinidad and Tobago National Insurance Act 35 of 1971 requires an actuarial review of the National Insurance System (NIS) at intervals not exceeding five years. The present actuarial review covers the 5-year period up to 30 June 2005. The previous review covered the 5-year period prior to 30 June 2000. The main objectives of this review include assessing the long-term financial condition of the National Insurance Fund (NIF), studying possible ways to improve contribution and benefit provisions and formulating recommendations, where appropriate. The present report focuses as well on the specific issues raised at the request of the NIBTT.

This report has been prepared by the International Labour Office based on the information provided by the NIBTT and through the first phase of the technical cooperation project entitled "Seventh Actuarial Review of the National Insurance System and Feasibility study on the extension of social security to the self-employed" between the NIBTT and the International Labour Organisation. The Director-General of the ILO appointed Mr. Gilles Binet, Senior Actuary, and Mr. Charles Crevier, Actuarial Assistant, to complete this actuarial valuation and to prepare the draft of the present report. The actuaries worked in close cooperation with Mr. Aftab Ali, Actuarial Analyst at the NIBTT.

Mr. Binet and Mr. Crevier were on mission in Trinidad and Tobago from 17 to 30 June 2006 to gather and study statistical data and information on the social security system, all of which was ably supplied by the Institution's staff. Subsequently, the model of the International Financial and Actuarial Service of the ILO was used to prepare the demographic and financial projections associated with the actuarial valuation. The draft report was submitted to the NIBTT in March 2007 and presented by Mr. Binet who visited Trinidad and Tobago from 12 to 18 June 2007. Mr Crevier visited Trinidad and Tobago from 28 May to 2 June 2007 to deliver the ILO-FACTS model files adapted to the case of NIBTT and to provide hands-on training to Mr Ali who has been able to carry out some actuarial projection runs with the assistance of the ILO actuaries.

This report is divided into two parts – the main report and the appendices. Chapter 1 presents an experience analysis of the five-year period from 1 July 2000 (corresponding to the beginning of the projection period of the previous actuarial review). Chapter 2 discusses the demographic projections of the general population and the macro-economic framework relevant to the NIS and presents the scheme-specific actuarial bases as at the valuation date. Chapter 3 presents the demographic and financial projections according to the current provisions of the scheme. Chapter 4 presents the demographic and financial projections according to certain specific changes to benefits referred to in the Terms of Reference and analyses several policy issues. The appendices contain a summary of key NIS contribution and benefit provisions, a description of the methodology used for the valuation, key data inputs and assumptions, an analysis of the experience during the inter-valuation period, and detailed tables of NIS finances for the five financial years ending 30 June 2005. This report has been reviewed by the ILO Social Security Department and comments and amendments received from Department Director, Deputy Director, the actuaries of ILO-FACTS as well as from the departmental coordinators on policy, legislation and international labour standards.

The Director-General of the ILO would like to express his appreciation to Mr. Jeffrey McFarlane, Executive Director of the NIBTT, and its Executive Committee for the cooperation of the Institution in providing information and timely support to the ILO actuaries. Mr. Aftab Ali offered invaluable and timely assistance.

1. Review of experience

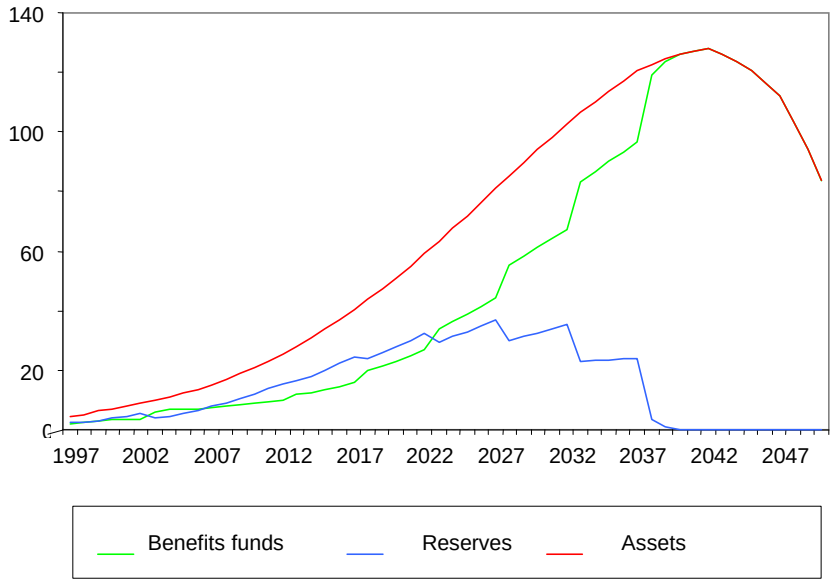
The financial year of the National Insurance Board of Trinidad and Tobago runs from 1 July to 30 June of the next year. The inter-valuation period covers the financial years 2000-01 to 2004-05. NIBTT financial statements present detailed data for each of the three branches of the social security system: long-term, short-term and employment injury benefits. Current accounting policies allocate assets between five funds, one for each of the three benefit branches, and two reserves: the revaluation of assets reserve, which consists of unrealized gains on investments, and the accumulated reserve is a kind of a balance item connected with benefits funds. The accounting policies clarify that benefits funds do not represent the Board's liability to beneficiaries. This should be interpreted as a reference to the concept of liability under a fully funded system. Indeed, such benefit funds do not correspond to the present value of pensions-in-payments and the acquired rights of participants.

This chapter discusses the evolution of the financial situation of National Insurance System (NIS) since the last actuarial valuation.

1.1 Long-term forecast of previous actuarial review

According to the previous actuarial review, NIS assets will accumulate until 2040-41 and then start to decrease as shown in Chart 1.1. No forecast is available beyond financial year 2049-50, but one can expect from the data that the fund would be exhausted in the following decade. In the process, reserves are gradually transferred to benefits funds when needed according to the accounting policies prevailing at 30 June 2005. Financial results of inter-valuation period deal with a relatively short period of time, 2000 to 2005. However, the results will influence the forecast covering the remaining period, 2005-2050.

Chart 1.1[4] **Balance sheet data - end of financial year (previous actuarial review) – TT$ billions (nominal)**



[4] Copy of Chart 1 from *Report by the Government Actuary's Department on Phase III of the Review of the National Insurance System of Trinidad & Tobago as at 30 June 2000*. London, UK, p.12.

1.2 Highlights of financial experience

A comparison of the financial forecast of the Sixth Actuarial Review with the corresponding data of the balance sheet is presented in Table 1.1. In that table, minor items not relevant to this review, namely survivors' benefit funds and other liabilities are not considered.

Table 1.1 Evolution of funds at 30 June (millions of TT$)

	2000	2001	2002	2003	2004	2005
Forecast from Sixth Review						
Assets	6,330	7,166	8,074	9,084	10,010	11,061
Benefits funds	3,173	3,416	3,462	3,528	5,982	6,791
Reserves	3,157	3,750	4,612	5,556	4,028	4,270
Benefits funds / Assets (%)	50%	48%	43%	39%	60%	61%
Financial statements						
Assets	6,330	7,129	8,240	9,599	11,747	13,076
Benefits funds	3,173	3,399	3,666	3,804	6,810	8,718
Reserves	3,157	3,730	4,574	5,795	4,936	4,358
Benefits funds / Assets (%)	50%	48%	44%	40%	58%	67%

Assets have increased more rapidly than forecasted. The benefit funds also show a significantly higher increase than anticipated, which mirrors the excess of benefit expenditure over that forecasted. Indeed, funds are expressed as benefit expenditure during the year times a coefficient based on recommendations from the actuarial review.

Table 1.2 shows consolidated revenue and expenditure for all branches. Miscellaneous income and expenditure, which represent minor amounts, are not included in the table. Details of the income and expenditure statements are shown in Appendix III.

Table 1.2 Revenues and expenditures (millions of TT$)

	2000-01	2001-02	2002-03	2003-04	2004-05
Forecast from Sixth Review					
Contribution income	740	753	790	890	1,029
Investment income	519	586	660	734	811
Benefit expenditure	374	380	388	642	729
Administrative expenses	48	51	53	54	56
Financial statements					
Contribution income	761	799	870	941	1,173
Investment income	594	650	652	752	696
Benefit expenditure	376	403	430	752	944
Administrative expenses	50	62	60	86	83

The application of recommendations from the last actuarial review regarding indexing of benefits and increase to the ceiling of earnings and to the contribution rate generates significant increases to benefit expenditure and contribution income of 2003-04 and 2004-05 (see Chart 1.2). Recommendations were applied in the second half of 2003-04 and had

full impact in 2004-05. Contribution income increased by 54 per cent from 2000-01 to 2004-05 while the increase of benefits was 150 per cent in the same period.

Chart 1.2 Evolution of contributions and benefits (all funds)

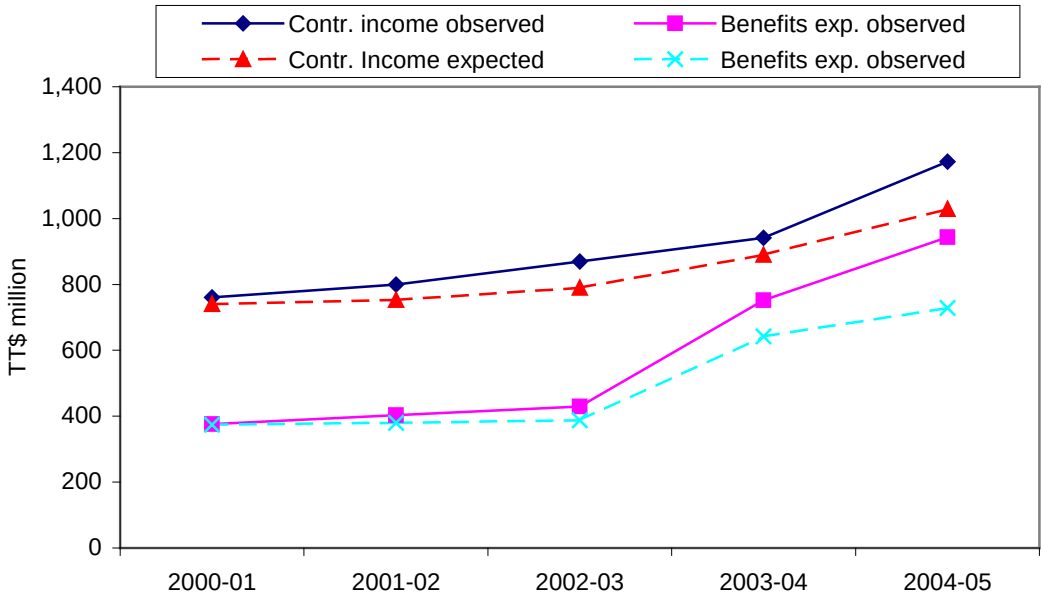
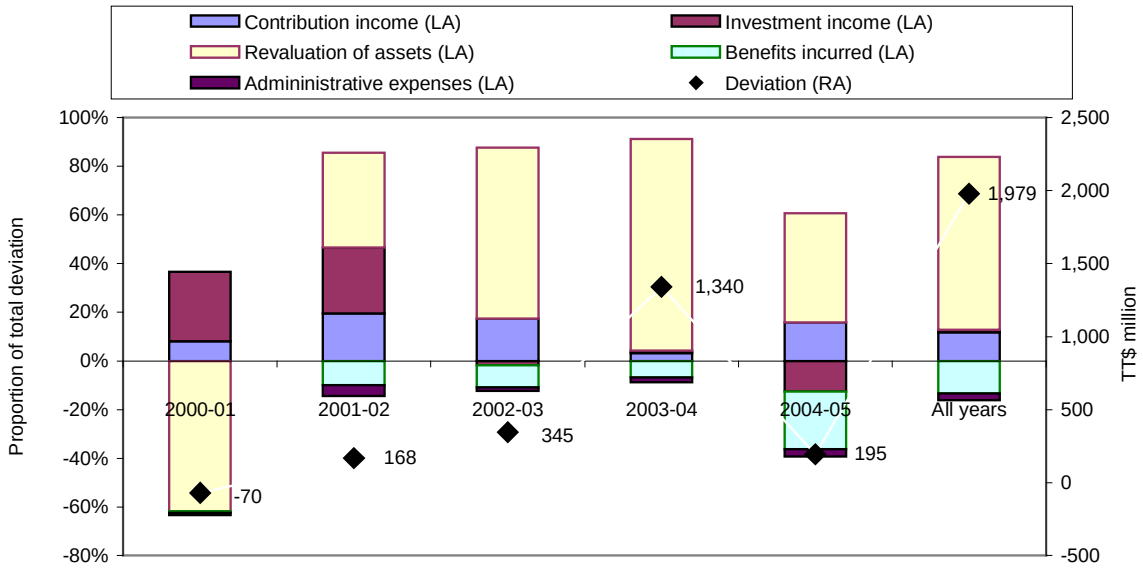


Chart 1.3 shows for each financial year the contribution of income and expenditure to the excess of anticipated assets at 30 June 2005. It also includes the impact of unrealized gains on available-for-sale assets (revaluation of assets) though they are not included in the income and revenue expenditures. According to accounting standards, they flow directly into the balance sheet. Accounting standards stipulate they should be considered as gains or losses in the year they are realized by sale. Nevertheless, NIBTT has recently started to publish in its financial statements a key performance indicator of investment yield taking into consideration those gains in addition to those based on realized gains only. In Chart 1.3, the bar showing the distribution of the sources of deviations in each financial year has the same size. Consequently, it has no relation with the size of the total deviation, which is indicated separately according to the right axis.

Chart 1.3 Sources of deviations of the forecasted increase of assets from 2000 to 2005



Note: LA means left axis.
RA means right axis.

The revaluation of assets from 30 June 2000 to 30 June 2005 is the most important source of deviations contributing to the increase of assets, that is TT$2,075 million. The previous actuarial review did not consider explicitly any variation of the revaluation of assets. It can probably be concluded that the long-term impact of returns of equities in the investment mix was considered in the long-term investment yield assumption.

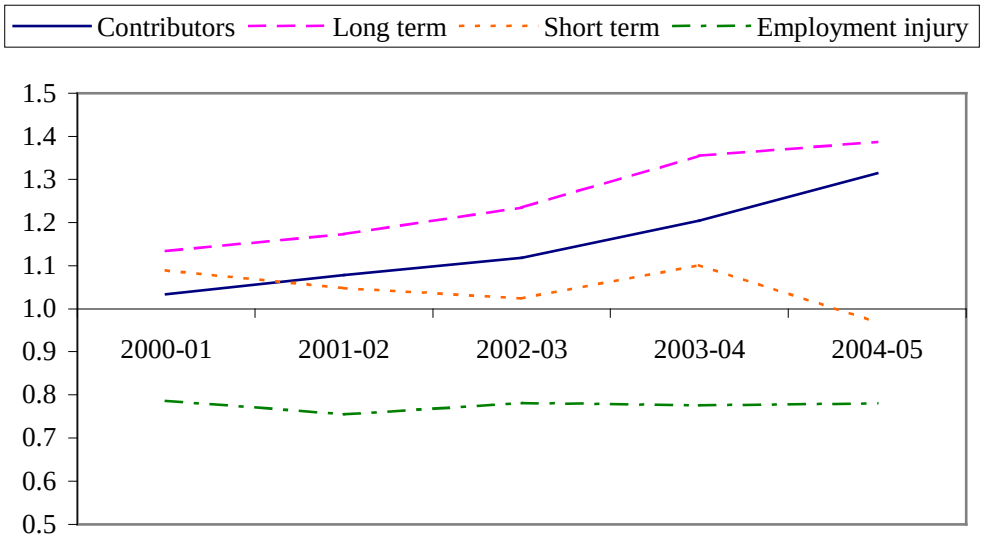
The net impact of the other four items is a deficit of TT$96 million, which is low in terms of the initial fund of 6,330 million. However, the deficit is the net result of more significant deviations that cancel each other out. Benefit expenditure and administrative expenses were higher than forecasted, but this unfavourable deviation has been offset by favourable deviations of contribution and investment income. Among these, the deviation related to benefit expenditure, which increases over the inter-valuation period and reaches 29 per cent in 2004-05, raises concerns. This is due to a significant deviation in the number of pensioners.

The trend of benefit expenditure has changed unfavourably, but NIS funds have benefited from the good performance of the economy through investments in equities. Overall, the financial situation has weakened slightly in relation to the forecast, the ratio of reserves to total funds being 33 per cent instead of 39 per cent at the end of the inter-valuation period. Decrease of this ratio is seen as a deterioration of the financial situation because less money remains available in the future for transfer to benefits funds. A larger than expected increase in benefits funds is solely an indication that expenses are higher than forecasted. The revaluation reserve has become the major component of reserves and its ratio over assets has increased from 11 to 20 per cent during the period.

1.3 NIS demographic data

Chart 1.4 shows the ratio of the observed number of contributors and beneficiaries over the expected ones.

Chart 1.4 Ratio of observed contributors and beneficiaries over expected ones



Long-term benefit recipients have increased by 38 per cent by the end of the inter-valuation period over that forecasted. The deviation for the retirement pensioners is 46 per cent. Such deviation over a short time period is striking. One explanation is related to a change in behaviour following the enactment of the minimum retirement pension of TT$1,000 in 2003/2004. During that year, participants who could have received a pension for many years but did not, because the pension was too low, applied to the Board. Significant arrears were paid to some of them.

The deviation related to the number of contributors is of interest. Though the 1.31 ratio in 2004-05 indicates a significant deviation, it has a limited impact on contribution income, which is higher by only 14 per cent than that expected. This may be due to lower wages than expected or a smaller number of contribution periods by participants.

The apparent immaterial deviation for short-term beneficiaries hides two offsetting trends. Firstly, the ratio for sickness benefits is 0.71 in 2004-05 while the ratio for maternity allowances and grants averages 1.52. It seems that changes have occurred either in the behaviour of users of the compensation system or that administration procedures have changed. Regarding the maternity benefits, abolishment of loss of earnings criteria seems to explain more than half of the deviation. For both types of benefits, the average cost per beneficiary has increased more than expected.

The employment injury ratio is stable over the valuation period, which seems to indicate stability of experience. Interpretation of demographic data is more difficult for this branch because of the lack of detailed information in the previous valuation by type of benefits.

2. Population and economic projections

Future income and expenditure of NIS 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 NIS finances, projections of Trinidad and Tobago'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 will be active 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 interrelated assumptions used produce consistent results.

For this review, 50-year projections of the population, economy and NIS 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 NIS 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 people who permanently enter and leave Trinidad and Tobago and is the most volatile of the three factors. Three scenarios of population forecasts were developed. One of them is the base scenario and it uses assumptions that are considered to be the most plausible ones. Alternative scenarios to the base one are designed with the objective of determining the range of potential deviations, which are a younger and an older population.

The last official population census took place in 2000 in which the resident population was estimated at around 1,262,000. The projection process starts in 2001. Estimations of the population made by the CSO for the years 2000 to 2005 in combination with other statistical indicators have been used to check overall consistency.

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. The TFR has been fairly stable since the mid-1990s fluctuating around 1.75. The base scenario assumes that this pattern will remain constant over the projection period and it corresponds to the medium variant projections of the United Nations. Alternative scenarios are based upon United Nations low fertility and high fertility variant projections.

Life expectancy and 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. For the base scenario, life expectancy at birth in 2005 is 67.7 for males and 72.5 for females. Life expectancy at advanced ages is a key driver of the cost of retirement pensions. At age 65, it is 15.0 and 16.9, respectively, for males and females in 2005. Mortality improvements follow under the base scenario are based on the middle increase

pattern of UN. The pattern of slow improvement is used for the young population scenario and the pattern of fast improvement for the old population scenario.

Net migration was set at 0 over the projection period under all scenarios.

2.2 Economic assumptions

The economic projections prepared for this report assume, for the short-term, rapid economic growth under significant inflationary pressures, which reflects the recent trends and expectations for the future. This pattern is phased out over a ten-year period after which a robust and stable economic growth is assumed. Labour force participation and unemployment rates by age are kept at the level of 2005 for the entire projection period. The following table indicates the principal demographic and economic assumptions used in this actuarial review. GDP growth is the combined result of productivity and employment variation. Further details may be found in Appendix II. In this table, reference is made to calendar years, instead of NIBTT financial years. The investment of the fund is the sum of 4 per cent and inflation for all years. Thus, the long-term real rate of return is 3.9 per cent[5].

Table 2.1 Principal assumptions for population and economic projections (base scenario)

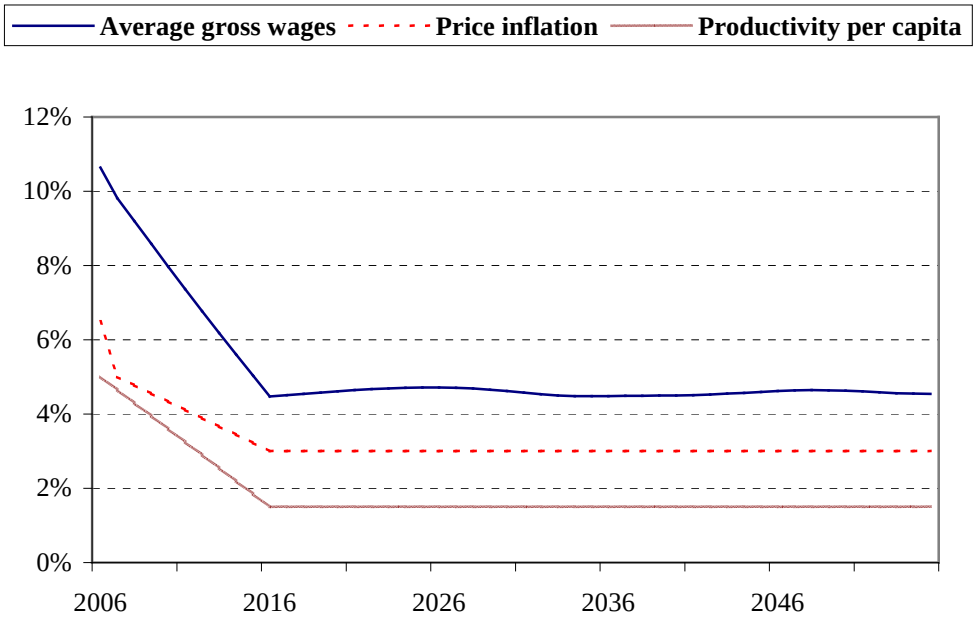
Total fertility rate		1.76 constant for the projection period
Mortality improvements[1]		Middle variant UN projections
Net migration		0 for the projection period
Productivity per capita (%)		Decreasing linearly from 5.0 to 1.5 over 10 years and remaining constant at 1.5.
Real GDP growth (%)	2005 to 2006	6.9
	2010 to 2011	4.2
	2016 and over	Average of 1.1
Inflation (%)	2005 to 2006	6.5
	2010 to 2011	4.1
	2016 and over	3.0 p.a.
Labour force participation		Age specific participation rates constant at 2005 level for the projection period

[1] United Nations, 2004.

