

TURKS AND CAICOS ISLANDS
NATIONAL INSURANCE BOARD

FIFTH ACTUARIAL REVIEW OF THE NATIONAL
INSURANCE SCHEME
(as at 31 March 2007)

October 2007.

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**TURKS AND CAICOS ISLANDS
NATIONAL INSURANCE BOARD**

**FIFTH ACTUARIAL REVIEW OF THE NATIONAL
INSURANCE SCHEME
(as at 31 March 2007)**

Introduction

Pursuant to the provisions of Section 44 of the National Insurance Ordinance, an actuarial review of the operations of the scheme, the financial condition of the Funds and the adequacy of the contribution to support benefits was carried out as at 31 March 2007. The valuation also takes into consideration the incidence of recent adjustments to non-contributory and contributory pensions. Further, the report presents guidelines on specific issues dealing with the investment policy and related operational issues.

A summary of the main findings and recommendations is set out in Chapter I of the report, and the following chapter describes the benefit provisions, coverage and financial operations. Chapter III presents the actuarial analysis of the short-term benefits branch and the employment injury branch, whereas Chapter IV contains the analysis and projections of the long-term branch.

Acknowledgments

The actuary would like to express his appreciation to the Deputy Premier and Minister responsible for Social Security, Hon. Floyd Hall, to the Chairman of the Board, Mr. Ervine M. Quelch, OBE, and to the Director of the NIB, Mr. Trevor Cooke, for the facilities provided during the course of the assignment. Special thanks are also due to the financial and research staff of the NIB, for the technical and logistical support provided during the assignment, which greatly facilitated the task of the actuary.

Attestation

The cost, liabilities and other bases utilized in the valuation have been determined using reasonable methods and assumptions generally applicable to national social security schemes that, in our opinion, provide an adequate estimate of the anticipated plans requirements. The amount of plan assets and other financial indicators are based on the scheme's

financial statements. The financial statements are the responsibility of the NIB and the statements as at 31 March 2007 are still subject to a final audit opinion, which is not expected to have a material incidence on the actuarial cost estimates.

For Consultores Actuariales, S. A.

Hernando Pérez Montás
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October 2007.

I**SUMMARY AND RECOMMENDATIONS****1. Scope of the Analysis**

In accordance with the provisions of Section 44 of the National Insurance Ordinance, an actuarial review of the scheme was carried out as of at March 2007, based on the legal provisions in force. The actuarial review required the assessment of the expected cost of each branch of benefits, and the periods of financial equilibrium of the long-term branch which could be sustained under the present level of financing. Further, guidelines on specific issues are provided in the report. The actuarial review was based on statistical and financial information supplied by the National Insurance Board and from additional data compiled by the actuary from other national and international sources.

2. General Assessment

The analysis shows that, in the period under review, the actuarial performance of the scheme exceeded expectations, due to a surge in coverage and contribution income related to an unprecedented rate of economic growth and a moderate progression of expenditure, yielding a higher capitalization of reserves than anticipated in the preceding actuarial review.

The accumulation of long-term branch reserves is expected to continue for a higher period than assessed previously, under the partial capitalization system of finance, and the present contribution rate is deemed to be adequate for at least 18 years, subject to the findings of periodical actuarial reviews. Further, contributions are projected to exceed expenditure for about eight years, with an increase in reserves thereafter arising only from investment income (Chapter IV, tables 43 and 44).

The valuation shows that the reserves of the Short-Term Branch amply exceeds the statutory minimum and standard actuarial funding ratios, and that the branch will continue to experience actuarial surplus as expenditure is projected to be lower than the statutory contribution rate. Therefore, an eventual transfer of excess reserves to strengthen the funded status of the long-term branch should be considered by the Board in 2008, as well as setting up a Social Development Fund, as specified below.

The development of a sustainable and sound investment policy continues constitute a critical task of the NIB, having regard to the prudent and safety elements inherent in the investment of social security funds. New investment guidelines, to be updated periodically, should ensure a suitable proportion of domestic investments, a proper asset allocation to equities in the international markets, and more adequate rates of return on offshore assets than in the past.

Coverage and compliance trends exceeded expectations, with insurable earnings exceeding the projections of the last actuarial review. Cost trends of long-term benefits continue to increase at a slower pace than expected, as many insured persons entitled to pensions have opted to defer retirement, in order to keep a higher level of actual income. Non-contributory pension expenditure remained static but should increase as from 2007/08, due to the recent adjustment to pensions..

The average actuarial cost of administrative expenditure matched the assessed ratios of the preceding valuation and updated benchmarks have been submitted for the next three fiscal years. The financial administration and internal audit procedures have been very satisfactory, with a significant improvement in the period under review.

Key tasks of the NIB until the next actuarial review should concentrate on improving the return on investments, continue to enhance compliance procedures, reduce the level of investment expenses, develop a proactive domestic investment asset allocation, strengthen the research area and enhance in-house capability in the actuarial and investment areas.

3. Short-Term Benefits Branch

The analysis indicate that the performance of the short-term branch exceeded the actuarial expectations, with actuarial costs lower than anticipated in the preceding actuarial valuation. All benefit items were lower than expected and a decline in the incidence of sickness claims might be related to the entry into the labour force of a substantial number of young workers from abroad with a low sickness rate. The decline in maternity benefits was probably due because these workers were primarily unmarried males.

The actuarial valuation shows that, on the basis of anticipated trends, the average cost of benefit and administrative expenditure of the short-term branch is projected at 1.07% of insurable earnings, as compared to 1.18% in the preceding review, and lower than the rate of 1.30% of

insurable earnings allocated to the branch. Additional investment income on the contingency reserve of the branch contributes to a projected operational surplus of 0.35% of insurable earnings.

The cost estimate in the period 2007/10 include a provision for higher actuarial cost than in the preceding three years, in view of the expectation that the peak in the continuation of construction projects will lead to a more stable work force with a higher incidence of benefit claims.

As at 31 March 2007 the contingency reserve of the short-term benefits branch amply exceeds the statutory minimum and accepted benchmarks. Projections also indicate a steady accumulation of reserves. The valuation indicates that the scheme is overfunded, that the share of contributions allocated to the branch exceeds anticipated actuarial costs, and that a proportion of the reserve could be transferred to the long-term branch or, alternatively, the rate of contribution to the branch could be reformulated. Actuarial advice should be sought to assess and dimension such adjustments, without endangering the future financial solvency of the short-term branch. Disallowance rates for claimants of short-term benefits are relatively low, indicative that the eligibility provisions are adequate. Details of the valuation are shown in Chapter III, tables 19 and 20, with an increase in reserves from \$7.2 millions to \$11.6 million in three years.

4. Employment Injury Branch

The actuarial valuation shows that the expected average cost of benefits and administrative expenses of the employment injury branch is assessed at 0.97% of earnings, as compared to 1.02% in the preceding review, and lower than the statutory rate of 1.20%. Net investment income is expected to yield additional funds equivalent to 0.27% of earnings, with a total surplus of 0.50% of earnings. Projections also indicate a steady increase in reserves, assuming a higher incidence of disability and death rates, indicative that the overfunded situation of the branch is expected to continue medium-term. Details of the valuation are shown in Chapter III, table 26.

The disablement and death benefits of the employment injury branch operates under the assessment of constituent capital system of finance. Hence, an actuarial analysis was carried out to assess the sufficiency of the Disablement and Death Benefit Reserve to cover the present value of pensions in course of payment. The analysis shows that the reserve of \$17.2 million as at 31 March 2007 is equivalent to five times the actuarial liabilities, with an actuarial surplus of \$14.2 million

(table 27). As the incidence of employment injury and disablement pensions continues to be rather low in the TCI, emerging costs are expected to remain below contributions, investment income and capital reserves. Hence, in due course, surplus funds could also be apportioned to the long-term branch. Projections show an increase in reserves from \$17.7 millions to \$25.4 millions as at 31 March 2010, should the low incidence of disability and death cases due to employment injury continues to be experienced in the future.

5. Long-Term Benefits Branch and Sensitivity Analysis

Despite the period elapsed since the inception of the scheme the long-term branch is still in a primary state of development and substantial reserves are expected to accumulate for about 18 years. This is a normal pattern in the process of maturity of a pension scheme funded on a partial-capitalization basis.

The actuarial projections indicate that, under the provisions in force and the actuarial assumptions used, the present contribution rate of 5.5% of insurable earnings is adequate for a "period of equilibrium" of 18 years, under the scaled-premium system of finance applied to the branch. Thereafter, benefit and administrative expenditure is projected to exceed contributions and investment income and the level of reserves would start to decrease. Hence, prior to that date, an increase in the contribution rate would be required, in accordance with the application of the scaled-premium system of finance. Details of the demographic and financial projections are summarized in Chapter IV, with reserves increasing from \$78 million as at 31 March 2007 to \$143 million in five years and a maximum of \$326 million in 18 years, assuming an average rate of return on investments of 4%, net of investment expenses, that yields a gross rate of 4.7%, higher than the 2004/07 experience. A rate of return of 5% would increase the reserves even further, a rate that is attainable with a reassessment of the asset allocation strategy.

Alternative projections were carried out to assess the sensitivity of the long-term branch to variations in the economic assumptions, which are more volatile than the demographic assumptions. The sensitivity analysis shows that an increase in the real interest assumption to 5% increases the period of equilibrium by 1½ years, and by 3 years with a 6% rate of return.

The comparative summary of the projections are shown in Chapter IV, tables 44 and 45.

6. Accounting Disclosures

The NIB scheme is qualified as a "State Plan", according to International Accounting Standards (IAS-19, paragraphs 37 and 39) which prescribes only the accounting and disclosure standards by employers. As such, employers have no legal or constructive liabilities except to pay the statutory contributions, despite the fact that the TCI plan is essentially funded on a pay-as-you-go basis, and future benefits earned during the current period will be paid out of future contributions. For this reason, state plans are normally defined contribution plans for employers' accounting purposes. As to the NIB, which strictly speaking is not an employer, the financial and actuarial disclosures conform with accepted standards of national social security schemes.

7. Comparison with the Last Valuation and Demographic Ageing

The valuation shows a period of equilibrium of the long-term branch of 18 years as compared to 15 years assessed in the last actuarial review. This is basically due to the excellent performance of the economy, employment levels and rising salaries, whereas pensions were not adjusted in the last three years and the progression of new pensions were lower than anticipated.

Due to the incidence of migration it is expected that the demographic maturity of the TCI insured population will proceed at a slower pace than anticipated in the preceding valuation. If deferment of retirement beyond age 60 also continues, it would reduce the PAYG ratio (pension expenditure as a percent of insurable earnings) to 17% of salaries in 50 years, with a maximum of 25% to be reached after 60 years, assuming an average pension of 52% of "final salary" (lower than the 60% maximum by computing retirement pension on a final average salary and decreased further by density of contributions of 80%).

8. Funded Status of NIB Reserves

The following table shows the funded status of the benefit branches.

| | Short-term branch | Employment injury branch | Long-term branch |
|----------------------|--------------------|---------------------------------|-------------------------------------|
| Type of reserve | Contingency | Terminal | Actuarial (partial capitalizations) |
| Statutory provision | Reg. 16.2 | Not stated | Reg. 16.1 |
| Funded status | 11.9 times minimum | 5 times liability ^{a/} | 8.6 times minimum |
| Actuarial assessment | Overfunded | overfunded | Adequate |
| Trend (2007/10) | Increasing | Increasing | Increasing |

^{a/} of pensions in payment.

9. **Projection of Reserves by Branch**

The following table shows the projection of reserves until the next statutory actuarial review.

Projection of Reserves by Branch ^{4/} (Million of US\$)

| 31 March | Short-term branch | Employment injury branch ^{2/} | Long-term branch | Total ^{3/} |
|--------------------|-------------------|--|------------------|---------------------|
| 2007 ^{1/} | 7.4 | 18.2 | 79.5 | 105.1 |
| 2008 | 8.6 | 20.5 | 90.2 | 119.3 |
| 2009 | 10.2 | 23.1 | 103.3 | 136.6 |
| 2010 | 11.6 | 26.0 | 117.4 | 155.0 |

^{1/} Pre-audited.

