Report on the

Government Superannuation Fund

ACTUARIAL VALUATION
as at 30 June 2005

Presented to the House of Representatives pursuant to section 94 of the Government Superannuation Fund Act 1956

REPORT ON THE GOVERNMENT SUPERANNUATION FUND ACTUARIAL VALUATION AS AT 30 JUNE 2005

The Board
Government Superannuation Fund Authority

I enclose my report on my actuarial examination of the financial position of the Government Superannuation Fund as at 30 June 2005 in terms of Section 94 of the Government Superannuation Fund Act 1956, which states:

"94 (1) The Government Actuary must examine the financial position of the Fund as at 30 June 1997 and following that examination, as at dates determined by the Minister, being dates that are no more than 3 years apart.

(2) The report in respect of each such examination shall-

(a) Show the state of the Fund at the date as at which the financial position of the Fund was examined, having regard to the prospective liabilities and assets of, and the probable annual sums required by, the Fund to provide benefits falling due within the ensuing 3 years without affecting or having recourse to the actuarial reserve appertaining to the contributor's contributions; and

(b) Be sent to the Authority not later than 9 months after the date as at which the financial position of the Fund was examined.

(3) The Authority shall send a copy of the report to the Minister."

As requested by the Minister, I am now examining the financial position of the Fund and reporting annually, the last report being as at 30 June 2004.

Purpose of the report

The broad purpose of the actuarial report is to provide an account of my examination of the financial position of the Fund.

The specific purposes of my examination are:

- to calculate the proportion of benefits payable from the Fund that is to be met from the accrued assets of the Fund,
- to evaluate the unfunded liability of the Fund in respect of past service, and
- to make recommendations in respect of contributions to the Fund to be made by employers of contributors to the Fund with effect from 1st July 2006.

Membership and Fund assets

For purposes of this valuation, the numbers of active members contributing to the Fund in the five main groups covered by this report, together with current and deferred pensioners, are given in the following table.

	Male	Female	Total
Armed Forces	1,250	171	1,421
General Scheme, excluding Islands	7,869	4,310	12,179
General Scheme, Islands only	359	310	669
Police Scheme	1,755	149	1,904
Prison Service Scheme	127	16	143
Total active contributors	11,360	4,956	16,316
Pensioners	28,501	19,086	47,587
Deferred pensioners	5,636	259	5,895

These figures differ from those provided in the Fund Annual Report for the year ending 30 June 2005, in that records in respect of contributors and former contributors of the Judges and Masters and the Members of Parliament Schemes and records in respect of all non-active contributors are not included in the present valuation.

The numbers in respect of pensioners are the number of pensions in payment, including split pensions under the Property (Relationships) Act.

The assets of the scheme as at 30 June 2005 had a market value, as reported in the Fund's audited accounts, of $3,521,408,000.

Discount rates

In the previous actuarial report as at 30 June 2004, two bases were used to discount projected benefits. The present valuation also uses the same two bases to discount projected benefits:

- For the purposes of determining employer contribution rates, and reporting on the liabilities on a "going concern" basis, referred to as the **Statutory** basis, I have used a discount rate that takes into account the effect of intended full diversification of the assets of the Fund.
- For determining the Fund Share of Benefits, and reporting on the liabilities with an "accounting practice" viewpoint, referred to as the **Fund Share** basis, I have used a discount rate that is consistent with the rate used in the valuations for Crown Account purposes.

In the Statutory basis projections, a reduction has been made in the valuation discount rate to take account of future expenses of administration.

Changes in benefit projection bases

There has been a change to the General Scheme retirement pattern reflecting the actual experience of more members staying in service towards the eligibility age for State Superannuation of 65 years.

Results

1 The present value of the total liabilities of the Fund, including the benefits accruing from expected future membership in relation to the Armed Forces, General, Police, and Prison Officers Schemes, is calculated as $12,593.8 million (Statutory basis) and $16,088.8 million (Fund Share basis).

2 Taking into account the market value of the Fund assets of $3,521.4 million and the present value of expected future member contributions of $431.2 million determined on the Fund Share basis, the share of future benefit payments to be met from the assets

of the Fund should decrease from the present 27%, to a level of 25% with effect from 1st July 2006.

3 The level of required Government subsidy, excluding the subsidy required for the Judges and Members of Parliament Schemes, projected over the five years from 30 June 2005 before any offset by way of employer contributions, on the basis that 27% of benefit payments in the first year and 25% of benefit payments thereafter will be made from the Fund is:

Year ending:	$ million
30 June 2006	566
30 June 2007	607
30 June 2008	622
30 June 2009	641
30 June 2010	646

4 The present value of the liabilities of the Fund in respect of entitlements accrued up to the valuation date is calculated as $11,697.4 million (Statutory basis) and $14,774.6 million (Fund Share basis). Deducting the market value of the Fund assets of $3,521.4 million, gives results of $8,176.0 million and $11,253.2 million respectively for the unfunded past service liability of the Fund excluding the Judges and Masters and Members of Parliament Schemes.

5 The rate of contribution, including superannuation withholding tax at 33%, that is required to be paid by funding employers (employers of those contributors who are paid from money that is not public money) has been determined under a notional funding approach, and:

- for employers that are the Public Services of the Cook Islands, Niue or Tokelau, is certified as 6.0% of contributor salaries, and
- for employers other than the Public Services of the Cook Islands, Niue or Tokelau, is certified as the average rate of contributor salaries obtained by applying the percentage rates to the contributors of the employer, by reference to gender and age nearest as at 30 June 2005 given in the following table:

Age range	Males	Females
Up to age 47	3.0%	2.0%
Age 48 to age 52	6.0%	6.0%
Age 53 to age 57	7.0%	10.0%
Age 58 to age 62	10.0%	10.0%
Age 63 and over	0.0%	0.0%

These rates are unchanged from last year.

For each employer, these rates are subject to a maximum average rate of 10.0% and a minimum average rate of 6.0%, and further subject to the proviso that, if application of these rates in any case give rise to a change from the average rate currently applying for an employer of less than 0.3%, then the current rate for that employer shall continue to apply.

6 The rate of contribution, including superannuation withholding tax at 33%, applicable to non-funding employers (the employers of those contributors who are paid from money that is public money) is recommended by reference to the notional funding approach described in this report to be set at the following levels:

For the Armed Forces Scheme: a rate of 15.4% of contributor salaries;
For the General Scheme: a rate of 6.0% of contributor salaries;
For the Police Scheme: a rate of 16.1% of contributor salaries;
For the Prison Service Scheme: a rate of 0% of contributor salaries.

The rates above are unchanged from last year.

However, none of the contribution rates for non-funding employers are required to be certified by the Act. The results derived from this actuarial examination of the Fund are the rates required to fully provide the benefits payable by the Fund after making allowance for the future employee contributions and each scheme's current share of the assets. As such, they are the rates recommended to the Minister.

Acknowledgements

I express my appreciation of the assistance provided by the Authority and by the Fund administrator, as they have given me prompt responses to all matters raised with them.

David Benison, B.Sc.(Econ), FIA, FNZSA
Government Actuary

20th November 2005

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Appendices

SECTION 1: THE NATURE OF THE FUND

1.1 The Fund is established under the Government Superannuation Fund Act 1956 ("the Act") which governs a number of separate schemes having as their purpose the paying of retirement and other benefits to members. The schemes are registered under the Superannuation Schemes Act 1989 but are exempt, by virtue of section 19H of the Act, from the provisions of sections 7 to 22 of the Superannuation Schemes Act 1989.

1.2 The schemes established under the Act are:

Name	Part of the Act
Government Service Old Scheme	Part II
Government Service New Scheme	Part IIA
Armed Forces Scheme	Part IIIA
Judges and Solicitor-General Scheme	Part VA
Masters Scheme	Part VB
Members of Parliament Scheme	Part VI
Police Scheme	Part VIA
Prison Service Scheme	Part VIB

1.3 The schemes for Judges and Solicitor-General, Masters, and Members of Parliament are managed on a fully pay as you go basis, and no assets are held by the Fund in respect of them. The financial impact of those schemes are therefore excluded from this report.

1.4 The remainder of the schemes are managed on a partial funding basis. Employee contributions are held by the Fund and invested. Only funding employers, that is employers whose employees are paid from money which is not public money, make payment of employer contributions to the Fund. For other (non-funding) employers, their employer contributions are not paid to the Fund. However, the Government requires those non-funding employers (specifically Government departments and the Ministry of Education in respect of schools) to pay employer contributions to the Crown. The level of the employer contributions is recalculated as part of the statutory actuarial examination of the Fund.

1.5 Benefits that fall due are paid partly from the assets of the Fund, with the balance being met by the Crown. The proportion of the benefits payable from the assets of the Fund is reviewed at each statutory actuarial examination of the Fund.

1.6 The schemes were closed to new members with effect from 1 July 1992, except for persons who were eligible for membership through their employment by the Cook Islands, Niue and Tokelau Public Services. Membership was closed to this latter group from 9 June 1995 in the first two cases and 21 October 1995 for the last.

1.7 As from 2 October 2001, responsibility for investing the assets of the scheme has been vested in the Government Superannuation Fund Authority.

1.8 Members of the Fund comprise contributing members (current in-service employees who pay contributions), inactive members (former contributing members who have left service but who have not been paid any withdrawal benefit), pensioners (retired employees who are in receipt of regular pension payments) and deferred pensioners (retired employees who will at some future time start to receive regular pension payments).

1.9 For the purposes of this actuarial examination, the members have been separated into groups according to differences in benefit entitlements and other differentiating characteristics. In respect of the General Scheme group, the benefits and member contribution obligations differ between the Old and New Schemes, but as the vast majority are members of the New Scheme, the differences in liability are not material. The groups are described in more detail in the following table.