Chart 2.1 shows the pattern of key economic assumptions over the projection period. The average gross wages increase is not fully stable after 2016 due to differences in the evolution of the total population and the labour force.

[5] [(1.07/1.03)-1] x 100

Chart 2.1 Economic assumptions



An alternative scenario based on the economic framework of the previous valuation, which assumed stable conditions within a low productivity environment, is used for sensitivity analysis. Salary increases and price increases were set constant at 4 per cent. The nominal investment yield is constant at 8 per cent, which corresponds to a real rate of return equivalent to the long-term rate of return under the base scenario.

2.3 Projection results

The following chart illustrates Trinidad and Tobago's projected population up to 2055 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 more pension-age people, illustrate the forecasted ageing of Trinidad and Tobago's population.

Chart 2.2 Projected general population, 2005 – 2055

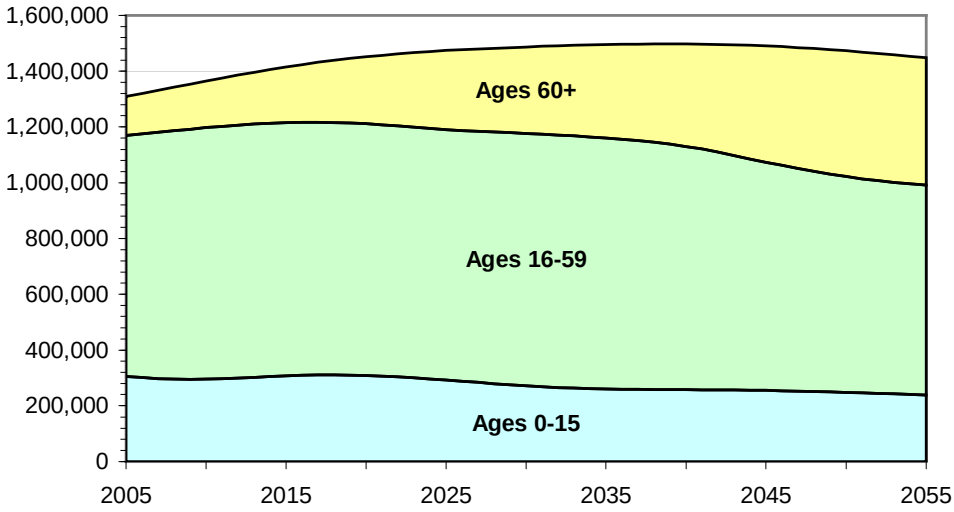


Table 2.2 presents population projections for the base scenario. Highlights are:

- The total population will increase to 1,495,415 in 2035 and then will initiate a slow decrease.
- The population will increase over the projection period by 11 per cent, but the number of pension-age people will practically quadruple.
- Around 2040, Trinidad and Tobago will have more pension-age residents than children.
- The number of working-age people for each pension-age resident will fall from 9.3 to 2.3.

Table 2.2 Projected general population, 2005 – 2055 Base scenario

Year	Total	Age			Ratio of persons 16-59 to 60 & over
		0-15	16-59	60 & over	
2005	1,309,619	305,432	906,858	97,329	9.32
2006	1,320,242	300,832	919,951	99,459	9.25
2007	1,331,094	297,648	931,694	101,752	9.16
2008	1,342,093	295,855	941,935	104,303	9.03
2009	1,353,142	295,305	950,594	107,243	8.86
2010	1,364,134	295,772	957,715	110,647	8.66
2011	1,374,960	297,040	963,420	114,500	8.41
2012	1,385,524	299,011	967,692	118,821	8.14
2013	1,395,728	301,608	970,602	123,518	7.86
2014	1,405,485	304,498	972,546	128,441	7.57
2015	1,414,725	307,282	973,942	133,501	7.30
2020	1,451,513	309,061	981,361	161,091	6.09
2025	1,473,666	292,281	986,902	194,483	5.07
2030	1,486,997	271,747	984,708	230,542	4.27
2035	1,495,415	260,275	983,972	251,168	3.92
2045	1,490,441	255,073	940,078	295,290	3.18
2055	1,448,263	238,837	845,013	364,413	2.32

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

Tables 2.3 and 2.4 present the two other scenarios, namely the young and old population.

Table 2.3 Projected general population, 2005 – 2055 Young population scenario

Year	Total	Age			Ratio of persons 16-59 to 60 & over
		0-15	16-59	60 & over	
2005	1,309,740	305,664	906,801	97,275	9.32
2006	1,320,516	301,273	919,865	99,378	9.26
2007	1,331,616	298,399	931,575	101,642	9.17
2008	1,342,972	297,036	941,777	104,159	9.04
2009	1,354,506	297,052	950,392	107,063	8.88
2010	1,366,130	298,238	957,465	110,427	8.67
2011	1,377,745	300,391	963,118	114,236	8.43
2012	1,389,253	303,422	967,328	118,503	8.16
2013	1,400,564	307,259	970,169	123,136	7.88
2014	1,411,596	311,575	972,035	127,986	7.59
2015	1,422,282	315,974	973,346	132,962	7.32
2020	1,469,272	328,468	980,439	160,365	6.11
2025	1,506,800	325,809	987,211	193,780	5.09
2030	1,541,209	322,621	989,808	228,780	4.33
2035	1,575,711	330,659	998,254	246,798	4.04
2045	1,631,495	358,460	988,506	284,529	3.47
2055	1,673,546	367,720	954,244	351,582	2.71

Table 2.4 Projected general population, 2005 – 2055 Old population scenario

Year	Total	Age			Ratio of persons 16-59 to 60 & over
		0-15	16-59	60 & over	
2005	1,309,941	305,373	907,081	97,487	9.30
2006	1,320,652	300,676	920,281	99,695	9.23
2007	1,331,554	297,330	932,145	102,079	9.13
2008	1,342,550	295,299	942,520	104,731	9.00
2009	1,353,529	294,419	951,324	107,786	8.83
2010	1,364,373	294,453	958,601	111,319	8.61
2011	1,374,963	295,178	964,470	115,315	8.36
2012	1,385,165	296,507	968,909	119,749	8.09
2013	1,394,869	298,354	971,987	124,528	7.81
2014	1,403,989	300,381	974,101	129,507	7.52
2015	1,412,449	302,182	975,669	134,598	7.25
2020	1,443,461	297,045	983,946	162,470	6.06
2025	1,457,404	270,426	989,429	197,549	5.01
2030	1,459,399	237,511	984,789	237,099	4.15
2035	1,452,140	212,997	978,373	260,770	3.75
2045	1,407,848	190,790	909,700	307,358	2.96
2055	1,328,687	164,299	776,181	388,207	2.00

3. National Insurance financial and demographic projections

This Section presents and analyses projections of the NIS up to 2054-2055. The purpose of these projections is to identify long-term trends for contributions, benefits and the reserve, so that the financial viability of the NIS may be assessed. These projections are based on results of the population and economic projections presented in Section 2 and several NIS-specific assumptions. It considers the contribution and the benefit provisions in place at 30 June 2005 and the changes to the limits and the number of classes of earnings recommended in this report. Those are key parameters of the scheme as they are used to index pensions and determine the revalued career-average salary, used in the calculation of long-term pensions, as well as the ceiling of insurable salaries.

3.1 Update of key parameters

3.1.1 General considerations

NIBTT policy objective is to maintain the relevance of the level of coverage and the value of contributions and benefits to economic conditions. Given the design of the system, the technique that has been used in the past to reach that objective was to increase the limits and the number of classes of earnings.

Generally speaking, increases of limits of classes of earnings have reflected the increase in the consumer price index. Unless conversion factors from previous and new sets of tables distort the process, and such distortion has happened, the periodic adjustment ensures that both past earnings of contributors and pensions are revalued according to price inflation. This process fails to ensure full maintenance of the relevance of the scheme. Because over long periods of time salaries increase more rapidly than inflation, indexation of earnings class limits is not sufficient to provide retirement pensions that properly reflect workers' wages over their lifetime career and to maintain the redistributive feature of the scheme. Another impact of indexing limits according to price inflation is the shrinkage of the proportion of workers whose total earnings are assessable unless the number of classes of earnings is increased until the desired ceiling is reached. It would not be appropriate to increase the intervals of earning classes because this would generate unacceptable distortions within the classes.

If the limits of the classes of earnings were adjusted to a wage index, the consequence would be that salaries and pensions would vary according to wage variations rather than price inflation, which is more costly. Under the current earnings class system, adjusting the limits of classes of earnings according to a wage index would have the consequence of adjusting pensions to wages unless intricate conversion factors between successive tables are created or the link between the earnings class at onset of a pension and future adjustments to the pension is abandoned.

3.1.2 Adjustment of key parameters

In the current actuarial review, it is recommended to increase the limits of earnings classes according to the change in the consumer price index from 2000 to 2005, which is 25 per cent. Use of price inflation is consistent with past practices. This is seen as a minimum to maintain the relevance of the scheme. The projections consider the proposal of the NIBTT to set the monthly minimum pension for retirement at TT$2,000 for the lowest class of earnings and to increase it linearly to TT$2,500 for the highest class. This minimum pension is kept constant for the projection period. Compared to the current minimum monthly pensions of TT$1,000, this is a material increase.

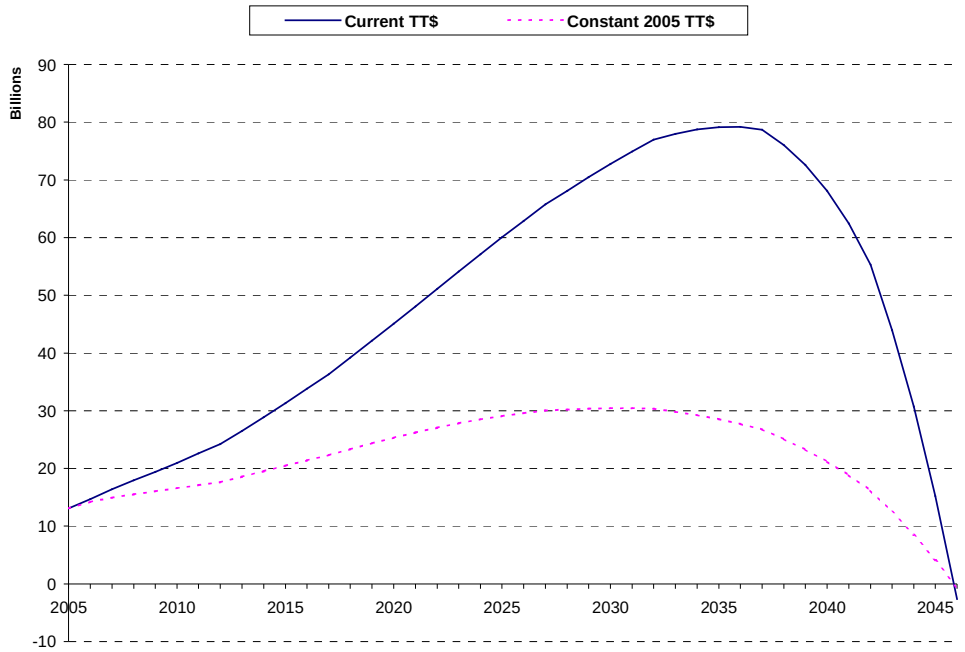
The ceiling of earnings is set at two times the average salary, an objective expressed by the NIBTT. On the basis of available information, the average monthly salary has been estimated at TT$4,300 in 2007-2008 when the new parameter will be applied. Thus, the monthly ceiling applicable on 1 January 2008 is TT$ 8,700 and four new classes of earnings are added to the current tables. Appendix IV presents contribution and benefit tables corresponding to the above recommendations.

It has been assumed that indexing of pensions and increases to the ceiling of insurable salaries would occur during the projection period every five years. Then, the adjustment following the next actuarial review would be implemented on 1 January 2013 and so on. This reflects usual practice, though is not consistent with ILO recommendations to implement annual automatic indexing as discussed later in Section 4.

3.2 Projection results

For accounting purposes, NIBTT presents the financial results under three branches: long-term benefits, short-term benefits and employment injury benefits. Provisions exist for transferring reserves between branches and changing income allocation. Financial statements also comply with the requirements to hold a reserve for unrealized gains on assets. In this section, it is generally considered more convenient to show the evolution of all assets irrespective of their allocation by fund. Financial projections assume the current contribution of 9.9 per cent is maintained over the projection period. In Chart 3.1, evolution of assets is shown until the fund is depleted.

Chart 3.1 Projected assets at 30 June, 2005 to 2046



Assets[6], are expected to continue growing through the mid-2030's, reaching about five times their 2005 level in current TT$. In constant 2005 TT$, assets reach their peak a little bit earlier at more than double their 2005 level. If the contribution rate is not increased periodically, reserves will reach their maximum level when total expenditures first exceed

[6] The word "assets" is used to refer to the amount of money that is accumulated. In the balance sheet such assets are allocated among reserves or funds on the liability side.

total income. Thereafter, assets will have to be sold to meet expenditures and reserves will decrease quickly as the liquidation of investments continues. The long-term financial sustainability needs to be addressed sooner rather than later.

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

Table 3.1 Key projection results

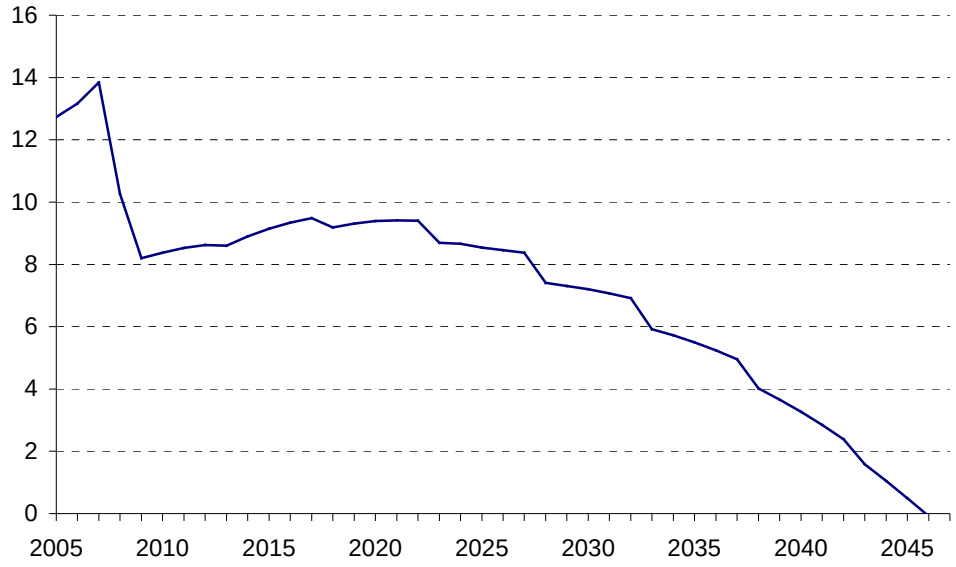
	Year
Year expenditure first exceeds contribution income[1]	2008-2009
Year expenditure first exceeds total income	2037-2038
Year reserves depleted	2045-2046

[1] This phenomenon does not maintain itself forever. Indeed, contribution income becomes higher than expenditure again in 2012-2013 until 2019-2020.

When compared with the Sixth Actuarial Review in which a large but rapidly decreasing balance is available at the end of the projection period (June 2050), the above projections indicate a significant change in the financial situation. One of the reasons for this is the implementation of a minimum old-age pension of TT$2,000 per month in 2008. If the minimum were to be maintained at TT$1,000, depletion of the fund would be deferred to 2049-2050.

Chart 3.2 shows the ratio of assets to benefit and administration expenditure (funding ratio). Due to the implementation of the minimum retirement pension on 1 January 2008, which has a material impact on benefit expenditure, the ratio decreases sharply in financial years 2007-2008 and 2008-2009. It remains stable between 8 and 10 for about 15 years and then starts a steadily decreasing pattern for 20 years.

Chart 3.2 Ratio of assets to benefit and administration expenditure (funding ratio)



Numerical details of the financial and demographic projections are provided in Tables 3.2 to 3.5. For selected years from 2005-2006 to 2054-2055, these tables show:

- projected benefit expenditure by major benefit type in TT$ and as a percentage of insurable wages and GDP, and
- projected income and expenditure, year-end reserves and the reserve-to-expenditure,
- projected number of contributors and pensioners by year and major benefit type.

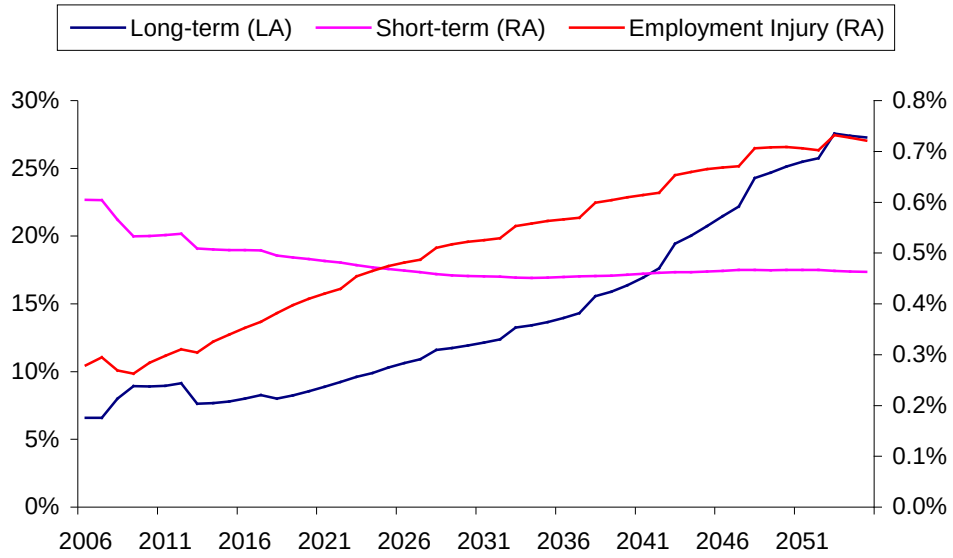
Table 3.2 Projected benefit expenditure, 2005-2055 (millions of TT$)

Year	Pensions, grants & benefits						Benefits as a % of:	
	Retirement	Invalidity	Survivors'	Short-term	Work injury	Total	Insurable wages	GDP
2005-2006	757	28	117	83	38	1,023	7.5	0.99
2006-2007	791	34	128	87	43	1,083	7.5	0.94
2007-2008	1,290	43	151	105	50	1,639	8.8	1.29
2008-2009	1,837	53	177	123	61	2,251	9.7	1.61
2009-2010	1,931	59	191	131	70	2,382	9.7	1.56
2010-2011	2,033	65	207	138	77	2,520	9.8	1.52
2011-2012	2,149	72	225	144	83	2,673	10.0	1.50
2012-2013	2,258	100	295	177	106	2,936	8.4	1.54
2013-2014	2,370	106	316	185	119	3,096	8.5	1.53
2014-2015	2,498	112	339	192	129	3,270	8.6	1.53
2019-2020	3,439	181	555	238	200	4,613	9.4	1.73
2024-2025	5,129	247	851	283	287	6,797	11.3	2.03
2029-2030	7,461	365	1,262	346	398	9,832	12.9	2.33
2034-2035	10,738	546	1,818	433	540	14,075	14.7	2.69
2044-2045	24,282	901	3,497	641	919	30,240	21.9	3.94
2054-2055	46,110	1,069	6,299	908	1,414	55,800	28.5	5.05

The pattern of the ratio of benefits to insurable wages is worth consideration. It increases from the beginning of the projection period until 2011-2012, when implementation of the minimum retirement pension of TT$2,000 has the most impact. Then the ratio decreases when the ceiling of earnings is raised in 2012-2013 and starts increasing again in the ninth projection year. As benefits increase smoothly, this pattern is entirely due to the insurable salaries that would materially increase in financial year 2012-2013 when the ceiling of earnings is adjusted to recognize the significant salary increases in the previous years under the base macro-economic assumptions.

Chart 3.3 desegregates the ratio of benefit expenditure to insurable earnings by branch. The steady increase in the employment injury percentage is related to the maturing of the disability pensioners. The maturing process is as long as for the long-term benefits scheme because such pensions are paid for life. The percentage for the short-term benefits decreases because grants follow price inflation, which is smaller than wage increases. The cost for the Short-term Branch has reached full maturity.

Chart 3.3 Benefits as a percentage of earnings



Note: LA means left axis.
RA means right axis.

