

**Confidential**



Government Employees Pension Fund

**Statutory Actuarial  
Valuation**

31 March 2012

**Confidential**

**Confidential****Table of Contents**

<b>Executive Summary .....</b>	<b>1</b>
<i>Past Service: Financial Status .....</i>	<i>1</i>
<i>Future Service: Required Contribution Rate .....</i>	<i>2</i>
<i>Membership.....</i>	<i>4</i>
<i>Certifications.....</i>	<i>5</i>
<b>Section 1 : Introduction.....</b>	<b>9</b>
1.1 <i>Background.....</i>	<i>9</i>
1.2 <i>Registration and operation.....</i>	<i>9</i>
1.3 <i>Objectives of the valuation.....</i>	<i>9</i>
1.4 <i>Previous valuation.....</i>	<i>10</i>
1.5 <i>Current valuation .....</i>	<i>10</i>
1.6 <i>Capacity, brief and professional guidance.....</i>	<i>10</i>
<b>Section 2 : Developments since the previous valuation.....</b>	<b>12</b>
2.1 <i>Changes in benefits .....</i>	<i>12</i>
2.2 <i>Pension increases.....</i>	<i>13</i>
2.3 <i>Investment Return on the Fund's assets.....</i>	<i>13</i>
2.4 <i>Salary increases .....</i>	<i>14</i>
2.5 <i>Contribution rates paid .....</i>	<i>14</i>
2.6 <i>Self-insurance of death and disability benefits.....</i>	<i>15</i>
2.7 <i>Extraordinary changes in membership.....</i>	<i>15</i>
2.8 <i>Changes in investment profile.....</i>	<i>15</i>
2.9 <i>Any other change deemed relevant by the actuary.....</i>	<i>15</i>
<b>Section 3 : Assets of the Fund .....</b>	<b>16</b>
3.1 <i>Assets of the Fund.....</i>	<i>16</i>
3.2 <i>Net Asset Attribution .....</i>	<i>17</i>
3.3 <i>Investment Returns earned over the period .....</i>	<i>17</i>
3.4 <i>Investment Strategy of the Fund .....</i>	<i>17</i>
<b>Section 4 : Valuation Basis and Methodology.....</b>	<b>19</b>
4.1 <i>Valuation methodology.....</i>	<i>19</i>
4.2 <i>Summary of the valuation basis .....</i>	<i>20</i>
<b>Section 5 : Funding Policy and Objectives.....</b>	<b>22</b>
<b>Section 6 : Contingency Reserve Accounts .....</b>	<b>23</b>
<b>Section 7 : Valuation Results .....</b>	<b>24</b>
7.1 <i>Past Service: Financial Status .....</i>	<i>24</i>
7.2 <i>Future Service: Required Contribution Rate.....</i>	<i>25</i>
<b>Section 8 : Inter-valuation Experience .....</b>	<b>28</b>

**Section 9 : Certification.....31**  
**Appendix A : Summary of the Fund .....34**  
**Appendix B : Summary of Membership and Data.....38**  
**Appendix C : Consolidated Revenue Account .....50**  
**Appendix D : Valuation Basis and Method Adopted.....51**  
**Appendix E : Sensitivity Analysis .....57**  
**Appendix F : Contingency Reserves .....58**  
**Appendix G : Summary of Liabilities and Required Contribution Rates.....63**  
**Appendix H : Solvency Reserve Details .....66**  
**Appendix I : Notional Pensioner Accumulation Amount .....67**  
**Appendix J : Actuarial Interest Factors.....69**

## Executive Summary

The Government Employees Pension Fund (the "Fund") was established with effect from 1 May 1996. It is a defined benefit pension fund, with the objective of providing pensions and other benefits for members and their dependants. This is the tenth statutory valuation of the Fund and the first valuation to be performed by Towers Watson. Comparative results for the 31 March 2010 valuation performed by Alexander Forbes are also reflected, where appropriate.

This report has been prepared in accordance with the Government Employees Pension Law, as amended (*"the GEP Law"*), which requires that the Fund shall have its financial condition investigated and reported upon by a valuator at least once in every three years. However, due to the significant changes in liability and asset values seen over the past few years, it is the practice of the Fund to perform bi-annual actuarial valuations to determine the value of the Fund's liabilities and the required contribution rate for the Employer.

The report takes into account the requirements set out in professional guidelines for actuarial reports (Professional Guidance Note 201) issued by the Actuarial Society of South Africa, current as at the date of signature of the report. Consideration has also been given to the requirements of Board Notice 149 of 2010 issued by the Registrar of Pension Funds in respect of occupational funds on the basis that the information in this Notice would be good practice for the Fund and not a compliance requirement.

### Past Service: Financial Status

The fair value of the accumulated assets of the Fund as at 31 March 2012 is compared to the best-estimate accrued actuarial liability, in respect of benefits earned for service rendered to that date, according to the Funding Level Policy of the Fund, current as at date of valuation. Figures from the previous statutory valuation of the Fund (31 March 2010) have been included for comparative purposes.

Financial position as at	31 March 2012 R'm	31 March 2010 R'm
Fair value of assets	1 038 946	801 004
Less Contributing members liability	(773 805)	(526 190)
Pensioner liability	(223 049)	(180 647)
Deferred pensioner liability	(1)	(6)
Data reserve	(10 050)	(24 943)
Past discriminatory practice reserve	(4 711)	(4 936)
<b>Past service surplus before reserves</b>	<b>27 330</b>	<b>64 282</b>
<b>Minimum funding level <sup>(1)</sup></b>	<b>102.7%</b>	<b>108.7%</b>
Less Mortality improvement reserve	(26 628)	(18 748)
Pension increase reserve (past service)	(105 614)	(70 533)
Pension increase reserve (future service)	(77 939)	(47 596)
Solvency reserve	(254 000)	(208 000)
<b>Past service surplus after reserves</b>	<b>(436 851)</b>	<b>(280 595)</b>
<b>Long term funding level <sup>(2)</sup></b>	<b>70.4%</b>	<b>74.1%</b>

## 1. Minimum Funding Level

The minimum funding level at the valuation date, which is determined as the long-term funding level excluding solvency reserves and contingency reserves is 102.7% and therefore exceeds the Trustees targeted minimum funding level of 90%. At the previous valuation date, the minimum funding level was 108.7%.