^{2/} Includes short-term benefits.

^{3/} Assumes a 4% rate of return (net of expenses).

^{4/} Subject to adjustment in 2008, once the ceiling is updated.

10. **Investments Policy and Guidelines**

The scheme has become the main institutional investor in the TCI and the projections indicate that available funds will increase significantly for several years. Prior to 1998 the scheme had adopted a very conservative investment strategy in domestic fixed domestic income securities, but then expanded the diversification of the portfolio with offshore investments in equities and fixed income securities. The experience in the period 2004/06 was below the actuarial expectations, but exceeded the actuarial return in fiscal year 2007, when the return on investments increased by 50%. Due to the importance of the investments in the emerging financial operations of the scheme, it is imperative to develop a flexible and prudent investment strategy aimed at ensuring an adequate return compatible with the safety of capital. Specific amendments to the investment guidelines and the strategic asset allocation should improve the long-term investment returns.

From an actuarial standpoint, it has been assumed in the basic projection that the investment return should exceed the long-term rate of inflation by 2%. Further, the NIB is re-evaluating a sustainable and prudent investment policy, which should yield an asset allocation strategy more adequate than that of the past three years.

In this regard, it is recommended:

- to review the asset allocation targets at least twice per year, based on an assessment of market trends;
- to reassess the allocation between fixed income and equities in the offshore portfolio, possibly placing a greater weight on the latter, and avoiding "small cap" volatile issues.
- to amend the maximum allocation in the domestic market, emphasizing "economically targeted investments" (ETIs), and segregating the ETIs from commercial investments in the domestic markets.
- to reduce the high level of investment expenses.

11. Administrative Expenditure

Administrative expenditure, including non-recurrent expenses and amortizations, showed a declining relative trend from 1.99% to 1.61% of insurable earnings in the period under review (table 11). An average actuarial cost of 1.78% of salaries has been assessed until the next actuarial review, the same as the rate assessed in the 2004 actuarial review. Concurrently, the proportion of administrative expenditure to the sum of contribution and benefit expenditure has been assessed at an average of 18% for the next three years.

12. Adjustment to Pensions in Payment

Effective 1 July 2007 the Government proceeded to increase non-contributory pensions from \$200 to \$250 per month. Pursuant to Section 50 of the Ordinance, an adjustment to contributory pensions was also applied, to compensate for the erosion of purchasing power due to inflation. An increase of the "minimum" pension from \$270 to \$311.50 per month has been approved (with a commensurate and proportional increase to widows (ers) and children pensions). The actuarial projections have taken into account such adjustments.

Future pension adjustments would ideally be correlated to cost of living adjustments ("cola"),

and a suitable ratio between the minimum non-contributory and contributory pensions should be attained over time.

13. Integrity of the Data

Notwithstanding the improvements in the IT system to compile the basic data for the actuarial review, specific problems are expected to persist, as in other social security schemes in the region. The pattern of seasonal, temporary and multi-employment characteristics of the labour force, has an incidence in the accuracy of the records. Nevertheless, the actuarial projections comprise specific assumptions and safety margins to allow for deviations in the expected cost trends due to distortions in the records of insured persons.

14. Research and Statistics

It is imperative to develop a comprehensive compilation of statistical key indicators not only for actuarial analysis but also to assist management in assessing performance and redefine benchmarks. It is recommended to formulate the presentation of the statistics in accordance with the provisions of the ILO Minimum Programme of Statistics. A copy of the format has been supplied to the NIB. Further, a continuous database of pensions in payment by type of benefit and beneficiary should be kept, segregating survivors' pensions by branch (long-term and disability). A series of specific research tasks are recommended, including the analysis of demographic trends and the incidence of migration, the assessment of the frequency and duration of sickness claims (number of cases and number of days paid). The extraordinary level of new registrations as compared to the number of active contributors should also be evaluated, as well as the pattern and morbidity (sickness) of seasonal and temporary workers. The National Health Insurance scheme project will also increase the workload of the NIB Research Officer, and in conjunction with the actuary, expanded statistical requirements should be designed.

On the basis of the analysis the Research Officer, with the assistance of the actuary, could submit annual reports and assessments, enabling senior management to evaluate the performance of the scheme. The IT area should provide specific inputs, as well as the benefit section. The programme could be developed in the last quarter of 2007, with the first model report to be designed and submitted early in 2008.

15. Potential Incidence of the National Health Insurance (NHI) Scheme

The Government has planned to set up formally the NHI scheme in 2007/08, although the specific NIB role has not been defined yet. If the NIB will manage the NHI scheme, it should ensure cost-neutrality with the general scheme. Therefore, internal controls should be set up to avoid cross-subsidies between both schemes. The same would apply if the NIB role would be limited to collect and transfer NHI contributions to an external management agency.

16. Amendments to the Self-Employed Notional Earnings

The adjustments to the non-contributory pensions have rendered obsolete the lower notional wage-class for self-employed persons. Once the \$2,600 ceiling is increased, the wage-classes should also be adjusted.

17. Ceiling on Contributions

Due to a significant salary dynamic in the past three years, a higher proportion of insured persons exceed the present ceiling of \$2,600 per month. Therefore, an adjustment to the ceiling is warranted, increasing the ceiling **on a gradual basis, to avoid windfall gains for those retiring in the next three years** and to mitigate the cost of labour to employers. The Board is assessing a 25% increase, from \$2,600 to \$3,250 per month, and therefore, the projections should be updated in 2008, once a precise indicator on the rate of increase in contributions becomes available.

18. Pensions to Public Officers

It is reiterated that the Pensions Ordinance (chapter 119) provides for supplementary non-contributory pensions to civil servants in a pensionable office that, jointly with the NIB pension, could exceed 100% of salary. Pensions are based on pensionable emoluments, including salary and personal, house and inducement allowances. Pension is generally awarded on or after attainment of the age of 55 years or for retirement due to disability, at the rate of 1/72 per month (1.667% per annum) for the first three years of service plus 60/720 (8.33%) of his pensionable emoluments, if pensionable service extends 10 years, or 1/480 (2.5% per annum) of pensionable emoluments for each month, if service does not exceed ten years. A pension can be commuted as follows: a 75% reduced pension plus a lump-sum (gratuity) equal to 12½ times the annual amount by which such pension is reduced. It is felt that a uniform retirement age is desirable in both schemes and that the retirement age for public officers should be increased to 60 years, since due to prevailing life expectancy rates, age 55 is considered too early to opt for normal retirement. In other Caribbean

states, Government pensions are being restructured due to its heavy burden on public finances. The Government is advised to introduce the necessary reforms, based on a study presently under consideration.

19. Social Development Fund

The NIB is advised to consider the desirability of setting up a Social Development Fund with a share of the short-term branch statutory contribution rate, a measure which is actuarially feasible in view of the funded position of the branch and projected current expenditure. As in other Caribbean schemes, the Fund could finance socially desirable projects of direct benefit to the community, with an allocation of 0.15% of the share of insurable earnings as from 1 April 2007, and an up-front transfer of \$50,000 from the branch's contingency reserve. The Fund could be managed by a Committee composed of NIB officials and community representatives. The 0.15% of insurable earnings amount to about \$402,000 in fiscal year ended 31 March 2008 leaving a net contribution rate for short-term benefits of 1.15% of insurable earnings, which, according to the actuarial cost estimates shown in table 19, is deemed sufficient to cover the current expenditure of the branch.

II

LEGAL PROVISIONS, FINANCIAL OPERATIONS AND BASIC STATISTICS

1. Macro-Economic Indicators

Available statistics compiled by the TCI Statistical Office show an impressive growth rate of the population and unprecedented rates of economic growth, due to the performance of the constructions and tourism sectors of the economy.

The growth rates of the population, as shown in table 1, are not sustainable and comprise a growing proportion of non-belongers, that have risen from 48% to 62.6% of the total population in the past four years. The unemployment rate is low (8% of the labour force), GDP per capita is high (\$18,636 per annum in 2005), and the level of mortality has declined steadily, whereas the level of fertility stood at 10.5 per thousand live births. Tourism is the mainstay of the economy, accounting for almost 40% of the GDP. The rates of growth of the GDP at constant market prices have been substantial (a geometric rate of 12.2 per annum between 2001 and 2005).

Table 1
Selected Labour and Economic Statistics

| | 2005 | 2004 | 2003 | 2002 | 2001 |
|--------------------------------|--------|--------|--------------------|--------|--------|
| Resident population | 30,602 | 27,496 | 25,143 | 20,900 | 19,886 |
| * Growth rate (%) | 11.3 | 9.4 | 20.3 ^{b/} | 5.1 | 7.5 |
| * Non-belonger (%) | 62.6 | 59.4 | 56.7 | 49.2 | 48.0 |
| Labour force | 18,966 | 16,819 | 15,234 | 12,229 | 11,275 |
| Participation rate (%) | 79.3 | 80.1 | 80.4 | 80.3 | 79.4 |
| Employed population | 17,442 | 15,161 | 14,051 | 11,473 | 10,180 |
| Employment rate (%) | 92.0 | 90.1 | 92.2 | 93.8 | 90.3 |
| <u>% Sectoral Distribution</u> | | | | | |
| Public sector | 11.2 | 11.8 | 12.1 | 12.8 | 17.3 |
| Private sector | 80.8 | 78.5 | 77.5 | 74.2 | 71.0 |
| Self-employed | 8.0 | 9.7 | 10.4 | 13.0 | 11.7 |
| Total | 100 | 100 | 100 | 100 | 100 |
| GDP (M\$) ^{a/} | 570.3 | 485.6 | 409.8 | 366.7 | 358.7 |
| - Growth rate (%) | 17.4 | 18.5 | 11.8 | 2.2 | 12.3 |
| GDP Per Capita | 18,636 | 17,661 | 16,297 | 17,546 | 18,040 |
| - Growth rate (%) | 5.52 | 8.37 | (7.12) | (2.74) | 4.43 |
| Inflation rate (%) | 3.1 | 6.4 | 2.2 | 1.0 | 4.9 |
| Crude birth rate | 10.4 | 11.5 | 9.7 | 7.3 | 13.6 |
| Crude death rate | 1.7 | 1.8 | 2.8 | 2.3 | 3.5 |

^{a/} Current market prices. Source: Dept. of Economic Planning and Statistics (TCI/May 2006).

^{b/} Anomalous rate of growth.

The age-structure of the population is similar to other English-speaking Caribbean countries, and should mature long-term, provided immigration rates tend to abate overtime, as expected. However, due to the strong immigration of labour in the past five years, the proportion of residents over 65 years has decreased from 5.25% to 4.37%, and the population 15/64 years has increased from 66% to 74%. This is a reversal trend of an ageing population, and benefits the NIB scheme by retarding the actuarial maturity of the long-term branch.

2. The Social Security System

The social security scheme NIB has become the main source of institutional savings in the TCI and will remain predominant for the foreseeable future. Its role in economic development, apart from its basic social security role, can be determinant due to potential investments in specific local projects, and it is estimated that reserves are equivalent to 14% of GDP.

The TCI Social Security system, as regards cash benefits, is composed of the national insurance scheme administered by the National Insurance Board (NIB), the Public Service Pension Scheme (Ordinance 119), and limited complementary pension schemes sponsored by employers in the formal sector of the economy. The NIB operates a "defined benefit" and contributory pension scheme funded on a partial capitalization basis by employers and employees. After a full career, the scheme is designed to provide a maximum pension of 60% of pensionable salary, which in practice should yield average replacement ratios of 50% to 55% of the last salary, due to the progression of salary and the density of work prior to retirement. At present, the maximum pension payable is equivalent to 38% of pensionable salary, since the scheme began operation in 1992. However, the minimum contributory retirement pension in force of \$270 per month in March 2007 (increased to \$310 per month by July 2007), yields much higher replacement ratios.

3. Legal Framework. Coverage and Benefit Provisions

The legal framework governing the scheme is the National Insurance Ordinance (10 of 1991), and the regulations issued thereunder. The scheme commenced operations on 6 June 1992. The scheme covers all gainfully employed persons between 16 years and 65 years of age, with specified exceptions such as employment of a spouse, and self-employed persons working 10 or less

hours per week. Voluntary insurance is also allowed for persons not liable to pay contributions, but insurance may be canceled if the prescribed contributions are not paid on time.