Table 3.3 Projected income, expenditure and reserve, 2005-2055

Year	Revenue			Expenditure			Excess of revenue over expenditure	Assets	
	Contribution income	Investment income	Total	Benefits	Administrative & other expenses	Total		Year-end	Number of times current year's expenditure
2005-2006	1,314,268	1,408,829	2,723,097	1,022,705	92,529	1,115,234	1,607,863	14,683,621	13.17
2006-2007	1,431,504	1,443,785	2,875,289	1,082,732	99,918	1,182,650	1,692,639	16,376,260	13.85
2007-2008	1,837,234	1,459,741	3,296,975	1,638,477	107,110	1,745,587	1,551,388	17,927,647	10.27
2008-2009	2,291,695	1,550,540	3,842,235	2,250,913	114,372	2,365,285	1,476,950	19,404,597	8.20
2009-2010	2,425,364	1,635,351	4,060,715	2,380,922	121,646	2,502,568	1,558,147	20,962,744	8.38
2010-2011	2,550,482	1,719,561	4,270,043	2,519,937	128,877	2,648,814	1,621,229	22,583,973	8.53
2011-2012	2,651,147	1,800,402	4,451,549	2,673,026	136,007	2,809,033	1,642,516	24,226,488	8.62
2012-2013	3,447,431	1,898,631	5,346,062	2,935,481	142,978	3,078,459	2,267,603	26,494,091	8.61
2013-2014	3,606,062	2,015,418	5,621,480	3,095,214	149,732	3,244,946	2,376,534	28,870,625	8.90
2014-2015	3,750,781	2,129,098	5,879,879	3,269,513	156,208	3,425,721	2,454,158	31,324,783	9.14
2019-2020	4,836,760	2,948,331	7,785,091	4,612,857	188,265	4,801,122	2,983,969	45,085,158	9.39
2024-2025	5,983,864	3,960,438	9,944,302	6,797,784	227,267	7,025,051	2,919,251	60,017,536	8.54
2029-2030	7,541,898	4,843,716	12,385,614	9,832,321	274,427	10,106,748	2,278,866	72,757,227	7.20
2034-2035	9,501,503	5,340,669	14,842,172	14,076,309	330,116	14,406,425	435,747	79,183,476	5.50
2044-2045	13,696,012	1,554,151	15,250,163	30,239,950	477,384	30,717,334	-15,467,171	15,245,646	0.50
2054-2055	19,420,142	-22,205,570	-2,785,428	55,800,374	693,330	56,493,704	-59,279,132	-357,964,782	-6.34

Table 3.4 Projected contributors and pensioners - long-term benefits, 2005-2055

Year	Number of contributors[1]	Number of pensioners			Total number of pensioners	Ratio of contributors to pensioners
		Retirement	Invalidity	Survivors'		
2005-2006	461,870	59,972	4,353	31,895	96,220	4.80
2006-2007	469,911	62,529	4,693	33,866	101,088	4.65
2007-2008	477,019	65,383	4,933	35,770	106,086	4.50
2008-2009	483,067	68,581	5,122	37,658	111,361	4.34
2009-2010	488,084	71,796	5,339	39,544	116,679	4.18
2010-2011	492,270	75,335	5,496	41,406	122,237	4.03
2011-2012	495,521	79,069	5,612	43,077	127,758	3.88
2012-2013	497,866	82,794	5,757	44,541	133,092	3.74
2013-2014	499,295	86,514	5,867	45,890	138,271	3.61
2014-2015	499,839	90,420	5,916	47,079	143,415	3.49
2019-2020	494,413	110,642	6,261	52,288	169,191	2.92
2024-2025	488,904	132,251	6,111	57,015	195,377	2.50
2029-2030	490,315	147,858	6,672	61,321	215,851	2.27
2034-2035	492,101	159,473	7,582	64,954	232,009	2.12
2044-2045	457,654	201,639	7,630	69,525	278,794	1.64
2054-2055	415,006	238,298	5,836	72,037	316,171	1.31

[1] Number of insured that contribute at least one week.

Ageing of the population and maturing of the pension system have a significant impact on the demographic projections of the NIS system. As shown in the last column, the number of contributors relative to the number of pensioners is projected to fall from 4.8 in 2005-2006 to 1.3 in 2054-2055. During that period, the number of contributors increases for 10 years and then starts to decline. At the end of the projection period, the number of contributors is smaller than at the beginning by 10 per cent while the number of pensioners has multiplied three-fold.

Table 3.5 Projected contributors and pensioners - short-term and employment injury benefits, 2005-2055

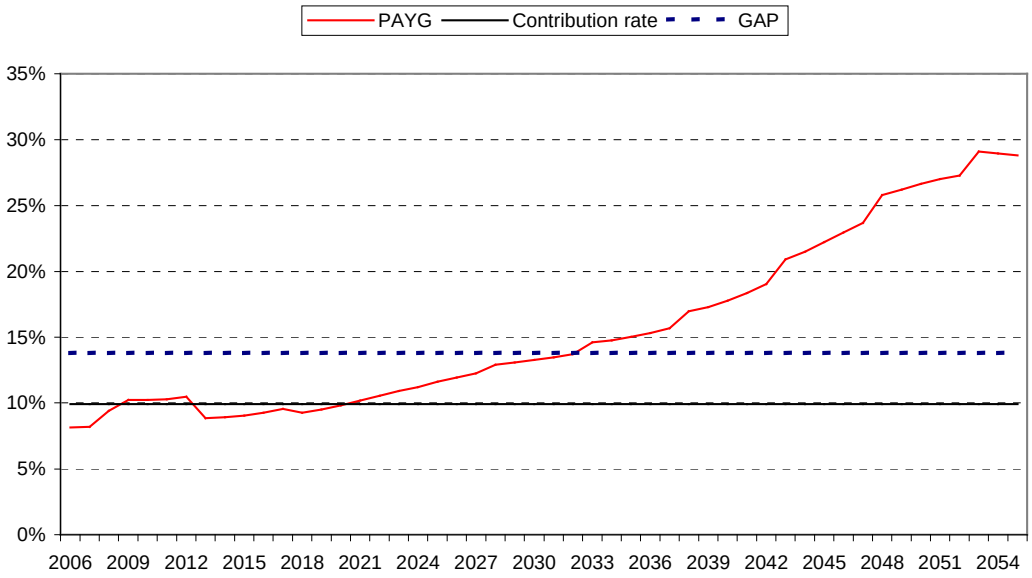
Year	Short-term benefits			Employment injury benefits				
	Sickness	Maternity	Funeral grants	Medical benefits	Allowances	Disability pensions	Disability grants	Survivors
2005-2006	12,460	5,550	4,915	204	2,895	2,623	179	523
2006-2007	12,704	5,682	4,983	207	2,946	2,834	183	527
2007-2008	12,935	5,815	5,054	211	2,990	3,048	186	533
2008-2009	13,145	5,942	5,127	213	3,029	3,265	189	524
2009-2010	13,336	6,055	5,199	215	3,061	3,482	192	523
2010-2011	13,514	6,146	5,275	217	3,088	3,701	194	528
2011-2012	13,672	6,213	5,370	219	3,109	3,921	197	529
2012-2013	13,810	6,251	5,469	220	3,125	4,140	199	531
2013-2014	13,924	6,261	5,573	221	3,135	4,359	201	529
2014-2015	14,015	6,245	5,686	221	3,139	4,576	203	524
2019-2020	14,164	5,820	6,300	219	3,110	5,635	208	504
2024-2025	14,045	5,137	7,104	217	3,081	6,607	211	498
2029-2030	14,001	4,768	8,006	218	3,092	7,453	215	485
2034-2035	14,018	4,770	8,721	218	3,101	8,176	216	461
2044-2045	13,131	4,725	9,600	204	2,897	9,176	200	400
2054-2055	11,864	4,237	10,729	185	2,633	9,283	181	342

3.3 Projected costs

The cost of NIS benefit and administrative expenditure for all branches combined 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 referred to the pay-as-you-go (PAYG) rate.

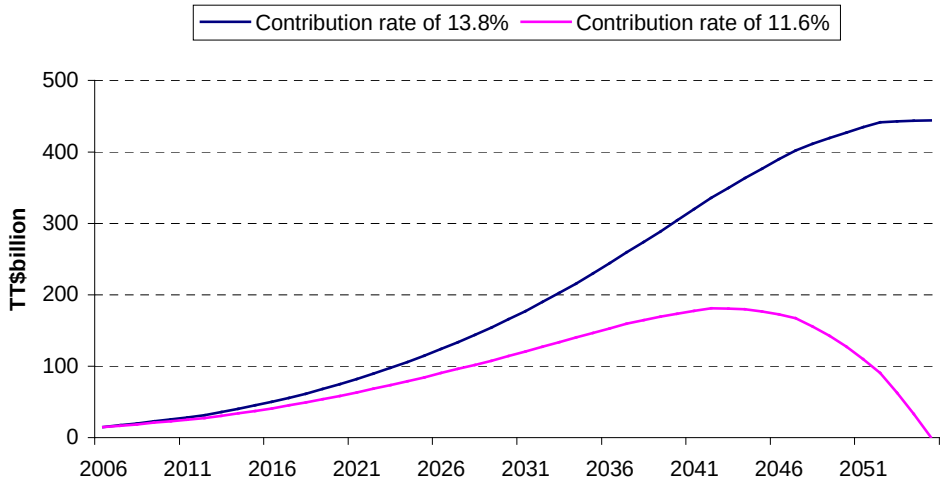
Another rate, called the general average premium, is the average uniform contribution rate required over the next 50 years to fully cover total expenditure during that period. This rate may be looked at as the long-term cost of the complete NIS. In Chart 3.4, the GAP is calculated for the next 50 years by assuming investment income from the initial assets over the period is never used to pay expenditures. The GAP is calculated by making the ratio of the present value of total expenditure (for benefits and administration) to the present value of insurable earnings. The result is that the funding ratio (Assets/Total expenditure) would be about 7.9 at 30 June 2055.

Chart 3.4 Projected contribution rates, 2005-2006 – 2054-2055 (% of insurable earnings)



Since inception of NIS, the PAYG cost rate has been below the contribution rate. Chart 3.4 indicates that the PAYG rate will be higher than the current contribution for the first time in the year 2008-2009. It would then dip slightly below it for a few years after implementation of the adjustment following the next actuarial review and increase steadily afterwards. The general average premium required to avoid using investment income from the initial assets for the payment of expenditures is 13.8 per cent. For illustration purpose and as an alternative, were the target of the funded ratio to be set at 0 at 30 June 2055, then the contribution required over the next 50 years would be 11.6 per cent. Chart 3.5 shows the reserve accumulation under these scenarios.

Chart 3.5 Accumulated assets with GAP contribution rates, 2006-2054



A period of 50 years is not sufficient to assess a GAP rate that ensures long-term financial sustainability if the system has not reached full maturity. This is the situation in Trinidad and Tobago. Because the PAYG rate reaches a level of about 28 per cent in the last years of the projection period, a GAP of 13.8 per cent would not be sufficient to ensure long-term financial sustainability.

Nevertheless, a 40 per cent increase in one go of the contribution rate would be unacceptable. Table 3.6 provides an example of periodic increases of the contribution rate over the next 50 years. A contribution rate applying for three consecutive periods of 15 years starting in 2010-2011 is established in such a manner that the funding ratio is 8 at the end of each period. This is equivalent to a GAP rate of 13.8 per cent at the end of the projection period. As can be seen, financial sustainability would require a substantial increase in contribution rates if provisions are not changed.

Table 3.6 Illustration of possible contribution rate - all branches

	2005-2006 to 2009-2010	2010-2011 to 2024-2025	2025-2026 to 2039-2040	2040-2041 to 2054-2055
Contribution rate	9.9%	9.9%	14.9%	23.9%

Increasing the contribution rate is one of the measures that can be implemented to ensure the financial sustainability of the system. Changes to benefits are generally considered as an alternative if increases of contributions are beyond a tolerance level. This is addressed in Section 4. With increases to the contribution rate more frequent than every 15 years, the steps would be smaller.

3.4 Sensitivity tests

Projections include an extensive set of demographic, economic and scheme-specific assumptions. Actual experience will inevitably differ from the projections. This section analyses three additional scenarios that were described previously. Two of them use demographic assumptions different to the base scenario. The other one consists in combining the demographic assumption of the base scenario with economic assumptions of the previous actuarial review. In addition to these scenarios, sensitivity of the fund and the GAP to a change in investment yield is analysed under the base scenario.

Tables 3.7 and 3.8 show the impact on the GAP and the year in which the reserve is depleted.

3.4.1 Sensitivity related to investment yield

Investment yield is defined as the sum of price inflation and net real rate of return. Table 3.7 indicates the impact of a variation of 1 per cent in the investment yield on two indicators. It shows that a higher investment yield by 1 per cent would defer depletion of the fund by five years or that a contribution rate of 12.2 per cent would be necessary to maintain the funding ratio at the same level that a rate of 13.8 per cent would achieve. With a lower investment than the assumption, the table shows that depletion would occur three years earlier and that the required GAP would be 15.5 per cent.

Table 3.7 Impact of variation of investment yield

Projection scenario	GAP (% of insurable earnings)	Year when reserve is exhausted[1]
Under base scenario (4%)	13.8%	2045-2046
– Real rate of return of 5% instead of 4%	12.2%	2050-2051
– Real rate of return of 3% instead of 4%	15.5%	2042-2043

[1] The contribution rate of 9.9% remains unchanged.

Under the current contribution rate of 9.9 per cent, a real rate of return of 6.6 per cent would be required to achieve a funding ratio equivalent to the 13.8 per cent contribution rate at the end of the projection period. It is not a realistic scenario.

3.4.2 Alternative demographic scenarios

Table 3.8 shows the impact of the variation in demographic assumptions. Changes to GAP would not be material and depletion of the fund would occur in the same financial year. The financial situation of the NIS is not influenced very much by the demographic variables. However, variation in the demographic structure may influence economic variables, but such potential correlation is not taken into account in the alternative demographic scenarios.

Table 3.8 Impact of demographic assumptions

Projection scenario	GAP (% of insurable earnings)	Year when reserve is exhausted[1]
Under base scenario (4%)	13.8%	2045-2046
– Younger population	13.6%	2046-2047
– Older population	14.0%	2045-2046

[1] Contribution rate of 9.9% remains unchanged.

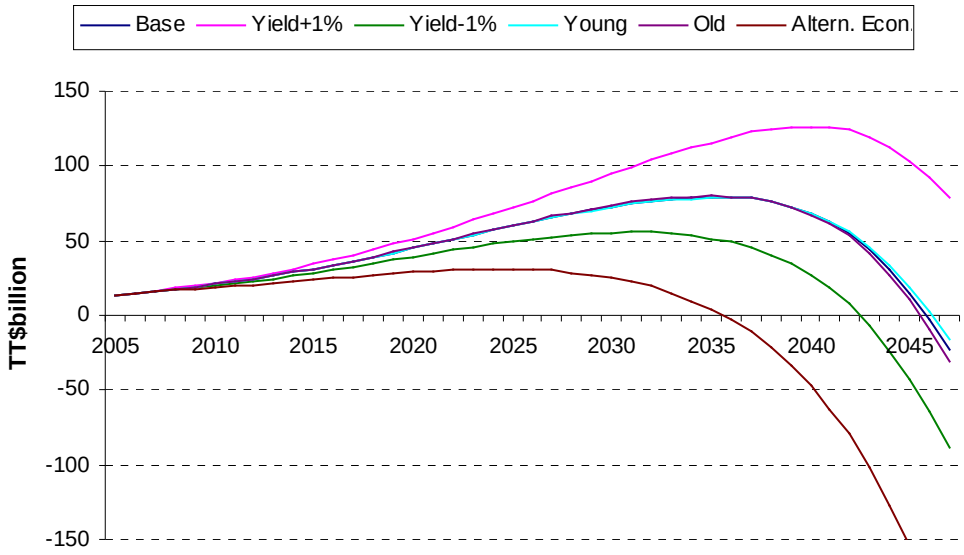
3.4.3 Alternative economic scenario

Under the alternative economic scenario that uses economic assumptions of the previous valuation, the GAP would be 17.3 per cent, which is considerably higher than the GAP under the base scenario in this valuation. The fund would be depleted in 2035-2036 with the current contribution rate of 9.9 per cent. These results illustrate very well that contribution rates for the financing of long-term benefits depend more on the relationship between variables than on the level of those variables. The relationship between salary increases and inflation is the key factor since benefits are indexed according to inflation. Under the base scenario, salaries increase faster than inflation while under this alternative, they both increase at the same pace.

3.4.4 General considerations

Chart 3.6 shows the evolution of assets corresponding to the sensitivity analysis presented in Section 3.3.

Chart 3.6 Total assets – impact of scenarios



The chart demonstrates how material the impact of economic variables is on the evolution of the fund.

4. Financial impact of changes and policy issues

This section addresses various policy issues in response to requests expressed in the Terms of Reference of this actuarial review. It also presents a recommended alternative to the minimum pension provision.

4.1 Financial impact of contemplated modifications

NIBTT requested the analysis of the feasibility of modifying several existing provisions. In Section 4.1, the financial impact of these modifications is presented by branch in terms of benefits to insurable earnings ratios for selected years. Modifications of benefits are described in detail in Table I.6 of Appendix I. In this section, administrative expenditures are not considered.

4.1.1 Long-term benefits

There are seven specific changes dealing with long-term benefits. Table 4.1 shows the benefits-to-earnings ratio of six modifications and the corresponding general average premium (GAP) calculated over the projection period. Given the data available, the change regarding the increase of the minimum retirement grant from TT$200 to one-month minimum retirement pension has no impact and is excluded from the table. The GAP is calculated by dividing the present value of benefit expenditure by the present value of insurable salaries. Thus, the starting reserve is not considered.

Table 4.1 Benefits-to-earnings ratios – modifications of long-term benefits

Year	Current provisions	Highest 750 weekly contributions to determine retirement benefits	Minimum survivors' pension for widow(er) set at 320	Minimum survivors' pension for parents set at 160	50 highest contributions to determine survivors' benefits	Eligibility requirements survivors' benefits from 50 to 25 contributions	Highest 150 contributions to determine invalidity benefits and no recalculation at retirement
2005-2006	6.6%	6.6%	6.6%	6.6%	6.6%	6.6%	6.6%
2006-2007	6.6%	6.7%	6.6%	6.6%	6.6%	6.6%	6.6%
2007-2008	8.0%	8.1%	8.0%	8.0%	8.0%	8.0%	8.0%
2008-2009	8.9%	9.0%	8.9%	8.9%	9.0%	8.9%	8.8%
2009-2010	8.9%	9.0%	8.9%	8.9%	9.0%	8.9%	8.8%
2010-2011	9.0%	9.1%	9.0%	9.0%	9.1%	9.0%	8.8%
2011-2012	9.1%	9.3%	9.1%	9.1%	9.3%	9.1%	9.0%
2012-2013	7.6%	7.9%	7.6%	7.6%	7.8%	7.6%	7.6%
2013-2014	7.7%	8.0%	7.7%	7.7%	7.8%	7.7%	7.7%
2014-2015	7.8%	8.2%	7.8%	7.8%	8.0%	7.8%	7.8%
2019-2020	8.5%	9.7%	8.5%	8.6%	8.8%	8.5%	8.7%
2024-2025	10.3%	12.1%	10.3%	10.3%	10.6%	10.3%	10.5%
2029-2030	11.9%	14.0%	11.9%	11.9%	12.2%	11.9%	12.2%
2034-2035	13.7%	15.7%	13.7%	13.7%	13.9%	13.7%	13.9%
2044-2045	20.7%	22.9%	20.7%	20.8%	21.0%	20.7%	21.0%
2054-2055	27.3%	29.6%	27.3%	27.3%	27.5%	27.3%	27.5%
GAP	12.45%	13.82%	12.45%	12.45%	12.66%	12.45%	12.57%

Changing the current career-average revalued earnings system to the highest 750 contributions for the calculation of the retirement pension would increase the long-term benefits-to-earnings ratio by about 2 percentage points as early as 2027-2028. Due to the minimum retirement pension, the modification would have no significant impact for several years after the valuation date. However, Chart 4.1 indicates that it would increase the ratio by more than 15 per cent in 15 to 30 years when the ratio is still around 10 per cent. The relative impact decreases to approximately 8 per cent by the end of the projection period. This modification would be a major change to the design of the system and it should be considered seriously among other options with a view to abandoning the class system, which is considered obsolete.

The other changes deal with survivors and disability benefits and they have very limited impact on costs. Only those dealing with the earnings used to calculate the pension have an impact on the GAP.

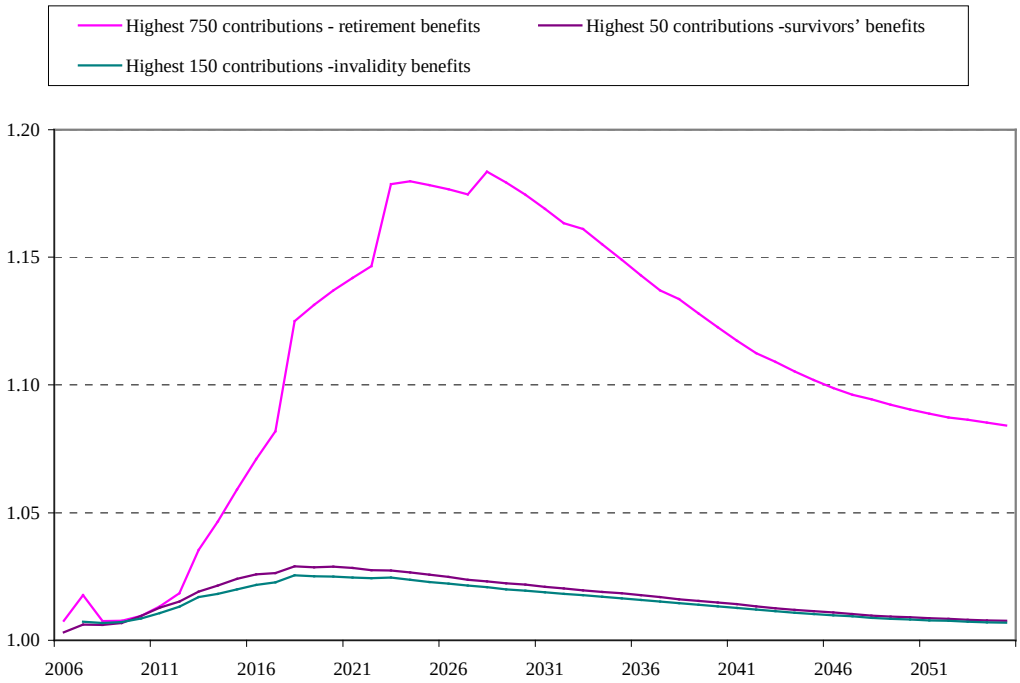
Advice regarding the feasibility of implementing the modifications is as follows:

- Modifications to earnings used for the calculation of retirement, invalidity and survivors' pensions should be contemplated all together and not on a piecemeal basis. They would deserve consideration in the context of a major reform.