## 2. Long-term Funding Level

If the contingency reserves are fully funded, the long-term funding level would be 70.4% at the current valuation date, and is below the Trustees targeted long-term funding level of 100%. The Trustees are therefore only able to establish the contingency reserve accounts to the extent of R27 330 million, some 5.9% of the required contingency reserve accounts.

The corresponding funding level at the previous valuation date, if all recommended contingency reserve were held in full, was 74.1%. Thus the Trustees were only able to establish the contingency reserve accounts to the extent of R64 282 million, some 18.6% of the required contingency reserve accounts.

## Future Service: Required Contribution Rate

The employer's required contribution rate, as a percentage of pensionable salaries, at the current and previous valuation dates, without having regard to the accrued surpluses, is reflected in the table below:

Required Contribution Rate	31 March 2012	31 March 2010	31 March 2009
Total required contribution rate	22.9%	21.4%	24.9%
Less: Contributions by member	(7.5%)	(7.5%)	(7.5%)
<b>Required employer contribution rate</b>	<b>15.4%</b>	<b>13.9%</b>	<b>17.4%</b>
Current employer contribution rate	13.5%	13.5%	13.5%
<b>(Excess) / shortfall between actual and required contribution rate</b>	<b>1.9%</b>	<b>0.4%</b>	<b>3.9%</b>

The total required contribution rate includes the contributions in respect of the funded benefits and the current cost benefits.

## Breakdown of theoretical contribution rate by employer type

The underlying required contribution rates for the categories "Services" and "Other" as at 31 March 2012, reflected at the current and previous valuation dates, are shown below:

## Confidential

Required Contribution Rate split by employer	31 March 2012		31 March 2010	
	Services	Other	Services	Other
Funded benefits	26.5%	21.9%	23.3%	19.0%
Current cost benefits	0.3%	0.3%	2.2%	1.5%
<b>Total contribution rate required</b>	<b>26.8%</b>	<b>22.2%</b>	<b>25.5%</b>	<b>20.5%</b>
Less: Contributions by member	(7.5%)	(7.5%)	(7.5%)	(7.5%)
<b>Required employer contribution rate</b>	<b>19.3%</b>	<b>14.7%</b>	<b>18.0%</b>	<b>13.0%</b>
Actual employer contribution rate	16.0%	13.0%	16.0%	13.0%
<b>(Excess) / shortfall between actual and required contribution rate</b>	<b>3.3%</b>	<b>1.7%</b>	<b>2.0%</b>	<b>0.0%</b>

The current cost benefits at 31 March 2012 represent the element of the contribution rate in respect of Fund expenses only. At 31 March 2010, the current costs were in respect of expenses and the funding of the lumpsum death benefits (these are now included in the Funded benefits).

### *Cost of additional pensionable service for Services members*

The following table provides an indication of the effect on the contribution rate in respect of members of the *Services* category, who qualify for an additional 25% enhancement to their years of pensionable service greater than 10 years. We have shown the results including and excluding the additional 25% enhancement:

Additional cost for Services Members	31 March 2012		31 March 2010	
	Including 25%	Excluding 25%	Including 25%	Excluding 25%
Funded benefits	26.5%	22.7%	23.3%	20.1%
Current cost benefits	0.3%	0.3%	2.2%	2.2%
<b>Total contribution rate required</b>	<b>26.8%</b>	<b>23.0%</b>	<b>25.5%</b>	<b>22.3%</b>
Less: Contributions by member	(7.5%)	(7.5%)	(7.5%)	(7.5%)
<b>Required employer contribution rate</b>	<b>19.3%</b>	<b>15.5%</b>	<b>18.0%</b>	<b>14.8%</b>
Actual employers contribution rate	16.0%	16.0%	16.0%	16.0%
<b>(Excess) / shortfall between actual and required contribution rate</b>	<b>3.3%</b>	<b>(0.5%)</b>	<b>2.0%</b>	<b>(1.2%)</b>

As indicated in the results above, the effect of the service enhancement in respect of *Services* members amounts to approximately 3.8% of pensionable salaries on the "best estimate" valuation basis. This is higher than the difference in contributions payable by the *Services* employers (16%) and *Other* employers (13%) but highlights the appropriateness of the difference in contribution rates. The residual difference can be explained by the differing decrements between the two categories of members.

### *5% equity risk premium allowance*

For purposes of testing the appropriateness of the current level of contributions as at 31 March 2012, a 5% equity risk premium over the long-term bond yield assumption was considered. The use of this assumption for determining the future funding requirements must be seen as a risk budgeting exercise

for the employers. To the extent that equities over the long term earn a risk premium of 5% over bonds (i.e. experience is as assumed), the required level of contributions at the rates below would then be adequate. It should, however, be appreciated that the higher the assumed equity risk premium, the lower will be the required contribution rates, but that this also carries a greater risk of requiring additional contributions into the future should experience not be in line with that assumed:

Required Contribution Rate on 5% and 3% Equity Risk Premium	5% Equity Risk Premium		3% Equity Risk Premium (Valuation basis)	
	Services	Other	Services	Other
Funded benefits	21.0%	17.2%	26.5%	21.9%
Current cost benefits	0.3%	0.3%	0.3%	0.3%
<b>Total contribution rate required</b>	<b>21.3%</b>	<b>17.5%</b>	<b>26.8%</b>	<b>22.2%</b>
Less: Contributions by member	(7.5%)	(7.5%)	(7.5%)	(7.5%)
<b>Required employer contribution rate</b>	<b>13.8%</b>	<b>10.0%</b>	<b>19.3%</b>	<b>14.7%</b>
Actual employer contribution rate	16.0%	13.0%	16.0%	13.0%
<b>(Excess) / shortfall between actual and required contribution rate</b>	<b>(2.2%)</b>	<b>(3.0%)</b>	<b>3.3%</b>	<b>1.7%</b>

Based on the 5% equity risk premium assumption the required contribution rate is 13.8% for *Services* employers and 10.0% for "Other" employers. On this basis, there is an excess contribution of 2.2% for *Services* employers and an excess contribution of 3.0% for *Other* employers. We point out again the associated risks mentioned above in contributing at this reflected rate, and recommend that the risks are communicated to the employer.