Three financially autonomous branches of benefits are presently in operation: a Short-Term branch comprising sickness and maternity benefits; a Long-Term branch comprising retirement, invalidity and survivors' benefits, and also non-contributory pensions, and an Employment Injury branch comprising medical care, temporary employment injury benefits, and grants or pensions in the event of permanent disability or death due to employment injury. Medical care is provided in public or private facilities in case of employment injury. A summary of the benefit provisions is shown in Appendix A.

4. Contribution Rates

Contributions paid by employers and employees are shown in table 2; subject to a ceiling on earnings of \$600 per week (\$2,600 per month), whereas the distribution of the contributions by branch is shown in table 3.

Table 2

Sectoral Contribution Rates by Type of Employment

| Contributions Category | Employer | Employee | Total |
|-----------------------------------|----------|----------|-------|
| Private Sector and Government | | | |
| Non-Public Officers | 4.60% | 3.40% | 8.00% |
| Government Public Officers | 4.025% | 2.825% | 6.85% |
| Self-Employed | - | 6.80% | 6.80% |
| Voluntary | - | 5.50% | 5.50% |
| Temporarily Employed (Reg. 4 (3)) | 2.50% | - | 2.50% |

Table 3

Distribution of the Contribution Rate among Benefit Branches

| Branch | Private Sector and Government Non-Public (%) | Government Public | Self-Employed | Voluntary | Temporarily Insured |
|---------------------|--|---------------------|---------------|-----------|---------------------|
| Long-Term Benefits | 5.5% | 5.5% | 5.5% | 5.5% | - |
| Short-Term Benefits | 1.3% | 0.15% ^{a/} | 1.3% | - | 1.3% |
| Employment Injury | 1.2% | 1.2% | - | - | 1.2% |
| Total | 8.0% | 6.85% | 6.8% | 5.5% | 2.5% |

^{a/} Eligible for maternity grants only.

The authorities should assess the convenience of an amendment to the Contributions Regulations covering all civil servants for the full range of Short-Term Branch Benefits. This would require an increase in contributions from 6.85% to 8% of insurable earnings, in the same proportion as private sector employees.

5. Insurable Earnings

Insurable earnings are the gross earnings received, including overtime, cost of living, commissions and other allowances, except that no contribution is payable if earnings are "negligible" (less than \$25 per week), and are subject to a ceiling of \$600 per week. Self-employed persons shall pay contributions according to four wage-classes of \$100, \$200, \$400 or \$600 per week, provided:

- a) if over age 50 on the appointed day, the limit shall be \$200 per week,
- b) wage-class of contribution at age 50 shall remain frozen, or at \$200 if no contribution was payable at such age,
- c) the election shall be valid for a contribution year and changes are only allowed in one-class shifts.

6. Actuarial Organization

The short-term branch and the temporary benefits of the employment injury branch operate under the "assessment" system of financing, since relative costs are expected to remain within a narrow range for long periods, with adverse fluctuations or trends covered from a "contingency" reserve. The minimum contingency reserve is established in the regulations as one-fourth the average benefit payments in the last three years for the short-term branch, and one-half the same average for the employment injury branch.

The survivors and disability pensions of the employment injury branch operate under the "assessment of constituent capitals", under which the present value of pensions awarded is accounted for as an expense in a given year. The "technical" reserve should theoretically be sufficient to meet the actuarial liabilities in respect of pensions in force. This method was recommended in the actuarial valuation carried out prior to the inception of the scheme and should be retained, due to the different nature of short-term obligations, and retirement and disability pension liabilities.

The long-term branch operates under the "scaled-premium" system of finance, which is a partial capitalization system under which the contribution rate should provide for increasing reserves for a given "period of equilibrium". When expenses exceed contribution income and interest, or before reserves fall below the statutory minimum, the contribution rate should be adjusted, to ensure an adequate level of capitalization. A minimum reserve equivalent to the benefit expenditure in the previous three financial years is established in the regulations.

A summary of the Actuarial Systems of finance is shown in table 4.

Table 4

Implicit Actuarial System Finance

| Branch | Implicit Actuarial System | Minimum level of Reserves (proportion of benefit expenditure) | Nature of Reserve |
|---------------------------------|---------------------------|---|-----------------------------------|
| Short-term | PAYG | ¼ of the preceding 2 years | Contingency |
| Employment injury ^{a/} | PAYG | ¼ of the preceding 2 years | Contingency |
| Disability and Death | ACC | remaining net branch allocation | Capital value of pensions awarded |
| Long-term | SP | benefit expenditure in the preceding 3 years | Partial capitalization |

^{a/} Short-term benefits.

PAYG: pay-as-you-go.

ACC: assessment of constituent capitals.

SP: scaled premium / partial capitalization.

7. Financial Statements and Reserves by Branch

Consolidated income and expenditure of the scheme, recognized on an accrual basis, is shown in table 5, showing a compounded increase in contributions of 17.3% per annum in the last three years, as compared to 9.86% in the period 2001/04, a reflection of the impressive economic development experienced in the period under review. Investment income more than doubled in 2004/07, after an irregular performance in 2001/04, raising total income from \$15.4 million in fiscal year 2004 to \$25.9 million in fiscal year ended 31 March 2007.

Benefit expenditure has been increasing at a 14.7% rate, whereas administrative expenses increased at a 15.5% rate yielding income that rose from \$8.76 million in fiscal year ended March 2004 to \$15.7 million in fiscal year ended 31 March 2007.

Table 6 shows the consolidated Balance Sheet of the scheme, with a significant rate of accumulation of reserves of the long-term branch and the disablement and death branch, and a moderate increase in the short-term branch and employment injury branch, the latter fixed at a specific level by statutory provisions. Total net assets, representing mainly financial investments, rose by \$37 million in 2004/07, rising to \$103.2 million.

Table 5

Statement of Consolidated Income and Expenditure
(Amounts in thousands of Dollars)

| | Fiscal year ending March 31 | | | |
|------------------------------|-----------------------------|---------------|---------------|---------------|
| | 2007 | 2006 | 2005 | 2004 |
| Contributions and surcharges | 21,618 | 17,190 | 14,408 | 13,409 |
| Investment and other income | 6,257 | 4,253 | 2,575 | 2,025 |
| Total Income | 27,875 | 21,442 | 16,983 | 15,433 |
| Benefits | 5,186 | 4,377 | 3,826 | 3,437 |
| Administrative expenditure | 4,451 | 4,028 | 3,676 | 2,891 |
| Investment expenses | 529 | 457 | 441 | 347 |
| Total Expenses | 10,166 | 8,862 | 7,943 | 6,674 |
| Net Income | 17,709 | 12,580 | 9,040 | 8,759 |

Table 6

Consolidated Statement of Assets and Liabilities (in thousands of Dollars)
(as at 31 March)

| | 2007 | 2006 | 2005 | 2004 |
|--|-------------------|---------------|---------------|---------------|
| Cash and short-term deposits | 22,610 | 14,644 | 10,733 | 7,503 |
| Investments ^{1/} | 70,856 | 62,943 | 57,500 | 50,810 |
| Receivables and other ^{2/} | 9,065 | 7,482 | 4,364 | 2,998 |
| Fixed assets | 2,833 | 2,953 | 2,900 | 4,908 |
| Total Assets | 105,364 | 88,022 | 75,497 | 66,219 |
| Current liabilities and other | (239) | (606) | (662) | (141) |
| Net assets | 105,125 | 87,416 | 74,835 | 66,078 |
| <u>Reserves by benefit branch</u> | | | | |
| Long-term | 79,514 | 66,313 | 56,982 | 50,544 |
| Short-term | 7,404 | 5,915 | 4,912 | 4,196 |
| Employment injury | 166 ^{3/} | 247 | 224 | 192 |
| Disablement and death | 18,041 | 14,941 | 12,718 | 11,146 |

^{1/} Includes shares (\$2 M) in TCI Bank and government building.

^{2/} Includes long-term loans, and \$2.6 million in contributions receivable.

^{3/} See section III.8.

8. Contributions Receivable and Surcharge

The level of contributions receivable, net of provisions for doubtful amounts, were equivalent to 2.5% of total assets, and amounted to \$2.6 million as at 31 March 2006, as compared to \$1.9 million as at 31 March 2004.

9. Surcharges

Surcharges on contributions in arrears, which are generally being charged to private employers but not to the public sector. Pursuant to section 13 (3) of the financial regulations, should be distributed in the same proportion as contribution income, is shown in table 7.

Table 7

Surcharges as a Percent of Insurable Earnings

| Fiscal Year | Amount (in thousands \$) | as % of insurable earnings |
|-------------|--------------------------|----------------------------|
| 2006/07 | 668 | 0.25 |
| 2005/06 | 531 | 0.24 |
| 2004/05 | 390 | 0.21 |

^{a/} Unaudited.

For the actuarial review, an average of 0.24% of insurable earnings has been assessed for surcharges and other income, assuming a tightening of compliance by the NIB. This will increase statutory contributions by branch by 2.5% approximately.

10. Investment Income and Rates of Return

Section 45 (5) of the Ordinance provides for the Board to invest the reserves with the prior approval of the Minister responsible for national insurance. No specific asset allocation limits are provided for in the financial regulations, but investment guidelines were approved by the Board and were updated recently. An Investment Committee appointed by the Board and composed of Board members and local external qualified private individuals should formulate specific recommendations on investments to the Board.

Investments are made on a "pooled-fund" basis and then distributed amongst the three branches in proportion to the amount of the reserve of each branch at the beginning of the year. Local investments for income purposes are valued at amortized cost. Current investments are stated at market value with net unrealized gains or losses charged against the reserves, a procedure that

commenced as from 1999 to reflect more accurately the real value of the offshore investment portfolio in equities.

Table 8 shows nominal and "real" (inflation adjusted) rates of return on assets, using a standard methodology, assessing the investments at fair value based on current bid prices (see Note 2 of the audited financial statements). The nominal rates, net of investment expenses, excluding gains or losses in offshore investments, averaged 4.66% in the last three years.

Table 8
Nominal and Real Rates of Return on Investments
(Fiscal and ended 31 March)

| | 2007 ^{1/} | 2006 | 2005 | 2004 |
|------------------------------|--------------------|--------|--------|---------|
| Investment and other income | 6,257 | 4,252 | 2,575 | 2,025 |
| Investment expense | (529) | (456) | (441) | (347) |
| Net investment income | 5,728 | 3,796 | 2,134 | 1,678 |
| Ratio of investment expense | 8.5% | 10.7% | 17.5% | 17.1% |
| Net assets | 105,125 | 87,416 | 74,835 | 66,078 |
| Nominal return ^{2/} | 6.13% | 4.79% | 3.07% | 2.80% |
| Inflation rate ^{3/} | 3.50% | 3.50% | 3.10% | 6.40% |
| Real Return ^{4/} | 2.54% | 1.25% | 0.00% | (3.38%) |

^{1/} audited.

^{2/} According to the formula $i = 2I / (R_0 + R_1 - I)$, where I is the return on investments and R the reserves at the beginning and at the end of the year.

^{3/} Derived from variation in market prices (statistical office, TCI). 3.5% assumed for 2006/07.

^{4/} According to the formula: $[(1 + i) / (1 + s)] - 1$ where \underline{i} and \underline{s} represent the interest rate and the inflation rate.

Table 9 shows the distribution of the offshore portfolio, with a declining allocation of total assets to offshore investments to 61% as at 31 March 2007, due to an increase in the share of domestic investments, including TCI Bank Ltd, TCI Investment Agency and property investments (Government offices). The offshore investments show a preponderance of fixed income securities rather than equities.