- Setting minimum pensions for widows and parents of the deceased raises no problem. Such minimum should be subject to automatic indexing.

- Increasing the minimum retirement grant raises no problem.
- Reducing the eligibility criteria for survivors' benefits may open the door to abuse and is not recommended.
- It is recommended not to penalize at retirement age the disabled persons who could not attain the minimum contributory period because of their disability.

Chart 4.1 Selected ratios - cost of modified benefits over cost of base scenario benefits, 2006-2051



4.1.2 Short-term benefits

Seven changes regarding short-term benefits are contemplated. Three of them deal with the access to sickness and maternity benefits and another set of three consists of increases to grants. Another one aims at extending funeral benefits to dependents of insured's persons. The financial impact of six of those changes is shown in Table 4.2. For short-term benefits, the impact over the projection period is expressed in terms of the average benefits-to-earnings ratio over the period, the general average premium not being considered a proper indicator for short-term benefits. Modification regarding the doubling of maternity grants in case of multiple births is not shown because it has no significant impact on the average benefits-to-earnings ratio.

Table 4.2 Benefits-to-earnings ratios – modifications of short-term benefits

Year	Current provisions	Eligibility sickness 15/36	Eligibility maternity 15/36	Eligibility maternity father's contributions	Maternity grant at TT$4,000	Funeral grant at TT$5,000	Funeral grant paid at death of spouse/child
2005-2006	0.59%	0.88%	1.26%	0.67%	0.67%	0.62%	0.59%
2006-2007	0.59%	0.88%	1.28%	0.67%	0.67%	0.62%	0.59%
2007-2008	0.56%	0.85%	1.21%	0.63%	0.63%	0.59%	0.56%
2008-2009	0.53%	0.82%	1.15%	0.60%	0.59%	0.56%	0.53%
2009-2010	0.54%	0.83%	1.17%	0.60%	0.60%	0.56%	0.54%
2010-2011	0.54%	0.84%	1.18%	0.60%	0.60%	0.56%	0.54%
2011-2012	0.54%	0.85%	1.20%	0.61%	0.60%	0.57%	0.55%
2012-2013	0.52%	0.82%	1.13%	0.58%	0.58%	0.55%	0.52%
2013-2014	0.52%	0.82%	1.13%	0.58%	0.58%	0.55%	0.52%
2014-2015	0.52%	0.83%	1.13%	0.58%	0.57%	0.55%	0.52%
2019-2020	0.51%	0.82%	1.06%	0.55%	0.55%	0.53%	0.51%
2024-2025	0.48%	0.80%	0.97%	0.53%	0.52%	0.51%	0.49%
2029-2030	0.47%	0.79%	0.91%	0.50%	0.50%	0.50%	0.47%
2034-2035	0.47%	0.79%	0.90%	0.50%	0.50%	0.49%	0.47%
2044-2045	0.48%	0.80%	0.94%	0.51%	0.50%	0.50%	0.48%
2054-2055	0.48%	0.79%	0.92%	0.50%	0.50%	0.50%	0.48%
Average all years	0.49%	0.81%	1.00%	0.54%	0.53%	0.52%	0.50%

Liberalizing qualifying conditions to sickness and maternity benefits (15/36)[7] has a major impact on costs. Chart 4.2 shows that this would increase the benefits-to-earnings ratio by 50 to 100 per cent. It is recommended to further investigate alternative options that would generate less pressure on costs. Use of father's contributions for eligibility to maternity grant is considered an appropriate improvement at a reasonable cost.

Estimations regarding qualification conditions are subject to significant uncertainty. Indeed, it has been assumed that the injury frequency and severity of claims of the persons who are actually ineligible would be the same as for those actually eligible, which is only one of several reasonable possibilities. Estimating with more confidence the underlying phenomena would require costly data investigation through surveys.

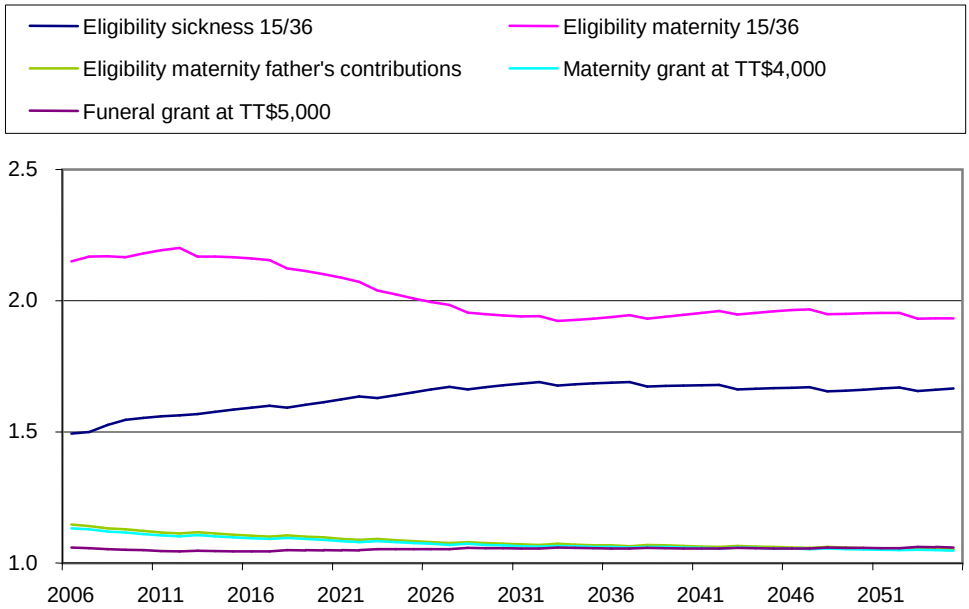
Additional remarks regarding the desirability to implement modifications are:

- Increase of the maternity grant by a percentage larger than inflation should be justified on policy grounds.
- Automatic adjustment of grants to price inflation should be implemented.
- Doubling the maternity grant for multiple births is appropriate.

[7] 15 weekly contributions during the 36 weeks preceding the sickness or the sixth week before the expected confinement.

- Payment of funeral grant on death of a dependent is not a widespread provision in social security systems. This modification should not be considered as a priority. In case of implementation, it is recommended to set the benefit at a lower level than the benefit paid at death of insured.

Chart 4.2 Selected ratios - cost of modified benefits over cost of base scenario benefits



4.1.3 Employment injury benefits

Table 4.3 presents results related to changes in employment injury benefits. The increase of the injury allowance to 100 per cent of insurable salary instead of the current 66.7 per cent has a significant impact. The benefits-to-earnings ratio would be increased uniformly over the projection period by 0.05 per cent. The estimation does not include any impact resulting from the reduction of the incentive to return-to-work. Though it is generally believed that increasing the replacement ratio may lead to an increase of cost that is more than proportional to the parametric increase, there is no evidence about the elasticity factor to be used for cost estimation. A 100 per cent replacement ratio is not recommended because of its negative impact on return-to-work.

Regarding the cost of resonance magnetic imaging exams, application of ratios obtained from international experience leads to an increase of 50 per cent of the current costs for medical care. However, such costs are actually so low that this impact is not significant in terms of total employment injury costs. No obstacle is seen in implementing this change on an experimental basis.

It may be interesting to add that the benefit cost for an injury year on a fully funded basis is estimated at 0.47 per cent of insurable earnings in 2006 and that the two changes would increase it to 0.52 per cent, which is an 11 per cent increase.

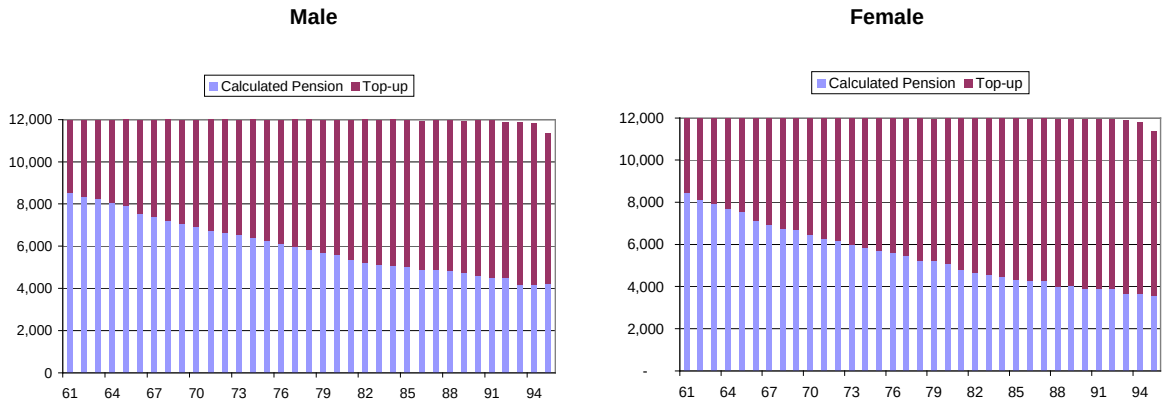
Table 4.3 Benefits-to-earnings ratios – modifications of employment injury benefits

Year	Base scenario	Reimbursement of magnetic resonance imaging	Injury allowance set at full salary
2005-2006	0.28%	0.28%	0.32%
2006-2007	0.29%	0.30%	0.34%
2007-2008	0.27%	0.27%	0.31%
2008-2009	0.26%	0.26%	0.30%
2009-2010	0.29%	0.29%	0.33%
2010-2011	0.30%	0.30%	0.35%
2011-2012	0.32%	0.32%	0.36%
2012-2013	0.31%	0.31%	0.35%
2013-2014	0.33%	0.34%	0.38%
2014-2015	0.35%	0.35%	0.40%
2019-2020	0.43%	0.43%	0.48%
2024-2025	0.50%	0.50%	0.55%
2029-2030	0.55%	0.55%	0.60%
2034-2035	0.60%	0.60%	0.65%
2044-2045	0.71%	0.71%	0.76%
2054-2055	0.76%	0.76%	0.81%
Cost of an injury year on a fully funded basis	0.47%	0.47%	0.52%

4.2 Evaluation of the current system

In principle, the NIS is a sound social security system that intends to provide benefits that are adequate in the three branches. However, we have previously mentioned that the relevance of pensions has gradually deteriorated for two decades due to insufficient indexing of benefits. Efforts have been made for the last ten years to address that issue. This has been achieved through implementation of a minimum pension. Chart 4.3 shows the breakdown of retirement pensions-in-payment at the valuation date between the calculated part, corresponding to historical revalued earnings, and what is called the top-up, which is the additional amount necessary to reach the minimum.

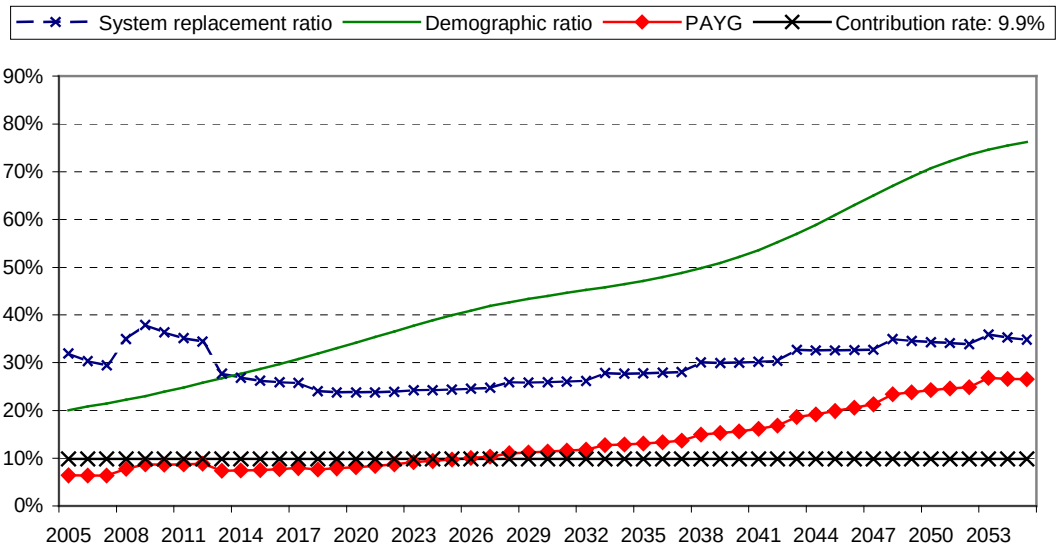
Chart 4.3 Components of average annual retirement pensions at 30 June 2005 by age (TT$)



The pension resulting from the earnings records of the insured represents between 40 and 65 per cent of the average pension, the younger the pensioner the higher is the proportion of the total pension. Under the inflation assumptions of this valuation, many current pensioners would benefit from the top-up provisions until their death. After the new minimum pension will have increased to TT$2,000 graded to TT$2,500, most new pensioners who will retire in the next five years will continue to benefit from the top-up. This indicates that the application of the system has failed to maintain an earnings-related objective. The system could be more and more perceived as a flat pension with a significant redistribution mechanism, which is a major change in relation to the original intention. Transparency suggests that stakeholders should openly discuss the desirability of such structural change.

It is interesting to analyse the perspective for the future. Chart 4.4 shows the expected evolution of key indicators useful for the assessment of the performance of a social security scheme. Those are the components of the PAYG: the demographic and the system replacement ratios. The demographic ratio is obtained by dividing the number of pensioners by the number of contributors. The system replacement ratio is the average pension over the average insurable salary. The PAYG is the product of those two ratios.

Chart 4.4 Key indicators – long-term benefits



The replacement ratio is expected to increase at once when the minimum pension is implemented in 2008 and decrease for a few years because the minimum pension loses its real value. It would also decrease sharply when the next ad hoc changes to the classes of earnings are implemented in 2013 if the minimum pension is not indexed. The ratio will start to increase again in 2022 when an increasing proportion of new pensioners will have their pension calculated with properly indexed earnings. In the last ten years of the projection period, the replacement ratio tends to stabilize around 35 per cent.

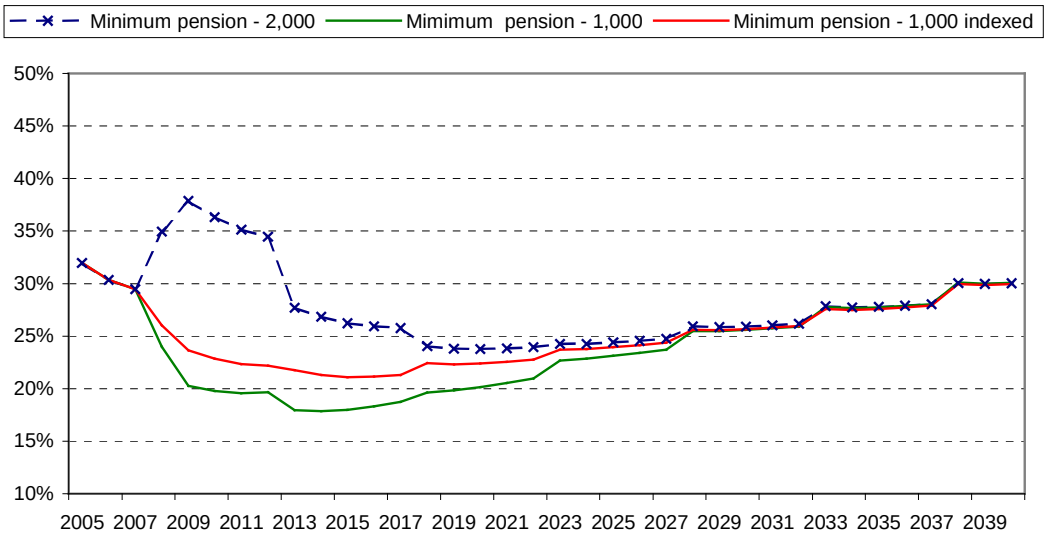
One could feel concerned about the expected pattern of the replacement ratio after 2010 and expect that public pressure will force actions from NIBTT to avoid loss of purchasing power that would generate subsequent increases of the minimum pension in the future. The intention to provide sufficient income to pensioners through increase of the minimum pension responds to the objective of maintaining the relevance of benefits. However, it may not be the most recommendable manner to ensure the relevance of the system. A weakening of the relationship between contributions paid and the amount of pension may have the undesirable consequence of reducing the incentive to contribute and increasing evasion. The co-existence of a means-tested social assistance programme and an earnings-

related contributory social security system as is the case in Trinidad and Tobago might exacerbate these phenomena unless they are carefully integrated.

It is interesting to notice that the new provisions regarding the minimum retirement pension would have the result of transferring the financial cost of the OAP from the tax revenues to contributors to NIS. Under the current rules, old-age pensioners with no other income than their pension receive a pension from both sources for a total of TT$2,000. After the change, they would receive the same amount from NIS solely.

Chart 4.5 shows the sensitivity of the system replacement ratio to the minimum retirement pension for the next 35 years. In addition to the base projection, the chart shows the impact of the current minimum kept constant or increasing with price inflation until it reaches TT$2,000 after which it remains constant. In all cases, the drop of the replacement ratio in 2013 is related to the expected salary increases in the first five years of the projection period and their impact on the average insurable salary when the earnings classes are adjusted. The graph suggests that the contemplated increase of the minimum pension to TT$2,000 may not be the most desirable approach to maintain the relevance of benefits from the point of view of continuity. ILO has developed an alternative provision for the minimum retirement pension that smoothes the replacement ratio over time and maintains a stronger earnings-related feature. It will be described in the Section 4.3.

Chart 4.5 Sensitivity of system replacement ratio to minimum retirement pension



The Government of Trinidad and Tobago is analyzing the complete retirement system, which includes all other schemes providing pensions, including social assistance and occupational pension systems. This is an important opportunity for NIBTT to redefine the role of NIS and ensure that its design for the future will correspond to objectives set by the social partners. At the same time, it would be appropriate to replace the wage class system by a more conventional approach that uses the exact wages of workers for the determination of contributions and the calculation of pensions. This would require major changes to operational systems and would have to be carefully planned over a certain number of years.

In the meantime, NIBTT can reinforce its commitment to protect the relevance of benefits by putting in place a mechanism that would ensure automatic annual indexing of benefits and classes of earnings according to economic indicators agreed upon by stakeholders. There is no need to link such mechanism to an actuarial review. Actuarial science is very

useful to monitor the financial performance of a scheme, but it should not be seen as a substitute to responding to social needs and invest resources in credible indicators.

Long-term projections indicate that the benefits-to-earnings ratio for long-term benefits will increase to about 30 per cent at the end of the projection period. This means that unless a huge fund is available to provide investment income, the contribution rate will tend to that level. Given the experience of economically developed countries that have reformed their pension system to adapt to an aged society, such contribution rate is generally considered too high because it can have a negative impact on employment. Provisions are designed to keep the contribution rate in the 20-25 per cent range. The only way to avoid this, for the systems that have not accumulated assets to generate significant investment income, is to modify the parameters of social insurance schemes in order to reduce the costs. Provisions regarding retirement benefits, such as retirement age and the accrual rate of benefits, are certainly those that may have a major impact on costs. Though NIBTT is aware of all these issues, we observe that the social policy of NIBTT for the period 2005-2010 does not consider modifying those parameters. However, these issues will have to be considered sooner or later. Since it is sound policy to announce implementation of a change in retirement age a long time in advance, it is considered that the age at which retirement benefits are available without reduction is an issue that should be addressed in the near future.

In the process of the actuarial valuation, the experience analysis and the determination of assumptions has lead to the identification of issues regarding some benefit provisions. Among them, it is believed that the transition from invalidity to retirement deserves attention. Disability resulting from natural causes and work injury should be carefully analysed having in mind that the compensation objectives may not be the same. Close coordination with the Ministry of Labour in the matter of occupational health and safety and workers' compensation would create synergy to respond better to employers' and workers' concerns regarding the role of the NIS for compensation related to work accidents and occupational diseases. This would contribute to responding to concerns regarding prevention of accidents and occupational diseases and the return to suitable work of injured workers.

It seems that short-term benefit qualifying periods are considered too stringent and there is a desire to smooth them out. It is recommended to examine several scenarios and carefully review the operational practices before making a final decision particularly for sickness benefits in order to avoid generating opportunities for abuse.

4.3 Minimum retirement pension - an alternative

Though the provisions regarding the minimum retirement pension in the base scenario has its merits, ILO considers that the risk of it undermining the credibility of the system is sufficient to recommend an alternative that is relevant in terms of compensation and avoids the undesirable impact of a flat-benefit system. The proposal is that the minimum pension would apply only to the basic retirement pension corresponding to the first 750 weeks of contribution and it would be set at TT$1,500. In order to maintain the relevancy of this minimum pension over time, it is recommended to index it according to the same index as the limits of earnings classes, which is price inflation. After application of this provision in 2008, the earnings related part of pensions awarded to new old-age pensioners is between 15 per cent and 20 per cent of their total pension for both genders.

Chart 4.6 shows the average replacement ratio corresponding to the proposal. The replacement ratio of the alternative is smaller for a few years after application of the new minimum pension in 2008. It is not very different from the base scenario after the 2013 indexing. Following the 2018 indexing, the replacement ratio of the proposal is about four

percentage points higher than the replacement ratio of the base scenario. The difference maintains at this level for about 15 years after which both ratios converge slowly to the same level.