## Membership

A summary of the membership at the current and previous valuation dates is shown below.

	31 March 2012		31 March 2010	
	Number of members	Annual emoluments / pension R'000	Number of members	Annual emoluments / pension R'000
<b>Active Members</b>				
Males	565 358	96 308 168	546 927	80 212 299
Females	733 036	119 578 012	688 121	96 885 288
<b>Total</b>	<b>1 298 394</b>	<b>215 886 180</b>	<b>1 235 048</b>	<b>177 097 587</b>
<b>Active Members</b>				
Services	202 682	34 339 895	225 168	29 434 475
Other	1 095 712	181 546 285	1 009 880	147 663 112
<b>Total</b>	<b>1 298 394</b>	<b>215 886 180</b>	<b>1 235 048</b>	<b>177 097 587</b>
<b>Pensioners / Widow(er)s</b>				
Males	112 936	9 202 533	109 661	8 083 990
Females	238 461	11 172 522	221 365	9 110 248
<b>Total</b>	<b>351 397</b>	<b>20 375 055</b>	<b>331 026</b>	<b>17 194 238</b>
<b>Suspended Pensioners</b>				
Males	1 783	44 116	2 651	60 079
Females	3 358	63 562	4 876	85 677

<b>Total</b>	<b>5 141</b>	<b>107 678</b>	<b>7 527</b>	<b>145 756</b>
<b>Deferred Pensioners</b>				
Males	11	203 585	15	497 461
Females	-	-	1	7 950
<b>Total</b>	<b>11</b>	<b>203 585</b>	<b>16</b>	<b>505 411</b>

## Certifications

I certify that:

- The value of the assets of the Fund is sufficient to cover the accrued actuarial liability at the valuation date and therefore the Fund is financially sound on the minimum funding basis;
- The financial condition of the Fund has been assessed by considering the assets of the Fund in relation to its liabilities based on best estimate assumptions;
- In addition, the amount of contingency reserves to allow for some fluctuations in asset values and unexpected changes in liabilities and for the statutory expectations of pensioners has been determined. The Fund does not however, have sufficient assets to cover the recommended contingency reserves in full. Allowing for the contingency reserves in full will reflect a long-term funding level of 70.4%.
- Given that the valuation is of necessity based on assumptions regarding the future, the assessed value of the liabilities and contingency reserves may prove to be more or less than is required in practice.
- If the liabilities and the amount of the contingency reserves set up prove to be inadequate in future, Trustee action will be required to rectify the position. This may involve, *inter alia*, the reduction of future benefit accruals or an increase in the required contribution rate, subject to the required consultations in terms of the GEP Law.
- Subject to the above and provided that the employer contributes at a rate of 19.3% of total pensionable salaries in respect of *Services* members and 14.7% in respect of *Other* members, the financial soundness of the Fund on the minimum funding basis should be maintained until at least the next actuarial valuation of the Fund.

The employer contributes at a rate of 16.0% of total pensionable salaries in respect of *Services* members and 13.0% in respect of *Other* members as at the valuation date. For the purpose of testing the appropriateness of the current level of contributions, a 5% equity risk premium over the long-term bond yield assumption was considered. This is a less conservative assumption than that used for valuing the past service financial position of the Fund. The use of this assumption for determining the future funding requirements must be seen as a risk budgeting exercise for the employers. To the extent that equities over the long term earn a risk premium of 5% over bonds (and other experience is as assumed), a lower level of contributions would be adequate. It should, however, be appreciated that the higher the assumed equity premium the lower will be the required contribution rates but that this also carries a greater risk of requiring additional contributions into the future should experience not be in line with that assumed.

Based on the 5% equity risk premium assumption, the required employer contribution rate is 13.8% for *Services* members and 10.0% for *Other* members. On this basis there is an excess contribution of 2.2% for *Services* members and an excess contribution of 3.0% for *Other* members. To the extent that the employer is comfortable accepting this level of risk we would recommend no changes to the current contributions for the *Services* and *Other* categories. This does, however, require an appreciation by the employer of the associated risks mentioned above, and we recommend that this is communicated to the employer.

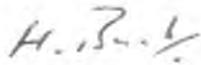
Looked at a different way, for the 16% employer contribution rate in respect of *Services* members to prove adequate (and other experience is as assumed), an equity risk premium of 4.2% over the long-term bond yield assumption would need to be achieved. Similarly, for the 13% employer contribution rate in respect of *Other* members to prove adequate (and other experience is as assumed), an equity risk premium of 3.7% over the long-term bond yield assumption would need to be achieved.

- When considering the effect of the service enhancement in respect of *Services* members on the contribution rate, this amounts to approximately 3.8%, which is higher than the current difference in contributions paid by and in respect of *Services* and *Other* members.
- The level of contributions should be monitored on an annual basis to ensure that it is in line with the funding level policy adopted. In line with rule 7.2, which states that the employer contributions should be sufficient to ensure that the Fund is able to meet its obligations at all times, subject to a minimum funding level of 90%, the GEPF Funding Policy adopted by the Board of Trustees requires the Trustees to ensure that the minimum funding level is above 90%. This can therefore be viewed as the primary funding objective of the Fund. The contribution must be determined by the employer in consultation with the Board and with the Minister, with due regard to the recommendations of the most recent actuarial valuation of the Fund. The Funding Policy also stipulates that the Board of Trustees should strive to maintain the long-term funding level at or above 100%. The long term funding level of the Fund at the valuation date equalled 70.4% with the minimum funding level at 102.7%. The Fund at the valuation date therefore meets its minimum funding level, but as the contingency reserves are not fully funded, does not meet its long-term funding objective.
- We recommend that the key demographic assumptions used for the Fund be monitored through an experience analysis exercise every three to five years. The next analysis should be completed prior to the next valuation of the Fund, and should include an investigation into the future mortality improvements for both active members and pensioners.
- The appropriate method of valuing assets, in conjunction with the appropriate level of solvency reserve will continue to be investigated for future valuations.
- On the basis that the Fund has met its funding objectives and that the current contributions are expected to cover the cost of future benefits with specific reference to the risks mentioned above, as well as the fact that the contingency reserves are only 5.9% funded, we can confirm that the Fund was in a sound financial condition as at 31 March 2012.