Table 9
Distribution of Offshore Investments (millions of BZ\$)

| | 2007 | 2006 | 2005 | 2004 |
|-----------------------|---------------------|-------------|-------------|-------------|
| | (in millions of \$) | | | |
| Government securities | 19.8 | 16.9 | 16.8 | 16.4 |
| Equities | 22.6 | 17.0 | 14.8 | 16.7 |
| Corporate Securities | 19.9 | 19.6 | 19.1 | 11.9 |
| Cash held by brokers | 2.0 | 1.6 | 1.5 | 5.7 |
| Total | 64.2 | 55.1 | 52.2 | 50.7 |
| Percent of net assets | 61% | 63% | 70% | 77% |

Due to the importance of the return on investments in the actuarial cost expectations, it is imperative to develop a sustainable strategy to ensure a prudent investment policy aimed at maximizing a return compatible with the safety of capital (risk/return). The actuarial projections, in conjunction with a proper asset allocation policy on investments, provide a platform for a long-term investment strategy.

11. Administrative Expenditure

The actuarial cost of administrative expenditure is shown in table 10 (sectoral benefit expenditure is assessed in the analysis by branch). The distribution according to section 14 (2) of the financial regulations apportions 67%, 17% and 16% to the long-term, short-term and employment injury branch. The average for the period 2004/07 was equivalent to 1.81% of insurable earnings, but with a decreasing trend to 1.61% of insurable earnings in the last fiscal year, lower than the assessed actuarial cost of 1.77% in the preceding actuarial review. The same trend is discernible as regards the cost as a percent of contributions and benefits, that declined from 20.2% to 16.6% in the last three years.

Table 10
Relative Cost of Administrative Expenditure
(Amount in thousands of BZ\$)

| Fiscal Year ended March | Contributions <u>1</u> | Benefits | Administrative Expenditure | Cost as a % of insurable earnings | Cost as average of contributions and benefits |
|-------------------------|---------------------------|----------|----------------------------|-----------------------------------|---|
| 2005 | 14,408 | 3,876 | 3,676 | 1.99% | 20.2% |
| 2006 | 17,189 | 4,377 | 4,028 | 1.83% | 18.7% |
| 2007 | 21,618 | 5,186 | 4,451 | 1.61% | 16.6% |

1 including surcharges,

Hence, for the present actuarial review, an average administrative expenditure of 1.80% of insurable earnings and a 18% ratio to contributions and benefits have been assessed, as shown in table 11. The distribution by branch would be as follows, derived from the approved budget, but with an adjustment for the recent increase in the minimum pension. Longer term, particularly for the long-term branch, the actuarial cost of administrative expenditure should decline steadily.

| Branch | Actuarial Rate |
|------------|----------------|
| Long-term | 1.18% |
| Short-term | 0.31 |
| EI | 0.28 |
| Total | 1.77% |

Table 11

Benchmarks for Administrative Expenditure

| Fiscal year ended 31 March | Administrative Expenditure as a % of | | | |
|-------------------------------|--------------------------------------|--------|--------------------------|--------|
| | Insurable Earnings | | Contributions + benefits | |
| | Projected | Actual | Projected | Actual |
| 2005 | 1.80 | 1.99 | 18.0 | 20.2 |
| 2006 | 1.77 | 1.83 | 17.5 | 18.7 |
| 2007 | 1.75 | 1.66 | 17.0 | 16.6 |
| 2008/10 | 1.78% | | 18% | |

12. Registrations and Trend of Active Insured and Insurable Earnings

Registrations of 2,158 persons in 2004/05 and 3,941 in 2005/06 show the impressive growth of the economy. The composition by sex shows 59% of males and 41% of females. 90% of registrations took place in Providenciales and Grand Turk.

Table 12 shows the estimated trend in the average number of active insured and insurable earnings, a reflection of the growth of the economy as shown in labour and registration statistics.

Table 12

| | Fiscal Year 2003/04 | Fiscal Year 2006/07 | Annual Rate of Increase (%) |
|--------------------------------------|------------------------|------------------------|--------------------------------|
| Total number of active contributions | 11,329 | 16,784 ^{a/} | 14.0 |
| * Males | 6,627 | 10,070 | 14.9 |
| * Females | 4,702 | 6,714 | 12.6 |
| Insurable earnings (millions \$) | \$157.1 | \$300.0 | 24.0 |
| * Males | 77.7 | 160.2 | 27.3 |
| * Females | 79.4 | 139.8 | 20.7 |
| Average insurable earnings (p.a.) | \$13,869 | \$17,874 | 8.8 |
| * Males | 11,719 | 15,908 | 10.7 |
| * Females | 16,898 | 20,823 | 7.2 |

^{a/} Average estimated at 15,080.

The rate of increase of males has been slightly higher than females, due to the influx of skilled foreign workers. Also, their salaries and the density of contribution have been improving at a faster rate, narrowing the gap with females, many of the latter monthly employed in stable jobs in Government, statutory bodies and the financial sector.

13. **Mobility of the Insured Population and Self-Employed**

Due to the pattern of migration and casual employment, including the participation of migrant labour for a short-period that then return to their country of origin, a process that might increase when construction projects are completed in the next two years, the average number of active insured on a given date should be much lower than the count of active insured within a year, that includes all workers for whom at least one contribution was recorded during the period. Therefore, the "average" insured persons should be much lower than the 17,960 recorded as active contributors.

A more meaningful indicator can be obtained by projecting the number of insured persons in 2003/04 to 2006/07 (11,329 active insured), at the rate of growth of the employed labour force, yielding a total of 15,080 average active insured in 2006/07.

About 900 self-employed persons are classified as active contributions, 6% of the active insured, but their contributions only represent 2.7% of the total income in the 2006/07 fiscal year, due to lower declared "notional" wages. The composition of the labour force should include a higher proportion of self-employed persons although the proportion of active contributors exceeds the ratio in several Caribbean schemes. Further, it is expected that the

proportion of self-employed persons will increase in the future, and the NIB is advised to increase the compliance actions in that area, including fishermen, and, particularly, the informal sector of the economy in Providenciales and the Caicos Islands.

14. Temporarily Resident Employed Persons

Persons in this category are only covered for short-term branch benefits and the employees only pays 2.5% of earnings (section 4(3) of the Contribution Regulations). Coverage seems to be limited at present to expatriate employees, who come to the TCI for short periods and are replaced by other workers.

15. Sectoral Distribution of Contributions

Table 13 shows the sectoral distribution of contribution income, with the private sector accounting for 75% of contribution in the 2006/07 fiscal year, and 76% in the preceding fiscal year. Self-employed contribution has remained stable, and public sector contributions that have increased steadily in absolute terms, with an average 12% of contributions.

Table 13

Sectoral Distribution of Contributions. Fiscal year ended 31 March

(amounts in thousands of US Dollars)

| | 2007 | 2006 | 2005 |
|---------------------|----------|----------|----------|
| Private sector | \$15,776 | \$12,768 | \$10,541 |
| Public officers | 2,376 | 1,944 | 1,793 |
| Non-public officers | 2,188 | 1,410 | 1,200 |
| Self-employed | 601 | 528 | 476 |
| Voluntary | 9 | 9 | 8 |
| Sub-total | \$20,950 | \$16,659 | \$14,018 |
| Surcharges | 668 | 531 | 390 |
| Total | \$21,618 | \$17,190 | \$14,408 |

16. Insurable Earnings

Table 14 shows the computation of insurable earnings by branch in order to determine the actuarial cost of the benefit branch. Such calculation is based on the distribution of contribution assigned to each branch by the private, public and self-employed sectors.

Table 14

Insurable Earnings by Branch (Fiscal year ended 31 March. In millions of US Dollars)

| Branch | 2007 | 2006 | 2005 |
|-------------------|-------|-------|-------|
| Long-term | 267.6 | 220.1 | 184.9 |
| Short-term | 267.4 | 220.0 | 184.8 |
| Employment injury | 267.6 | 212.2 | 177.8 |

III

ANALYSIS OF SHORT-TERM AND EMPLOYMENT INJURY BENEFITS

1. Financial Operations of the Short-term Benefits Branch

Table 15 shows the financial operations of the short-term benefits branch. Benefit expenditure averaged 43% of contributions in the period under review, as compared to 52% in the period 2001/04, whereas total expenditure, including administrative expenditure, declined from an average of 79% to 69%. Hence, the scheme exceeded financial expectations due to a lower incidence of claims. Adding investment income yielded a strong capitalization of reserves, from \$4.2 million to \$7.2 million in the period under review.

Table 15

Income and Expenditure of the Short-term Benefits Branch (Year ended 31 March) (Amounts in thousands of US Dollars)

| Year ended March 31 | 2007 | 2006 | 2005 | 2004 |
|-------------------------------|--------------|--------------|--------------|--------------|
| Contributions and surcharges | 3,194 | 2,534 | 2,102 | 1,981 |
| Net investment & other income | 376 | 249 | 135 | 107 |
| Total Income | 3,570 | 2,783 | 2,237 | 2,088 |
| Sickness benefit | 635 | 505 | 409 | 399 |
| Maternity allowance | 573 | 488 | 378 | 434 |
| Maternity grant | 118 | 102 | 92 | 98 |
| Total Benefits | 1,324 | 1,095 | 879 | 931 |
| Administrative expenditure | 757 | 685 | 625 | 491 |
| Total Expenditure | 2,081 | 1,780 | 1,504 | 1,422 |
| Income less Expenditure | 1,489 | 1,003 | 733 | 666 |
| Accumulated Reserve | 7,404 | 5,915 | 4,912 | 4,196 |

2. Benefit Expenditure as a Percent of Incurable Earnings

Table 16 shows the calculation of benefit expenditure as a percent of insurable earnings, which declined to less than 1% of salaries, as compared to contributions of 1.3% of salaries, although pensionable public officers only contribute 0.15% of salaries for maternity grants only. All benefit items tended to decline in relative terms, due to changes in the composition of the labour force due to the cyclical development of construction projects and a higher participation of young males in the labour force.

Table 16

Short-Term Branch Expenditure as Percent of Insurable Earnings

| | 2007 | 2006 | 2005 |
|----------------------------|-------|-------|-------|
| Sickness benefit | 0.23% | 0.23% | 0.22% |
| Maternity allowance | 0.21 | 0.22 | 0.21 |
| Maternity grant | 0.04 | 0.05 | 0.05 |
| Total Benefits | 0.48 | 0.50 | 0.48 |
| Administrative expenditure | 0.28 | 0.31 | 0.34 |
| Total Expenditure | 0.76 | 0.81 | 0.82 |

3. Funded Status and Adequacy of the Short-Term Branch Reserve

Section 16 (2) of the financial regulations stipulate a minimum level of reserves equivalent to one-fourth the benefit expenditure in the two previous financial years. The analysis yields the ratios shown in Table 17, showing reserves far exceeding the statutory minimum. A more suitable indicator of the sufficiency of the reserve is derived from the Fund Ratio, whereas the Cost Ratio measures the sufficiency of the premium allocated to the branch.

Table 17

Level of Sufficiency of the Statutory Short-Term Branch Reserve
(Fiscal year ended March 31)

| | Minimum level of reserves | Actual reserves | Multiple of statutory minimum | Cost Ratio ^{1/} | Fund Ratio ^{2/} |
|------|------------------------------|--------------------|----------------------------------|-----------------------------|-----------------------------|
| | (amounts in thousands of \$) | | | | |
| 2007 | \$605 | \$7,404 | 12.2 | 65% | 3.02 |
| 2006 | 494 | 5,915 | 12.0 | 70% | 2.84 |
| 2005 | 453 | 4,912 | 10.8 | 72% | 2.76 |

^{1/} Total expenditure.

^{2/} Reserves ÷ expenditure in the following years.

The analysis shows that: i) the reserves amply exceed the statutory minimum, ii) the Cost Ratio averaged 69% in the period under review, with a decreasing trend due to an increase in expenditure at a slower rate than the increase in contributions, and iii) the Fund Ratio as at 31 March 2007 was equivalent to three times the annual projected expenditure in the next fiscal year, above the accepted range of 0.5 to 1.5 times the projected expenditure. Hence, at the valuation date, the Short-Term Branch funded status exceeds accepted benchmarks.

4. Factors to Estimate Sickness and Maternity Actuarial Costs

The following factors have been assessed for the valuation:

Table 18

Sickness Allowances

- a) Estimated frequency: 4.5 cases per 100 insured.
- b) Average duration per case: 15
- c) Density of contributions: 85%.
- d) Benefit rate: 60%.
- e) Days paid per insured: $a) \times b) = 0.67$
- f) Unit cost per insured: $d) \times e) = 0.40$
- g) Salary differential (sick / active) = 1.00
- h) Actuarial cost = $f) \times a) \times g) = 0.34\%$ of insurable earnings.