Chart 4.6 Replacement ratio of recommended alternative

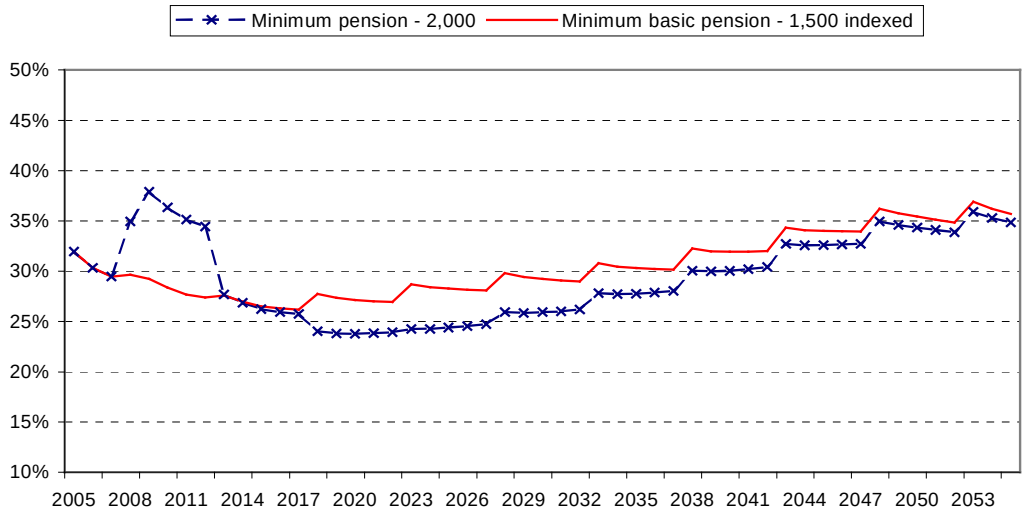
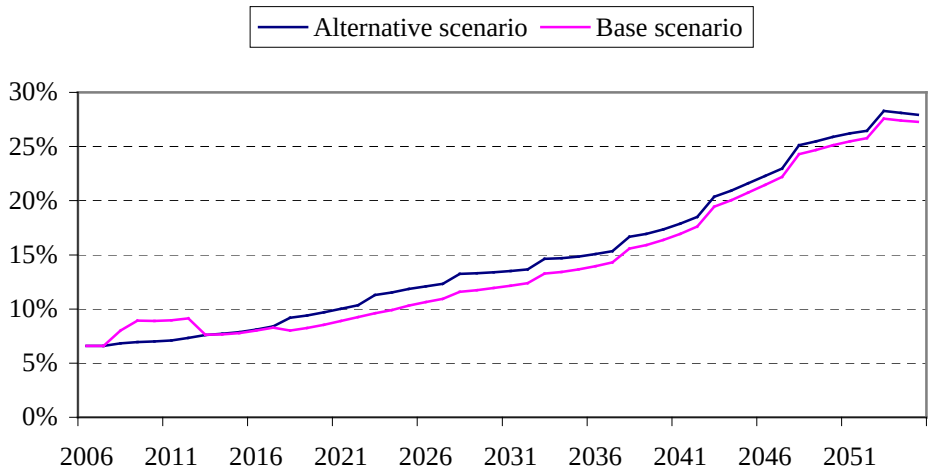


Chart 4.7 shows the impact of the proposal on the benefits-to-earnings ratio for the Long-term Benefits Branch.

Chart 4.7 Benefits-to-earnings ratio – long-term benefits



If the contribution rate of 9.9 per cent remains unchanged, the fund will be depleted two years earlier under the alternative, which in 2043-2044 instead of 2045-2046. The GAP over the projection period under the alternative would be 14.4 per cent, which is 0.6 per cent more than under the base scenario at 13.8 per cent.

4.4 Administration expenditures

Assessment of the appropriate level of administrative expenditure for any social security schemes must be based on several criteria that are necessarily partly based on judgment. Sufficient resources are necessary to provide the appropriate level of service while

maintaining a reasonable cost. The type of benefits, the level of maturity of the scheme, the level of contributions in relation to benefits must all be considered when ratios are established between administrative expenditures and usual financial data such as contribution income and benefit expenditure. There is no reliable unique benchmark valuable in all circumstances. Guidelines can be inspired by comparison with other schemes and genuine consideration of the differences. In the case of Trinidad and Tobago, the practice of applying indexation every five years still makes it very difficult to define or interpret indicators because this generates discontinuities.

Table 4.4 shows NIBTT administrative expenditures, their year-to-year variations and standard ratios for the last six financial years. The Sixth Actuarial Review recommended levels of administrative expenditure expressed in terms of contribution income shown in the last row of the table. These ratios were obtained by dividing the projected administrative expenditures by the projected contribution income. Administrative expenditures were projected according to price inflation. It is a noteworthy reminder that the assumption regarding price inflation was the same as the salary increase, which was 4 per cent per year. Section 1 reported that an unfavourable experience deviation has been observed in the inter-valuation period for administrative expenditures. No attempt has been made to explain or justify the sources of deviations.

Table 4.4 Administrative expenditures

	1999-2000	2000-2001	2001-2002	2002-2003	2003-2004	2004-2005
Administrative expenditures (TT$ Million)	56,348	50,447	61,539	60,024	86,355	83,433
Variation with previous year		-10.5%	22.0%	-2.5%	43.9%	-3.4%
Financial data (TT$ Million)						
Contribution income	702,446	760,957	799,160	869,936	941,341	1,172,701
Benefit expenditure	348,268	375,539	403,454	419,504	752,025	943,810
Insurable earnings	8,362,452	9,059,012	9,513,810	10,356,381	11,206,440	13,960,726
Ratio: Administrative expenditures/Financial Data						
Contribution income	8.02%	6.63%	7.70%	6.90%	9.17%	7.11%
Benefit expenditure	16.18%	13.43%	15.25%	14.31%	11.48%	8.84%
Insurable earnings	0.67%	0.56%	0.65%	0.58%	0.77%	0.60%
Expected ratio in Sixth Actuarial Review as percentage of contribution income	6.6%	6.7%	6.7%	6.1%	5.5%	5.2%

Analysis of the correlation between the evolution of economic indicators and the NIBTT administrative expenditures does not enable the identification of a reliable indicator, even if a longer observation period than the last five years is used in which significant fluctuations are observed. For this actuarial review, it is assumed that administrative expenditures would increase according to wage increase and price inflation in equal proportion of 50 per cent. The most important component of such expenditures is salaries and it is reasonable to assume that they would follow the general pattern. The other part of expenses is subject to various inflationary pressures. Price inflation was considered appropriate to reflect them.

One can expect that administrative costs may also be subject to additional upward pressures if workload increases. Such workload may be subject to increase in the maturing phase of the system because the number of beneficiaries grows steadily. It was assumed

that productivity gains would offset this factor. International comparisons indicate that if the Vision 2020[8] objectives are achieved, the administration costs of the social security system should tend to those of developed countries. Table 4.5 shows forecasted administrative expenditures in terms of contributions for the next ten years if the contribution rate remains at 9.9 per cent. They are above those of developed countries. For example, the Canada Pension Plan administrative expenditures were 1.7 per cent of contribution income in 2003.

Table 4.5 Projected administrative expenditures as a percentage of contribution income, 2005-2006 – 2013-2014

	2005-2006	2006-2007	2007-2008	2008-2009	2009-2010	2010-2011	2011-2012	2012-2013	2013-2014	2014-2015
Ratio	7.0%	7.0%	5.8%	5.0%	5.0%	5.1%	5.1%	4.1%	4.2%	4.2%

In the financial statements, administrative expenditures are allocated by branch of benefits in proportion to funds. This may not properly reflect the workload that each branch generates. In particular, it seems that the short-term fund may not support its appropriate share of administrative expenditures. Short-term benefits do not generate a significant need for reserving, but are demanding in terms of administration of benefits. It is suggested that contribution income and benefits in equal proportion be used as the basis for such allocation. The basis for allocation by branch of business could be improved in the future if NIBTT puts in place mechanisms that enable the measurement of administrative expenditures of each branch.

4.5 Investment policy

NIBTT investment decisions are guided by an investment policy paper covering topics ranging from general issues to details in the application of the policy. The policy explicitly refers to the average long-term rate of return used for projection of the fund in the Sixth Actuarial Review, which was 8 per cent, as the long-term average nominal rate of return.

The assumption regarding investment yield in the current Actuarial Review has been determined in terms of the real rate of return, which is considered as the key variable. The nominal rate of return is the result of the combination of inflation and of the real rate of return. For this review, the inflation assumption has been established to reflect the short-term expectations and the long-term macro-economic framework. The real rate of return has been established with a long-term perspective only. The reference to the long-term average rate of return will have to be formulated differently in the investment policy to consider that approach. Different techniques are possible to determine a uniform long-term nominal rate of interest corresponding to the specific rates used every year. In all cases, the flat rate of 7 per cent that is assumed in the last 40 years of the projection will strongly influence the result.

The real rate of interest used in the forecast is based on the premise that the proportion of equities will constantly be above one-third of the portfolio during the accumulation period of the fund. The asset mix reported in the financial statements meets that premise at 30 June 2005. It is understood that the current legislative and regulatory environment would not allow an increase of that proportion beyond 50 per cent.

[8] The Government of Trinidad and Tobago has identified the achievement of developed nation status by the year 2020 as the principal development goal of the country.

It is not expected that the net yield on portfolio (realized and unrealized income) will meet the target every year. Volatility of the yield is proportional to the percentage of equities. The timing of fluctuations around the assumed average yield has a significant impact on the evolution of the fund. Charts 4.8 and 4.9 illustrate such volatility.

Chart 4.8 shows the fund under the base scenario and three alternative random runs corresponding to different sets of investment yields. In those scenarios, the rate of return is modified in each projection year according to a random process. This random process uses variations around the real rate of return of the base scenario, which are inspired by the experience of the NIS fund since 1991. A large number of runs have been made and three of them have been selected for illustration. Two runs were selected for which the average deviation around the expected rate of return is the same at 0.47 per cent, but the fund accumulation is different. This illustrates that the timing of favourable and unfavourable deviations around the average has an influence on the behaviour of the fund. Under the other scenario, the average deviations around the rates of return are negative at -0.80 per cent and the fund is depleted much earlier than under the base scenario.

Chart 4.8 Impact of fluctuating rates of return on the fund

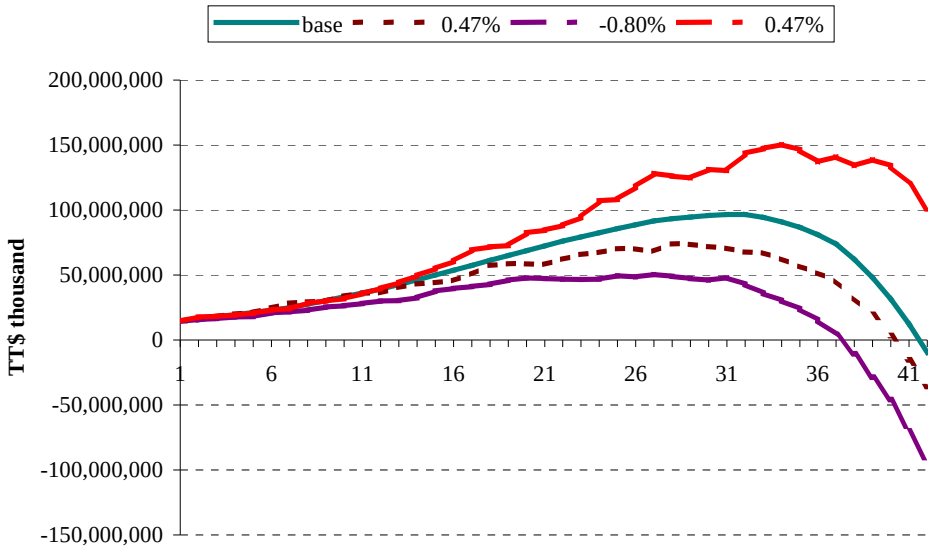
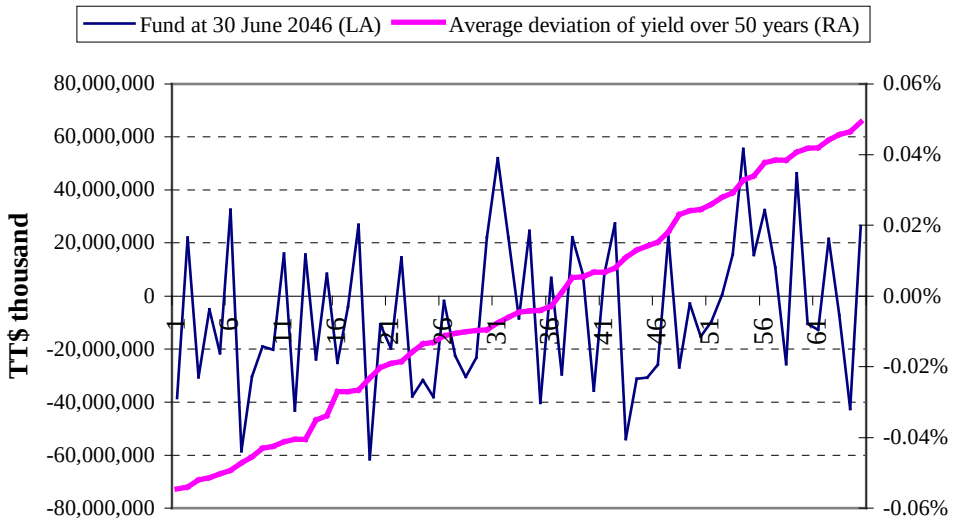


Chart 4.9 shows the fund at 30 June 2046 corresponding to the 65 smallest deviations around the average rate of return over the 50-year projection period. Such deviations are all very low, ranging from –0.05 to +0.05 per cent.

Chart 4.9 Smallest random deviations of yields – fund at 30 June 2046



Under the basic scenario, investment yields are always equal to the assumption, and the fund at 30 June 2046 is TT$12 billion. The chart indicates that the difference between the runs with the highest value of the fund (run 54) and the lowest one (run 19) exceeds 100 billion though the difference between average yields over the 50-year period is only 0.05 per cent. This illustrates how important the timing is of variations in the investment yield around its mean.

4.6 Funding method

In this section, recommendations regarding the contribution and the accounting policies for the follow-up of funding policies will be presented. An analysis of the projected benefit expenditure in terms of present values at the date of valuation is necessary to support such recommendations.

4.6.1 Current practice

The NIBTT policy is to partially fund the NIS and apply the scaled premium technique. Financial statements reflect this policy through reserves and allocation of contribution income by fund set according to recommendations of an actuary. Reserves for each fund are expressed in terms of a multiple of benefit expenditure. Funds are apparently at the level required for the purpose of allocation of investment income given the funding method of each branch. It seems also that the coefficients applied to benefit expenditure are set in such a manner that the reserves have a reasonable relationship with benefits liabilities. However, there is no pretension to report liabilities in financial statements. Indeed, accounting policies included in the *Notes to the Financial Statements* clearly state it is not intended that reserves would represent a liability to the Board. However, this remark can also be interpreted semantically, the Board therefore declining any obligations of future payment.

4.6.2 Concept of actuarial liabilities

The definition of actuarial liabilities in a social insurance system may be subject to various interpretations. For the purpose of this valuation, we propose to refer to the following concepts. Benefits liabilities refer to the present value of future payments for the pensions-in-payment at the valuation date and the rights of participants accrued at the same date. For

this last part of liabilities, the definition of accrued rights and the pace at which rights accrue over the career of an individual are subject to interpretation and debatable. For example, in the calculation of accrued retirement pension rights, should future adjustments of past earnings be considered or not?

Table 4.6 shows the present value (PV) of pensions-in-payment at the date of valuation as well as the ratio of such PV over the 2004-2005 benefit expenditure. Such PV have been established by discounting future payments for pensioners at the valuation date and also benefits that may arise due to death of those receiving retirement or disability pensions at the valuation date. As a consequence, the short-term benefits liabilities cover the present value of funeral grants related to deaths of current retirement pensioners. This illustrates that considering funeral grants as short-term benefits may be misleading. The right to the grant is a long-term issue, but the payment of lump-sum benefits is a short-term one. In the matter of employment injury, temporary allowances and medical care benefits related to injuries that have occurred before the valuation date are included in the PV. Such payments are spread over a few years after the valuation date.

Table 4.6 Financial indicators related to pensions-in-payment at valuation date

	Long-term benefits	Short-term benefits	Employment injury benefits
PV pensions-in-payment (TT$ million)	10,067	150	355
Benefit expenditure 2004-2005 (TT$ million)	834	74	35
Ratio (PV pensions-in-payment/ Benefits-in-payment)	12.1	2.0	10.0
Reserves at 30 June 2005 (TT$ million)	8,341	93	284

Table 4.6 indicates that current funds do not cover the present value of benefits-in-payment. These PV represent an estimation of the amount of assets that would be necessary to pay for the benefits. To simplify communication, 'liabilities' is used to refer to PV's in the remaining part of the section.

Additional accrued liabilities have been estimated for each branch according to the following approach. Calculations were performed for the base scenario.

(1) Long-term benefits: Pensions are accrued in proportion to the number of years of contribution at 30 June 2005 to the total number of years of participation at the date of retirement. Salaries payable in the starting projection year are assumed to be constant over the rest of the projection period.

(2) Short-term benefits: Payments regarding all sickness and maternity leave for events giving rights to benefits that occurred before the valuation date have been estimated. This refers to allowances and grants for onset of sickness and start of maternity allowances before the valuation date.

(3) Employment injury benefits: Payments for all accidents that occurred before the valuation date. This refers to future awards of permanent disability benefits (pensions and grants) for injuries that occurred before the valuation date.

This part of liabilities is subject to uncertainty and unavoidable arbitrariness for long-term benefits. Also, given that this perspective of the actuarial review is considered secondary in relation to financial projections presented, data collection and methodology are not as refined as for the rest of the valuation process. Consequently, certain approximations are

involved and the estimation error is more significant. Nevertheless, it is considered that the results presented in Table 4.7 are valuable for the present discussion purpose. Should the recommendation regarding the minimum pension retirement be implemented, the accrued liabilities for the long-term benefits would be higher.

Table 4.7 Estimated accrued liabilities at the valuation date (base scenario)

	Long-term benefits	Short-term benefits	Employment injury benefits
Accrued liabilities (TT$ million)	21,702	205	504
Ratio: Accrued liabilities / benefit expenditure	26.0	2.8	14.2

If the NIBTT were to apply its objective of maintaining a ratio of reserves to liabilities at 70 per cent, the coefficients applicable to expenditures for the calculation of fund reserves for long-term and short-term benefits, currently at 10 and 1.25, should be increased to 18.2 and 1.9. For employment injury benefits, the same reasoning would lead to an increase of the current coefficient from 8 to 10. However, full funding could also be envisaged if NIBTT were to eventually implement risk classification or any form of experience rating.

Though the estimation of liabilities is interesting for various purposes, such liabilities do not necessarily represent the target of assets that should maintained for each branch. Other considerations must be taken into account. The determination of the contribution rate and the method of calculation of reserves must be established together.

4.6.3 Contribution rate

Each branch of benefits has its own characteristics in terms of development of expenditures and the period in which rights of beneficiaries are acquired. Governance principles militate in favour of defining financing rules that enable monitoring of the financial situation of each branch according to its characteristics. Until now, the NIBTT has demonstrated its intention to be sensitive to that concern. We know that the Long-term Benefits Branch is the major cost component and drives the total contribution rate. Whatever sophistication is inserted into the funding of short-term and employment injury benefits, the acceptance of NIS contribution rate will be dependent upon the decisions made with respect to fund long-term benefits. In this section, it is assumed that NIBTT will apply the ILO recommendation regarding the minimum retirement pension.

The NIBTT policy states that the scaled premium is the funding method. Since the scaled premium approach is not generally appropriate for short-term benefits, it should be understood that the above statement is a simplification. The intention is to apply the scaled premium to fund long-term benefits but the door probably remains open to a different approach for the two other branches.

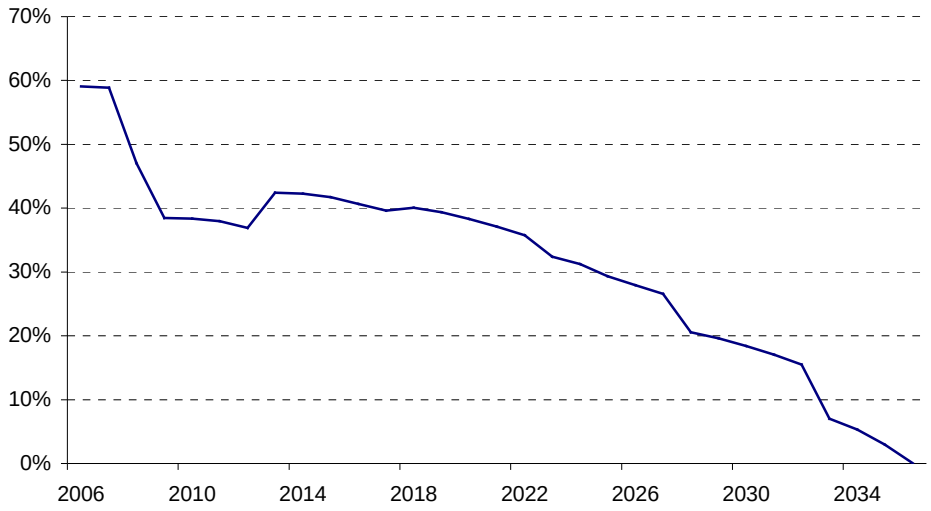
Projections indicate that the cost of short-term benefits is stable in term of insurable salaries. This is consistent with their characteristics because they are predominantly of short-term nature. The contribution rate can be set at a level that covers the expected benefits and administration expenditures until the next valuation with a reasonable margin for statistical fluctuations. This is the principle of the pay-as-you-go approach. A contribution rate of 0.65 per cent would satisfy the criteria. In relation to the effective contribution rate for that branch which is 0.89 per cent, this is a decrease.

The benefits-to-earnings ratio for employment injury is still low, but it will increase continuously and eventually double with the maturing of the scheme. The use of the estimated cost of an injury year, set at 0.55 per cent, for funding purposes is recommended.

Full funding should eventually be envisaged as the funding method for reasons of equity between generations of employers. This approach would enable the refinement of the rate setting system any time in the future when the employers request it without having the burden of funding past claims. In relation to the actual contribution of 0.59 per cent, this is practically the status quo.