I also certify that:

- I am satisfied with the suitability of the Fund's investment strategy, the nature of the assets of the Fund and that the matching of the assets with the liabilities is, in my opinion, adequate.
- Given the current financial condition and size of the Fund, the self-insurance of death and ill-health retirement risks remains appropriate.

**Signature:**



**Signature:**



**Date:**

22 November 2012

**Date:**

22 November 2012

Name

Howard Buck  
Valuator

Name

Kerrin Lynch  
Actuary

Qualifications:

B.Sc. FASSA

Qualifications:

B. Sc. FASSA

Name of Employer:

Towers Watson

Name of Employer:

Towers Watson

Position:

Associate

Position:

Associate

Address:

1<sup>st</sup> Floor  
44 Melrose Boulevard  
Melrose Arch, 2196

Address:

1<sup>st</sup> Floor  
44 Melrose Boulevard  
Melrose Arch, 2196

**Signature:**



**Date:**

22 November 2012

Name

Jainudin Cariem  
Actuary

Qualifications:

B. Bus.Sc. FASSA

Name of Employer:

Towers Watson

Position:

Associate

Address:

240 Main Road  
Rondebosch  
Cape Town, 7700

*Our primary professional regulator is the Actuarial Society of South Africa*



# Section 1: Introduction

## 1.1 Background

This report on the statutory actuarial valuation of the Government Employees Pension Fund (“*GEPF*” or “*the Fund*”) as at 31 March 2012 (“*the current valuation date*”) has been prepared for the Trustees of the Fund in my capacity as the appointed Fund valuator and as an employee of Towers Watson (Pty) Ltd (“*Towers Watson*”).

The previous statutory valuation as at 31 March 2010 (“*the previous valuation date*”) was carried out by Alexander Forbes Financial Services (Pty) Ltd (“*previous actuaries*”). The period between the previous valuation date and the current valuation date is referred to hereinafter as the “*inter-valuation period*”.

## 1.2 Registration and operation

The Fund is a defined benefit pension fund that commenced in 1973, changing its name to the Government Employees Pension Fund in 1996. This is the tenth valuation of the Fund and the first valuation to be performed by Towers Watson. Where appropriate, comparative results for the 31 March 2010 valuation have been reflected in the report.

The participating employers undertake to meet the balance of the cost of providing benefits. The employer contributed at a rate of 16% of pensionable salaries in respect of *Services* members and 13% in respect of *Other* members over the inter-valuation period.

For the purposes of the valuation, contributing members are categorised as follows:

- “*Services*”, which relates to members of the South African National Defence Force (SANDF), South African Police Service (SAPS), Correctional Services (CS), National Intelligence Agency (NIA) and South African Secret Service (SASS).
- “*Other*”, which relates to members not employed by the above employers.

## 1.3 Objectives of the valuation

The objectives of the statutory valuation as at 31 March 2012 are:

- to investigate and report on the financial position of the Fund on an ongoing basis by assessing whether the funding level meets the minimum funding requirement as outlined in rule 7.2 and the requirements of the Fund’s Funding Policy;
- to analyse the financial progress of the Fund since the previous statutory valuation;
- to determine the assumptions to be used in the current valuation as a result of that experience;
- to analyse the sources of any surpluses or strains that have arisen in the period;
- to review the allocations to and the build-up of, any contingency reserve accounts;

- to recommend an appropriate contribution rate for the period to the next valuation in respect of future service accrual;
- to comment on the appropriateness of the investment strategy in place at the current valuation date; and
- to form the basis for discussion of the minimum pension increases as required in terms of the GEP Law, discussed in a separate document.

#### 1.4 Previous valuation

The previous statutory valuation of the Fund was carried out as at 31 March 2010. That valuation disclosed an accrued service surplus of nil, with a corresponding solvency ratio of 100.00%, based on the partial establishment of the recommended contingency reserve accounts.

It was recommended that the employer contribute at a rate of 18.0% of pensionable salary in respect of *Services* members and 13.0% in respect of *Other* members for the year following the previous valuation date.

#### 1.5 Current valuation

This report sets out the results of the actuarial valuation of the Fund as at 31 March 2012, on the basis of the registered Rules of the Fund. A summary of the benefits is set out in Appendix A. The membership data used in the valuation, including all the adjustments required, is summarised in Appendix B.

We have relied upon the accuracy and completeness of information made available to us. Except where expressly stated in the report, we have not independently verified the accuracy of the facts or the bases of the information supplied to us.

The administrators of the Fund, the Government Pensions Administration Agency (*“the Administrator”* or *“GPAA”*), supplied us with the membership and financial information necessary to perform this actuarial valuation. The results of the actuarial valuation depend upon the accuracy and completeness of this data. We have checked this data for consistency with the Fund’s audited financial statements and with the data supplied at the previous valuation date.

The Administrator has also confirmed that the data supplied for the purposes of the valuation is complete and correct.

We confirm that we are satisfied that the information provided, following the various adjustments detailed in Appendix B, is materially complete and sufficient for the purposes of this valuation.