Maternity Allowances

- a) Frequency: 1.6 cases per 100 insured.
- b) Average duration: 80 days.
- c) Density of contributions: 70%.
- d) Benefit rate: 60%.
- e) Days paid per insured: $a) \times b) = 1.28$
- f) Unit cost per insured: $d) \times e) = 0.77$
- g) Salary differential (maternity / active): 0.65
- h) Actuarial cost: $f) \times c) \times g) = 0.35\%$ of insurable earnings.

Maternity Grants

- a) Frequency: 2.2 per 100 insured.
- b) Amount: \$400.
- c) Average salary (p.a.): \$18,000
- d) Actuarial cost: $a) \times b) \div c) = 0.05$ of insurable earnings.

5. Actuarial Cost of the Short-Term Benefits Branch

Table 19 presents a summary of the expected actuarial cost of the short-term benefits branch. Total benefit and administrative expenditure is assessed at 1.07% of insurable earnings, as compared to the statutory allocation of 1.30% of earnings. The analysis shows that the projected level of benefit expenditure is lower than in the last actuarial review, due to charges in the composition of the labour force. The safety margin plus surplus contingency reserves still allow for an overfunded status, allowing the NIB in due course to transfer reserves to the long-term branch, adjust the rate of contributions, adjust the maternity grant, and, subject to actuarial consultations, to ease the qualifying conditions for sickness and maternity allowances.

Table 19

Summary of Expected Costs of the Short-Term Benefits Branch

| | Actuarial Cost (% of insurable earnings) | | |
|----------------------------|--|---------------------------------|----------------------------------|
| | Actual (2004/07) | V Actuarial Review (2007/10) | IV Actuarial Review (2004/07) |
| Sickness Benefit | 0.23% | 0.35% | 0.40% |
| Maternity Allowance | 0.22 | 0.35 | 0.35 |
| Maternity Grant | 0.05 | 0.05 | 0.08 |
| Total Benefits | 0.50 | 0.75 | 0.83 |
| Administrative Expenditure | 0.31 | 0.32 | 0.35 |
| Total Expected Cost | 0.81% | 1.07% | 1.18% |
| Statutory Allocation | 1.30 | 1.30 | 1.30 |
| Net Investment Income | 0.11 | 0.12 | 0.15 |
| Total Projected Income | 1.41 | 1.42 | 1.45 |
| Projected Surplus | 0.60% | 0.35% | 0.27% |

6. Actuarial Projection of the Short-Term Branch

Table 20 shows an actuarial projection of the short-term branch for the next three years, according to the expected performance and the indicated assumptions. The projections show that, despite a rate of increase in expenditure higher than contributions, current surplus should be expected to continue at a significant rate. The incidence of investment income contributes to add to the reserves for the projection period, from \$7.2 million as at 31 March 2007, to \$11.6 million at 31 March 2010. The basic benchmark, the Fund Ratio (reserve divided by expenditure the following year), continues to increase from 2.95 projected total expenditure to 3 times in 2010, exceeding the accepted range of 0.5 to 1.5 times projected expenditure. The reserves exceed by more

than 10 times the statutory minimum provision of Section 16(2) of the benefit regulations.

Table 20
Actuarial Projection of Short-Term Branch Reserves
(Year ended 31 March)

| Fiscal year ended 31 March | Percent increase (%) | Contributions and surcharges | Total Expenditure | Current Income | Net Investment Income | Accumulated Reserves | Fund Ratio ^{2/} | Multiple of minimum statutory reserves (section 16.2) |
|--------------------------------------|----------------------------|------------------------------------|----------------------|-------------------|-----------------------------|-------------------------|-----------------------------|--|
| (amounts in thousands of US Dollars) | | | | | | | | |
| 2005 | 16 | 2,102 | 1,504 | 598 | 135 | 4,912 | 2.76 | 10.8 |
| 2006 | 21 | 2,534 | 1,780 | 754 | 249 | 5,915 | 2.84 | 12.0 |
| 2007 ^{1/} | 22 | 3,112 | 2,115 | 997 | 279 | 7,191 | 2.95 | 11.9 |
| 2008 | 19 | 3,578 | 2,435 | 1,143 | 310 | 8,644 | 2.95 | 11.9 |
| 2009 | 17 | 4,008 | 2,848 | 1,160 | 368 | 10,172 | 3.05 | 11.7 |
| 2010 | 15 | 4,369 | 3,333 | 1,036 | 427 | 11,635 | 3.07 | 11.6 |

^{1/} Unaudited.

^{2/} Reserve ÷ projected total expenditure.

Bases: Rate of increase in contributions: 15% decreasing to 9% in 3 years..

Rate of increase in expenditure: 17%.

Net Rate of Return on Assets (ROA): 4%.

% of Benefit expenditure: 60% of total expenditure.

7. **Financial Operations of the Employment Injury Branch**

Table 21 shows the financial operations of the employment injury branch on a "current" basis, which does not count as expenses the actuarial present value of disablement and survivors pensions arising in the period, in accordance with the actuarial method of "assessment of constituent capital" applied to the scheme, whereas Table 22 shows the expenditure as a percent of insurable earnings. Total benefit expense in the last three years averaged 0.16% of insurable earnings the same as in the preceding actuarial review, and total expenditure has been 0.45% of insurable earnings in 2005/07.

Table 21

Income and Expenditure of the Employment Injury Benefit Branch

(Amount in thousands of US Dollars)

| | 2007 | 2006 | 2005 | 2004 |
|-----------------------------------|------------------|--------------|--------------|--------------|
| Contributions and Surcharges | 3,211 | 2,547 | 2,134 | 1,988 |
| Net Investment and other income | 990 | 656 | 366 | 286 |
| Total Income | 4,201 | 3,203 | 2,500 | 2,274 |
| Attendance allowance | 7 | 5 | 5 | 5 |
| Disablement and death grants | 8 | 7 | 5 | - |
| Injury benefit (short-term) | 189 | 86 | 55 | 76 |
| Disablement pension | 134 | 109 | 89 | 100 |
| Survivor's pension | 103 | 93 | 99 | 59 |
| Medical care | 29 | 12 | 7 | 10 |
| Benefits expenditure | 470 | 312 | 261 | 250 |
| Administrative expenditure | 712 | 645 | 588 | 463 |
| Total Expenditure | 1,182 | 957 | 849 | 713 |
| Income less Expenditure | 3,019 | 2,246 | 1,651 | 1,561 |
| Consolidated Reserve | 18,207 | 15,218 | 12,942 | 11,338 |
| Employment injury reserve | 87 ^{b/} | 247 | 224 | 192 |
| Disablement and death reserve | 18,120 | 14,971 | 12,718 | 11,146 |

Table 22

Employment Injury Branch**Expenditure as a Percent of Insurable Earnings (year ended 31 March)**

| | 2007 | 2006 | 2005 | 2004 |
|-----------------------------------|-------------|-------------|-------------|-------------|
| Injury benefit | 0.07 | 0.04 | 0.05 | 0.04 |
| Medical care and grants | 0.01 | 0.01 | 0.01 | 0.01 |
| Short-term benefits | 0.08 | 0.05 | 0.06 | 0.05 |
| Disablement benefit ^{a/} | 0.06 | 0.06 | 0.06 | 0.06 |
| Survivors' benefit | 0.04 | 0.04 | 0.05 | 0.04 |
| Total benefits | 0.18 | 0.15 | 0.14 | 0.15 |
| Administrative expenditure | 0.27 | 0.30 | 0.26 | 0.29 |
| Total expenditure | 0.45 | 0.45 | 0.40 | 0.44 |

^{a/} Includes attendance allowance.**8. Determination of the EI Short-term Reserves**

Section 15(3) of the Financial Regulations deals with the computation of the Employment Injury Benefit Reserve to finance the short-term benefits of the branch, that is: injury benefit, disablement grant, death grant and medical care. Only benefits paid in the reference period for Disablement and Death (Survivors) pensions, including the Constant Attendance

Allowance (see Section 22 of the Ordinance), should be deducted in order to compute the reserve.

The EI reserve (for short-term benefits) shall be constituted by transferring the amounts required **to maintain the level of the reserve at one-half the amount paid in the two previous financial years.** Such benefits are composed of: injury benefit, disablement grant, death grant and medical care.

The data for the last two financial years is as follows, for fiscal years ended 31 March:

Table 23
Expense items for the EI reserve

| | FY 2007 | FY 2006 |
|-----------------------|---------|---------|
| Injury benefit | 188,958 | 86,073 |
| Disablement grant | 2,000 | - |
| Death grant | 5,924 | 7,526 |
| Medical care | 29,419 | 12,217 |
| Total | 226,301 | 105,816 |
| EI Reserve (31 March) | 166,059 | 86,542 |

It is noted that the actuarial reserve as at 31 March 2006 differs from the amount stated in the audited financial statements. The remaining cost items of the EI branch pertain to long-term obligations (disablement and death pensions). Therefore, of the FY 2007 \$2,709,468 surplus, the distributions by sub-branch would be as follows:

Table 24
Distribution of the Reserves
Calculations of the Disablement and Death Reserves

| | Reserve at 31.3.2006 ^{1/} | FY 2007 | Reserve at 31.3.2007 |
|-------------------------------|---------------------------------------|-----------|-------------------------|
| EI (short-term) reserve | 246,833 | (80,774) | 166,059 |
| Disablement and death reserve | 14,940,991 | 3,099,969 | 18,040,960 |
| Total | 15,187,824 | 3,019,195 | 18,207,019 |

^{1/} Audited FY 2006 financial statements.

9. Actuarial Cost Estimates of Short-Term Benefits and Administrative Expenditure

The actuarial cost of short-term benefits has fluctuated between 0.08% to 0.05% of insurable earnings in the period under review. Nevertheless, the actuarial costs are rather low, since the

economic activity of the labour force is not subject to a high incidence of employment injury risks. For the actuarial review, a joint rate 0.12% of insurable earnings has been assessed. As for administrative expenditure of the branch, a rate of 0.28% of salaries has been assessed, slightly lower than in the last review.

10. Actuarial Cost of Disablement and Survivors' Benefits

The pension component of the employment injury branch should be assessed by the terminal reserve method, with annual costs equivalent to the present value of benefits awarded or arising in the period. The frequencies are so low that only one case of disability or work-accident death in a year causes a large fluctuation in the actuarial cost, as evidenced by disablement pensions in force. In practice, the annual surplus transferred to the EI branch amount to almost twice the actuarial rate of 0.43% of insurable earnings.

Had the number of disability and deaths due to work accidents been larger, the experience would allow an assessment of emerging actuarial frequencies and costs. However, the numbers involved are so small that a global assessment of the level of sufficiency of the reserves would suffice until the next actuarial valuation.

As in the preceding valuation, an average annual frequency of 0.6 per thousand insured for disability and 0.2 per thousand for work-accident deaths per year (that could fluctuate sharply), the following actuarial costs would arise:

Table 25

Assumed Frequency and Actuarial Cost of Disablement and Death

| | Total Disablement | Death |
|------------------------------|-------------------|--------|
| Frequency | 0.0006 | 0.0002 |
| Present Value of the Annuity | 12 | 12 |
| Actuarial Cost | 0.43% | 0.14% |

11. Investment Income of the Employment Injury Branch

Investment income of the employment injury branch substantial reserves rose from 0.20% of insurable earnings in 2004/05 to 0.30% in the two subsequent years. With a balance of \$17.7 million in reserves as at 31 March 2007 and nominal returns of 4% of salaries, the average return would average 0.27% of salaries for the next three years, after deducting investment expenses.

12. Actuarial Cost of the Employment Injury Branch

Having regard for the substantial variability of expected trends, the assessment of expected costs until the next actuarial review is shown in Table 26.