For long-term benefits, calculations indicate that further increases of contribution rates are unavoidable, but they can be postponed without endangering the long-term sustainability of the scheme. For this branch, the NIBTT funding objectives regarding the proportion of income that should be steadily available for investment, namely 55 per cent of total income (contribution and investment), must be taken into consideration. Such objective would suggest a rate increase of about two percentage points in financial year 2007-2008. Chart 4.10 shows the projected percentage of the excess of total income over total expenditures under the base scenario. Stakeholders have expressed that a combination of increases to the ceiling of insurable earnings and significant increases in the contribution rate would not be acceptable. It is difficult to give a high priority to the objective regarding the amounts available for investment.

Chart 4.10 Percentage of surplus over total income (base scenario)



It is understood the NIBTT intends to build a fund that will enable the creation of sufficient investment income in the long-term to maintain the contribution rate at the lowest level possible. At a certain point in time, assets would have to generate stable and predictable income sufficient to pay the desired proportion of long-term benefit expenditure. For example, when the benefits-to-earnings ratio will have reached 30 per cent, the stock of assets required to fund one third of the expenditure level would be 4.7 times benefit expenditure under the current yield assumption of 7 per cent. This means that the long-term benefit fund should reach approximately 1.4 times insurable earnings. In 2005, the insurable base and the total funds are equivalent. The consequence of this is that the long-term benefits fund has to increase substantially over the next decades. However, it is understood that the success of such strategy depends upon investment opportunities over the next three decades and the ability afterwards to gradually transform a growth oriented investment portfolio into an income generating one. This is a long-term challenge and difficult to assess its chances of success.

The impact of ageing will be felt very slowly over the next two decades but it will amplify steadily afterwards. It would be prudent to address this issue as soon as possible and elaborate a strategy for the increase of age at which retirement pensions can be paid with

no reduction. The NIBTT should be concerned that the strategy of building a fund will also create appetite for better benefits. If the strategy to realign retirement benefits to practices that the future population structure will permit is not put in place soon, misunderstanding and opposition to changes will grow with the fund.

Considerations regarding the long-term funding objectives and the need to maintain awareness of the cost of the system suggest an increase in the contribution of long-term benefits by the percentage points necessary to fund the increase of the minimum retirement pension and any other increase of benefit provisions over the next fifty years. The required increase would be 1.7 per cent if no other change than the recommended minimum retirement pension is implemented. In relation to the actual rate allocated to the long-term benefits of 8.4 per cent, it represents a 20.2 per cent increase.

Considering the needs of all branches together, it seems appropriate to increase the total contribution by at least 1.5 per cent. It would become 11.4 per cent. This is considered within the range that is acceptable to stakeholders. The increase could be made effective in January 2008.

For practical purposes, it is recommended that contribution income be allocated by branch with single digit percentage points. Recommendations are presented in Table 4.8. It is understood that distribution of contribution income is reviewed relatively frequently, at least at every actuarial valuation. Timing of the increase of the contribution rate should be harmonized with the application of benefit indexing.

The necessity of the accumulated reserve is not obvious; it opens the door to erroneous interpretations. It can be seen as surplus available for additional benefits. If the allocation of contribution income properly reflects the funding objective and the contribution rate remains below the required level for sustainability, especially for long-term benefits, there is no reason not to allocate all excess of income over expenditures to benefits branches. A reconsideration of the current mechanism is suggested.

Should the NIBTT elect to maintain its current practice, it is recommend that reserves held for each fund as outlined in the financial statements be established according to the ratios specified in Table 4.8. They have a certain meaning that is easy to understand and, more importantly, the results obtained with their application enable distribution of investment income by branch according to their respective funding objectives. Therefore, ILO recommends ratios of 12, 2 and 10 times benefit expenditure, respectively, for long-term, short-term and employment injury benefits. Appendix V shows the financial projections based upon the proposed financial scenario.

Table 4.8 Recommended financial parameters – financial statements

	Long-term	Short-term	Employment injury
Allocation of contribution income (rate at 11.2%)	89%	6%	5%
Reserves -Multiple of benefit expenditure	12	2	10

4.7 Role of actuaries

Actuaries are experts in quantitative methods applied to the measurement of uncertain events. Their educational background includes basic to intermediate knowledge in many areas of expertise required in the management of insurance systems. They interact with other experts and it is important to define the scope and limits of their responsibilities in reviews of actuarial systems. During the conduct of the present actuarial valuation, the in-

house actuary has played a key role as an interface with NIBTT. The understanding of strengths and limits of actuarial science are well understood, but it seems relevant to discuss a few issues in order to bring clarity in this respect.

4.7.1 Interrelation between actuarial and other professional expertise

Section 70 of the Law stipulates that rates of contribution and rates of benefit can be amended by Order of the Board only after actuarial reviews. This provision ensures that modifications to parameters of the system are made only after proper assessment of their financial impact. It should not be interpreted narrowly as meaning that actuarial science provides for an absolute answer to the periodic adjustment of benefits to cost-of-living. Actuarial expertise provides the mathematical tools necessary to determine the parameters that respond to objectives. Stakeholders are those in the best position to define such objectives and should play an important role in the process. It is recommended in this report to improve the predictability of benefits and reinforce the continuation of relevance of the system through annual adjustments based on national indices. The development or reinforcement of such indices is consistent with the objectives of Vision 2020. Periodic adjustments of benefits in developed countries do not rely on actuarial expertise, but on indices based on a formal process of data collection involving experts from various areas.

The recommendations of the valuation actuary have an impact on the presentation of financial statements. The *Notes to the Financial Statements* make reference to parameters that are used for the allocation of contribution income by branch and the determination of funds. The accounting provisions of social security systems are dependent upon the funding methods used and each system has full freedom to determine them. A fully funded system requires a certain type of information while a scaled premium requires a different one. The ILO considers that the users' understanding of the report would be enhanced if the *Notes* would include a short description of the rational behind the recommendations of the actuaries. It is difficult to fully appreciate the meaning of actuarial recommendations if they are presented in the absence of explanations.

Reference is made in the investment policy to the yield assumptions used in actuarial reviews. It should be understood that the determination of those assumptions is not made with the purpose of defining a target. The actuary sets the assumptions that are considered most suitable for the purpose of the valuation by taking into consideration factors, such as past experience of the fund, investment policy, forecasts of experts, financial markets and the desired degree of prudence in the projections. In the end, yield assumptions should have a close link with reasonable expectations of investment managers regarding the performance of the investment portfolio. References to the actuarial valuation in the investment policy need to be carefully worded in order to avoid giving the impression that they are the result of a formula that mechanically determines a target. The current wording in section 2.3 of the investment policy paper states "… it has been determined that the required average long-term rate of return…" does not fully correspond to the process of the determination of the actuarial assumption at least in this valuation. The assumption is determined by taking into consideration realistic expectations identified by actuaries and other experts. An alternative wording recognizing this fact could be: "… it has been determined under the N^{th} actuarial review that an average long-term rate of return is a reasonable basis for the determination of the funding objectives of the system.".

Administrative expenditures incurred by social security systems are generally closely scrutinized. Actuarial techniques provide quantitative tools to analyse trends and define consistent indicators. However, the situation of each social security systems is different and may change over time. Explanations of deviations between the current experience of a scheme and the apparently appropriate benchmarks do not rely exclusively on actuarial science. Detailed information regarding operational activities is necessary to understand

the reality. Expectations regarding the improvement of efficiency in the operations of social security schemes are high. This can only be achieved through appropriate budgetary and accounting systems that permit the undertaking of functional analysis. Actuaries have the expertise to support the design of such systems and define indicators. They are not necessarily in the best position to define benchmarks. Section 22 of the National Act stipulates that the maximum amount of administration expenditures is determined by the actuary in the context of the periodic review of NIS. This provision should be changed in light of the comments in this paragraph and Section 4.4.

4.7.2 Internal actuarial expertise of NIBTT

This actuarial review was enhanced by the presence of a senior internal actuary and permitted the efficient conduct of the review. Communication was fluent and data validation was possible at a high level of accuracy. The ILO/FACTS model is well understood and could become the basic infrastructure around which to build the quantitative tools for forecasting. The presence of highly qualified actuarial staff is an essential tool for proper governance of social security systems. It is recommended to NIBTT to permanently integrate an actuarial department in its administrative structure.

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

The following summary provides a general overview of the key coverage, contribution and benefit provisions as of July 2005.

I.1 Contingencies covered

Section 43 of the National Insurance Act establishes three funds:
1. Long Term Fund
2. Short Term Fund
3. Employment Injury Fund

These funds are operated and managed by the National Insurance Board of Trinidad and Tobago for the purpose of providing monies required for the payment of benefits and which are credited with contributions paid by employers, employed people and the holders of Certificates of voluntary insurance.

These funds provide for the following benefits:

Long-term benefits:
Retirement, Invalidity and Survivors'

Short-term benefits:
Sickness, Maternity Allowance & Grant, Funeral Grant

Employment injury benefits:
Injury Allowances, Disablement, Medical Expenses and Death Benefits

I.2 Insured people

The National Insurance System (NIS) covers all employed people, aged 16-64, who are in insurable employment. "Insurable employment" means any employment other than uninsurable employment within the meaning of Section 29(2) of the National Insurance Act. Insurable employment excludes:

- People who earn less than TT$100 per week.

Notwithstanding the above, a person who was employed at 29 February 2004 and continues in such employment on and after 1 March 2004 and earns less than TT$100 per week is now regarded as an employed person or an insured person for the purposes of the Act and such employed person pays contributions as specified in Class I.

- People employed by international organizations that are granted specific exemptions.

Employed people under the age of 16 or over the retirement age (i.e. age 65 or 60-64 if the person ceases to be engaged in insurable employment), and unpaid apprentices are covered only for employment injury benefits.

People under the age 60 who cease to be in insurable employment may elect to become voluntary contributors.

Voluntary contributions may qualify only for retirement benefits, survivors' benefits and funeral grants.

I.3 Maximum insurable earnings

Earnings, which are covered for the purpose of determining contributions and benefits, are limited to TT$1,010 per week or TT$4,377 per month.

I.4 Financing provisions of the NIS as at 30 June 2005

Contributions payable by employers and employed people are based on the earnings class of the insured person. The total contribution on behalf of an employed person represents approximately 9.9 per cent of average weekly insurable earnings. The contributions are shared between employer and employee with a ratio of 2 to 1 and are credited to the long term, short term and employment injury funds in the following proportions of 85, 9, and 6 per cent of the total, respectively. The balances in the funds are set at 10, 1.25 and 8 times the annual benefit expenditure of the long term, short term and employment injury funds, respectively, and any excess is transferred to the accumulation reserve.

For voluntary contributions, the earnings class is determined with reference to the average weekly insurable earnings of the person over the two years preceding the application for voluntary contribution.

The earnings classes and the respective contribution rates payable that apply from January 2006 are set out in Table A1.2.

Table AI.1 Contribution rates payable from January 2006

Earnings class	Weekly earnings	Monthly earnings	Assumed average weekly earnings	Weekly contribution		Total weekly contributions	Class Z
				Employee	Employer		
I	100.00 - 159.99	433.00 - 692.99	130.00	4.29	8.58	12.87	0.87
II	160.00 - 219.99	693.00 - 952.99	190.00	6.27	12.54	18.81	1.28
III	220.00 - 289.99	953.00 - 1,256.99	255.00	8.42	16.84	25.26	1.71
IV	290.00 - 359.99	1,257.00 - 1,559.99	325.00	10.73	21.46	32.19	2.18
V	360.00 - 439.99	1,560.00 - 1,906.99	400.00	13.2	26.4	39.6	2.69
VI	440.00 - 529.99	1,907.00 - 2,296.99	485.00	16.01	32.02	48.03	3.26
VII	530.00 - 619.99	2,297.00 - 2,686.99	575.00	18.98	37.96	56.94	3.86
VIII	620.00 - 709.99	2,687.00 - 3,076.99	665.00	21.95	43.9	65.85	4.47
IX	710.00 - 809.99	3,077.00 - 3,509.99	760.00	25.08	50.16	75.24	5.11
X	810.00 - 909.99	3,510.00 - 3,942.99	860.00	28.38	56.76	85.14	5.78
XI	910.00 – 1,009.99	3,943.00 – 4,376.99	960.00	31.68	63.36	95.04	6.45
XII	1,010 and over	4,377.0 and over	1,010.00	33.33	66.66	99.99	6.79

Contributions payable by an employer in respect of employment injury coverage for an employed person who has not yet attained the age of 16 years or who is in receipt of a retirement pension or who has attained age 65 years are as set out in Class Z of the above table, or for an unpaid apprentice are TT$1.00 per week.

I.5 Benefit provisions of the NIS at 30 June 2005

Three funds were set up by section 43 of the National Insurance Act.

I.5.1. Long-term benefits

(a) Retirement pension

Contribution requirement: 750 weeks of contributions paid or credited.

Age requirement: Age 60 or over and retired from the workforce, or age 65and over regardless of whether or not the person is retired.

Amount of benefit: 30% to 48% of average weekly earnings over the whole period for which contributions are paid or credited, based on the 12 earnings classes, plus 0.56% to 0.71% of average weekly earnings for each 25 weekly contributions (not including age credits) over 750 weeks.

Minimum basic pension: TT$1,000 per month.

Duration of pension: Payable for life.

(b) Retirement grant

Contribution requirement: Less than 750 weeks of contributions paid or credited.

Eligibility: The person must be ineligible for retirement pension

.

Age requirement: Same as retirement pension.

Amount of benefit: Three times the total employee and employer contributions.

Minimum: TT$200.

(c) Invalidity pension

Eligibility: The insured people must have met certain contribution requirements, less than age 60, incapacity not caused by employment and have medical certification that they are likely to remain incapable of work for a period of at least 12 months.

Amount of benefit: Same as retirement pension, but not subject to the minimum pension of TT$1,000 per month.

Duration of pension: Payable until age of 60 (or until recovery from invalidity) and then converted to a retirement pension of the same amount whether or not 750 weeks of contributions have been paid or credited.

(d) Survivors' pension

Eligibility: Deceased insured less than age 60 or receiving a retirement pension or aged 60 or over entitled to receive a retirement pension as at date of death. Benefit not paid where the deceased insured would have been entitled to a Retirement Grant. Death not caused by employment. A minimum of 50 weeks of contributions paid.

- Widow or Widower: legal spouse

– Child: less than age 19, including an unborn child. In the case of an orphan where only one of the deceased parents was an insured, this orphan is considered as a child

– Orphan: less than age 19

– Parents: Wholly or mainly maintained by deceased insured

– Widows/Widowers Allowance: Widow's or widower's remarriage

Amount of benefit: The proportion of retirement or invalidity pension, to which the spouse/child/orphan/parent was entitled, shown below:

– Widow or widower: 60 per cent

– Child: 30 per cent
Minimum Child Allowance: TT$320 per month

– Orphan: 60 per cent
Minimum Orphan Allowance: TT$640 per month

– Parents: 30 per cent
Where one parent dies, the surviving parent receives the total amount of dependent parents benefit

– Maximum family benefit: 100 per cent

– Widows/Widowers allowance: 52 weeks of widow/widower weekly pension and paid as a lump-sum payment

Duration of benefit:

– Widow or Widower: the pension is paid for life or until remarriage

– Child/Orphan: Payable up to age 19. If the child/orphan was mentally or physically disabled before age 19, the benefit is paid until the incapacity ceases.

– Parents: the pension is paid for life or until remarriage

(e) Survivors' allowance

Eligibility: Payable after remarriage of widow or widower

Amount of benefit: 50 per cent of the retirement or invalidity pension to which their spouse was entitled.

Duration of benefit: Payable for 52 weeks.

I.5.2. Short-term benefits

(a) Sickness benefit

Contribution requirement: A minimum of 10 weekly contributions in the 13 weeks immediately preceding the week in which illness began.

Eligibility: The insured person must have been in insurable employment at the time of illness and is losing earnings. Illness not caused by employment.

Amount of benefit: 60% of the insured average weekly earnings over the best 10 out of the 13 weeks immediately preceding the illness, based on the 12 earnings classes.

– Minimum: TT$78 per week.

– Maximum: TT$603 per week.

Waiting period Three days.

Duration of benefit: Payable for a maximum of 52 weeks.

(b) Maternity benefit

Contribution requirement: A minimum of 10 weekly contributions in the 13 weeks immediately preceding the sixth week before the expected week of confinement.

Eligibility: The insured woman is not in insurable employment during the period of leave and pregnant for a minimum of 26 weeks or delivered a live child as certified by a medical practitioner. The benefit is not dependent upon loss of earnings.

Amount of Benefit: 60% of the insured average weekly earnings over the best 10 out of the 13 weeks immediately preceding the illness, based on the 12 earnings classes.

– Minimum: TT$78 per week.

– Maximum: TT$603 per week.

Duration of benefit: Payable for a maximum of 13 weeks and paid as a lump-sum payment.

(c) Maternity grant

Eligibility: A woman who satisfies the contribution requirement for maternity benefit. This is given in addition to maternity benefit.

Amount of benefit: TT$2,000 and paid as a lump-sum payment.

(d) Funeral grant

Eligibility: Death of an insured person. The deceased insured must have made a minimum of 25 contributions or was in receipt of employment injury benefit at the time of death or would have been entitled to receive employment injury benefit but for death.

Amount of benefit: TT$4,000.

I.5.3. Employment injury benefits

(a) Injury allowance

Contribution requirement: 1 contribution.

Eligibility: Incapable of work as a result of an accident arising out of insured employment, or as a result of a prescribed disease. This includes employed insured persons who are under 16 or over 65 years. The benefit is not dependent upon loss of earnings.

Amount of benefit: 66⅔% of weekly earnings related to the contributions paid for the week during which the accident occurred or the disease was diagnosed.

– Minimum: TT$86.81 per week.

– Maximum: TT$669.65 per week.

Duration of benefit: Payable for a maximum of 52 weeks.

(b) Disablement pension

Contribution requirement: 1 contribution.

Eligibility: Disablement resulting from an accident at work or a prescribed disease and the insured person is certified to be at least 20 per cent disabled.

Amount of benefit: Percentage of the amount of employment injury allowance in a proportionate manner, which reflects the degree of disability.

Duration of Benefit: After injury allowance has ceased, payable for life or until disablement ceases.

(c) Disablement grant

Contribution Requirement: 1 contribution.

Eligibility: The insured person must be ineligible for disablement pension i.e. the insured person is certified to be less than 20 per cent disabled.

Amount of Benefit: A lump sum equal to the product of the degree of disablement (minimum of 3 per cent) times the number of weeks it is expected that the disablement will last (maximum of 365) times ½ the average weekly earnings that would be used for injury allowance.

(d) Death benefit

Contribution Requirement: 1 contribution.

Eligibility: The death of an insured person in the course of insurable employment as a result of an accident or a prescribed disease.

Amount of Benefit: Pension payable to widow, a dependent widower, a child, an orphan and dependent parents subject to similar conditions as survivors' benefits. Death benefits are the same percentages of injury allowance as survivors' benefits are of the retirement pension.

(e) Medical expenses

Eligibility: An insured person who incurs the cost of medical treatment for the personal injury or prescribed industrial disease arising out of insured employment.

Expenses covered: Doctor's fee, drugs, private hospitals, operations, attendance allowances.

Amount of benefit: Maximum of $18,000 per injury.

I.6 Contemplated modifications to the NIS

Reference	Description
1 - Contributions	Increase the ceiling of insurable earnings from TT$4,377 to TT$10,000
2 - Retirement benefits	Minimum retirement grant is increased from TT$ 200 and should not exceed one month minimum pension inclusive of the top up
3 - Retirement benefits	The highest 750 contributions paid or credited should be used in computing pensions.
4 - Survivors benefits	If the Widow/Widower benefit is less than TT$320, it is topped up to TT$320.
5 - Survivors benefits	If a dependent's parent benefit is less than TT$160, it is topped up to TT$160
6 - Survivors benefits	The criteria for paying a benefit be based on the 50 highest contributions, where no retirement pension has been paid / is payable.
7 - Survivors benefits	Eligibility requirement reduced from 50 to 25 contributions.
8 - Invalidity benefits	The highest 150 contributions should be used in determining the invalidity pension. The link between invalidity pension and retirement pension should be removed. If the invalid beneficiary qualifies for a retirement pension at age 60, the retirement pension should be calculated using the 750 highest contributions. Otherwise the invalidity pension continues (without the top up)
9 - Sickness benefits	Eligibility criteria for sickness benefits: minimum of 15 weekly contributions in the 36 weeks immediately preceding the week of sickness
10 - Maternity benefits	Eligibility criteria: minimum of 15 weekly contributions in the 36 weeks immediately preceding the expected week of confinement
11 - Maternity benefits	When the mother does not qualify for maternity benefit, the father's contributions are used and a Maternity grant, subject to one claim per year per father
12 - Maternity benefits	Maternity grant increased from TT$2,000 to TT$4,000
13 - Maternity benefits	Maternity grant doubled for multiple births
14 - Funeral grant	Funeral grant increased form TT$4,000 to TT$5,000
15 - Funeral grant	Funeral grant awarded to an insured person if insured's spouse and /or child die.
16 – Employment injury benefits	The cost of magnetic resonance imaging should be included with regard to reimbursement of medical expenses.
17 – Employment injury benefits	Injury allowance benefits: Pay the full salary.

Appendix II: Methodology, data and assumptions

This actuarial review makes use of the comprehensive methodology developed by 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 NIBTT. 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 Trinidad and Tobago's future demographic and economic environment. Next, projection factors specifically related to the NIS 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 Trinidad and Tobago population has been projected beginning with CSO data in 2005 and by applying appropriate mortality, fertility and migration assumptions. The total fertility rate (TFR) is assumed constant at 1.76 over the projection period for the base scenario. Under the high fertility scenario, the TFR increases from 1.76 in the first projection year to 2.35 in 2030, remaining constant thereafter. Under the low fertility ratio, the TFR decreases from 1.76 to 1.35 in 2030 remaining constant thereafter. In both alternative scenarios, the pace of change of the TFR is slow in the initial years of projection.