Group	Description	Number Active	Number Inactive(1)
ARM:	Contributors to the Armed Forces Scheme.	1,421	50
GEN:	Contributors to the General Service Old Scheme and to the General Service New Scheme, excluding contributors who are members of the Cook Islands, Niue and Tokelau Public Services.	12,179	2,346
ISL:	Contributors to the General Service Old Scheme and to the General Service New Scheme who are members of the Cook Islands, Niue and Tokelau Public Services.	669	197
POL:	Contributors to the Police Scheme.	1,904	301
PRS:	Contributors to the Prison Service Scheme.	143	17
PEN:	Members who are receiving pensions from the scheme, including spouses and children for whom entitlement arises from the death of a member either before or after retirement.	47,274	
DEF:	Members for whom the entitlement to a pension has been established, either as a result of leaving employment or of ceasing to contribute while remaining in employment, but who have not as yet begun to receive any payments.	5,893	

1.10 Included in the contributor groups are a number of members, referred to as inactive members, who were recorded as at the valuation date as having ceased to make contributions, but for whom the possibility exists that a benefit entitlement will become available at some time. These members, dealt with in this report in two separate groups, are referred to as inactive contributors. The first group, Inactive(1) contributors as summarised above, are contributors where salary and/or contribution data is available so as to allow a reasonable estimate to be made of the accrued liability in respect of such members. The second group, Inactive(2) contributors, comprises 2,934 contributors for whom neither salary nor contribution data is available.

1.11 Males and females within each contributor group are treated separately only in respect of expected mortality experience.

1.12 Section 95(2) of the Act requires a determination of employer contribution subsidy rates using an approach that takes into account membership characteristics where contributors are paid from money which is not public money. Employers of such contributors are referred to as funding employers in this report.

1.13 Contributors of funding employers are all in the General Scheme. I concur with earlier reports where it has been noted that it would be difficult to determine a credible basis for projecting benefits and contributions for sub-groups of the General Scheme that would differ materially from that of the group taken as a whole, with the possible exception of salary growth.

1.14 To attribute funding employer costs by reference to member characteristics, an initial investigation was made as at 30 June 1998, which derived employer contribution rates within the GEN group by reference to gender and to five age bands (making 10 groups in all).

1.15 Having been advised that this approach meets the requirements of Section 95(2), I have used this approach to determine employer contribution rates.

SECTION 2: THE PURPOSE OF THE REPORT

2.1 In general terms, Section 94 (2)(a) of the Act requires me to show the state of the Fund as at 30 June 2005.

2.2 More specifically, I am required to calculate the amounts that will be required by the Fund to meet the benefits falling due from the Fund over the next few years without having recourse to the actuarial reserves arising from member contributions to the Fund.

2.3 Section 95(1) of the Act, in setting out the basis of determination of the amount required by way of subsidy of benefits from the Fund, refers to payments from the assets of the Fund and requires me to give a certificate as to the share of benefit payments to be met from the assets of the Fund (the "Fund Share").

2.4 Section 95(1) also refers to payments from the funding employers in accordance with Section 95(2). One of the purposes of this report is therefore to establish the basis on which I should give my certificate as to the payments to be made by the funding employers. The amount which I am required to determine in terms of Section 95(2), is:

"... the amount by which the contributions estimated to be paid during that year by those contributors is less than the amount certified by the Government Actuary as the total amount of contributions that would require to be so paid if the contributions of contributors provided the total cost of the benefits to which the contributors may become entitled under this Act ..."

2.5 In determining what should be provided by way of a report on the state of the Fund, I have had regard to the requirements of Professional Standard No. 2 of the New Zealand Society of Actuaries.

2.6 I have therefore included comment in relation to the assets of the Fund. I have also included recommendations as to appropriate rates of employer contributions in respect of the non-funding employers, noting the constraints that in practice will apply when these recommendations are being considered.

SECTION 3: THE VALUATION METHOD

3.1 To meet the requirements of the Act and to investigate the financial state of the Fund, I have made a projection of the expected future benefits payable from the Fund and future contributions payable to the Fund. These projected cash flows were then discounted in order to arrive at present values.

3.2 The steps in the determination of the present values are:

- project future levels of salaries in respect of contributors,
- from that projection, project future levels of contributions and indexed final salaries,
- calculate the benefit payable in various circumstances based on those projections,
- project future pension benefits and increases in the amount of such benefits from cost of living increases,
- determine a probability for each event that gives rise to a payment in each future year,
- calculate cash flows in respect of benefit payments and contributions, by combining projected benefit amounts with the probability of payment, and
- discount the cash flows to achieve the present values.

3.3 To carry out these calculations, demographic and financial assumptions are needed.

3.4 Demographic assumptions relate to the expected future rates of mortality, retirement, withdrawal, ill health retirement, and proportions married. These rates are generally related to age; or age may be used as a proxy for other determinants, such as duration of membership. Other demographic assumptions relate to member choices of the form in which benefits are taken.

3.5 Financial assumptions relate to assumed future rates of price inflation as measured by the Consumer Price Index (all groups) - CPI - to which pensions in payment and final indexed salary are linked, salary growth including age related effects, and the rate at which projected benefit payments and contributions are to be discounted so as to arrive at present values. The adjustment to pensions in payment, which follows the increase in the CPI occurring in the preceding year, in effect lags one year behind the projected CPI increases.

3.6 Assumptions may be varied for each future year. For example, a certain level of withdrawal could be assumed for an age in one year and a different level for that same age in another year. For the purposes of the “going concern” valuation results in this report, I do not consider it to be useful to make any such variation, in either the demographic or financial assumptions. For the purposes of Crown Account reporting however, I have incorporated a variation in the discount rates, as adherence to a Generally Accepted Accounting Practice standard requires the use of rates that are derived from a yield curve analysis.

3.7 The expenses of the administration of the Fund are currently met in part by the funding employers, with the balance paid by the Crown as provided by Section 15E of the Government Superannuation Fund Act. I have therefore incorporated an allowance for future expenses of administration in the valuation calculations.

3.8 It should be noted that the actual cost to the Crown of providing benefits will be known only after all benefits have been paid. The actual cost is, effectively, the total amount of benefit payments to be made together with the expenses of administering the Fund, offset by member contributions, existing Fund assets, investment earnings on the assets and contributions from the funding employers.

3.9 Appendix A sets out in greater detail the valuation process in respect of each of the examinations required for this report. The method used for determining the employer contribution rates is the Attained Age Method and the notional funding process needed to give full effect to this method is also described in Appendix A.

SECTION 4: BENEFITS PROVIDED BY THE FUND

4.1 The benefits payable from the Fund are set out in the relevant parts of the Government Superannuation Fund Act 1956, as subsequently amended. In addition, some amending Acts do not amend provisions of the principal Act, nor add nor delete provisions of the Act, but are to be read in conjunction with the Act. In particular, the Government Superannuation Fund Amendment Act 1969 sets out the mechanism for the cost of living increases.

4.2 A general description of the benefits and conditions of the schemes covered by this report is given below. More detail is given in Appendix B of this report, but because of the complexity of some of the options available to members, the descriptions are necessarily summarised. Explanatory booklets may be obtained from the Fund administrators on request at:

Government Superannuation Schemes Administration
PO Box 3614
WELLINGTON

4.3 While the benefit provisions differ from one scheme to another, many features are similar. The schemes are of the final-salary type. The retiring allowance is equal to a percentage of final average salary for each year of pensionable service. "Final average salary" is the average salary for the five years prior to retirement, adjusted to allow for inflation during that period as measured by changes in the CPI.

4.4 Membership of the General Scheme was, for the most part, voluntary and the length of pensionable service linked to the period of contribution payments. The other schemes were compulsory, although the Prison Service Scheme became non-compulsory after the schemes were closed to new members on 30 June 1992. The length of pensionable service is related to the period of employment, though generally rated up by 25 percent for members of the Prison Service and Police Schemes.

4.5 The retiring allowance is payable without adjustment from a nominal retiring age which is:

- General Scheme: from age 60,
- Prison Service Scheme: from age 58,
- Police Scheme: from age 55, and
- Armed Forces Scheme: after 20 years of service.

Members can continue to accrue benefits past the above retiring ages. For the schemes for which entitlement is age-related, members who have retired from Government service can receive benefits from age 50 onwards with appropriate adjustments, subject to completion of 10 years contributory service.

4.6 Practically all new retiring allowances are adjusted to reflect the full increase in the cost of living during retirement, as measured by the CPI. A minority of retiring allowances, from the Government Service Old Scheme, have less than full CPI increases. Upon the death of a pensioner, an annuity of 50 percent of the retiring allowance payable at the time of death is available to a surviving spouse.

4.7 At the time of retirement a contributor can elect to surrender up to one quarter of the retiring allowance in return for a lump sum of generally twelve times the amount surrendered. In the Armed Forces Scheme it is also possible to completely surrender all pension payments due until age 55 or 60 in return for a lump sum.

4.8 The principal change to benefits since the closure of the schemes to new entrants on 1 July 1992 (except for Islands members, where closure occurred on 9 June 1995 or on 21 October 1995) has been to allow members to cease contributions, and by leaving their contributions in the Fund, to be entitled to a deferred pension or deferred lump sum in accordance with regulations made under section 97 of the Act. That change was effected by the Government Superannuation Fund Amendment Act 1995.

4.9 Regulations made by the Government Superannuation Fund (Ceasing Contributions) Regulations 1995, allow the contributor a deferred pension if membership up to the date of cessation is at least 10 years (or 20 years in the case of Armed Forces members), based on conditions at the cessation date, but increased by the rise in the CPI. Alternatively, on cessation the contributor can take a lump sum based on the deferred pension calculation.

SECTION 5: MEMBERSHIP DATA

5.1 Membership data was provided by the Fund administrator as follows:

- contributors in force as at 30 June 2005, showing date of birth, date of commencement of continuous membership, annual salary as at 30 June 2005, contributions up to 30 June 2005 divided pre and post 1 May 1985, part-time percentage (if any), scheme code, employer code, suspension code, and gender code,
- contributor exits and entries in the year ending 30 June 2005, the exits showing date of exit, mode of exit, lump sum paid (if any), basic pension entitlement (if any), and commuted pension lump sum (if any),
- pensioners and deferred pensioners in force as at 30 June 2005, showing date of commencement of pension, amount of pension, pension type, pensioner date of birth, cost of living percentage applicable, and gender, and
- pensioner exits and entries in the year ending 30 June 2005.

5.2 In respect of the data provided, some queries arose which were discussed with the administrator and corrections made where appropriate. The salary figure for part time contributors was taken to be the full-time equivalent, and reduced according to the part time percentage shown. In situations where investigation showed some discrepancies, they were referred to the administrator. Any discrepancies remaining are, in my view, unlikely to have a significant effect on the valuation results.

5.3 The Fund administrator has advised that appropriate salary information and contribution information in respect of all of the Islands Scheme contributors has now been received. Previously an adjustment to contributors' salaries and contributions has been made.