Table 26
Summary of Expected Actuarial Cost of the Employment Injury Branch

| | Actuarial Cost (% of insurable earnings) | |
|--|--|----------------------------------|
| | V Actuarial Review (2007/10) | IV Actuarial Review (2004/07) |
| Employment Injury | 0.10 | 0.12 |
| Grants and medical care | 0.02 | 0.04 |
| Sub-Total | 0.12 | 0.18 |
| Disablement Pensions (APV) ^{a/} | 0.43 | 0.43 |
| Survivors' Pensions (APV) ^{a/} | 0.14 | 0.14 |
| Sub-Total | 0.57 | 0.58 |
| Total Benefit Cost | 0.68 | 0.76 |
| Administrative Expenditure | 0.28 | 0.31 |
| Actuarial Cost | (0.97) | (1.02) |
| Contributions | 1.20 | 1.20 |
| Current Actuarial Surplus | 0.23 | 0.18 |
| Net Investment Income | 0.27 | 0.32 |
| Total Projected Surplus | 0.50 | 0.50 |

^{a/} Actuarial present value (APV).

13. Adequacy of the Disablement and Death Reserve

To assess the level of sufficiency of the disablement and death reserve, according to actuarial standards, the liability should be assimilated to the terminal reserve of the assessment of constituent capital systems of finance. Under these methods, the obligation at a given point of time is equivalent to the present value of pensions in force, since no accumulation of rights arises over time on behalf of the active insured population, and a cessation or conversion of the scheme limits the obligations to pension in force (the same concept applies to group life policies underwritten by insurance companies). This concept is different to the Long-Term Branch (pensions) obligations, whereunder the insured population does acquire deferred rights over time for contributions credits earned by each individual, and deferred liabilities are accrued every year by the active insured population. Hence, the adequacy of the disablement and death reserve is measured in relation to the present value of benefits in force to the beneficiaries and contingent survivors, as shown below.

Table 27

Adequacy of the Disablement and Death Reserve
(as at 31 March 2007)

| | 31 March 2007 | 31 March 2004 |
|---------------------------------------|---------------|---------------|
| Present Value of pensions in force | (\$3,534,648) | (\$1,926,000) |
| Actuarial Reserve | \$18,040,960 | \$11,146,455 |
| Actuarial Surplus | \$14,506,312 | \$9,220,455 |
| Funded ratio (reserves ÷ obligations) | 5.10 | 5.79 |

14. Actuarial Projections of Disablement and Death Reserves

Table 28 shows the actuarial projections of disablement and death reserves. The reserves increase steadily, as the "current cost" of the branch is assessed at 0.45% of insurable earnings, (see table 22), as compared to a statutory contribution rate of 1.20% of insurable earnings. Including investment income, yields projected reserves of \$20.2 million at 31 March 2008 and \$5.4 million at 31 March 2010. The transfer of reserves is higher than the actuarial present value of pensions awarded in the respective period, augmenting the actuarial surplus of the scheme.

In view of the variability of emerging costs and rates of return on assets, the projections should be updated periodically, but medium term the reserves amply exceed the present value of actuarial obligations.

Table 28

Actuarial Projections of Employment Injury Disability and Death Reserves
(Amount in thousands of \$)

| Fiscal Year ended March 31 | Disability and Death Reserves | |
|-------------------------------|-------------------------------|----------------|
| | Projected IV Actuarial Review | Actual Reserve |
| 2005 | 13,127 | 12,718 |
| 2006 | 15,228 | 14,971 |
| 2007 | 17,413 | 18,040 |
| | Projected VI Actuarial Review | |
| 2008 | 20,218 | |
| 2009 | 22,760 | |
| 2010 | 25,393 | |

IV

ANALYSIS OF THE LONG-TERM BRANCH

1. Financial Operations

Table 29 shows the income, expenditure and reserves of the long-term branch, with a steady increase in reserves, a normal pattern in a pension scheme in an early phase of maturity. Expenditure on non-contributory pensions remained stable in the three fiscal years ended 2007, but should increase after the adjustment to the minimum pension, but the actuarial average long-term cost is expected to remain stable, with the cost of new pensions awarded offset by the mortality of existing pensioners. Contributory pensions however, will tend to increase at a steady pace.

2. Expenditure as a Percent of Insurable Earnings

Table 30 shows the cost of the long-term branch as a percent of insurable earnings. With the exception on non-contributory pensions, the normal pattern of development of a national pension scheme implies a steady increase in actuarial cost, that rose modestly from 0.87% to 0.91% of insurable earnings between March 31, 2004 and 2007. The rate of increase in the period ended 31 March 2007 rather than accelerate has abated, due to the significant increase in the number of active insured persons and, therefore, insurable earnings. As to non-contributory persons, the actuarial cost declined to 0.31% of insurable earnings in the last fiscal year, but should increase when the pension adjustment of about 25% becomes effective as from July 2007.

The share of administrative expenditure assigned to the scheme averaged 1.21% of insurable earnings in the last three years, and is projected at 1.18% for the next three years ended 31 March 2010.

Table 29

Income and Expenditure of the Long-Term Branch
(Amounts in thousands of US Dollars)

| | 2007 | 2006 | 2005 | 2004 |
|-------------------------------|----------------------------|---------------|---------------|---------------|
| | Fiscal year ended March 31 | | | |
| Contributions and Surcharges | 15,212 | 12,109 | 10,173 | 9,441 |
| Net Investment & other income | 4,362 | 2,891 | 1,632 | 1,284 |
| Total Income | 19,574 | 15,000 | 11,805 | 10,725 |
| Retirement pension | 1,609 | 1,369 | 1,171 | 938 |
| Invalidity pension | 337 | 289 | 253 | 188 |
| Survivors' pension | 471 | 306 | 295 | 233 |
| Grants | 104 | 124 | 78 | 109 |
| Non-contributory pensions | 869 | 882 | 889 | 788 |
| Total Benefits | 3,390 | 2,970 | 2,686 | 2,256 |
| Administrative Expenditure | 2,983 | 2,699 | 2,463 | 1,937 |
| Total Expenditure | 6,373 | 5,669 | 5,149 | 4,193 |
| Income less Expenditure | 13,201 | 9,331 | 6,656 | 6,532 |
| Accumulated Reserve | 79,514 | 66,312 | 56,982 | 50,543 |

Table 30

Long-Term Branch
Expenditure as a Percent of Insurable Earnings

| | Fiscal year ended March 31 | | | |
|----------------------------|----------------------------|-------------|-------------|-------------|
| | 2007 ^{av} | 2006 | 2005 | 2004 |
| Retirement pensions | 0.58 | 0.62 | 0.63 | 0.56 |
| Invalidity pensions | 0.12 | 0.13 | 0.14 | 0.11 |
| Survivors' benefits | 0.17 | 0.14 | 0.16 | 0.14 |
| Grants | 0.04 | 0.06 | 0.04 | 0.06 |
| Sub-total | 0.91 | 0.95 | 0.97 | 0.87 |
| Non-contributory pensions | 0.31 | 0.40 | 0.48 | 0.46 |
| Total benefits | 1.22 | 1.35 | 1.45 | 1.33 |
| Administrative expenditure | 1.08 | 1.23 | 1.33 | 1.17 |
| Total expenditure | 2.30 | 2.58 | 2.78 | 2.50 |

3. **Actual versus Expected Reserves**

The accumulation of long-term branch reserves evolved in 2004/06 as in the actuarial forecast, but exceeded by 3.4% the projected amount as at 31 March 2007, as shown in table 31.

Table 31

Actuarial versus Expected Reserves

| Financial year ended 31 March | Forecast | Actual ^{1/} | Ratio |
|-------------------------------|----------|----------------------|--------|
| 2004 | 50,825 | 50,544 | 99.5% |
| 2005 | 58,570 | 56,982 | 97.3% |
| 2006 | 66,793 | 66,312 | 99.3% |
| 2007 | 75,499 | 79,514 ^{2/} | 105.3% |

^{1/} Long-term branch reserves only.

4. Statutory Minimum Reserve and Fund Ratio

The minimum statutory reserve of the branch should be equivalent to the total benefit expenditure in the previous three financial years, as stated in Section 16(1) of the financial regulations. The calculations show that as at 31 March 2007 the actual reserve was equivalent to 8.8 times the statutory minimum, as shown in table 32. The Fund Ratio exceeds 10 times projected expenditure, the same as three years ago, indicative that the maturity of the scheme has remained stagnant in the period under review, due to the excellent financial performance. The adjustment to pensions in payment will pressure the Fund Ratio, but rates on investments might improve, offsetting the increase in expenditure in the next fiscal year.

Table 32

Statutory Level of Sufficiency of the Long-Term Branch

| Fiscal year ended March 31 | Statutory Minimum Reserve | Actual Reserve | Multiple of Statutory Minimum | Fund Ratio |
|-----------------------------|---------------------------|----------------|-------------------------------|------------|
| (Amounts in thousand of \$) | | | | |
| 2007 | 9,046 | 79,514 | 8.8 | 10.8 |
| 2006 | 7,912 | 66,312 | 8.4 | 10.4 |
| 2005 | 6,670 | 56,982 | 8.5 | 10.1 |

5. Trend of Pensions in Payment

Table 33 shows the trend of pensions in payment in the period 31 March 2003 and 31 March 2006. As expected, non-contributory pensions have declined, due to the high mortality of pensioners caused by their advanced age, that more than offsets the award of new pensions. Survivor's pension have more than doubled (it includes also pensions arising from the EI branch), whereas invalidity pensions have increased at a modest pace. EI Disablement pensions have remained stable, a surprising experience as the boom in constructions was expected to generate

serious work accidents. As to the main cost item, retirement pensions increased by 50%, or a compound rate of 14.5% per year, although, due to higher unit pensions, pension expense increased in the same period at a higher rate.

Table 33

Trend of Pensions in Payment

| Type of pension | In force at 31.3.03 | 2003/04 | | 2004/05 | | 2005/06 | | In force at 31.3.06/07 |
|-------------------------|------------------------|-----------|-----------|-----------|-----------|-----------|-----------|---------------------------|
| | | New | Exits | New | Exits | New | Exits | |
| NC pensions | 397 | 18 | 25 | 12 | 19 | 9 | 33 | 359/423 |
| Survivors ^{a/} | 41 | 19 | - | 16 | - | 13 | - | 89/98 |
| Invalidity | 35 | 10 | 4 | 12 | 1 | 1 | - | 53/57 |
| Retirement | 206 | 43 | 2 | 40 | 9 | 37 | 6 | 310/359 |
| Disablement | 8 | 1 | - | 1 | - | - | 2 | 8/8 |
| Total | 687 | 91 | 31 | 81 | 29 | 61 | 41 | 819/945 |

^{a/} Includes EI branch widows, with a declining proportion (25% in 2005 and 18% in 2007).

6. Actual versus Projected Number of Pensioners (31 March 2007)

Table 34 shows that there was a close fit between the projected and the actual number of survivors' pensions. Retirement pensions were lower than expected in the last valuation, due to the continuation of deferment of retirement beyond age 60, as shown by the age distribution of active insured persons, and also invalidity pensions were lower, and in this respect it is noted that temporary residents are excluded from age or invalidity benefits.

Table 34

Actual versus Projected Number of Pensioners (31 March 2007)

| Average Pension (p.a.) | Actual ^{2/} | Expected ^{3/} | Ratio |
|-------------------------|----------------------|------------------------|-----------|
| Retirement | 359 | 454 | 79 |
| Invalidity | 57 | 79 | 72 |
| Survivors ^{1/} | 98 | 101 | 97 |
| Total | 514 | 634 | 81 |

^{1/} Main beneficiary only, excluding children.

^{2/} Data supplied by the Research office.

^{3/} 2004 Actuarial Valuation.

7. Demographic Ratios

Table 35 shows the demographic ratios (pensioners ÷ contributors x 100). Despite a steady increase in the proportion of beneficiaries, the rapid increase in the number of contributors caused a decrease in the demographic ratios in the last fiscal year. This means that the scheme is still in an incipient phase of development, with the exception of non-contributory pensions, and rather than mature from a demographic standpoint, it reversed temporarily course with younger ratios than three years ago at the valuation date.