Table AII.1 Total fertility rate assumptions

	2005	2010	2020	2030-2055
Base population	1.76	1.76	1.76	1.76
Lower fertility (old population)	1.76	1.74	1.61	1.35
Higher fertility (young population)	1.76	1.79	1.95	2.35

Mortality rates have been established according to the United Nations' medium variant[9]. Consistency checks have been performed to ensure they reproduce with a reasonable degree of accuracy the number of deaths in the population and among the pensioners of NIS: the lower and higher mortality are, respectively, based on the low and high variants. Mortality rates of the population base are provided in Table AII.2.

[9] United Nations (2004): *World Population Prospects, The 2002 Revision Population Database.* United Nations Population Division, Internet edition, New York.

Table AII.2 Mortality rates

	Male			Female		
Age	**2005**	**2030**	**2055**	**2005**	**2030**	**2055**
20	0.0013	0.0007	0.0008	0.0006	0.0004	0.0003
25	0.0017	0.0009	0.0010	0.0009	0.0005	0.0004
30	0.0020	0.0011	0.0010	0.0012	0.0006	0.0004
35	0.0024	0.0014	0.0010	0.0015	0.0008	0.0006
40	0.0032	0.0019	0.0015	0.0020	0.0012	0.0009
45	0.0045	0.0029	0.0023	0.0029	0.0020	0.0014
50	0.0066	0.0045	0.0042	0.0044	0.0031	0.0022
55	0.0101	0.0071	0.0063	0.0068	0.0047	0.0033
60	0.0155	0.0114	0.0098	0.0107	0.0073	0.0051
65	0.0239	0.0183	0.0155	0.0171	0.0118	0.0079
70	0.0367	0.0293	0.0246	0.0273	0.0208	0.0135
75	0.0561	0.0466	0.0438	0.0432	0.0362	0.0255
80	0.0849	0.0734	0.0759	0.0680	0.0727	0.0499
85	0.1265	0.1138	0.1243	0.1053	0.1143	0.0919
90	0.1843	0.1724	0.1933	0.1597	0.1864	0.1573
95	0.2607	0.2525	0.2817	0.2348	0.2785	0.2457

Table AII.3 shows life expectancies at certain ages for the three scenarios.

Table AII.3 Life expectancies

	Male		Female	
Life expectancy at:	**2005**	**2055**	**2005**	**2055**
Birth	67.7	76.5	72.5	81.6
Age 60	18.4	20.5	20.7	24.2
Age 65	15.0	16.6	16.9	19.8

Net migration is set at 0 under all the three population scenarios.

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 people in the total population. Age-specific labour force participation rates are assumed constant over the projection period. The total participation for ages 15-64 changes over time due to the variation in the age composition of the population. Table AII.4 shows the age-specific labour force participation rates for selected ages.

Table AII.4 Age-specific and total labour force participation rates (active persons as % of total population)

Age	Males		Females		Year	Males	Females
	2005	2055	2005	2055			
17	33%	33%	22%	22%	2005	77%	54%
22	83%	83%	64%	64%	2015	78%	55%
27	93%	93%	69%	69%			
32	84%	84%	62%	62%	2025	76%	53%
37	82%	82%	67%	67%	2035	77%	53%
42	90%	90%	65%	65%			
47	97%	97%	61%	61%			
52	88%	88%	66%	66%	2045	74%	51%
57	78%	78%	49%	49%	2055	74%	50%
62	45%	45%	24%	24%			
67	46%	46%	16%	16%			

The projected real GDP is obtained by applying the projected labour productivity per worker to the number of employed people 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 5.4 per cent to 1.5 per cent. The inflation assumption affects nominal average wage increases.

II.2 Projection approach of NIS income and expenditure

This actuarial review addresses all NIS revenue and expenditure items.

Projections of benefits recipients are performed following a year-by-year cohort methodology. For each year up to 2054-55, the number of contributors and pensioners, and the TT dollar value of contributions, benefits and administrative expenditure, is estimated. Once the projections of the insured 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 people 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. The nominal yield is obtained by adding inflation to 4 per cent. The long-term real rate of return starts at 3.7 per cent and reaches the long-term rate of 3.9 per cent after ten years. This reflects the negative correlation between inflation and the real rate of return. It assumes that the investment policy will remain equivalent and that proper investment strategies will be adopted to ensure liquidity needs are met. NIS administrative expenses are modelled by using variations in price inflation and average wages. Finally, the year-end reserve is the beginning-of-year reserve plus the net result of cash inflow and outflow.

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

As of 30 June 2005, 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 NIS-specific input data and the key assumptions used in this report are provided in Tables AII.5 through AII.10.

Table AII.5 Projected NIS coverage rates, 2005-06 – 2054-55 (active insured people as % of salaried employed population)[1]

Age	Males		Females	
	2005	2055	2005	2055
17	39%	39%	29%	29%
22	94%	94%	124%	124%
27	97%	97%	117%	117%
32	93%	93%	101%	101%
37	92%	92%	96%	96%
42	89%	89%	98%	98%
47	85%	85%	98%	98%
52	95%	95%	83%	83%
57	120%	120%	83%	83%
62	69%	69%	71%	71%

Year	Males	Females
2005	91%	101%
2015	91%	99%
2025	89%	97%
2035	90%	97%
2045	89%	95%
2055	87%	96%

[1] Coverage participation rates are observed when the number of people having service credited is larger than the number of employed people.

Table AII.6 Active insured population, earnings and past credits as of valuation date (June 2005)

Ages	# of active insured		Average monthly insurable earnings		Average # of years of contributions	
	Male	Female	Male	Female	Male	Female
15-19	8,842	6,480	2,267	2,140	1.2	1.1
20-24	36,572	35,288	2,627	2,518	2.1	2.0
25-29	33,651	33,796	3,240	2,887	4.0	3.9
30-34	29,217	27,075	3,467	3,003	6.1	5.7
35-39	25,575	22,798	3,573	3,052	8.1	7.2
40-44	28,626	24,060	3,676	3,194	11.3	10.2
45-49	26,793	21,178	3,741	3,303	15.0	13.3
50-54	23,047	16,343	3,749	3,312	18.0	16.4
55-59	16,686	10,618	3,702	3,207	19.7	17.7
60-64	6,880	4,246	3,597	2,911	25.0	15.6
All ages	235,889	201,882	3,377	2,965	9.5	7.8

Table AII.7A Pensions-in-payment as of valuation date (June 2005)

Age	Retirement pension				Invalidity pension			
	Male		Female		Male		Female	
	Number	Avg monthly pension	Number	Avg monthly pension	Number	Avg monthly pension	Number	Avg monthly pension
15-19								
20-24								
25-29					15	611	6	484
30-34					35	502	12	545
35-39					75	417	38	487
40-44					222	456	130	436
45-49					423	469	199	420
50-54					833	476	345	445
55-59					1,157	471	446	430
60-64	11,415	994	5,209	1,001	250	412	90	373
65-69	9,967	999	4,282	1,000	2	245	3	214
70-74	7,340	999	3,007	1,000	2	256	3	158
75-79	5,324	999	2,121	999			3	168
80-84	3,526	998	1,416	998			1	349
85-89	1,812	996	713	998				
90-94	528	993	242	1,000				
95+	32	955	9	1,000				
Total	39,944	997	16,999	1,000	3,014	466	1,276	430

Table AII.7B Pensions-in-payment as of valuation date (June 2005) (Cont'd.)

Age	Survivors' pensions					
	Widow(er)s by sex of dead spouse				Children, orphans and parents	
	Male		Female			
	Number	Avg monthly pension	Number	Avg monthly pension	Number	Avg monthly pension
0-4	-		-		266	320
5-9	-		-		995	321
10-14	-		-		2,516	321
15-19	-		-		4,138	319
20-24	-		-		-	
25-29	98	396	2	456	-	
30-34	206	338	4	401	-	
35-39	368	341	12	343	-	
40-44	757	331	15	369	-	
45-49	986	330	16	333	64	194
50-54	1,247	330	25	409	52	166
55-59	1,843	316	26	325	85	151
60-64	2,613	304	16	370	196	144
65-69	3,035	289	26	335	173	135
70-74	3,181	271	28	289	132	136
75-79	2,939	258	20	323	90	135
80-84	2,147	245	16	258	58	144
85-89	1,065	239	6	254	28	135
90-94	326	230	4	248	12	136
95+	75	235	1	248	6	110
Total	20,886	286	217	333	8,811	302

*There is no orphan for female.

Table AII.7C Pensions-in-payment as of valuation date (June 2005) (Cont'd.)

Age	Employment injury benefits - Disability pensions			
	Male		Female	
	Number	Average monthly pension	Number	Average monthly pension
15-19	1	466	0	0
20-24	18	368	1	283
25-29	48	569	11	677
30-34	87	536	15	363
35-39	192	558	24	477
40-44	313	508	65	490
45-49	359	485	59	464
50-54	343	461	49	505
55-59	291	415	66	420
60-64	195	394	22	540
65-69	101	336	19	340
70-74	60	345	14	281
75-79	26	368	6	257
80-84	15	293	0	0
85 and over	11	128	0	0
Total	2,060	460	351	456

Table AII.7D Pensions-in-payment as of valuation date (June 2005) (Cont'd.)

Survivors of male deceased from work injury[1]

Age	Widows		Children, orphans and parents	
	Number	Average monthly pension	Number	Average monthly pension
0-4	-	-	5	613
5-9	-	-	35	607
10-14	-	-	59	534
15-19	-	-	81	454
20-24	-	-	-	-
25-29	9	981	-	-
30-34	16	1,299	-	-
35-39	24	846	-	-
40-44	39	841	-	-
45-49	44	824	10	546
50-54	44	859	5	336
55-59	44	846	8	481
60-64	30	700	14	323
65-69	16	621	8	351
70-74	9	732	4	319
75-79	4	698	2	351
80-84	3	698	1	351
85+	1	698	0	0
Total	283	838	232	488

[1] No pension-in-payment to survivors of female deceased from work injury at the date of valuation.

The following table shows assumed density factors, or the average portion of the year for which contributions are made. The density of contribution is calculated as the average number of monthly contributions divided by 12.

Table AII.8 Density of contributions (as percentage)

Age	Males	Females
17	21%	17%
22	51%	52%
27	62%	65%
32	67%	67%
37	68%	67%
42	69%	66%
47	72%	70%
52	73%	71%
57	73%	69%
62	54%	45%

The following table shows the expected incidence rates of insured people qualifying for Invalidity benefits. It reflects the experience of the system.

Table AII.9 Rates of entry into invalidity

Age	Males	Females
22	-	-
27	0.000125	0.000058
32	0.000287	0.000144
37	0.000659	0.000353
42	0.001513	0.000869
47	0.003478	0.002137
52	0.007992	0.005258
57	0.018364	0.012934

Table AII.10 shows the assumed probability of Survivor benefit claims and the average ages of new claimants, grouped 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 being married	Average # of eligible children	Probability of being married	Average # of eligible children
17	27%	0.1	0%	0.5
22	37%	1.7	3%	2.0
27	57%	2.5	7%	2.6
32	72%	2.7	9%	2.6
37	80%	2.5	10%	2.3
42	83%	2.3	10%	1.8
47	81%	2.0	9%	1.4
52	75%	1.5	8%	0.9
57	65%	1.0	6%	0.4
62	61%	0.4	5%	0.1
67	60%	0.1	4%	0.1
72	58%	0.1	3%	0.1
77	53%	0.1	2%	0.1
82	46%	0.1	1%	0.1
87	37%	0.1	0%	0.1

Table AII.11 presents the basic incidence rate and the duration used for the projection of short-term benefits such as established with the five most recent years of experience. A coefficient calibration of 1.18 has been applied to those to reflect emerging trends.

Table AII.11 Sickness benefits

Age	Male		Female	
	Incidence rate	Average duration (days)	Incidence rate	Average duration (days)
17	0.002046	23.7	0.005364	17.1
22	0.016266	23.1	0.019766	23.8
27	0.026401	23.0	0.029096	29.4
32	0.033231	25.5	0.034138	32.6
37	0.037535	25.3	0.035678	36.7
42	0.040095	27.0	0.034500	42.6
47	0.041692	32.6	0.031390	49.4
52	0.043104	35.0	0.027133	54.8
57	0.045114	39.8	0.022514	56.5
62	0.048501	29.6	0.018317	54.5

Incidence of disablement due to work injury has been determined separately for injured workers eligible for a pension due to a degree of impairment of 20 per cent and for those receiving a lump sum for the compensation of permanent disability smaller than 20 per cent. Table AII.12 presents rates at selected ages.

Table AII.12 Incidence of permanent disability resulting from work injury

Age	Male		Female	
	20% and above	Less than 20%	20% and above	Less than 20%
17	0.000177	0.000295	0.000000	0.000013
22	0.000177	0.000339	0.000000	0.000014
27	0.000169	0.000443	0.000051	0.000044
32	0.000327	0.000577	0.000028	0.000093
37	0.000603	0.000713	0.000127	0.000151
42	0.000951	0.000824	0.000301	0.000209
47	0.001325	0.000879	0.000503	0.000254
52	0.001678	0.000852	0.000688	0.000279
57	0.001963	0.000714	0.000807	0.000272
62	0.002133	0.000435	0.000814	0.000224

The benefit paid to pensioners is proportional to their degree of disability. This percentage was set at 35 per cent for both genders and ages. A lump sum is paid to permanently and partially disabled injured workers. It is calculated by considering the degree of disablement, the number of weeks of disablement and the earnings of the injured workers. Based on past experience, coefficients applicable to the average annual earning have been determined by gender and age. Table AII.13 presents such coefficients for selected ages.

Table AII.13 Work injury partial disablement grant - Benefit as proportion of annual wage

Age	Male	Female
17	0.204	0.165
22	0.222	0.166
27	0.237	0.176
32	0.250	0.195
37	0.260	0.225
42	0.268	0.264
47	0.273	0.314
52	0.276	0.373
57	0.276	0.443
62	0.275	0.489

Appendix III: Experience analysis

III.1 Financial data

Internal accounting procedures allow for proper 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 expenditures from its income and accumulated reserves.

Table III.1 Long-term Benefits Fund (TT$ Millions)

	2000-01	2001-02	2002-03[1]	2003-04	2004-05
Fund at start of year	**2,984**	**3,176**	**3,417**	**3,543**	**6,700**
Contribution income	632	663	722	800	997
Investment income	558	607	608	700	667
Miscellaneous income	24	28	4	53	35
Transfer from Accumulated Reserve				2,353	856
Total receipts	**1,214**	**1,298**	**1,333**	**3,907**	**2,555**
Retirement pension	219	230	240	529	662
Retirement grant	30	19	24	35	36
Invalidity pension	20	29	28	24	33
Survivors' pension	49	63	61	81	103
Administration expenses	47	58	56	80	80
Transfer to Accumulated Reserve	658	658	787		
Total expenditure	**1,023**	**1,057**	**1,207**	**750**	**914**
Transfer to Benefits Fund	**192**	**241**	**127**	**3,157**	**1,641**
Fund at year-end	**3,176**	**3,417**	**3,543**	**6,700**	**8,341**

[1] In the year 2002-03, expenditures related to the pension fund of NIBTT employees of TT$9.4 million, TT$0.1 million and TT$0.5 million were considered as expenditures of, respectively, long-term benefits fund, short-term benefits fund and employment injury fund. Such expenditures do not appear separately in the tables, but are included in Total expenditure. In the other years, revenues are observed and are included in "Miscellaneous income".

Table III.2 Short-term Benefits Fund (TT$ Millions)

	2000-01	2001-02	2002-03	2003-04	2004-05
Fund at start of year	**39**	**45**	**45**	**48**	**67**
Contribution income	84	88	96	85	106
Investment income	7	9	8	10	7
Miscellaneous income	0	0	0	1	0
Transfer from Accumulated Reserve					
Total receipts	**91**	**97**	**104**	**95**	**113**
Sickness benefit	13	14	15	16	18
Maternity benefit	14	14	15	22	36
Maternity grant					
Funeral grant	9	8	9	16	20
Administration expenses	1	1	1	1	1
Transfer to Accumulated Reserve	49	59	62	21	12
Total expenditure	**86**	**96**	**101**	**76**	**87**
Transfer to Benefits Fund	**6**	**1**	**3**	**19**	**25**
Fund at year-end	**45**	**45**	**48**	**67**	**93**

Table III.3 Employment Injury Fund (TT$ Millions)

	2000-01	2001-02	2002-03	2003-04	2004-05
Fund at start of year	**150**	**178**	**204**	**213**	**224**
Contribution income	46	48	52	56	70
Investment income	28	34	36	42	22
Miscellaneous income	1	2	0	3	1
Transfer from Accumulated Reserve					4
Total Receipts	**75**	**84**	**89**	**102**	**97**
Disablement benefit	10	11	12	15	19
Disablement grant	2	1	2	2	2
Injury allowance	8	9	8	9	10
Medical expenses[1]	-	-	-	-	-
Survivors' benefits	3	3	3	4	4
Administration expenses	2	3	3	5	3
Transfer to Accumulated Reserve	22	30	49	57	-4
Total expenditure	**46**	**58**	**79**	**90**	**38**
Transfer to Benefits Fund	**29**	**25**	**9**	**11**	**59**
Fund at year-end	**178**	**204**	**213**	**224**	**284**

[1] Expenses are less than TT$0.5 million.

Table III.4 Reserves – Accumulation (TT$ Millions)

	2000-01	2001-02	2002-03	2003-04	2004-05
Balance at start of year	**2,433**	**3,167**	**3,919**	**4,966**	**2,513**
Add: Prior year adjustment	4	3	148	-31	
Add: Transfers from:					
Long-term Benefits Fund	658	658	787	-2,353	-856
Short-term Benefits Fund	49	59	62	21	12
Employment injury Benefit Fund	22	30	49	57	-4
Less: Administrative expenses	0	0	0	0	0
Accumulated Reserve Misc. Income	3	3	1		42
Balance at year-end	**3,167**	**3,919**	**4,966**	**2,513**	**1,708**

Table III.5 Reserves – Revaluation (TT$ Millions)

	2000-01	2001-02	2002-03	2003-04	2004-05
Balance at start of year	**724**	**563**	**655**	**828**	**2,242**
Add: Prior year adjustment			-148		
Revaluation Reserve Movement	-161	92	322	1,414	408
Balance at year-end	**563**	**655**	**828**	**2,242**	**2,650**

Accounting adjustments have been reported in Tables III.4 and III.5 to ensure consistency between balances at beginning and end of year. They do not necessarily reflect their timing in financial statements.

Chart III.1 shows the evolution of funds. The proportion of reserves over all funds has narrowed from 50 to 33 per cent during the period. The expectation at June 2005 of the ratio in previous actuarial review was 39 per cent.

Chart III.1 Evolution of funds (TT$ Millions)

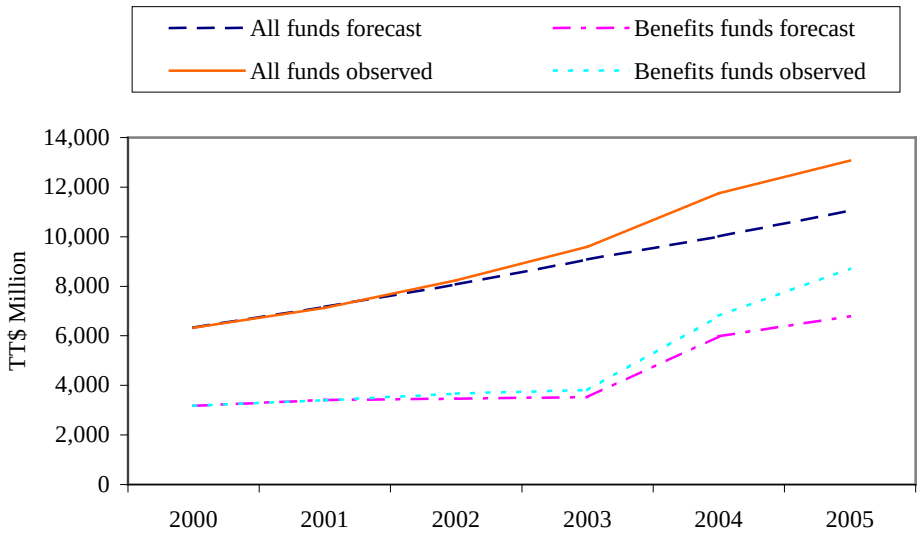


Chart III.2 shows calculation of investment yields. The calculation of yields considers all assets at the denominator, not only the investments, and assumes that all gains are realized at mid-year. In fact, they use a simplistic formula:

$$Yield = \frac{2 \times I}{A + B - I}$$

where,

I = Investment income + unrealized gains if appropriate

A = Assets at beginning of financial year

B = Assets at end of financial year

Chart III.2 Net investment yields

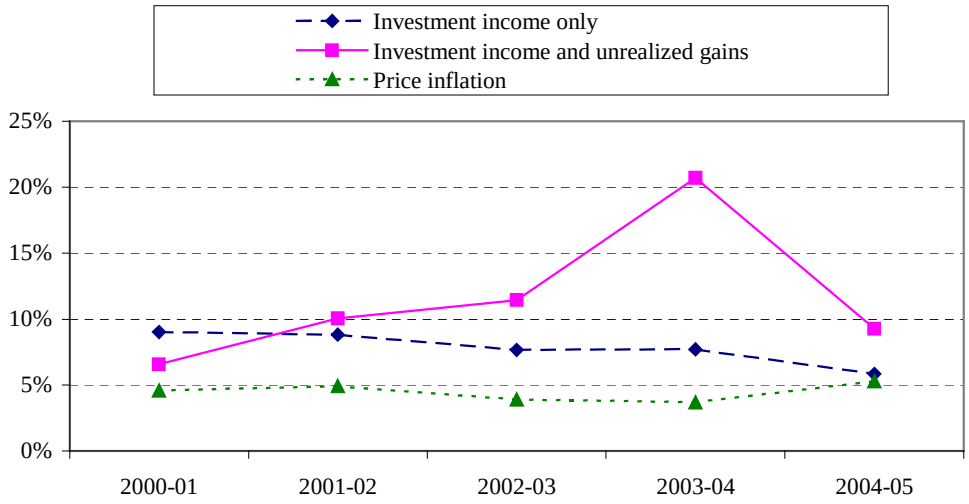


Table II.6 shows statistical data for yields realized by the funds since 1990. Inflation is the average of the variation of the consumer price index of both calendar years covered by the financial year.