#### 1.6 Capacity, brief and professional guidance

This report has been prepared in accordance with the GEP Law, which requires that the Fund shall have its financial condition investigated and reported upon by a valuator at least once in every three years. However, due to the significant changes in liability and asset values seen over the past few years, it is recommended that the Fund continue the practice of performing biannual actuarial valuations. More frequent actuarial valuations provide the Trustees and GEPP management with more regular, up-to-date financial management information.

The report takes into account the requirements set out in professional guidelines for actuarial reports (Professional Guidance Note 201) issued by the Actuarial Society of South Africa, current as at the date of signature of the report. In addition, and although the Fund is not subject to the Pension Funds Act, the report takes into account the requirements of Board Notice 149 of 2010 issued by the Registrar of Pension Funds.

The report has been peer reviewed in accordance with professional guidelines as discussed above.

The information contained in this report and in all documents referred to in this report is confidential. This report is addressed to the Trustees of the Fund and has been prepared for use by the Trustees and should not be used by any other party, or for purposes not specifically catered for herein. It may be submitted to the relevant stakeholders of the Fund with the approval of the Trustees.

Towers Watson does not accept any liability to any person other than the Trustees, in connection with this report or its related enquiries. We accept no liability in respect of any matter outside the scope and limitation of this report and purpose for which it is prepared.

## Section 2: Developments since the previous valuation

### 2.1 Changes in benefits

Since the previous valuation date, there were various changes in benefits that are discussed in detail as follows (some of these changes fall outside the valuation period, but have been reflected below for completeness):

#### 2.1.1 *Non statutory forces: Change in dispensation*

With effect from 8 July 2011, the Rules of the Fund were amended to bring into effect a change in dispensation for members classed as “non-statutory forces”. The rule change dealt with the repayment, with interest, by the Fund of contributions, special pension and demobilisation benefits previously paid by former non-statutory forces (“NSF”) members in recognition of their additional pensionable service. Furthermore it dealt with the recalculation of the pensionable service and benefits of former non-statutory forces members and their beneficiaries. In the final analysis, the achievement of the full alignment of the dispensation could only be achieved by the consequential amendment of the Special Pensions Act, 1996.

In addition the Rules of the Fund were amended on 30 December 2011, to allow for situations where a former member of a non-statutory force or service or a beneficiary who paid contributions in respect of the previous dispensation died prior to 8 July 2011, being the effective date of the implementation of above amendment, that the amount payable in terms of the above amendment will be payable to his or her dependents; provided that the amount will be paid to such dependents and in such proportions as the Trustees may determine. Furthermore, if no dependents are identified by the Trustees within 12 months from 30 December 2011, no payment provided for in the above amendment will be payable.

#### 2.1.2 *Recognition of pensionable service*

With effect from 1 July 2011, the Rules of the Fund were amended to change the methodology in determining the costs of recognising pensionable service for members. The methodology now determines the cost as the difference in the member’s actuarial interest, before and after allowance for the additional service. This differs from the previous methodology which determined the cost of the pensionable service using F(X) factors.

#### 2.1.3 *“Clean break” principle on divorce benefits*

Previously, the Rules of the Fund did not allow a former spouse of a member to claim a portion of the member’s pension interest, in terms of a divorce order or an order for the dissolution of a customary marriage, until the date of exit of the member from the Fund. The rules were amended with effect from 1 April 2012 to provide for the ‘clean-break’ principle, which allows the former spouse to claim a portion of the member’s pension interest at the date of divorce, i.e. *before* the member exits the Fund. This change aligned the Rules with the provisions of the GEP Law and the Pension Funds Act.

Furthermore, a “divorce debt” is recorded against the member’s Fund benefit at the date of payment of the divorce benefit to the non-member spouse and the divorce debt is settled on the date on which a benefit is paid to the member. The debt accrues interest between the above-mentioned dates as

determined from time to time by the Trustees at the rate or rates of interest payable in respect of monies owed to the Fund.

#### **2.1.4 Benefits on Resignation or Discharge**

With effect from 1 April 2012, the Rules of the Fund were amended to allow for a minimum benefit to be paid on resignation or discharge equal to the member's actuarial interest in the Fund at the date of resignation or discharge, as appropriate.

#### **2.1.5 Spouses reversion option for pensioners**

With effect from 1 April 2012, each pensioner of the Fund on that date was given the option to increase their contingent spouses' pension to 75% of the pension which the pensioner receives on the date of his or her death. The option was open for a window period of 6 months starting on 1 April 2012 and ending on 1 September 2012.

#### **2.1.6 Funeral benefits and Orphans pension**

The Rules of the Fund were amended with effect from 1 April 2012, to change the eligibility criteria for orphans pensions and funeral benefits. Pensioners whose pension commenced prior to 1 December 2002 and who were still alive as at 1 April 2012, now become eligible for the orphans pension and funeral benefit in terms of the Rules of the Fund.

## **2.2 Pension increases**

Pension increases were granted as at 1 April 2010, 1 April 2011 and 1 April 2012 to pensions in course of payment. These increases have been taken into account for valuation purposes. A special catch-up pension increase (the "catch-up") to 100% of the change in the consumer price index ("CPI") since the date of retirement was granted for each pensioner if required as at 1 April 2010, 1 April 2011 and 1 April 2012. The following table summarises the pension increases (excluding any catch-ups) granted over the past three years:

<b>Date of increase</b>	<b>Increase percentage</b>
01 April 2010	5.6%
01 April 2011	4.5%
01 April 2012	4.8%

The Board of Trustees have adopted a formal pension increase policy in order to give effect to section 25 of the GEP Law and GEPF Rule 23, to establish the pension increase that is affordable and to guide the Trustees in their determination of the annual pension increase. According to Rule 23, the Fund aims to grant minimum pension increases, if affordable, of 75% of inflation (basic increase) subject to a minimum pension equal to 75% of the original pension increased with full inflation.

The Fund has adopted a Pension Increase Policy, the details of which are set out in Appendix A.