Table 35

Demographic Ratios

| | 31 March 2007 | 31 March 2004 |
|-----------------------------------|---------------|---------------|
| Retirement pensions | 2.14 | 2.24 |
| Invalidity pensions | 0.34 | 0.36 |
| Non-contributory pensions | 2.52 | 3.45 |
| Survivors' pensions ^{a/} | 1.30 | 1.26 |
| Total pensions in payment | 6.30% | 7.31% |

^{a/} Includes children (1.5 estimated at 31.3.2007).

8. Gross Mortality Rates of Pensioners

Table 36 shows the crude death and termination rates of different categories of pensioners. As expected, invalidity pensioners yield the higher rates, excluding in the latest biennium the conversion into retirement pensions as from age 60. Non-contributory pensioners show higher rates than retirement pensioners, due to higher average ages, offsetting the new entrants in this category.

Table 36

Average Mortality Rates of Pensioners

| | Average (2004/06) | Average (2000/04) |
|------------------|-------------------|-------------------|
| Invalidity | 3.8 ^{1/} | 30.3% |
| Retirement | 2.3 | 2.1% |
| Non-Contributory | 6.8 | 6.5% |

^{1/} Includes also suspension of pensions due to recovery.

9. Retirement Age

As from April 2007 the maximum retirement pension is equivalent to 40% of average insurable earnings, provided full credits and contributions have been accrued. Retirement as

from age 60 is feasible, provided employment (or self-employment) is terminated. However, most insured persons in the private sector prefer to continue employed with 100% of salary, rather than retire with a fraction of the salary, with the exception of many pensionable public officers that retire from Government at age 55 and are not employed in the private sector, and low income workers who become unemployed. For that reason, the average retirement age has been around 63 years, and such ratio is expected to continue for several years, until the accrued NIB pension reaches higher levels.

10. Demographic and Economic Assumptions

Table 37 sets forth the basic economic assumptions used for the present valuation, as compared to previous valuations. The initial 2.5% rate of insured population growth is influenced by temporary immigration from neighboring areas, decreasing gradually to 1.5% per annum in 20 years. As to the economic assumptions, the 2% real rate of return is retained, based on a nominal interest rate of 5% long-term and salary scale of 4%. The redeployment of the investment portfolio, a recovery of the equities market offshore, and pro-active investment guidelines by the NIB, should result in more satisfactory rates of return in investments than in the past three years.

Table 37

Summary of Basic Assumptions

| | Fifth Valuation (2007) | Fourth Valuation (2004) | Third Valuation 2001 (basic) | Second Valuation (1998) | First Valuation (1995) | Project Appraisal ILO (1992) |
|---|---|-------------------------------|--|---|------------------------------|---------------------------------------|
| Interest rate | 5% | 7% | 7% | 7% | 6.5% | 6% |
| Salary scale | 4% ^{2/} | 5% | 5% | 5% | 5% | 5% |
| Inflation rate | 3% | 5% | 5% | 5% | 5% | 5% |
| Pension adjustments (ad hoc) ^{1/} | Dynamic | Dynamic | Dynamic | Dynamic | Dynamic | Minimum pensions only |
| Real rate | 2.0% | 2.0% | 2.0% | 2.0% | 1.5% | 1.0% |
| Projection period (years) | 50 | 50 | 50 | 42 | 10 | 16/25 |
| Population growth rate | 5% in 2007/08, 4% in 2008/09 decreasing linearly to 1% as from 2024 | Idem (2001) | 2.5% decreasing to 1.5% after 20 years | 3.5% (1998- 2005) decreasing to 1% as from 2020 | 3.6% | 2% (19 years) 0%(20 + years) |

In addition to the basic projection, alternative projections were carried out to assess the sensitivity of cost estimates to the economic assumptions, which generate a higher degree of variability than the demographic assumptions. The sensitivity analysis assumed an increase in the nominal rate of return of 5% and 6%.

11. Administrative Expenditure

The share of administrative expenditure until the next actuarial review in 2010 has been assessed at 1.18% of insurable earnings (see Section II-11).

12. Cost of Non-Contributory Pensions

The cost of non-contributory pensions, which were adjusted to \$250 per month as from July 2007, is expected to decrease gradually in relative terms, leaving a net allocation to cover retirement, invalidity and contributory benefits, plus administrative expenditure. Actuarial average costs are projected at 0.40% of insurable earnings in 2007/08. It is recalled that the NIB should set a limit to NC pensions equivalent to 67% the minimum contributory pension, which, if applied in practice, should reduce the cost of NC persons in the future, to be assessed in the next actuarial review.

13. Funeral and Pension Grants

Grants have averaged 0.05% of insurable earnings, mostly funeral grants, as the number of retirement and invalidity grants is non-material. Such rate is retained for the present actuarial review.

14. Net Share for Contributory Pension Benefits

The net share for contributory pension benefits is assessed as follows, excluding investment income.

Table 38

| <u>Net Share for Contributory Pension Benefits</u> | |
|---|--|
| | <u>% of insurable earnings (2007/10)</u> |
| Contribution rate | 5.50% |
| Surcharges | 0.08 |
| Total current income | 5.58 |
| Grants | (0.05) |
| Non-contributory pensions | (0.40) |
| Administrative expenditure | (1.18) |
| Net allocation for contributory pensions ^{1/} | 3.95% |

^{1/} Retirement, invalidity and survivors'.

15. Adjustment to Contributory Pensions

A minimum pension increase from to \$310.50 (15%) will be effective as from July 2007, with a proportional adjustment to survivors' pensions. Pensions above the minimum will be adjusted by a flat \$60.50. The adjustment will increase pensions in payment by an average 12%.

16. Density of Employment and New Entrants

Tables 39 and 40 show the experience of density of employment by sex, and the age-distribution assumption on new entrants. The density (100% density is equivalent to 52 weekly contributions per year) reflects the seasonal patterns of employment in the TCI, which is focused on the tourism, construction and fishing areas, and the scale is higher than in the last actuarial review due to the decline in unemployment. The new entrants' distribution indicates that proportionally, females enter the labour force at earlier ages than males.

Table 39

Density of Employment by Sex

| Age | Males (%) | Females (%) |
|-------|-----------|-------------|
| 16-20 | 35 | 25 |
| 21-25 | 42 | 50 |
| 26-30 | 47 | 50 |
| 31-35 | 58 | 67 |
| 36-40 | 65 | 74 |
| 41-45 | 80 | 79 |
| 46-50 | 75 | 76 |
| 51-55 | 65 | 65 |
| 56-60 | 63 | 63 |
| 61-65 | 61 | 61 |

Table 40

Percent Distribution of a Generation of New Entrants

| Age | Males | Females |
|-------------|-------|---------|
| 16-20 | 36.4 | 47.5 |
| 21-25 | 40.4 | 42.9 |
| 26 and over | 23.2 | 9.6 |
| Total | 100 | 100 |

17. Mortality and Invalidity Rates

No mortality tables are available in the TCI. As in the last valuation, rates of mortality similar to the GAM-83 table (US group pensions), has been utilized in the projections, along with a low incidence of invalidity cases, to reflect the local experience. These and other biometrics indicators are summarized in table 41. It is recalled there temporary non-residents are not eligible to retirement or invalidity pensions, and that invalidity pensions are converted into retirement pension upon the attainment of age 60. As to the mortality of invalids, it is assumed equal to attained age plus 7 years.

Table 41
Selected Mortality and Invalidity Rates
(per 1000)

| Age | Mortality | | Entry into Invalidity | |
|-----|-----------|---------|-----------------------|---------|
| | Males | Females | Males | Females |
| 18 | 0.83 | 0.35 | - | - |
| 22 | 1.10 | 0.40 | - | - |
| 27 | 1.34 | 0.50 | 0.024 | 0.008 |
| 32 | 1.63 | 0.74 | 0.164 | 0.082 |
| 37 | 2.12 | 1.13 | 0.373 | 0.267 |
| 42 | 2.84 | 1.65 | 0.662 | 0.588 |
| 47 | 4.16 | 2.35 | 1.197 | 1.224 |
| 52 | 6.27 | 3.46 | 2.226 | 3.119 |
| 57 | 9.51 | 5.30 | 4.278 | 5.847 |
| 62 | 14.92 | 8.17 | | |
| 67 | 23.86 | 12.77 | | |
| 72 | 40.33 | 22.01 | | |
| 77 | 66.17 | 41.02 | | |
| 82 | 100.17 | 73.73 | | |

18. Demographic Projections

To estimate the expected trend of the long-term branch, actuarial projections have been carried out based on the legal provisions in force. The projections provide an indicator of the adequacy of the funding bases and of the need to introduce correctives to ensure the long-term financial viability of the scheme.

Demographic projections of the national pension scheme are influenced by a series of variables such as the level of mortality, the effective age of retirement as well as labor, migration and

fertility trends. The insured population has been increasing at a rate higher than expected, due to the absorption of foreign workers from neighboring countries into the labor market. In the demographic projections it is expected that the extraordinary rate of growth, experienced in the last three years due to the boon in the construction industry, will decline as from 2007/08 to more sustainable rates. For the projections it has been assumed that the rate of growth will decline linearly from 4% per annum to 1% in 17 years, and remain constant at that rate thereafter. The demographic projection should be updated periodically, to assess the difference between actual and expected trends implicit in actuarial long-term forecasts, with substantial variabilities to be experienced depending on the rate of economic activity.

Population Pyramid Summary for Turks and Caicos Islands

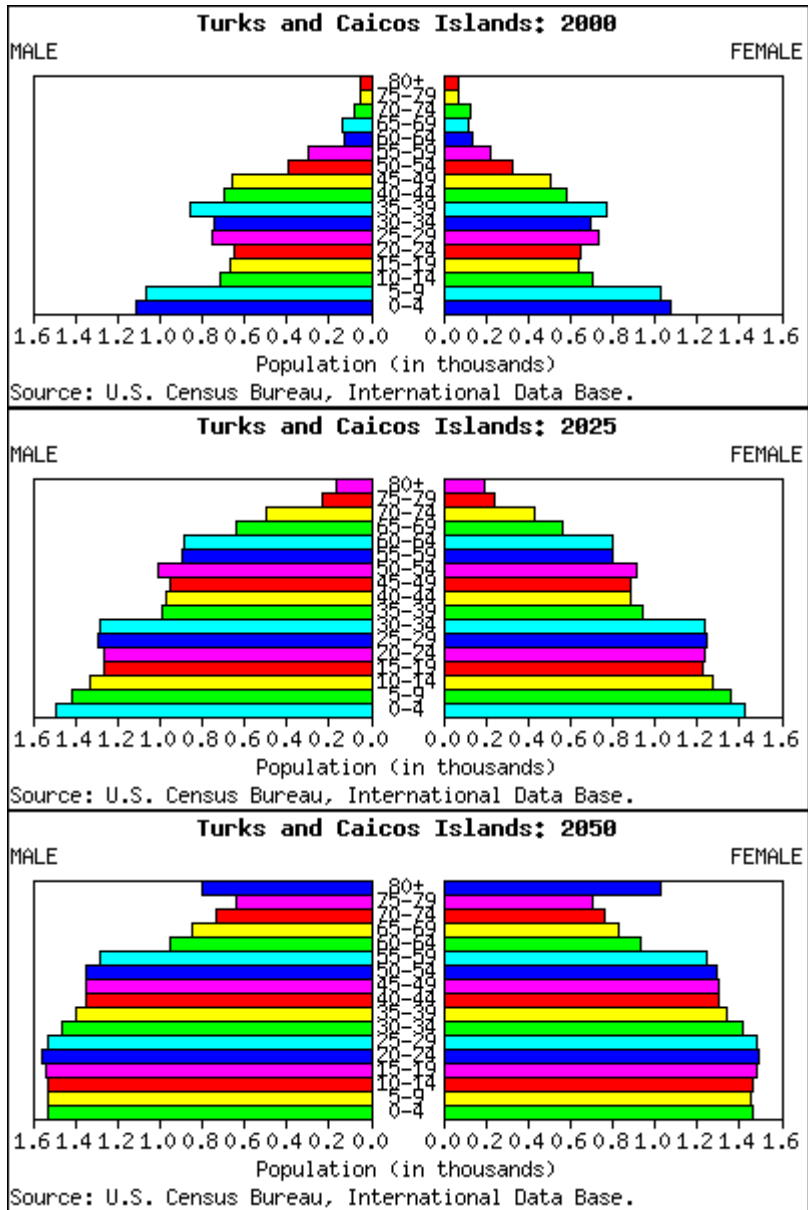


Table 42 shows the summary of the demographic projections, with the last two columns showing the ratio of retirement pensioners and all pensioners to the active insured. In 50 years the ratio of retirement pensioners per insured, excluding non-contributory pensions, increases from 3% to 27%, approaching a stationary phase in correlation with the ageing of the population, as shown in the attached chart, showing the evolving age-structure of the population. Total pensioners are expected to increase gradually, reaching, in 50 years, a ratio of 36% of active insured. The number of survivors pensions (spouses only), are lower than forecasted in the preceding actuarial review,

due to a lower rate of demographic ageing due to the influx of immigration and a longer life expectancy. Invalidity pensions, which are converted into retirement pensions at age 60, have shown a lower incidence than anticipated in the last actuarial review and also are lower than in the preceding review.