Table III.6 Economic data (%)

	Inflation	Yield (investment income only)	Yield (including unrealized gains	Real yield (investment income only)	Real yield (including unrealized gains	Risk premium
	A	B	C	D= (1+B)/(1+A)-1	E= (1+C)/(1+A)-1	F= (1+E)/(1+D)-1
1990-91	7.4	6.9		-0.4		
1991-92	5.2	5.1		-0.1		
1992-93	8.7	6.0		-2.4		
1993-94	9.8	8.6		-1.1		
1994-95	7.1	8.0		0.9		
1995-96	4.3	9.5		5.0		
1996-97	3.5	11.7	15.9	7.9	12.0	3.8
1997-98	4.6	10.5	15.8	5.6	10.7	4.8
1998-99	4.5	9.6	9.5	4.9	4.8	-0.1
1999-00	3.5	9.8	16.9	6.1	13.0	6.5
2000-01	4.6	9.0	6.6	4.3	1.9	-2.3
2001-02	4.9	8.8	10.1	3.8	5.0	1.1
2002-03	3.9	7.7	11.4	3.6	7.3	3.5
2003-04	3.7	7.7	20.7	3.9	16.4	12.1
2004-05	5.3	5.8	9.3	0.5	3.8	3.2
Average 1990-91 to 2004-05	5.4	8.6	N/A	2.8	N/A	N/A
Average 1996-97 to 2004-05	4.3	8.9	12.9	4.5	8.3	3.6

III.2 Demographic data

Table III.7 Number of participants and beneficiaries

	2000-01	2001-02	2002-03	2003-04	2004-05
			Expected		
Contributors	276,827	283,925	291,822	298,265	304,479
Retirement pensioners	42,877	41,625	40,566	39,650	38,940
Retirement grants	1,277	1,355	1,510	1,698	1,850
Survivor pensioners	22,312	22,105	22,047	22,043	22,049
Invalidity	3,531	3,823	4,141	4,497	4,887
Total long term	69,997	68,908	68,264	67,888	67,726
Sickness	12,541	13,556	14,647	15,816	17,056
Maternity benefits	3,046	3,095	3,145	3,200	3,263
Maternity benefits grants	3,244	3,295	3,348	3,406	3,472
Funeral grants	3,982	4,056	4,136	4,219	4,299
Total short term	22,813	24,002	25,276	26,641	28,090
Injury allowances	3,126	3,197	3,267	3,335	3,400
Medical expense payments	380	390	400	411	421
Disablement pensioners	2,919	2,991	3,068	3,154	3,242
Disablement grants	108	110	113	115	117
Total Employment injury	6,533	6,688	6,848	7,015	7,180
			Observed		
Contributors	286,000	306,216	326,211	359,187	400,202
Retirement pensioners	45,872	47,094	48,641	54,186	56,817
Retirement grants	2,398	1,842	2,273	3,245	2,913
Survivors pensioners	26,640	27,137	28,284	28,829	29,914
Invalidity	4,492	4,755	5,113	5,698	4,290
Total long term	79,402	80,828	84,311	91,958	93,934
Sickness	12,691	12,962	14,278	15,270	12,080
Maternity benefits	4,008	3,749	3,651	4,755	5,089
Maternity benefits grants	4,170	3,926	3,824	4,921	5,109
Funeral grants	3,980	4,504	4,139	4,396	4,932
Total short term	24,849	25,141	25,892	29,342	27,210
Injury allowances	2,922	2,786	2,936	2,759	2,851
Medical expenses payments	190	172	151	239	204
Disablement pensioners	1,802	1,950	2,110	2,273	2,411
Disablement grants	225	145	152	169	138
Total Employment injury	5,139	5,053	5,349	5,440	5,604
			Ratio observed/expected		
Contributors	1.033	1.079	1.118	1.204	1.314
Retirement pensioners	1.070	1.131	1.199	1.367	1.459
Retirement grants	1.878	1.359	1.505	1.911	1.575
Survivors pensioners	1.194	1.228	1.283	1.308	1.357
Invalidity	1.272	1.244	1.235	1.267	0.878
Total long term	1.134	1.173	1.235	1.355	1.387
Sickness	1.012	0.956	0.975	0.965	0.708
Maternity benefits	1.316	1.211	1.161	1.486	1.560
Maternity benefits grants	1.285	1.192	1.142	1.445	1.471
Funeral grants	0.999	1.110	1.001	1.042	1.147
Total short term	1.089	1.047	1.024	1.101	0.969
Injury allowances	0.935	0.871	0.899	0.827	0.839
Medical expenses payments	0.500	0.441	0.378	0.582	0.485
Disablement pensioners	0.617	0.652	0.688	0.721	0.744
Disablement grants	2.083	1.318	1.345	1.470	1.179
Total Employment injury	0.787	0.756	0.781	0.775	0.781

Appendix IV: Contribution rate and benefits schedules

Table IV.1 Recommended earnings classes and contributions from 7 January 2008

Based on contribution rate of 11.4% (of insurable earnings)

Earnings class	Weekly earnings	Monthly earnings	Assumed average weekly earnings	Employee's weekly contribution	Employer's weekly contribution	Total weekly contribution	Class Z weekly
I	120 - 200	520 - 867	160	6.08	12.16	18.24	1.23
II	200 - 270	867 - 1170	235	8.93	17.86	26.79	1.81
III	270 - 360	1170 - 1560	315	11.97	23.94	35.91	2.43
IV	360 - 450	1560 - 1950	405	15.39	30.78	46.17	3.12
V	450 - 550	1950 - 2383	500	19.00	38.00	57.00	3.85
VI	550 - 660	2383 - 2860	605	22.99	45.98	68.97	4.66
VII	660 - 770	2860 - 3337	715	27.17	54.34	81.51	5.51
VIII	770 - 880	3337 - 3813	825	31.35	62.70	94.05	6.36
IX	880 - 1010	3813 - 4377	945	35.91	71.82	107.73	7.28
X	1010 - 1130	4377 - 4897	1,070	40.66	81.32	121.98	8.25
XI	1130 - 1260	4897 - 5460	1,195	45.41	90.82	136.23	9.21
XII	1260 - 1400	5460 - 6067	1,330	50.54	101.08	151.62	10.25
XIII	1400 - 1550	6067 - 6717	1,475	56.05	112.10	168.15	11.37
XIV	1550 - 1720	6717 - 7453	1,635	62.13	124.26	186.39	12.60
XV	1720 - 1915	7453 - 8298	1,818	69.07	138.13	207.20	14.01
XVI	1915 and over	8300 and over	1,915	72.77	145.54	218.31	14.76

Table IV.2 Recommended earnings classes and voluntary contributions from 7 January 2008

Based on 11.4% contribution rate

Earnings class	Weekly earnings	Monthly earnings	Assumed average weekly earnings	Voluntary weekly	Voluntary monthly	Voluntary quarterly
I	120 - 200	520 - 867	160	18.24	79.04	237.12
II	200 - 270	867 - 1170	235	26.79	116.09	348.27
III	270 - 360	1170 - 1560	315	35.91	155.61	466.83
IV	360 - 450	1560 - 1950	405	46.17	200.07	600.21
V	450 - 550	1950 - 2383	500	57.00	247.00	741.00
VI	550 - 660	2383 - 2860	605	68.97	298.87	896.61
VII	660 - 770	2860 - 3337	715	81.51	353.21	1059.63
VIII	770 - 880	3337 - 3813	825	94.05	407.55	1222.65
IX	880 - 1010	3813 - 4377	945	107.73	466.83	1400.49
X	1010 - 1130	4377 - 4897	1,070	121.98	528.58	1585.74
XI	1130 - 1260	4897 - 5460	1,195	136.23	590.33	1770.99
XII	1260 - 1400	5460 - 6067	1,330	151.62	657.02	1971.06
XIII	1400 - 1550	6067 - 6717	1,475	168.15	728.65	2185.95
XIV	1550 - 1720	6717 - 7453	1,635	186.39	807.69	2423.07
XV	1720 - 1915	7453 - 8298	1,818	207.20	897.87	2,693.61
XVI	1915 and over	8300 and over	1,915	218.31	946.01	2838.03

Table IV.3 Recommended basic retirement and invalidity pension rates from 7 January 2008

Earnings class	New basic pension (weekly)	New basic pension (monthly)
I	77.50	335.83
II	100.75	436.58
III	119.35	517.18
IV	137.95	597.78
V	155.00	671.67
VI	183.68	795.95
VII	216.23	937.00
VIII	248.78	1,078.05
IX	283.65	1,229.15
X	320.85	1,390.35
XI	358.05	1,551.55
XII	376.65	1,632.15
XIII	440.05	1,906.87
XIV	487.78	2,113.72
XV	542.23	2,349.65
XVI	571.31	2,475.70

Table IV.4 Recommended basic retirement and invalidity pension rates for increment from 7 January 2008

Earnings class	New Increment (weekly)	New Increment (monthly)
I	1.13	4.90
II	1.58	6.85
III	2.00	8.67
IV	2.42	10.49
V	2.85	12.35
VI	3.46	14.99
VII	4.05	17.55
VIII	4.68	20.28
IX	5.32	23.05
X	6.05	26.22
XI	6.73	29.16
XII	7.49	32.46
XIII	8.31	36.01
XIV	9.21	39.91
XV	10.24	44.37
XVI	10.79	46.76

Table IV.5 Recommended survivors' pension rates from 7 January 2008

Earnings class	Weekly benefit				Monthly benefit			
	Widow / widower	Dependant child	Dependant parents	Dependant orphan	Widow / widower	Dependant child	Dependant parents	Dependant orphan
I	45.78	22.89	22.89	45.78	198.38	99.19	99.19	198.38
II	59.81	29.91	29.91	59.81	259.18	129.61	129.61	259.18
III	70.77	35.39	35.39	70.77	306.67	153.36	153.36	306.67
IV	82.52	41.26	41.26	82.52	357.59	178.79	178.79	357.59
V	93.00	46.50	46.50	93.00	403.00	201.50	201.50	403.00
VI	109.99	55.00	55.00	109.99	476.62	238.33	238.33	476.62
VII	129.06	64.54	64.54	129.06	559.26	279.67	279.67	559.26
VIII	148.15	74.08	74.08	148.15	641.98	321.01	321.01	641.98
IX	169.30	84.65	84.65	169.30	733.63	366.82	366.82	733.63
X	191.62	95.81	95.81	191.62	830.35	415.18	415.18	830.35
XI	213.94	106.98	106.98	213.94	927.07	463.58	463.58	927.07
XII	238.08	119.04	119.04	238.08	1,031.68	515.84	515.84	1,031.68
XIII	264.03	132.01	132.01	264.03	1,144.13	572.04	572.04	1,144.13
XIV	292.67	146.33	146.33	292.67	1,268.24	634.10	634.10	1,268.24
XV	325.34	162.67	162.67	325.34	1,409.81	704.90	704.90	1,409.81
XVI	342.79	171.39	171.39	342.79	1,485.42	742.69	742.69	1,485.42

Table IV.6 Recommended rates for increments survivors' pensions from 7 January 2008

Earnings class	Weekly benefit				Monthly benefit			
	Widow/ widower	Dependant child	Dependant parents	Dependant orphan	Widow/ widower	Dependant child	Dependant parents	Dependant orphan
I	0.69	0.34	0.34	0.69	2.99	1.47	1.47	2.99
II	0.95	0.48	0.48	0.95	4.12	2.08	2.08	4.12
III	1.21	0.61	0.61	1.21	5.24	2.64	2.64	5.24
IV	1.46	0.74	0.74	1.46	6.33	3.21	3.21	6.33
V	1.71	0.86	0.86	1.71	7.41	3.73	3.73	7.41
VI	2.08	1.05	1.05	2.08	9.01	4.55	4.55	9.01
VII	2.44	1.22	1.22	2.44	10.57	5.29	5.29	10.57
VIII	2.82	1.41	1.41	2.82	12.22	6.11	6.11	12.22
IX	3.20	1.60	1.60	3.20	13.87	6.93	6.93	13.87
X	3.63	1.82	1.82	3.63	15.73	7.89	7.89	15.73
XI	4.05	2.03	2.03	4.05	17.55	8.80	8.80	17.55
XII	4.50	2.25	2.25	4.50	19.50	9.75	9.75	19.50
XIII	4.99	2.49	2.49	4.99	21.62	10.79	10.79	21.62
XIV	5.53	2.76	2.76	5.53	23.96	11.96	11.96	23.96
XV	6.14	3.07	3.07	6.14	26.61	13.30	13.30	26.61
XVI	6.47	3.24	3.24	6.47	28.04	14.04	14.04	28.04

Table IV.7 Recommended employment injury benefits rates from 7 January 2008

Earnings class	Weekly	Monthly
I	106.84	462.97
II	158.49	686.79
III	209.36	907.23
IV	267.86	1,160.73
V	335.86	1,455.39
VI	407.36	1,765.23
VII	478.03	2,071.46
VIII	548.73	2,377.83
IX	627.07	2,717.30
X	709.75	3,075.58
XI	792.41	3,433.78
XII	881.82	3,821.22
XIII	983.33	4,261.10
XIV	1,090.00	4,723.33
XV	1,211.67	5,250.57
XVI	1,276.67	5,532.24

Table IV.8 Recommended employment injury death benefit from 7 January 2008

Earnings class	Widow	Widow	Dependant child	Dependant child	Dependant parent	Dependant parent
	Weekly	Monthly	Weekly	Monthly	Weekly	Monthly
I	64	277	32	139	32	139
II	95	413	47	204	47	204
III	126	546	63	273	63	273
IV	161	697	80	346	80	346
V	201	872	101	439	101	439
VI	244	1,059	122	530	122	530
VII	287	1,245	143	620	143	620
VIII	329	1,425	165	715	165	715
IX	377	1,633	188	814	188	814
X	426	1,844	213	922	213	922
XI	476	2,061	238	1,030	238	1,030
XII	529	2,294	265	1,147	265	1,147
XIII	590	2,557	295	1,278	295	1,278
XIV	654	2,834	327	1,417	327	1,417
XV	727	3,150	364	1,575	364	1,575
XVI	766	3,319	383	1,660	383	1,660

Table IV.9 Recommended constant attendance and care allowance rates from 7 January 2008

Earnings class	Weekly	Monthly
I	15.83	68.6
II	26.07	112.97
III	34.54	149.67
IV	45.31	196.34
V	57.66	249.86
VI	70.42	305.15
VII	82.85	359.02
VIII	97.57	422.80
IX	112.82	488.89
X	129.07	559.30
XI	146.45	634.62
XII	173.33	751.10
XIII	192.23	833.00
XIV	213.08	923.35
XV	236.87	1,026.44
XVI	249.58	1,081.51

Table IV.10 Recommended sickness and maternity benefit rates from 7 January 2008

Earnings class	Weekly	Monthly
I	96.00	416.00
II	142.24	616.37
III	189.00	819.00
IV	240.51	1,042.21
V	302.50	1,310.83
VI	366.74	1,589.21
VII	430.24	1,864.37
VIII	493.76	2,139.63
IX	564.51	2,446.21
X	638.27	2,765.84
XI	713.27	3,090.84
XII	794.05	3,440.88
XIII	885.00	3,835.00
XIV	981.00	4,251.00
XV	1,090.50	4,725.50
XVI	1,149.00	4,979.00

Table IV.11 Recommended rates of payment for medical expenses

Expenses details	Rates payable with effect on or after 5 January 2004	Rates payable with effect on or after 7 January 2008
a) Doctors visits		
i General Practitioner		
Office visit	TT$37.50 per visit (8.00 am. to 6.00 pm.)	TT$46.88 per visit (8.00 am. To 6.00 pm.)
Visit by doctor to site	TT$74.50 per visit (8.00 am. to 6.00 pm.)	TT$93.13 per visit (8.00 am. To 6.00 pm.)
Emergency visit	n/a	n/a
ii Specialist visit		
Office visit	TT$93.00 per visit (8.00 am. to 6.00 pm.)	TT$116.25 per visit (8.00 am. To 6.00 pm.)
Visit by doctor to site	TT$124.00 per visit (8.00 am. to 6.00 pm.)	TT$155 per visit (8.00 am. To 6.00 pm.)
iii Psychiatrist		
Initial consultation	TT$112.00 per hour	TT$140 per hour
Follow up	TT$93.00 per visit to maximum of 15 visits	TT$116.25 per visit to maximum of 15 visits
b) Drugs and dressing	Up to TT$620.00 per injury	Up to TT$775 per injury
c) Hospital expenses	TT$186.00 per day including cost of investigation, drugs and x-rays.	TT$232.5 per day including cost of investigation, drugs and x-rays
d) Operations		
Minor	Up to TT$496.00	Up to TT$620
Intermediate	Up to TT$992.00	Up to TT$1240
Major	Up to TT$1984.00	Up to TT$2480

There is also a maximum to the total liability that can be paid for an individual. For rates payable with effect from 5 January 2004, this is TT$18,000. For rates payable from 7 January 2008, this maximum will rise to TT$22,500.

Table IV.12 Conversion rates: Category (1)[1] Benefits-in-payment at date of uprating

Class of benefit prior to uprating	Class of benefit post uprating
I	I
II	II
III	III
IV	IV
V	V
VI	VI
VII	VII
VIII	VIII
IX	IX
X	X
XI	XI
XII	XII

Table IV.13 Conversion rates: Category (2)[2] Benefits-in-payment at date of uprating

Class of benefit prior to uprating	Class of benefit post uprating
I	The same nominal amount of benefit payable prior to date of implementation of new rates is payable. For Category (2) benefits the value of benefit awarded at the start of the benefit period is payable until the period finishes.
II	
III	
IV	
V	
VI	
VII	
VIII	
IX	
X	
XI	
XII	

[1] Category (1): Long-term benefits: retirement, disability and survivors' pensions
Employment injury benefits: disability and survivors' pensions

[2] Category (2): Maternity and Sickness benefits
Employment injury benefits: injury allowances, medical expenses, constant care and attendance

Table IV.14 Conversion rates: Earnings prior to 11 August 1980

Earnings class prior to 11 August 1980	Earnings class After 7 January 2008
I	I
II	I
III	I
IV	I
V	I
VI	I
VII	II
VIII	III

Table IV.15. Conversion rates: Earnings from 11 August 1980 to 2 May 1999

Earnings class from 11 August 1980 to 2 May 1999	Earnings class After 7 January 2008
I	I
II	I
III	I
IV	I
V	II
VI	III
VII	IV
VIII	V

Table IV.16 Conversion rates: Earnings from 3 May 1999 to 7 January 2008

Earnings class from 11 August 1980 2 May 1999	Earnings class After 7 January 2008
I	I
II	II
III	III
IV	IV
V	V
VI	VI
VII	VII
VIII	VIII
IX	IX
X	X
XI	XI
XII	XII

Appendix V: Financial projections corresponding to ILO recommendations

This appendix presents the financial projections that consider the ILO proposal regarding the minimum retirement pension and the contribution rates. The contribution rate of 9.9 per cent of insurable earnings would be raised to 11.4 per cent in January 2008.

Table V.1 Projected income, expenditure and reserve, 2005-2055, considering the ILO proposals related to the minimum retirement pension and the contribution rates

Year	Revenue			Expenditure				Assets	
	Contribution income	Investment income	Total	Benefits	Administrative & other expenses	Total	Excess of revenue over expenditure	Year-end	Number of times current year's expenditure
2005-2006	1 314 268	1 408 829	2 723 097	1,022,705	92,529	1,115,234	1 607 863	14 683 621	13,17
2006-2007	1 431 504	1 443 785	2 875 289	1,082,732	99,918	1,182,650	1 692 639	16 376 260	13,85
2007-2008	1 976 314	1 474 220	3 450 534	1,451,782	107,110	1,558,892	1 891 642	18 267 901	11,72
2008-2009	2 638 780	1 613 559	4 252 339	1,824,226	114,372	1,938,598	2 313 741	20 581 641	10,62
2009-2010	2 792 690	1 768 417	4 561 107	1,950,756	121,646	2,072,402	2 488 705	23 070 346	11,13
2010-2011	2 936 752	1 926 868	4 863 620	2,078,814	128,877	2,207,691	2 655 929	25 726 275	11,65
2011-2012	3 052 656	2 085 931	5 138 587	2,220,928	136,007	2,356,935	2 781 652	28 507 927	12,10
2012-2013	3 969 529	2 251 018	6 220 547	2,959,074	142,978	3,102,052	3 118 495	31 626 422	10,20
2013-2014	4 152 176	2 421 797	6 573 973	3,148,898	149,732	3,298,630	3 275 343	34 901 766	10,58
2014-2015	4 318 803	2 589 722	6 908 525	3,337,345	156,208	3,493,553	3 414 972	38 316 738	10,97
2019-2020	5 569 189	3 699 605	9 268 794	5,213,327	188,265	5,401,592	3 867 202	56 634 904	10,48
2024-2025	6 889 910	5 029 144	11 919 054	7,761,105	227,267	7,988,372	3 930 682	76 324 832	9,55
2029-2030	8 683 817	6 329 373	15 013 190	10,957,708	274,427	11,232,135	3 781 055	95 474 823	8,50
2034-2035	10 940 186	7 482 098	18 422 284	15,224,611	330,116	15,554,727	2 867 557	112 061 947	7,20
2044-2045	15 769 322	6 321 527	22 090 849	31,422,760	477,384	31,900,144	-9 809 295	88 563 640	2,78
2054-2055	22 359 618	-11 685 426	10 674 192	57,082,695	693,330	57,776,025	-47 101 833	-196 328 285	-3,40