5.4 Contributor data was reconciled between that at 1 July 2004 ("2004") and that at 30 June 2005 ("2005") as follows, where:

- "Actives" are contributors for whom contributions were being received,
- "Entrants" are contributors who became members after 30 June 2004 (generally understood to be reinstatements),
- "Exits" are those contributors who had ceased to be members after 30 June 2004 and had received a benefit from the Fund,
- "Inactives(1)" are those former contributors who have ceased to be members and have not received a benefit from the Fund, but for whom salary or contribution information is available, and
- "Inactives(2)" are those former contributors who have ceased to be members and have not received a benefit from the Fund, but for whom no salary or contribution information is available:

From	Number	To	Number
Actives 2004	17,594	Actives 2005	16,164
		Inactives(1) 2005	185
		Exits	1,245
		Inactives(2) 2005	0
Inactives(1) 2004	3,062	Actives 2005	139
		Inactives(1) 2005	2,713
		Exits	210
Entrants	3	Actives 2005	2
		Inactives(1) 2005	0
		Exits	1
Inactives(2) 2004	2,969	Actives 2005	11
		Inactives(1) 2005	13
		Exits	11
		Inactives(2) 2005	2,934

To	Number	From	Number
Actives 2005	16,316	Actives 2004	16,164
		Inactives(1) 2004	139
		Entrants	2
		Inactives(2) 2004	11
Inactives(1) 2005	2,911	Actives 2004	185
		Inactives(1) 2004	2,713
		Entrants	0
		Inactives(2) 2004	13
Exits	1,467	Actives 2004	1,245
		Inactives(1) 2004	210
		Inactives(2) 2004	11
		Entrants	1
Inactives(2) 2005	2,934	Inactives(2) 2004	2,934
		Actives 2004	0

5.5 The Inactives(2) group is principally in respect of contributors who ceased active membership prior to full computerisation of Fund member records, but includes contributors for whom no reliable valuation data is available.

5.6 Pensioner data, including deferred pensioner data, was reconciled between 2004 and 2005 as given in the following table. Some pensioner exits will give rise to one or more dependant pensions and, through the operation of the Property (Relationship) Act and section 91B of the Act, some pensions are split.

	Number
Pensioners at 30 June 2004	53,163
Less: Pensioners ceasing to receive pensions during the year	1,942
	51,221
Plus: New pensions commencing during the year	1,946
Pensioners at 30 June 2005	53,167

5.7 The reconciliation figures, in 5.4 and 5.6 above, exclude members of the Judges and Masters and Members of Parliament Schemes.

5.8 In my view, the data used for the purpose of this report is sufficiently accurate for the financial state of the Fund to be reliably ascertained. A summary of the data used for the valuation as at 30 June 2005 is given in Appendix C.

SECTION 6: FUND ACCOUNTS AND ASSETS

6.1 The value of the assets of the Fund as at the year ending 30 June 2005 has been taken from the audited accounts included in the Report of the Fund presented to the House of Representatives. The assets have been taken at the market values, as reported in those accounts. There are no contingent liabilities. As it is highly unlikely that the Fund will be wound up, no allowance has been made for winding up costs. I consider that the assumptions made in determining the rate of discount for establishing present values under the statutory basis are consistent with taking market values for the Fund assets.

6.2 The transactions of the Fund for the year ending 30 June 2005 together with the prior year figures for comparative purposes, but excluding the Members of Parliament and Judges and Masters Schemes, have been taken from the Report of the Fund for the year ended 30 June 2005. Those transactions are summarised in the following table, with prior year's figures being shown for comparative purposes. All amounts are in $000. I am confident of the reliability of the figures for the purposes of this report.

Year ending 30 June:	2001	2002	2003	2004	2005
Opening balances	3,454,127	3,494,646	3,287,268	3,181,618	3,373,705
Plus:					
Member contributions	95,713	90,859	85,366	82,264	79,200
Funding employers	31,545	26,551	25,429	16,920	16,922
Government Subsidies	452,149	467,702	473,548	490,057	540,586
Investment income	251,858	544	151,996	393,720	359,781
Less:					
Pensions paid	551,153	573,687	589,208	604,744	615,206
Commutations	77,316	65,144	72,699	56,341	74,245
Refunds	78,845	76,703	60,470	51,839	43,103
Payments on death	1,060	774	777	1,128	485
Tax provision	82,372	76,726	118,835	76,822	115,747
Closing balances	3,494,646	3,287,268	3,181,618	3,373,705	3,521,408

6.3 The after tax rate of return on the investments of the Fund is given in the following table, again with prior years' figures being shown for comparative purposes.

Year ending 30 June:	2001	2002	2003	2004	2005
Net of tax return	5.00%	-0.02%	1.03%	10.16%	7.34%

6.4 The rates of return have been calculated using the formula 2I/(A+B-I), where I is investment income less tax provision, A is the opening balance, and B is the closing balance, for each year.

6.5 The investment assumption contained in the 2004 valuation (on the statutory basis) was that the annual after tax investment return on assets would exceed the CPI growth by 4%. As the actual CPI growth was 2.80% in the 12 months to 30 June 2005, the achieved average rate of return of 7.34% in the year was 0.54% above the expected rate. (Note that this return differs slightly from the 7.38% in the GSF Authority Report, as that calculation was based on daily cash flows and not the formula approach).

6.6 The New Zealand Society of Actuaries Professional Standard No. 2 requires the actuary to comment as to whether the assets as a whole are suitable for the purposes of the scheme, to comment on the investment strategy and to comment on the appropriateness of the investment strategy in relation to the form and incidence of the expected benefit payments.

6.7 The investments of the Fund as at 30 June 2005 were as given in the following table, where the 30 June 2004 proportion of assets in each category is also given for comparative purposes.

Fund Assets	$000	Proportion of Fund Assets	
		30 Jun 2005	30 Jun 2004
NZ equities	566,273	16.1%	15.5%
International equities	1,388,273	39.4%	37.6%
NZ Government Bonds	281,029	8.0%	10.3%
International Fixed Interest	693,626	19.7%	19.1%
State/ Crown-owned/Government risk	30,885	0.9%	0.8%
Other Bonds and securities	49,895	1.4%	1.2%
Property and Mortgages	175,380	5.0%	0.0%
Short-term investments and cash	336,047	9.5%	15.5%
Total assets	3,521,408	100.0%	100.0%

6.8 However, in a number of significant ways the operation of the Fund is not strictly comparable with that of a fully funded private sector scheme. In particular, the investment policy in respect of the assets of the Fund, which was formerly the subject of Guidelines issued by the Minister, was in October 2001 placed in the hands of the Government Superannuation Fund Authority. The Authority, under the Government Superannuation Fund Amendment Act 2001, was made responsible for investing the assets in a prudent, commercial manner.

6.9 The Authority has determined that the long term strategic asset allocation for the investments of the Fund will be:

Asset Class	Proportion
NZ fixed interest	14.0%
NZ equities	15.0%
International fixed interest	21.0%
International equities	42.5%
Property	7.5%
Total	100.0%

6.10 In my opinion, the assets as a whole are suitable for the purposes of the Fund and the long term strategy determined by the Authority is an appropriate investment strategy given the form and incidence of the expected benefit payments of the Fund.

6.11 As at 30 June 2005 the transition to the long term strategic asset allocation was almost complete.

6.12 For the purposes of the statutory valuation calculation results in this report, I have assumed that the transition to the long term allocation has been completed as at the valuation date, 30 June 2005.

SECTION 7: INVESTIGATION OF THE FUND EXPERIENCE

7.1 The experience of the Fund for the period from 1 July 2004 up to 30 June 2005 was investigated separately in respect of salary growth, mortality, retirement, ill-health retirement, and withdrawals. The purpose of the investigations was to examine the actual experience in the light of the assumptions used for the previous valuation as at 30 June 2004, and to ascertain whether any changes were needed for the valuation as at 30 June 2005. Summary details of the outcomes of the investigation are shown in Appendix D.

7.2 In relation to in-service mortality, ill-health retirement and withdrawals, no differences were found that were considered to require attention at this valuation, although some variation was present as would be expected. Consequently, the assumptions used for those parameters in the 2005 valuation are the same as were used in 2004.

7.3 The age-related salary growth scale used in the previous valuation was compared to actual experience and also found to be appropriate for use in the 2005 valuation.

7.4 The valuation requires assumptions to be made as to the form in which benefits are taken, particularly the choice as to whether to commute part of a pension entitlement for a lump sum. The current investigation showed that the 2004 assumptions as to the percentage commuted remains appropriate for each scheme, and so they have been retained for the 2005 valuation.

7.5 The payments made on exit from the Fund to those contributors classified as Inactive, but for whom valuation data was available, has again been investigated. This has shown that the adjustment made at the previous valuation, to ensure that the method used to value these contributors was generally reasonable, remains appropriate.

7.6 An investigation of pensioner mortality was made for this valuation, with results that indicated that a change from the 2004 assumptions was needed.

7.7 An investigation indicated that the early retirement pattern for the General Scheme had changed. As a consequence this was reviewed to reflect the actual experience of more members staying in service towards the eligibility age for State Superannuation of 65 years.

SECTION 8: VALUATION ASSUMPTIONS

8.1 The demographic assumptions used in the valuation follow directly from the most recent experience investigation.

8.2 In respect of other assumptions, it has been assumed, as was the case in the last valuation and after confirmation from investigation of the experience that it is appropriate to do so, that:

- all ISL and PRS group members becoming entitled to a retirement or ill health retirement pension take the maximum lump sum available, and
- of members withdrawing with 10 or more years' contributory membership, 20% elect a deferred pension and 80% a refund of contributions.

8.3 The demographic assumptions required for the current valuation are summarised in Appendix E.

8.4 The purposes of the valuation require, in my judgement, calculations using two distinct valuation financial assumption sets.

Statutory basis

8.5 The first basis of the valuations provides a presentation of the financial condition of the Fund and a determination of employer contribution rates on a "going concern" basis. For this valuation, realistic best estimate valuation assumptions are required, taking into account expected returns on assets. It is implicit that the risk of diversification is being underwritten by the Crown and by employers, as they are the entities that will benefit from expected higher returns and they stand behind the benefit guarantees given to members.

8.6 Funding employers in particular will wish to see realistic best estimate assumptions employed in the determination of employer contribution rates, as each will have different time horizons depending on the characteristics of their contributing employees.