Table 42

Summary of the Demographic Protections

| Average for fiscal year ended 31 March | Insured Persons | Pensioners | | | | Demographic Ratio (%) ^{1/} | |
|--|--------------------|------------|------------|------------------------|--------|-------------------------------------|-------------------|
| | | Invalidity | Retirement | Survivors (spouses) | Total | Retirement Pensions | Total Pensions |
| 2007 | 16,784 | 57 | 359 | 98 | 514 | 0.02 | 0.03 |
| 2008 | 17,623 | 60 | 445 | 115 | 620 | 0.03 | 0.04 |
| 2009 | 18,328 | 63 | 508 | 133 | 704 | 0.03 | 0.04 |
| 2010 | 19,024 | 66 | 568 | 153 | 787 | 0.03 | 0.04 |
| 2015 | 22,269 | 84 | 978 | 269 | 1,332 | 0.04 | 0.06 |
| 2020 | 24,828 | 107 | 1,705 | 378 | 2,190 | 0.07 | 0.09 |
| 2025 | 26,406 | 137 | 2,785 | 494 | 3,416 | 0.11 | 0.13 |
| 2030 | 27,753 | 175 | 4,240 | 645 | 5,061 | 0.15 | 0.18 |
| 2035 | 29,169 | 223 | 6,002 | 843 | 7,068 | 0.21 | 0.24 |
| 2040 | 30,656 | 285 | 7,819 | 1102 | 9,206 | 0.26 | 0.30 |
| 2045 | 32,220 | 364 | 9,069 | 1441 | 10,873 | 0.28 | 0.34 |
| 2050 | 33,864 | 465 | 9,368 | 1883 | 11,715 | 0.28 | 0.35 |
| 2055 | 35,591 | 593 | 9,604 | 2461 | 12,658 | 0.27 | 0.36 |
| 2056 | 35,947 | 623 | 9,652 | 2596 | 12,871 | 0.27 | 0.36 |
| 2057 | 36,307 | 654 | 9,701 | 2739 | 13,093 | 0.27 | 0.36 |

^{1/} Excludes non-contributory pensions.

19. Financial Projections

Financial projections are subject to a greater degree of variability than demographic projections, due to the sensitivity of financial forecasts to changes in economic assumptions, such as the level of salary increases and rates of return on investments, in addition to the intrinsic incidence of demographic trends.

An adjustment to the minimum pension from \$270 to \$310.50 per month as August 2007 has been included, the second increase since the establishment of the scheme, with subsequent adjustments updated in correlation with inflation trends, so as to avoid the erosion of purchasing power due to inflation, but on an "ad hoc" basis rather than automatic annual adjustment.

Table 43 shows the basic financial projection of insurable earnings and expenditure. Grants are assumed to remain constant in relative terms at 0.05% of insurable earnings, whereas non-contributory pensions remain constant in relative terms as compared to other benefits, at 0.40% of insurable earnings. Retirement pensions, account for 41% of benefit expenditure in fiscal year 2006/07, a proportion that increases to 75% in 50 years. On the other hand, the proportion of expenditure on non-contributory pensions decreases from 26% in 2006/07 to 2.5% of benefit expenditure in 50 years. Total expenditure increase moderated from 2.74% to 5.3% of salary in 8 years, exceeding contribution income thereafter, and reaching 16.9% of salary in 50 years.

Table 43

Summary of the Financial Projections
(Amounts in millions of US\$)

| March 31 | Insurable Earnings | Invalidity Pensions | Retirement Pensions | Survivors Pensions | Non-contributory pensions | Other Expenditures | Administrative Expenditure | Total Expenditure | PAYG Premium (% of salaries) |
|----------|--------------------|---------------------|---------------------|--------------------|---------------------------|--------------------|----------------------------|-------------------|------------------------------|
| 2008 | 300.80 | 0.37 | 2.65 | 0.60 | 1.20 | 0.15 | 3.55 | 8.52 | 0.028 |
| 2009 | 328.54 | 0.41 | 3.19 | 0.73 | 1.31 | 0.16 | 3.88 | 9.68 | 0.029 |
| 2010 | 358.07 | 0.45 | 3.76 | 0.89 | 1.43 | 0.18 | 4.23 | 10.94 | 0.031 |
| 2015 | 534.95 | 0.74 | 8.46 | 2.04 | 2.14 | 0.27 | 6.31 | 19.96 | 0.037 |
| 2020 | 761.21 | 1.20 | 19.27 | 3.74 | 3.04 | 0.38 | 8.98 | 36.62 | 0.048 |
| 2025 | 1,033.25 | 1.95 | 41.15 | 6.39 | 4.13 | 0.52 | 12.19 | 66.33 | 0.064 |
| 2030 | 1,385.98 | 3.18 | 81.88 | 10.92 | 5.54 | 0.69 | 16.35 | 118.57 | 0.086 |
| 2035 | 1,859.14 | 5.18 | 151.46 | 18.66 | 7.44 | 0.93 | 21.94 | 205.60 | 0.111 |
| 2040 | 2,493.82 | 8.44 | 257.89 | 31.87 | 9.98 | 1.25 | 29.43 | 338.84 | 0.136 |
| 2045 | 3,345.17 | 13.74 | 390.94 | 54.43 | 13.38 | 1.67 | 39.47 | 513.64 | 0.154 |
| 2050 | 4,487.16 | 22.38 | 527.79 | 92.98 | 17.95 | 2.24 | 52.95 | 716.29 | 0.160 |
| 2055 | 6,019.00 | 36.46 | 707.22 | 158.82 | 24.08 | 3.01 | 71.02 | 1,000.60 | 0.166 |
| 2056 | 6,383.15 | 40.19 | 749.84 | 176.77 | 25.53 | 3.19 | 75.32 | 1,070.85 | 0.168 |
| 2057 | 6,769.33 | 44.31 | 795.04 | 196.75 | 27.08 | 3.38 | 79.88 | 1,146.44 | 0.169 |

The degree of variability of the projections tend to increase over time, and long-term absolute financial values are formulated basically to show approximate trends, subject to periodic adjustments. Even short-term trends can be affected by deferment of the effective age of retirement, as evidenced by experience if the last three years, and by increases in the ceiling on contributions. Long-term trends are better visualized by looking at the demographic ratios, its correlation with the age-structure of the population, and the PAYG ratios at maturity.

In the specific case of the TCI, the projections are subjected to a wider range of variability than in a scheme less prone to significant migratory movements, apart from the fact that temporary non-resident are not eligible to invalidity and retirement pensions, which is also extended to their survivors. Economic expectations also indicate that, once the high cyclical phase in construction is completed, a significant number of foreign workers might have to return to their countries of origin. For these reasons, it is advisable to update the projections more frequent than every three years.

20. PAYG Premium and Fund Ratio

The financial projections show that the PAYG rate (total expenditure divided by insurable earnings, in percent) increases steadily from 2.7% in 2006/07 reaching the statutory allocation of 5.5% of insurable earnings in 15½ years (2022), with current deficits between contributions and benefits thereafter. However, positive operational results continue for additional years due to the incidence of the investment income on the accumulated reserves.

21. Projections of Reserves and Period of Equilibrium

Table 44 shows the "basic" long-term branch projection of actuarial reserves as a byproduct of the statutory contribution rate of 5.5% of salaries and the projections of insurable earnings and expenditure. The average "net" rate of return on investments is assumed to remain stable at 5%, which requires a gross return of 5.8%, due to the incidence of investment expenses, which are estimated at 14% of the gross rate for the next two years. No account is taken at present on the eventual transfer of excess reserves accumulated by other operational branches.

The projection shows a sustained increase in the accumulated reserves from \$78 million as at 31 March 2007 to \$117 million in 2010, and to a maximum of \$382 millions in 19½ years (period of equilibrium), to start decreasing and becoming negative in 29 years, unless the rate of contributions is adjusted upwards, as expected under the scaled-premium system of finance applied to the branch. It is noted that the 5% net nominal return on investments is higher than the average rate attained in the past three years.

Table 44

Basic Projection of Reserves (Basic Assumption)^{1/}

| Year ended March 31 | Total Contributions | Total Expenditure | Current Income | Investment Income (5%) | Net Income | Accumulated Reserves |
|------------------------|------------------------|----------------------|-------------------|---------------------------|------------|-------------------------|
| 2007 | 14.728 | 7.21 | 7.52 | - | 7.52 | 78.074 |
| 2008 | 16.544 | 8.52 | 8.02 | 4.10 | 12.12 | 90.198 |
| 2009 | 18.070 | 9.68 | 8.39 | 4.72 | 13.11 | 103.304 |
| 2010 | 19.694 | 10.94 | 8.76 | 5.38 | 14.14 | 117.446 |
| 2015 | 29.422 | 19.96 | 9.46 | 9.49 | 18.95 | 203.967 |
| 2020 | 41.866 | 36.62 | 5.24 | 14.38 | 19.63 | 304.689 |
| 2025 | 56.829 | 66.33 | (9.51) | 18.25 | 8.74 | 378.457 |
| 2030 | 76.229 | 118.57 | (42.34) | 17.00 | (25.34) | 335.865 |
| 2035 | 102.252 | 205.60 | (103.35) | 2.80 | (100.55) | 7.045 |
| 2040 | 137.160 | 338.84 | (201.68) | (36.84) | (238.53) | (874.524) |
| 2045 | 183.984 | 513.64 | (329.65) | (119.80) | (449.45) | (2,680.546) |
| 2050 | 246.794 | 716.29 | (469.49) | (261.73) | (731.23) | (5,731.178) |
| 2055 | 331.045 | 1,000.60 | (669.55) | (488.62) | (1,158.17) | (10,595.824) |
| 2056 | 351.073 | 1,070.85 | (719.77) | (547.79) | (1,267.56) | (11,863.385) |
| 2057 | 372.313 | 1,146.44 | (774.13) | (612.52) | (1,386.65) | (13,250.034) |

^{1/} To be updated in 2008 once the ceiling is adjusted.

22. Sensitivity Analysis - Financial Assumptions

As shown in table 8 the nominal rate of return on investments, adjusted for investment expenses, increased from 3.07% in fiscal year ended 31 March 2005, to 4.79% in 2006 and decreased to 4.03% in 2006.

Sensitivity analyses were carried out to assess the incidence of fluctuations in the economic assumptions, which exert a higher degree of volatility than demographic assumptions. The summary of the alternative financial projections are summarized in tables 45 with net nominal rates of return of 4%, 5% and 6%.

The analysis shows that a 1% variation in the basic interest assumption reduces or increases the period of equilibrium by 1½ years.

Table 45

Sensitivity Analysis. Reserves and Period of Equilibrium

| Nominal Net Rate | Rate of Return on Assets | | |
|-----------------------|--------------------------------|------------|-----------|
| | 4% (low) | 5% (basic) | 6% (high) |
| Year | Reserves (in Millions of BZ\$) | | |
| 0 | 78 | 78 | 78 |
| 5 | 143 | 149 | 155 |
| 10 | 226 | 244 | 263 |
| 15 | 304 | 341 | 382 |
| 20 | 317 | 387 | 457 |
| 25 | 149 | 250 | 370 |
| Period of equilibrium | 18 years | 19½ years | 21 years |