## **2.3 Investment Return on the Fund's assets**

The investment return on the Fund's assets is approximated by the change in the Notional Portfolio Index ("NPI"). The NPI is calculated each month and is based on the estimated returns earned by the Fund, as provided by the Fund's asset consultants. Furthermore the return in any one financial year is

rebased to the returns approximated by the market values and cash flows reflected in the annual financial statements.

The annualised returns, available as at date of signature of this report and as approximated by the change in NPI, for the period 1 April 2010 to 31 March 2012 are tabled below:

Financial Year	Annualised Net Fund Return
1 April 2010 to 31 March 2011	13.05%
1 April 2011 to 31 March 2012 *	12.48%
<b>Annualised return over period</b>	<b>12.77%</b>

\* The NPI has been rebased to reflect the return derived from the financial statements for the year ending 31 March 2012.

## 2.4 Salary increases

Over the inter-valuation period, salary increases were granted to active members as at 1 July 2010, 1 May 2011 and 1 May 2012. These increases have been taken into account for valuation purposes. The following table summarises the average salary increases granted over the past three years:

Date of increase	Increase (%)
1 July 2010	7.5%
1 May 2011	6.8%
1 May 2012	7.0%

The Public Service Co-ordinating Bargaining Council (*“the PSCBC”*) has released the salary adjustments for the period 2012/13 and 2013/2014 according to the multi-term agreements on 31 July 2012.

The salary adjustment for public servants will, with effect from 1 May 2012 increase by 7%. The increase for the periods commencing 1 April 2013 and 1 April 2014 respectively will be the average CPI plus 1%. These increases are in line with the long-term valuation assumption in respect of salary increases.

## 2.5 Contribution rates paid

The participating employers undertake to meet the balance of the cost of providing benefits. The employer is contributing at a rate of 16% of pensionable salary in respect of *Services* members and 13% in respect of *Other* members at the valuation date.

The required employer contribution rate as at the previous valuation date, based on the valuation basis, was 18.0% in respect of *Services* members and 13.0% in respect of *Other* members. On this basis, there is a shortfall 2.0% in respect *“Services”* members and no shortfall in respect of the *Other* members.

Based on a 5% equity risk premium assumption the required employer contribution rate was 13.1% for *Services* members and 9.2% for *Other* members as per the previous valuation of the Fund. On this basis, there is an excess contribution of 2.9% for *Services* members and an excess contribution of 3.8% for *Other* members.

## 2.6 Self-insurance of death and disability benefits

The benefits payable on the death or ill-health retirement of a member are not covered by any policies of insurance, but rather form part of the members' actuarial reserve values, i.e. they are funded for in both the past service liability and included in the future service contribution rate.

Given the size and current financial condition of the Fund, I consider that the self-insurance of death and ill-health retirement risks remains appropriate.

## 2.7 Extraordinary changes in membership

There have been no extraordinary changes in the membership of the Fund over the inter-valuation period.

## 2.8 Changes in investment profile

The profile of the investment strategy has changed over the inter-valuation period as reflected by the asset allocations at the current and previous valuation dates:

Asset class allocation	31 March 2012	31 March 2010
Cash	3.9%	3.9%
Domestic Bonds	35.0%	36.7%
Domestic Property	3.1%	0.8%
Domestic Equity	52.3%	56.4%
Africa (ex SA) Equity	0.0%	0.0%
Foreign Bonds	2.5%	0.0%
Foreign Equity	3.2%	0.0%
Other	0.0%	2.2%
	<b>100.0%</b>	<b>100.0%</b>

## 2.9 Any other change deemed relevant by the actuary

There are no further material items to report over the inter-valuation period.

## Section 3: Assets of the Fund

### 3.1 Assets of the Fund

The fair value of the Fund's assets as at 31 March 2012, taken from the audited financial statements, is broken down as follows:

	R'000	R'000	Percentage of the Fund
<b>Local investments</b>		<b>976 320 979</b>	<b>94.0%</b>
Shares in companies	569 589 742		54.8%
Bills, Bonds and Securities	356 400 713		34.3%
Property	9 415 403		0.9%
Money Market	31 810 865		3.1%
Loans	8 917 674		0.9%
Equipment	2 250		0.0%
Collective Investment Schemes	184 332		0.0%
<b>International investments</b>		<b>59 997 072</b>	<b>5.7%</b>
Shares in companies	1 089 478		0.1%
Bills, Bonds and Securities	26 330 027		2.5%
Collective Investment Schemes	32 577 567		3.1%
<b>Current Assets</b>		<b>21 007 228</b>	<b>2.1%</b>
Cash on hand	10 489 331		1.0%
Arrear contributions	5 724 301		0.6%
Funding loan	6 716		0.0%
Transfer receivable	33 529		0.0%
Accounts receivable	4 753 351		0.5%
<b>Current Liabilities</b>		<b>(17 620 599)</b>	<b>(1.7%)</b>
Accounts payable	(1 338 686)		(0.1%)
Benefits due	(16 277 300)		(1.6%)
Transfers payable	(2 952)		(0.0%)
Provisions	(1 661)		(0.0%)
<b>Non-current Liabilities</b>		<b>(758 483)</b>	<b>(0.1%)</b>
Unclaimed benefits	(758 483)		(0.1%)
<b>Total</b>		<b>1 038 946 197</b>	<b>100.0%</b>

The assets have been valued at fair value as disclosed in the financial statements of the Fund since this is considered to be consistent with the best estimate valuation basis adopted for the valuation of the actuarial liabilities.

### 3.2 Net Asset Attribution

The assets of the Fund have been allocated to the Fund accounts as shown in the table below:

Account	31 March 2012 R'000
Accumulated Funds	1 034 090 985
Contingency reserves	4 855 212
<b>Total net assets</b>	<b>1 038 946 197</b>

The table represents the split of the assets as reflected in the audited financial statements. In the valuation, we have retained some other contingency reserves – these are not reflected in the balance above.