8.7 For valuation on the "going concern" basis, I have recognised that the investments of the Fund will be allocated to the asset classes determined as appropriate by the Authority within the year following the valuation. Consequently, the investment return assumptions in the valuation recognise the longer term aspect of the investment allocations. In reviewing the investment return projections as at 30 June 2005, I have also taken into consideration views on equity markets. I realise that a range of results is possible, depending on elements such as the weight to place on the different views being taken as to short term and long term equity returns and the durability of Inland Revenue binding rulings on passive overseas equity investments. The Fund invests in products that hold such rulings.

8.8 The costs in respect of administration in relation to existing contributors, including the costs of paying future pensions to them, are to be met by the employers. Modelling of such expected expenses, based on the actual expenses incurred in the year ending 30 June 2005, indicates that an annual allowance of 0.1% of assets would be sufficient to cover those costs. Accordingly, calculations of liabilities and employer contribution rates under the valuation basis include a reduction of 0.1% from the valuation interest rate.

8.9 It is my view that, as at the valuation date, an appropriate long term valuation rate of interest for a statutory basis is 5.75% pa after tax and after expenses of investment and expenses of administration. As the last valuation was at 6%, the reduction provides a strengthening of the basis.

8.10 For the other major financial assumptions, I have placed reliance on the surveys of leading economists carried out by Aon Consulting. From these surveys I have formed the view that it is reasonable to assume that long-term price inflation will be at the rate of 2.0% pa, and that long-term general salary growth will be at the rate of 3.0% pa (being 1% pa in excess of price inflation) before allowance for promotional salary effects.

8.11 The basis incorporating these rates is referred to as the **Statutory** basis.

8.12 The greatest effect in terms of the financial assumptions is the difference between the net after tax investment return assumed and the rate of price inflation assumed (which directly affects pension increases and salary growth assumptions). Were I to have assumed long term price inflation of 2.25% pa instead of 2.0% pa, and also to have increased each of the assumed rates of salary growth, pension increase and valuation interest rates by 0.25% pa, then the net effect on the liabilities would be minimal. Thus the strengthening of the valuation rate of interest by 0.25% has a similar effect on liabilities to increasing the long–term price inflation by 0.25%.

Fund Share Basis

8.13 The second basis of the valuations is required to calculate the total liabilities and the value of future member contributions for the purpose of determining the Fund Share of Benefits ratio. That ratio is the proportion of the benefits payable in each year that is to be met from the assets of the Fund, with the balance being met by the Crown after taking into account funding employer contributions.

8.14 For the Crown Accounts, the actuarial liabilities are calculated in accordance with a "fair value" accounting standard, requiring a valuation discount rate calculated by reference to market prices of Government stock as at the valuation date. For consistency, the liabilities for calculating the amounts to be paid by the Crown from time to time should be determined following the same approach.

8.15 Consequently, for the valuation on this basis, the after tax rates of discount for valuation have been derived from consideration of the real after tax yields implicit in market prices of Government stock at 30 June 2005. Those after tax rates move from 4.1% for stock maturing in the 2005/2006 year to 3.8% for longer term maturities.

8.16 The costs of administration of the Fund are substantially returned by way of a Government subsidy to the Fund. For that reason, no reduction in the after tax rates of discount to take account of any administration expenses has been made in the calculations made to determine the Fund Share of Benefits ratio.

8.17 For the other major financial assumptions, I have placed reliance on the surveys of leading economists carried out by Aon Consulting. From these surveys I formed the view that it would be reasonable to assume a long term rate of price inflation of 2.0% pa, and general salary growth of 3.0% pa (being 1.0% in excess of price inflation), before allowance for promotional salary effects.

8.18 If the liabilities were to be determined on the basis of a best estimate of the net of tax investment return that is expected to be earned on Fund assets, then the future expected benefit of diversification would be capitalised immediately. This may not be prudent, and would be likely to cause greater volatility in the Fund Share of Benefits ratio from time to time.

8.19 Accordingly, for this valuation, changes to the Fund Share of Benefits ratio as a result of asset diversification are assumed to emerge over time, through recognition of higher asset values as and when these occur.

8.20 The basis incorporating these rates is referred to as the **Fund Share** basis.

Both bases

8.21 For the inactive members within each contributor group for whom details of salaries and contributions were supplied, the liability has been determined as either:

- the value of the accrued withdrawal benefit, if no deferred pension could be valued, or
- the value of the accrued deferred pension, assuming indexing in deferral, maximum commutation and commencement of the pension at the later of age 51 and actual age, but with no allowance for mortality in deferral.

8.22 This approach may tend to over-estimate the liability, as it may be expected that a not inconsiderable number of members with over 10 years contributory membership will take the less valuable return of contributions rather than the significantly more valuable deferred pension option.

8.23 Records were supplied for 2,934 inactive members for whom no salary or contributions data was available. For these members, average contributory service is low and the great majority have been in this status since 1992 or earlier. They consist principally of members who ceased to contribute prior to computerisation of administration records, and for whom, if they should apply for a benefit, records will have to be obtained from their employer as at the date of ceasing to contribute. As only a very crude estimate of the liability in respect of such members could be made, this liability has been taken as falling within the margin taken for the valuation of the liabilities of the other inactive members.

8.24 The financial assumptions used in the valuations are summarised in Appendix F.

SECTION 9: RESULTS

9.1 The valuation balance sheet in respect of each basis, where the Statutory valuation results are for the going concern basis, and the Fund Share valuation results are consistent with the approach taken in determining Crown Account valuation discount rates, is given below. It should be remembered that the liabilities in respect of the Judges and Masters Scheme and the Members of Parliament Scheme, including pension beneficiaries originating from those Schemes, are not included.

Liabilities as at 30 June 2005	Statutory valuation	Fund Share valuation
	$million	$million
Total Liabilities:		
Present value of benefits payable in respect of:		
Armed Forces contributors	399.2	532.4
General Service contributors (excluding Islands)	3,545.6	4,899.4
General Service contributors (Islands only)	41.6	61.5
Police contributors	871.0	1,164.6
Prison Service contributors	35.6	45.6
Pensioners	7,125.3	8,514.3
Deferred pensioners	575.5	871.0
Total Liabilities	**12,593.8**	**16,088.8**
Assets:		
Value of Fund Assets	3,521.4	3,521.4
Present value of contributions payable by:		
Armed Forces contributors	24.2	25.4
General Service contributors (excluding Islands)	295.1	322.5
General Service contributors (Islands only)	6.5	7.3
Police contributors	67.6	74.2
Prison Service contributors	1.7	1.8
Total Assets	**3,916.5**	**3,952.6**
Present value of amount to be provided by way of Government subsidies and funding employer contributions:	8,677.3	12,136.2
Fund share of benefits		24.6%

9.2 The Statutory valuation results show liabilities that are higher than those that would have been brought out by application of the valuation basis adopted for the valuation as at 30 June 2004. A summary reconciliation between the expected valuation results and the actual valuation results is given in Section 10 of this report.

9.3 The current Fund Share valuation gives results that are somewhat different from the results that would have been determined under the 2004 valuation basis. The Fund share of benefits brought out by the 2004 valuation was determined as 26.7%, higher than the 2003 valuation (23.7%). The 30 June 2005 Fund Share valuation results show that the 26.7% share is no longer appropriate, as the fund share of benefits has decreased to 24.6%. The rate will be reviewed again as part of the valuation processes as at 30 June 2006.

The Fund Share is sensitive to the discount rate adopted. A reduction in the discount rate of ½% each year would have reduced the Fund Share from 24.6% to 23.0%. An increase in the discount rate of ½% each year would result in an increase in the Fund Share from 24.6% to 26.2%.

9.4 The results in respect of the unfunded past service liability on each basis are shown in the table below.

Liabilities as at 30 June 2005	Statutory valuation	Fund Share valuation
	$million	$million
Past Service Liabilities:		
Present value of benefits payable, attributable to membership up to the valuation date, in respect of:		
Armed Forces contributors	322.7	428.2
General Service contributors (excluding Islands)	2,926.4	3,979.8
General Service contributors (Islands only)	30.1	43.0
Police contributors	685.1	897.3
Prison Service contributors	32.3	41.0
Pensioners	7,125.3	8,514.3
Deferred pensioners	575.5	871.0
Total Past Service Liabilities	**11,697.4**	**14,774.6**
Value of Fund Assets	3,521.4	3,521.4
Unfunded Past Service Liability	**8,176.0**	**11,253.2**

9.5 A projection of the amounts required by way of Government subsidy under the Fund Share basis, before any offset for contributions by funding employers, and excluding any superannuation contribution withholding tax payable, has been made for the next five years assuming that experience will match the valuation assumptions. The results of the projection are given in the following table.

Year ending 30 June	Projected subsidy
	$million
2006	566
2007	607
2008	622
2009	641
2010	646

9.6 It is unlikely that the position in respect of accrued benefits will change significantly before the next valuation (due 30 June 2006), unless the basis of funding is amended.

9.7 The projected subsidy figures and the Unfunded Past Service Liability results shown on the Fund Share basis are not directly comparable to the results shown in the Crown Accounts as at 30 June 2005, as the liabilities in respect of the Judges and Masters Scheme and the Members of Parliament Scheme are not included in the Fund Share basis.

9.8 The method adopted for derivation of employer contribution rates, expressed as a percentage of contributor salaries and inclusive of Specified Superannuation Contribution Withholding Tax, is set out in Appendix A. In that appendix, details are given of the derivation of a "notional fund" for a number of sub-sections of the Fund membership. Broad out-workings of the process of the various notional funds are also tabulated in that appendix.

9.9 The following sections discuss the results for all groups, including the age and gender bands of the GEN scheme, noting that the funding employers in respect of which contribution rates are to be certified in accordance with section 95(2) of the Act are the employers of contributors in the ISL group, and the employers of those contributors in the GEN group who are paid other than out of public money.

9.10 The strengthening of the basis (see 8.9) has led to a reduction in the projected surplus calculated, but overall it has been possible to continue with existing contribution rates.

ARM group

9.11 The employer contribution rate for this group remains at 15.4% of contributor salaries the rate used since the valuation as at 30 June 2002.

GEN group

9.12 The employer contribution rate for this group has been 6.0% of contributor salaries since the valuation as at 30 June 2002.

ISL group

9.13 The employer contribution rate for this group was reduced to 6.0% of contributor salaries at the valuation as at 30 June 2002. It has been possible to continue the rate at 6.0% of contributor salaries.

POL group

9.14 The employer contribution rate for this group has been 16.1% of contributor salaries since the valuation as at 30 June 1997. The rate remains at 16.1% of contributor salaries.

PRS group

9.15 The employer contribution rate for this group was reduced to 0% following the valuation as at 30 June 2000 and the actuarial surplus on the notional funding approach has continued to be substantial. A 0% rate is more than sufficient to meet the expected future costs of the group without any further contributions by either the employer or members.

GEN group: age and gender banding

9.16 All male and female age band rates have been maintained.

Age band 1

9.17 This now covers those up to age 47. The employer contribution rates for males and females respectively were reduced to 3.0% and 2.0% of contributor salaries as from 1 July 2003.

9.18 The level of actuarial surplus in each of these groups remains adequate. This allows the current rates to be maintained at 3.0% and 2.0% of contributor salaries for males and females respectively as from 1 July 2006.

Age band 2

9.19 This now covers those from age 48 up to age 52. The employer contribution rates for males and females respectively were reduced to 6.0% as from 1 July 2003.

9.20 The level of actuarial surplus allows the current rate to be maintained at 6.0% of both male and female contributor salaries as from 1 July 2006.

Age band 3

9.21 This now covers those from age 53 up to age 57. The employer contribution rates for males and females respectively were reduced to 7.0% and 10.0% respectively from 1 July 2003.

9.22 The level of actuarial surplus allows the rates to be maintained at 7.0% of contributor salaries for males and 10.0% of contributor salaries for females as from 1 July 2006.

Age band 4

9.23 This now covers those from age 58 up to age 62. The employer contribution rates for males and females were reduced to 10.0% as from 1 July 2003.

9.24 The level of actuarial surplus allows these rates to be maintained at 10% of contributor salaries as from 1 July 2006.

Age band 5

9.25 This now covers those aged 63 and over. The employer contribution rates for males and females respectively were reduced to 0% from 1 July 2003.

9.26 The level of actuarial surplus in each of these groups remains relatively high. A 0% contribution rate can be maintained.

9.27 The table below shows the rates to be applied to the particular age and gender groups in order that employer contribution rates will reflect the age and gender characteristics of their membership. These rates are unchanged from the rates that applied with effect from 1 July 2005.

Contribution group	Males	Females
Group 1	3.0%	2.0%
Group 2	6.0%	6.0%
Group 3	7.0%	10.0%
Group 4	10.0%	10.0%
Group 5	0.0%	0.0%

9.28 Application of these rates to the affected employer groups may result in a change in contribution rate required as a result of movements in membership. In this regard, stability in employer subsidy contribution rates is desirable and minor rate changes are unlikely to be material overall for the funding employers. Accordingly, I consider it appropriate, as in the last review, to include lower and upper aggregate rates – now set at 6.0% and 10.0% respectively - and to ignore any change which differs by 0.3% or less from the previous valuation.

Vested benefits

9.29 The New Zealand Society of Actuaries Professional Standard requires a comparison of value placed on the vested benefits with the value placed on the assets. Vested benefits are benefits which are not conditional on continued membership of the Fund. This comparison is a form of solvency testing, showing the adequacy of the assets to support the minimum benefit requirements if a scheme were to be wound up.

9.30 Vested benefits are calculated on the Statutory basis as the amount payable in the event that all contributors ceased membership as at the valuation date. For this purpose, I have assumed that:

- for all groups other than ARM, contributors with at least 10 years contributory service will receive a deferred pension commencing at age 50 if they are currently under age 50, otherwise an immediate pension,
- for all groups other than ARM, contributors with less than 10 years contributory service will receive an immediate withdrawal benefit,
- for contributors in the ARM group having completed 20 years contributory service, immediate retirement will occur, and

- for contributors in the ARM group who have less than 20 years contributory service, an immediate withdrawal benefit will become payable.

9.31 The vested benefit values are shown in the following table, where contributors include the inactive members. The ratio of vested benefits to past service liabilities is also shown.

Group	Vested benefits	As a percentage of past service liability
	$million	
Contributors:		
Armed Forces	110.7	34%
General (excluding Islands)	3,187.5	109%
Islands	32.6	108%
Police	552.2	81%
Prison Service	34.3	106%
Total Contributors	3,917.3	98%
Pensioners:		
Deferred pensioners	7,125.3	100%
Pensioners	575.5	100%
Total Pensioners	7,700.8	100%
Grand total	11,618.0	
Less Assets	3,521.4	
Shortfall	(8,096.7)	

9.32 For contributors in the ARM group, the requirement for 20 years contributory membership prior to entitlement to a retirement benefit has a significant effect in reducing the value of vested benefits. For the other groups, the majority of members have already completed 10 years contributory service, and would be entitled to a deferred or immediate pension.

9.33 Vested benefits exceed the value placed on the past service liability for GEN, ISL and PRS group contributors principally because the valuation of the Fund as an ongoing entity takes into account probabilities of death, giving rise to a benefit of generally lower actuarial value, and of withdrawal (despite entitlement to a deferred pension), again giving rise to a benefit of significantly lower actuarial value. The position with respect to POL group contributors is different in that a significant part of the past service liabilities lies in the potential medical disengagement benefit, which is of generally higher value than a deferred pension.

9.34 The figures given for vested benefits for GEN, ISL and PRS group contributors can be considered as an upper limit to the overall liability accrued to date for those schemes, and the figures for ARM and POL group contributors a lower limit for those schemes. The past service liability figures shown earlier, are the best estimate of the liability accrued to date.

9.35 It is unlikely that the position in respect of vested benefits will change significantly before the next valuation (due 30 June 2006), unless the basis of funding is amended.

9.36 The Professional Standard No 2 requires descriptions of the manner in which the assets would be assumed to be allocated on wind-up as well as a summary of the material provisions related to the benefits and contributions of the scheme on wind-up. This has not been considered because of the particular characteristics of the scheme.

SECTION 10: FINANCIAL RECONCILIATION

10.1 The Statutory valuation results as at 30 June 2005 show asset and liability values that differ from those produced for the Statutory valuation as at 30 June 2004.

10.2 During the one year inter-valuation period, the value of the assets has increased by $147 million and the value of the past service liabilities has increased by $859 million, as shown in the following table.

	30 June 2004	30 June 2005	Change
	$million	$million	$million
Value of Assets	3,374	3,521	147
Value of Total Past Service Liabilities	10,838	11,697	859

10.3 The table below provides a summary of the movements in the asset values over the past year, showing first the expected movements then the experience gains/losses (the differences between the actual and the expected movements) between 30 June 2004 and 30 June 2005.

Assets	$million	
Assets as at 30 June 2004		3,374
Expected movements:		
Investment return	199	
Benefit payments	(742)	
Contributions	635	
Subtotal		92
Expected Assets end of year		3,466
Experience gains/losses:		
Investment return	46	
Benefit payments	(6)	
Contributions	15	
Subtotal		55
Assets as at 30 June 2005		3,521

10.4 The expected investment return on the assets is the investment income that would have been achieved on the actual assets of the Fund if the investment returns had been at the 6.0% rate assumed in the 2004 Statutory valuation. The expected benefit payments and expected contributions are the amounts that would have been recorded if the 2004 Statutory valuation assumptions had been realised over the year.

10.5 The experience gains/losses show the extent to which actual returns, payments and contributions have differed from those assumed. Of most significance in the year, the Fund recorded an investment return surplus of $46 million. This experience gain is comprised of an expected return of $199 million and an actual investment gain of $245 million.

10.6 The table below provides a summary of the movements in the liability values over the past year, showing first the expected movements then the experience variances between 30 June 2004 and 30 June 2005.

Liabilities	$million	
Total liabilities as at 30 June 2004		10,838
Expected movements:		
Service cost	163	
Interest cost	633	
Benefit payments/contributions	(742)	
Subtotal		54
Expected liabilities end of year		10,892
Experience gains/losses	110	
Changes in assumptions	695	
		805
Total liabilities as at 30 June 2005		11,697

10.7 The expected service cost is the effect of the additional benefits provided by the additional service since the last valuation date and the effect of the future benefit payments being one year closer to their payment date than at the previous valuation. The expected interest cost is the effect of the investment income lost through the unfunded past service liability having no matching assets. The expected amounts of benefit payments and contributions are the amounts that would have been recorded if the 2004 Statutory valuation assumptions had been realised over the year.

10.8 Experience gains/losses are the effects of the differences between the actual and the planned cashflows and liability movements.

SECTION 11: CERTIFICATES, RECOMMENDATIONS, STATEMENTS

11.1 There are certain certificates required under the Government Superannuation Fund Act that result from this valuation, either directly or indirectly.

11.2 The Professional Standard of the New Zealand Society of Actuaries requires the valuation actuary to make recommendations on the rates of contribution required from employers. In the principal intended area of operation of the Professional Standard, private sector fully funded standalone defined benefit superannuation schemes, the recommendation of the actuary carries substantial weight, and in some instances is mandatory.

11.3 However, in the context of the Fund, my recommendations need be taken to be subject to practical issues relating to considerations of Government policy, such as:

- the effects on departmental appropriations and state sector remuneration, and
- aggregate levels of government expenditure, policy priorities, and the need to maintain fiscal credibility.

11.4 There are certain other recommendations arising from the matters covered by this report. As well, the Professional Standard No 2 requires statements from the actuary in relation to conflict of interest, insurance of death benefits, and responsibility.

11.5 <u>Commentary</u> in respect of the **Fund Share of benefits**:

The table in section 9.1 of this report, in respect of the valuation carried out using valuation discount rates consistent with the approach taken to valuations for Crown Account purposes, shows a Fund Share proportion of 24.6%. The 2004 valuation resulted in a proportion of 26.7%. As the valuation result is sensitive to levels of investment return actually earned on the Fund's assets, I consider the Fund Share of benefits proportion should be decreased to 25% with effect from 1 July 2006.

11.6 <u>Certification</u> in respect of the **Fund Share of benefits**:

In terms of section 95(1) of the GSF Act 1956, I certify that the proportion of benefits calculated as being provided by member contributions into the Fund is 25%.

11.7 <u>Commentary</u> in respect of the **Funding employer's contribution rates**:

My understanding of section 95(2) of the Act is that the amount I am required to certify is that which would apply under generally accepted funding methods which take into account accrued surplus under the notional funding approach required for actuarial balance.