### 3.3 Investment Returns earned over the period

The assets of the Fund have not been assigned to any particular categories of membership. As such, the overall Fund returns as approximated by the change in NPI, rebased to the financial statements, for the period 1 April 2010 to 31 March 2012 is tabled below:

Financial Year	Annualised Net Fund Return
1 April 2010 to 31 March 2011	13.05%
1 April 2011 to 31 March 2012	12.48%
<b>Annualised return over period</b>	<b>12.77%</b>

### 3.4 Investment Strategy of the Fund

The Trustees of the Fund are responsible for the investment of the Fund's assets, and need to ensure that the investment strategy of the Fund remains appropriate given the nature of the Fund's liabilities. In respect of occupational funds, Board Notice 149 of 2010 issued by the Registrar of Pension Funds requires the actuary to the Fund to comment on the appropriateness of the Fund's asset strategy relative to its liabilities as part of the valuation report.

In this regard it should be noted that the Fund's entire investment portfolio is managed on a market-linked basis, which means that the returns are expected to be volatile and, in particular, there may be negative returns for some periods. The Fund's assets are invested in a mixture of asset classes, including South African equities, bonds, property, cash and international assets.

A relatively high proportion of these assets is invested in equities and property. These are 'real' assets in the sense that over the long term they are expected to deliver an investment return above (and linked to) the rate of price inflation. This asset class provides a reasonable match to the Fund's liabilities which are closely linked to future salary and pension inflation (which in turn are linked to price inflation).

Other factors that the Trustees should consider include:

- The employer 'underwrites' the Fund in the sense that the employer would be obliged to pay a higher rate of contributions to the Fund in the event that it was under funded, and unable to meet its ongoing benefit obligations.
- As long as the Fund continues in its current form, its liabilities are long term, in that benefits are not paid out to members until the point at which they retire, die or leave. It is therefore appropriate also to adopt a long-term view with regard to the Fund's investment strategy. On this basis it is reasonable to invest a significant proportion of the Fund's assets in equities, which are generally expected to deliver a higher long-term investment return than the other asset classes in which the Fund invests.
- Following from the above point, and whilst the funding level is currently above the Minimum Funding Level, the Fund is not able to set aside the recommended solvency reserve to protect the Fund in the case of adverse investment performance and improvements in pensioner mortality. Furthermore, the Fund is not in a position to hold its other required contingency reserves in full. The employer could argue that investment in riskier asset classes (such as equities) is not an appropriate course of action in the long term for a Fund in this position.
- The disadvantage of equity investment is that the capital value of the investments can be extremely volatile in the short term. A consequence of the Fund's investment strategy is that there may be times when there are significant falls in the Fund's value of assets. The amount allocated to the Solvency Reserve (had it been fully funded) would provide a margin to protect the Fund against such volatility, but given the level of funding of that reserve, may not be sufficient.
- The Fund does not have a specific asset strategy in place for the assets backing pensioner liabilities. Typically, such a strategy would involve a higher exposure to South African bonds, and a reduction in equity exposure, compared to the current strategy. It is our understanding that the investment strategy adopted has been based on a weighted average of the investment strategy applicable to active members and to pensioners.

Taking the above factors into account, the current asset strategy of the Fund remains appropriate as at the valuation date in relation to the liability profile of the Fund. The strategy, however, does imply that the Fund needs to hold reasonable investment risk contingency reserves (solvency) in order to have an acceptable probability of being able to meet the reasonable benefit expectations of in-service members and pensioners.

The position should be kept under review, and assessed again no later than the effective date of the next statutory valuation, expected to be as at 31 March 2014.

The asset holdings backing the Fund's liabilities and contingency reserve accounts are regarded as being suitable to the nature of the underlying liabilities and contingency reserve accounts.

As such we are satisfied with the structure of the assets backing these liabilities and that the matching of the assets with these liabilities is, in our opinion, adequate. We point out that the mismatch may result in a surplus or deficit arising in future which would not otherwise have been the case.

## Section 4: Valuation Basis and Methodology

### 4.1 Valuation methodology

#### 4.1.1 Assets

For the purposes of this valuation, the actuarial value of assets has been taken into account at a level **equal to** the market value of the assets. The market value of the Fund's assets as at the valuation date has been derived from the audited annual financial statements. A comparison between the value of assets and liabilities of the Fund is only meaningful if the respective values are determined on a consistent basis. We note that the liabilities have been calculated using market-related assumptions at the valuation date and thus we consider it appropriate to take into account the full market value of the Fund's assets.

#### 4.1.2 Funded benefits

The actuarial valuation in respect of in-service defined benefit members and Fund pensioners was considered in two parts:

- Pensionable service and accrued benefits up to the valuation date. These are compared to the Fund's assets to determine the funding level in respect of past service; and
- Pensionable service after the valuation date (in-service members only). The required employer contribution rate in respect of future service benefits is considered in section 7.2 and again in greater detail in Appendix G of this report.

The accrued liabilities have been calculated as the present value of the benefits that have accrued to defined benefit members in respect of service to the valuation date, allowing for future salary increases, expected benefit payments prior to retirement, and for pension increases payable after retirement on a basis consistent with past practice and with communication to members and pensioners.

The contribution rate for future service pension benefits (including withdrawal, death-in-service and normal/early/ill-health retirement pensions) for the active members has been established by calculating the contribution rate that is required in respect of benefits accruing over the two years following the valuation date with salaries being projected to retirement date for pension benefits. This method, the Projected Unit Method, produces an accurate estimate of future service costs provided new entrants enter and exits leave the Fund at such a rate that its composition by age, salary and gender remains stable and provided the actual experience does not differ markedly from the assumptions made.

Over the inter-valuation period from 31 March 2010 to 31 March 2012, the average age of the in-service members of the Fund increased slightly from 43.5 years to 44.1 years, resulting in a small increase in the liabilities and the future service contribution rate, all else being equal. In practice though, the impact of this is negligible and it is the change in the valuation basis and methodology that has led to a significant increase in the required contribution rate.

In the future, this standard required contribution rate may change if:

- there is any change in the Fund's benefit structure;
- the membership profile of the Fund changes materially; or
- the assumptions and method used at future valuations are different from those used for the current valuation.