Legal advice in respect of section 95(2) of the Act has also led to rates being specified by age and gender, in order that specific membership characteristics of funding employers be recognised. Those rates have been derived by reference to notional funding for ten groups differentiated by age and gender.

11.8 Certification in respect of the **Funding employers contribution rates**:

In terms of section 95(2) of the Act, I certify that the rate of contribution, as from 1 July 2006, inclusive of specified superannuation contribution withholding tax, required from those employers of contributors whose salaries are payable out of money that is not public money, is:

- For contributors who are members under Part II or Part IIA of the Act, and employed by the Public Services of the Cook Islands, Niue, or Tokelau; 6.0% of contributor salaries, and
- For contributors who are members under Part II or Part IIA of the Act, excluding those employed by the Public Services of the Cook Islands, Niue, or Tokelau, the average rate obtained from applying the rates set out in the table below to contributor salaries according to gender and age, provided that if the change to the average rate presently applicable is 0.3% or less, then no change will be required to be made, and provided also that no aggregate rate shall be less than 6.0% or greater than 10.0% of contributor salaries.

Contribution group	Males	Females
Group 1	3.0%	2.0%
Group 2	6.0%	6.0%
Group 3	7.0%	10.0%
Group 4	10.0%	10.0%
Group 5	0.0%	0.0%

11.9 Commentary in respect of the **Non-funding employer's contribution rates**:

The non-funding employers (employers of contributors in the Police, Armed Forces, Prison Service, and the core public service) are required to budget for the superannuation contributions as if such contributions were payable to the Fund. As with the last valuation, I have used the same assumptions for non-funding and funding employers.

11.10 Recommendation in respect of the **Non-funding employer's contribution rates**:

I recommend that, as from 1 July 2006:

- the employer contribution rate in respect of the Armed Forces Scheme remain at 15.4% of contributor salaries,
- the employer contribution rate in respect of the General Service Scheme remain at 6.0% of contributor salaries,
- the employer contribution rate in respect of the Police Scheme remain at 16.1% of contributor salaries, and
- the employer contribution rate in respect of the Prison Service Scheme remain at 0% of contributor salaries.

11.11 In accordance with my professional obligations as a Fellow of the New Zealand Society of Actuaries, I make the following statements:

- In carrying out this valuation as required by the Act, in my view I have no conflict with other statutory roles conferred on the Government Actuary by any other Acts of Parliament, nor with any other of my professional activities.
- I am not aware of any material developments to the scheme or any external events that have had a material effect on the results of the investigation.
- I am not aware of any material events subsequent to the date of the current investigation.
- The Fund has no arrangements for external insurance of the benefits payable on death or disability. Having regard to the size of the Fund and the nature of the benefits payable on death or disability, it is my view that there is no need for the Fund to hold such insurance.
- In completing this report I have had regard to Professional Standard No. 2 - Actuarial Reporting for Superannuation Schemes - issued by the New Zealand Society of Actuaries. The valuation method and the financial, economic and demographic assumptions have been determined in accordance with the professional judgement of the actuary preparing the report.
- I am not aware of any discrepancy between the GSF Act and subsequent Amendments and the practice of the GSF Authority which would have a material bearing on the results of this investigation.
- The next valuation will be carried out as at 30th June 2006.

David Benison, B.Sc.(Econ), FIA, FNZSA
Government Actuary

20th November 2005

APPENDIX A: Valuation processes

A.1 The valuation balance sheet

The valuation balance sheet for each contributor group is obtained by:

- setting the Fund liability as the present value of all benefit payments attributable to past and future membership of the scheme, and
- setting the Fund assets as the value placed on the assets of the Fund for the purposes of the valuation, together with the present value of the contributions expected to be made by current members.

Contributor groups include members who have ceased to contribute, separated into pensioners, deferred pensioners and inactive members.

The difference between the Fund liability and the Fund assets is the present value placed on the amount that will be required to meet the cost of the benefits. Some part of this amount will be met by the funding employers, in relation to benefits to be provided for those of their employees who are members of the Fund.

For the purposes of this report, no figures are given for the Judges and Masters Scheme and the Members of Parliament Scheme, since each of those schemes are funded on a pay as you go basis.

A.2 The Fund Share of benefits

The ratio of the Fund assets to the Fund liability represents the Fund share of benefits; that is, the proportion of benefits which may be paid from the assets of the Fund as they fall due. The balance is to be paid by way of subsidy from the Government, offset by funding employers' contributions.

A.3 The level of projected Government subsidy

The share of projected payments from the assets of the Fund is obtained by applying the Fund share of benefits ratio to the total projected benefits payable in each year starting from the valuation date, without discounting. The balance of the projected benefits is the amount that will have to be met by Government subsidy, offset by contributions from the funding employers.

A.4 The unfunded past service liability

The proportion of the projected benefits payable that is attributable to membership up to the valuation date may be obtained for each contributing member by multiplying each projected amount by the ratio of membership to the valuation date divided by membership to the date on which the benefit is due to be paid, and adding the value of benefits already crystallised for members who have ceased to contribute. This constitutes the past service liability.

The unfunded past service liability is then the difference between the past service liability and the value placed on the assets.

A.5 Approach to employer contribution rates

The process by which employer contribution rates have been calculated for the purposes of reports subsequent to that of 30 June 1997 is known as the Attained Age Method. In practice, a rate for each contributor group is calculated as the percentage of member salaries which, when applied over the remaining working lifetime of members, will provide for the cost of member benefits attributable to future service, in conjunction with member contributions. This rate is referred to as the Standard Contribution Rate.

In fully funded superannuation schemes where this method is used, the Standard Contribution Rate is usually adjusted so as to amortise any difference between the assets of the scheme and the value placed on the liability attributable to service prior to the valuation date. The amount of this difference, the actuarial deficit or surplus, is dependent on the valuation assumptions.

Due to the substantially unfunded nature of the Fund, this amortisation process had not been considered practical in any real fashion, and hence no adjustment to the Standard Contribution Rate was envisaged. While the Fund was open to new members, it was reasonable to expect that movement in the Standard Contribution Rate between valuations would be small, particularly where valuation assumptions were held relatively constant.

The cost of benefits generally increases with age - the nearer to retirement, the greater the cost of an additional year of membership. The Standard Contribution Rate is an average rate over the remaining working lifetime of members. Hence, relative to the accruing cost, the Standard Contribution Rate is likely to be higher than is required at the start and lower than is required at the end.

With the Fund closed to new members and the average age of the contributors increasing, a mechanism to incorporate actuarial surplus or deficit became necessary.

A.6 Calculation of employer contribution rates

The process that was established for the determination of employer contribution rates is given below.

1. Establish the present value of the liabilities as at 1 July 1992 (the effective date of closure of the Fund to new entrants) in respect of benefits as at that date attributable to membership up to that date;
2. Set that value as the opening balance of the notional fund;
3. Calculate the Standard Contribution Rate as at 1 July 1992;
4. Calculate the closing balance as at the end of the following year, taking into account:
   - actual benefit payments,
   - actual member contributions,
   - notional employer contributions, based on actual contributor salaries and the net contribution rates effective between the start and the end of the year, and
   - notional investment returns, based on actual and notional cash flows, as well as actual net of tax investment returns in respect of the assumed underlying assets;
5. Value the membership as at the end of the year and establish the notional actuarial surplus or deficit by comparison with the notional fund.
6. Repeat steps 4 to 6 for each subsequent year.

In practice the following modifications to the process have been required:

- for any contributor who retires in a particular year, or in respect of whom a pension entitlement crystallises in some other manner during the year, the value of that pension is calculated (using the current valuation basis) and a notional transfer made out of the contributor's group into a single combined pensioners and deferred pensioners group. The notional cash flows are assumed to occur in the middle of the financial year.

- the requirement for the derived rates to reflect membership characteristics of each funding employer has lead to rates being calculated for each gender, and in five age bands, and
- as stability in contribution rates is considered important, with the volatility of investment returns not all of the actuarial surplus or deficit is taken into account, leaving an appropriate balance to be carried forward to the next year.

The notional funding exercise follows the workings first used for the valuation as at 30 June 2000. A similar approach was taken to determine the employer contribution rates for 1 July 2005, but account was also taken of the reducing number of contributing members, the increasing age of the group, the reducing surplus for most contributor groups, the intended asset allocation strategy and the additional volatility in the investment income that is expected following the implementation of that strategy. Judgement was then exercised as to whether the employer contribution rate should be amended, with a consequent impact on the level of actuarial surplus for the group.

A.7 Employer contribution rate results

For the position at 30 June 2005, the tables below show the notional fund, past service liability, initial surplus, standard contribution rate inclusive of SSCWT and ignoring surplus, the contribution rate adjusted in accordance with the approach outlined above and the surplus after contribution rate adjustment. The figures are given in $million.

Principal schemes:	ARM	GEN	ISL	POL	PRS
Notional fund	359	3,190	30	707	79
Past service liability	323	2,926	30	685	32
Initial surplus	36	264	0	22	47
Standard contribution rate	24.5%	10.7%	7.5%	19.6%	12.3%
Adjusted contribution rate	15.4%	6.0%	6.0%	16.1%	0.0%
Surplus carried forward	16	109	-2	1	45

Age banded GEN group (males):	To 47	48 - 52	53 – 57	58 - 62	63 +
Notional fund	367	485	737	559	217
Past service liability	296	450	716	570	156
Standard contribution rate	8.9%	10.7%	11.9%	12.7%	13.3%
Adjusted contribution rate	3.0%	6.0%	7.0%	10.0%	0.0%
Adjusted surplus carried forward	35	16	16	0	4

Age banded GEN group (females):	To 47	48 - 52	53 – 57	58 - 62	63 +
Notional fund	173	176	238	166	73
Past service liability	127	169	229	164	49
Standard contribution rate	9.2%	11.3%	12.5%	13.3%	13.9%
Adjusted contribution rate	2.0%	6.0%	10.0%	10.0%	0.0%
Adjusted surplus carried forward	23	-2	10	5	2

APPENDIX B: Scheme benefits

This appendix provides a broad summary of features applicable to a new member who joined the schemes prior to their closure (except Pacific Islands).

B.1 Membership

All employees of employers covered by the GSF were required to become contributors, with the exception of employees in those Government employment areas covered by the General Scheme. In the latter case, membership was optional. However, the request to join had to have been made before the age of 50 years, or within six months of appointment if later.

B.2. Contributions

The percentages of salary required from members as a contribution vary by scheme, as follows:

Armed Forces Scheme	7.6%
General Scheme (including Islands)	6.5%
Police Scheme	7.5%
Prison Service Scheme	8.5%

B.3. Contributory Service

The main benefits of the schemes are linked to the period of service in respect of which contributions have been paid.

Members of the Police and Prison Service schemes are entitled to an increase of 25 percent of their contributory service upon death or retirement, with a maximum adjusted contributory service of 40 years.

B.4. Benefits

B.4.1 Retirement

Normal retirements occur as follows:

General Scheme	at age 60
Prison Service Scheme	at age 58
Police Scheme	at age 55
Armed Forces Scheme	20 years of contributory service

The pension factor is 1.05 percent for each year of contributory service for persons who retire on or after 1 October 1999. (A higher percentage applies to persons who retired prior to that date). This factor is applied to "final average salary" which is the average of salaries in the 5 years before ceasing employment, adjusted to account for the increase in the consumer price index (CPI) during the period.

Thus the pension at normal retirement is equal to:

1.05% x contributory service x final average salary

Except for the Armed Forces, retirement is allowed from age 50 for a person who has at least 10 years of contributory service (8 years for Prison Service). Those who take this option have a reduction in their pension factor of .0028 percent for each month of early retirement in the first five years before normal retirement age. The reduction beyond those 5 years is .0014 percent per month.

For members of the General Scheme only, contributory membership past the age of 60 gives rise to an increase in the pension factor of .0014 percent per month to a maximum of five years.

A retirement benefit can also be granted for medical reasons. In such a case the benefit is calculated as if the contributor had fulfilled the normal retirement age criterion at the time of medical retirement so there is no reduction in the pension factor. The benefit is based on service completed at the date of medical retirement.

The pension is adjusted annually to compensate fully for the change in the cost of living as measured by the change in the CPI over the previous year.

B.4.2 Death

Death While A Contributor

A spouse of a contributor has a choice between a lump sum benefit and a pension. The lump sum is the greater of one times salary and the cash benefit available on resignation. The pension is half the allowance payable had the contributor retired for medical reasons at the date of death. The spouse can surrender a part of this pension in return for a lump sum payment.

If a contributor is not survived by a spouse, the contributor's estate has a right to the cash benefit available on resignation.

In addition, surviving children up to and including 16 years of age are entitled to an annual allowance, which is $2,587 as at 30 June 2005.

Death As A Pensioner

A spouse of a pensioner has a choice between a lump sum benefit and a pension. The lump sum is a cash refund of the excess of the contributions made by the member over the payments received as a pensioner. The pension is half the allowance payable to the pensioner at the date of death. A spouse under age 61 at the time of death can surrender up to one quarter of the pension in return for a lump sum payment.

If a pensioner is not survived by a spouse, the pensioner's estate has a right to a cash refund similar to the above.

B.4.3 Resignation

Upon resignation from employment a member can choose to leave their personal contributions in the scheme or to receive a lump sum benefit. The lump sum benefit is a refund of contributions made, increased (to allow for interest) by 0.25% per month for service after 1 May 1985 (except for Armed Forces where the increase factor applies from the date of commencement of contributory service). These lump sum benefits can be transferred to another superannuation scheme.

A member resigning after being in the GSF for at least 10 years (8 years for Prison Service) is entitled to additional provisions. Upon transfer to another superannuation scheme, the lump sum benefit is increased by 10 percent for each year in excess of 10, up to a maximum increase of 100 percent. Such a member has the option to have a deferred pension at age 50 or later. The amount then payable takes into account inflation between resignation and payment dates.

B.4.4 Withdrawal

At any time, a member of the General Scheme may withdraw from the scheme and receive a refund of their personal contributions. No employer-subsidised benefit is available upon withdrawal.

APPENDIX C: Membership data details

C.1 Active Contributors at 30 June 2005

Armed Forces:

Age group	Number	Average age	Average salary	Average service
Males				
Under 25	-	-	-	-
25 to 34	336	33.0	$53,122	15.0
35 to 44	886	37.4	$56,332	18.1
45 to 54	25	46.6	$69,341	20.1
55 to 64	3	59.8	$40,000	30.4
65 and over	-	-	-	-
Total	1,250	36.5	$55,690	17.3
Females				
Under 25	-	-	-	-
25 to 34	45	33.2	$50,260	14.7
35 to 44	123	37.6	$54,073	18.0
45 to 54	3	46.8	$55,000	19.7
55 to 64	-	-	-	-
65 and over	-	-	-	-
Total:	171	36.6	$53,086	17.1
Males & Females				
Under 25	-	-	-	-
25 to 34	381	33.1	$52,784	15.0
35 to 44	1,009	37.4	$56,057	18.1
45 to 54	28	46.7	$67,804	20.0
55 to 64	3	59.8	$40,000	30.4
65 and over	-	-	-	-
Total	1,421	36.5	$55,377	17.3

General (excluding Islands):

Age group	Number	Average age	Average salary	Average service
Males				
Under 25	-	-	-	-
25 to 34	10	33.4	$54,120	12.9
35 to 44	654	41.5	$63,164	18.2
45 to 54	3,320	50.2	$75,007	23.5
55 to 64	3,652	58.7	$78,253	28.7
65 and over	233	66.0	$75,153	32.3
Total	7,869	53.8	$75,507	25.7
Females				
Under 25	-	-	-	-
25 to 34	22	33.1	$30,547	11.8
35 to 44	463	41.2	$53,147	15.8
45 to 54	1,729	50.3	$62,860	18.6
55 to 64	1,975	58.6	$61,045	19.3
65 and over	121	66.1	$58,028	24.5
Total	4,310	53.5	$60,684	18.8
Males & Females				
Under 25	-	-	-	-
25 to 34	32	33.2	$37,914	12.1
35 to 44	1,117	41.4	$59,012	17.2
45 to 54	5,049	50.2	$70,847	21.8
55 to 64	5,627	58.7	$72,214	25.4
65 and over	354	66.0	$69,233	29.6
Total	12,179	53.7	$70,260	23.3

Islands:

Age group	Number	Average age	Average salary	Average service
Males				
Under 25	-	-	-	-
25 to 34	45	32.1	$16,350	12.6
35 to 44	147	39.4	$19,044	17.6
45 to 54	122	49.1	$22,512	22.9
55 to 64	43	57.8	$18,793	23.4
65 and over	2	65.9	$9,528	24.3
Total	359	44.1	$19,802	19.5
Females				
Under 25	-	-	-	-
25 to 34	49	32.2	$19,064	13.0
35 to 44	134	39.4	$16,670	17.7
45 to 54	87	49.1	$18,294	22.8
55 to 64	40	58.4	$18,284	25.5
65 and over	-	-	-	-
Total	310	43.4	$17,713	19.4
Males & Females				
Under 25	-	-	-	-
25 to 34	94	32.1	$17,765	12.8
35 to 44	281	39.4	$17,912	17.7
45 to 54	209	49.1	$20,756	22.9
55 to 64	83	58.1	$18,548	24.4
65 and over	2	65.9	$9,528	24.3
Total	669	43.8	$18,834	19.5

Police:

Age group	Number	Average age	Average salary	Average service
Males				
Under 25	-	-	-	-
25 to 34	16	34.2	$64,830	13.4
35 to 44	1,006	40.4	$68,858	17.7
45 to 54	722	47.9	$75,285	25.1
55 to 64	11	55.6	$128,387	30.1
65 and over	-	-	-	-
Total	1,755	43.5	$71,838	20.8
Females				
Under 25	-	-	-	-
25 to 34	5	34.2	$57,292	13.0
35 to 44	116	39.5	$60,100	15.8
45 to 54	28	47.1	$67,976	21.1
55 to 64	-	-	-	-
65 and over	-	-	-	-
Total	149	40.7	$61,486	16.7
Males & Females				
Under 25	-	-	-	-
25 to 34	21	34.2	$63,036	13.3
35 to 44	1,122	40.3	$67,953	17.5
45 to 54	750	47.9	$75,012	24.9
55 to 64	11	55.6	$128,387	30.1
65 and over	-	-	-	-
Total	1,904	43.3	$71,028	20.5

Prison Service:

Age group	Number	Average age	Average salary	Average service
Males				
Under 25	-	-	-	-
25 to 34	-	-	-	-
35 to 44	7	41.9	$40,734	16.2
45 to 54	51	50.8	$52,080	21.1
55 to 64	65	59.0	$49,862	27.6
65 and over	4	67.4	$53,426	28.7
Total	127	55.0	$50,362	24.4
Females				
Under 25	-	-	-	-
25 to 34	-	-	-	-
35 to 44	2	41.8	$48,185	15.0
45 to 54	9	50.0	$51,160	15.5
55 to 64	4	58.4	$47,593	27.8
65 and over	1	-	-	-
Total	16	52.0	$49,644	19.3
Males & Females				
Under 25	-	-	-	-
25 to 34	-	-	-	-
35 to 44	9	41.9	$42,390	16.0
45 to 54	60	50.7	$51,942	20.2
55 to 64	69	59.0	$49,731	27.6
65 and over	5	66.8	$52,163	28.5
Total	143	54.7	$50,282	23.8

For privacy reasons no details are given where there was only one member in the group.

C.2 Pensioners at 30 June 2005

Age group	Number of pensioners	Average annual pension	Average COLA by number
Males (joint life)			
Under 50	72	\$3,648	100
50 to 59	2,804	\$13,880	100
60 to 69	10,030	\$17,380	99
70 to 79	9,360	\$17,608	97
80 and over	5,534	\$16,647	89*
Total	27,800	\$16,922	96
Females (joint life)			
Under 50	24	\$3,319	100
50 to 59	705	\$8,852	100
60 to 69	1,996	\$11,480	100
70 to 79	1,619	\$12,403	99
Age 80 and over	1,283	\$11,671	90
Total	5,627	\$11,425	97
Males (single life) - Spouses & Dependants of Deceased Female Members and Property (Relationship) Act division			
Under 25	105	\$2,544	100
25 to 49	11	\$2,957	96
50 to 59	27	\$4,080	99
60 to 69	92	\$5,648	95
70 to 79	286	\$11,045	97
80 and over	180	\$9,735	90
Total	701	\$8,332	96
Females (single life) - Spouses & Dependants of Deceased Male Members and Property (Relationship) Act division			
Under 25	122	\$2,547	99
25 to 49	110	\$4,741	96
50 to 59	733	\$5,869	95
60 to 69	2,236	\$7,138	93
70 to 79	4,315	\$7,728	90
80 and over	5,943	\$7,869	84*
Total	13,459	\$7,520	88*

* The minimum COLA is expected to be 90% from 1.7.06 and this has been allowed for in the valuation.

C.3 Deferred pensioners at 30 June 2005

Age group	Number of pensioners	Average annual pension	Average pension age
Deferred Males			
Under 25	-	-	-
25 to 49	3,066	\$8,532	60
50 to 59	2,506	\$9,277	60
60 to 69	64	\$11,612	60
70 to 79	-	-	-
80 and over	-	-	-
Total	5,636	\$8,898	60
Deferred Females			
Under 25	-	-	-
25 to 49	203	\$7,975	59
50 to 59	55	\$9,265	60
60 to 69	1	\$5,957	60
70 to 79	-	-	-
80 and over	-	-	-
Total	259	\$8,241	59

C.4 Inactive Contributors at 30 June 2005

C.4.1 Inactive contributors for whom contribution but not salary information is available.

Scheme	Number of members	Average age	Average withdrawal benefit	Average membership period
Armed Forces	18	45.4	$6,754	2.2
General (Excl Islands)	1,177	47.2	$11,985	4.2
Islands	162	39.3	$3,081	3.0
Police	18	45.7	$125,653	7.1
Prison Service	7	48.9	$16,207	4.1
Total	1,382	46.2	$12,375	4.1

C.4.2 Inactive contributors for whom salary but not contribution information is available.

Scheme	Number of members	Average age	Average deferred pension	Average membership period
Armed Forces	32	35.4	$9,269	15.3
General (Excl Islands)	1,169	49.4	$9,087	18.1
Islands	35	47.3	$2,408	15.9
Police	283	50.1	$19,350	25.5
Prison Service	10	56.4	$17,156	27.9
Total	1,529	49.3	$10,890	19.4

APPENDIX D: Experience of the Fund

D.1 Table

The following table provides a summary of the actual and expected results arising from investigation of the experience of the Fund, for each scheme in the specific area, between 1 July 2004 and 30 June 2005.

	ARM	GEN	ISL	POL	PRS
Actual retirements (including deferred pensions)	225	720	9	4	14
Predicted	54	1,504	49	22	52
Actual deaths	1	15	2	0	1
Predicted	1	28	2	2	0
Actual ill-health	0	14	0	3	0
Predicted	1	56	2	6	2
Actual medical disengagement.	0	0	0	84	0
Predicted	0	0	0	126	0
Actual lump sum withdrawals	40	93	18	2	0
Predicted	16	126	18	1	4
Actual salary increase	7.9%	4.5%	1.3%	4.3%	2.6%
Predicted	4.0%	3.3%	3.7%	5.1%	3.1%

D.2 Retirements

ARM retirements were more than expected, not being balanced by the numbers withdrawing. GEN retirements are continuing to be less than expected, although this is slightly offset with the level of withdrawing members.

D.3 Deaths

With a relative low occurrence, some small variation in the number of deaths is to be expected from year to year.

D.4 Ill health retirement

The GEN contributor ill health retirement numbers have continued to be less than expected.

D.5 Medical disengagements

The POL numbers disengaging are within the range expected.

D.6 Withdrawals

In common with recent valuations, actual withdrawals continue to exceed those expected in the GEN group. The ARM group continues to show higher than expected withdrawal numbers.

D.7 Salary growth

The ARM and GEN groups have shown higher salary growth compared to that expected.

APPENDIX E: Demographic valuation assumptions

E.1 Contributor decrement tables

Age	Age retirement	Ill health retirement	Death-males	Death - females	Withdrawal
Armed Forces:					
20	0.00	0.0005	0.00064	0.00022	0.1000
25	0.00	0.0005	0.00064	0.00020	0.1200
30	0.00	0.0005	0.00056	0.00024	0.0700
35	0.00	0.0005	0.00055	0.00031	0.0100
40	0.00	0.0000	0.00065	0.00042	0.0100
45	0.00	0.0000	0.00094	0.00071	0.0100
50	0.00	0.0000	0.00173	0.00125	0.0100
55	0.00	0.0000	0.00283	0.00194	0.0000
General (excluding Islands):					
20	0.00	0.0000	0.00064	0.00022	0.1000
25	0.00	0.0000	0.00064	0.00020	0.1000
30	0.00	0.0000	0.00056	0.00024	0.1000
35	0.00	0.0005	0.00055	0.00031	0.0700
40	0.00	0.0005	0.00065	0.00042	0.0400
45	0.00	0.0030	0.00094	0.00071	0.0300
50	0.03	0.0055	0.00173	0.00125	0.0200
55	0.05	0.0080	0.00283	0.00194	0.0000
60	0.15	0.0000	0.00476	0.00297	0.0000
Islands:					
20	0.00	0.0000	0.00160	0.00056	0.0390
25	0.00	0.0000	0.00159	0.00050	0.0340
30	0.00	0.0005	0.00139	0.00060	0.0300
35	0.00	0.0005	0.00137	0.00077	0.0400
40	0.00	0.0010	0.00162	0.00106	0.0430
45	0.00	0.0020	0.00236	0.00177	0.0280
50	0.10	0.0045	0.00432	0.00312	0.0100
55	0.16	0.0085	0.00708	0.00484	0.0000
Police:					
25	0.00	0.0600	0.00064	0.00020	0.0060
30	0.00	0.0600	0.00056	0.00024	0.0030
35	0.00	0.0600	0.00055	0.00031	0.0020
40	0.00	0.0600	0.00065	0.00042	0.0000
45	0.00	0.0600	0.00094	0.00071	0.0000
50	0.03	0.0300	0.00173	0.00125	0.0000
55	0.50	0.0000	0.00283	0.00194	0.0000
Prison Service:					
20	0.00	0.0000	0.00064	0.00022	0.3500
25	0.00	0.0000	0.00064	0.00020	0.3000
30	0.00	0.0005	0.00056	0.00024	0.2500
35	0.00	0.0005	0.00055	0.00031	0.2000
40	0.00	0.0010	0.00065	0.00042	0.1400
45	0.00	0.0050	0.00094	0.00071	0.0800
50	0.03	0.0100	0.00173	0.00125	0.0450
55	0.05	0.0150	0.00283	0.00194	0.0200

For Armed Forces, retirement rates are duration specific rather than age specific. At duration 20, the rate of retirement was assumed to be 0.75, decreasing to 0.49 at duration 25, increasing a little to 0.53 at duration 30 and 0.52 at duration 35, and then decreasing rapidly to nil at duration 40. For those who would not complete 20 years duration before age 60, retirement was assumed to occur at age 60 only. Resignation rates were set at zero for durations 20 and over.

For contributors, it was assumed the percentage of members married at death varies from .2% at age 20 for males and females to above 76% at ages 50 and over for males and around 70% at ages 50 and over for females. These figures are based on the 2001 New Zealand Census figures.

E.2 Pensioners

The mortality of pensioners was examined in detail for both males and females and an experience table was developed in conjunction with PWC Actuaries. These tables have been used in the valuation.

Currently no further improvement to future mortality has been built into the basis.

It was assumed that the percentage of members married at the valuation date reduces gradually down from 76% at age 65 for males and 63% for females. It is also assumed that in a married couple, the female is three years younger than the male. These figures are based on the 2001 New Zealand Census figures.

New Pensioner Mortality Rates

Age	Male	Female
60	0.0066	0.0045
61	0.0070	0.0050
62	0.0076	0.0056
63	0.0084	0.0062
64	0.0094	0.0069
65	0.0106	0.0074
66	0.0119	0.0080
67	0.0133	0.0085
68	0.0148	0.0091
69	0.0164	0.0099
70	0.0181	0.0108
71	0.0200	0.0119
72	0.0221	0.0133
73	0.0246	0.0149
74	0.0276	0.0168
75	0.0312	0.0190
76	0.0354	0.0215
77	0.0402	0.0243
78	0.0456	0.0274
79	0.0515	0.0311
80	0.0578	0.0354
81	0.0644	0.0404
82	0.0713	0.0461
83	0.0785	0.0525
84	0.0864	0.0598
85	0.0950	0.0681

Age	Male	Female
86	0.1043	0.0772
87	0.1147	0.0874
88	0.1262	0.0984
89	0.1388	0.1104
90	0.1525	0.1229
91	0.1673	0.1357
92	0.1835	0.1489
93	0.2021	0.1621
94	0.2255	0.1752
95	0.2503	0.1884
96	0.2786	0.2016
97	0.3104	0.2148
98	0.3457	0.2280
99	0.3852	0.2412
100	0.4289	0.2544
101	0.4768	0.2676
102	0.5289	0.2808
103	0.5852	0.2940
104	0.6457	0.3072
105	0.7104	0.3204
106	0.7793	0.3336
107	0.8524	0.3468
108	0.9297	0.3600
109	1.0000	0.3732
110	1.0000	1.0000

APPENDIX F: Financial valuation assumptions

F.1 CPI and general salary growth

Year ended 30 June	Rate of CPI increase p.a.	Rate of general salary growth p.a.
2006	2.0%	3.0%
2007	2.0%	3.0%
2008	2.0%	3.0%
2009	2.0%	3.0%
2010	2.0%	3.0%
2011	2.0%	3.0%
2012	2.0%	3.0%
2013	2.0%	3.0%
2014	2.0%	3.0%
2015 and later	2.0%	3.0%

F.2 Discount rates

Year ended 30 June	Discount rate p.a.
2006	4.1%
2007	3.9%
2008	3.9%
2009	3.7%
2010	3.7%
2011	3.7%
2012	3.8%
2013	3.8%
2014	3.8%
2015 and later	3.8%

F.3 Promotional salary growth

Age	ARM	GEN	ISL	POL	PRS
20	0.0700	0.0150	0.0100	0.0225	0.0460
25	0.0700	0.0150	0.0100	0.0225	0.0440
30	0.0150	0.0150	0.0100	0.0225	0.0350
35	0.0113	0.0125	0.0100	0.0219	0.0260
40	0.0075	0.0100	0.0100	0.0213	0.0200
45	0.0037	0.0075	0.0100	0.0206	0.0050
50	0.0000	0.0050	0.0000	0.0200	0.0000
55	0.0000	0.0000	0.0000	0.0000	0.0000
60	0.0000	0.0000	0.0000	0.0000	0.0000