#### **4.1.3 Pay-as-you-go benefits (current cost benefits)**

Current cost benefits are those benefits which are funded on a pay-as-you-go-basis. This means that the actual total annual cost of these benefits is paid from the contributions received in that year. No reserves are built up in the Fund in respect of these benefits.

We note that in the previous valuation basis, the death-in-service lump sum and funeral benefits were funded on a current cost basis. In the current valuation however, we have allowed for these benefits to be calculated on a funded basis (i.e. partially funded in the past service reserves and the balance funded in the required contribution rate.) This is in order to ensure consistency of the funding of the lump sum death benefits with the funding of the ill-health lump sum amounts and the funding of the death-in-service spouse's pension.

The change has resulted in an increase in the past service liability and a corresponding reduction in the future service contribution rate in respect of death benefits.

#### **4.1.4 Expenses**

The future expenses of the Fund are not funded out of any specific reserve. As such an allowance for the expenses of administration incurred by the Fund equal to 0.3% of pensionable salaries has been included in the assessment of the required contribution rate. This expense allowance is based on the budgeted expenses for the year following the valuation date.

The budgeted expenses do not include an allowance for the investment management fees which are deemed to be included in the discount rate.

## **4.2 Summary of the valuation basis**

In the case of in-service members and pensioner liabilities, the value of the liability depends upon, *inter alia*, the future:

- investment returns;
- salary increases (pre-retirement) and pension increases (post-retirement);
- mortality (pre and post retirement); and
- retirement rates (including ill-health retirement).

The actuarial valuation basis is set on a *best estimate basis*, meaning that there is a 50% chance that the assumptions will be too conservative or too optimistic. To the extent that the actual experience of the Fund differs from the valuation assumptions, a surplus or deficit will arise.

A detailed analysis of the best estimate assumptions made in the valuation of the Fund is set out in Appendix D.

#### **4.2.1 Financial Assumptions**

A summary of the best estimate financial assumptions, with a comparison to the previous valuation assumptions, is indicated in the following table.

<b>Financial Assumptions</b>	<b>Best Estimate 31 March 2012</b>	<b>Best Estimate 31 March 2010</b>
Net long-term investment return (A)	11.20% p.a.	10.70% p.a.
Long-term salary increases (B)	7.70% p.a.	6.70% p.a.
Long-term inflation (C)	6.70% p.a.	5.70% p.a.
Pension increases (80% x C) (D)	5.40% p.a.	4.60% p.a.
<b>Net pre-retirement discount rate <math>[(1+A)/(1+B)]-1</math></b>	<b>3.25% p.a.</b>	<b>3.75% p.a.</b>
<b>Net post-retirement discount rate <math>[(1+A)/(1+D)]-1</math></b>	<b>5.50% p.a.</b>	<b>5.83% p.a.</b>

The table reflects a decrease in both the net pre-retirement and post-retirement discount rates, which will result in, all else being equal, an increase in the past service liabilities and required contribution rate.

#### **4.2.2 Demographic assumptions**

Towers Watson has not as yet had the opportunity to interrogate the experience of the Fund as far as the demographic assumptions are concerned. Our proposal is therefore to retain the demographic assumptions that were used in the previous valuation.

Following the completion of the 2012 valuation, we would propose to undertake a full investigation into the decrement experience of the Fund. Following this investigation, a comprehensive review of the decrement assumptions can be made.

We propose further that the family statistics assumptions (e.g. proportion of members married at retirement and the age difference between husband and wife) be retained for the current valuation, but be included in the above investigation.

The demographic assumptions are discussed in greater detail in Appendix D.

## Section 5: Funding Policy and Objectives

Rule 7.2 of the Fund's Rules requires that employer contributions should be sufficient to ensure that the Fund is able to meet its obligations at all times, subject to a minimum funding level of 90%.

In line with the point above, the Fund's Board of Trustees has adopted a funding level policy (effective 24 August 2009) which provides guidance on when to recommend contribution increases or reductions, and when to consider benefit improvements. The following definitions are used in the funding level policy to describe the manner in which it is to be applied:

**Minimum Funding Level:** The ratio of the market value of the Fund's assets to its liabilities, calculated on a best estimate basis with no contingency reserves, no margins for conservatism and excluding any solvency reserves.

**Long-Term Funding Level:** The ratio of the market value of the Fund's assets to its liabilities, calculated on a best estimate basis with realistic contingency reserves, no margins for conservatism and including the realistic value of the Fund's solvency reserves. The solvency and contingency reserves determined should be those which the Trustees deem to be realistic in the long-term (without undue margins of conservatism).

**Maximum Funding Level:** The ratio of the market value of the Fund's assets to its liabilities, calculated on a best estimate basis with solvency and contingency reserves which may include conservative provisions. The intention is that the excess of assets over the liabilities plus reserve balances on this basis is unlikely to be required to ensure the future solvency of the Fund.

One of the funding objectives outlined in this policy is to ensure that after allowing for market volatility over a three-year period, the minimum funding level does not fall below 90%. If it does fall below 90%, then the employer will have to increase its contributions to the Fund to restore the minimum funding level to at least 90% within three years. The minimum funding objective is considered to be the Fund's primary funding objective.

The Fund will also strive to maintain the long-term funding level at or above 100%. If after allowing for market volatility over a three year period the long-term funding level is above 100%, the Trustees can consider granting pension increases greater than the minimum increases (as per rule 23.2) or other benefit improvements. If the long term funding level is below 100%, the trustees will consider taking steps to correct this in the medium term. This can be considered as the Fund's secondary funding objective.

## Section 6: Contingency Reserve Accounts

The Trustees have deemed it appropriate, on the advice of the valuator, to establish a number of contingency reserve accounts. Some of these reserve accounts are reflected in the Fund's financial statements and the others are reflected in the valuation report alone.

Full details of the assumptions and motivations for the various reserve accounts can be found in Appendix F. We have reflected below, the level of the various accounts and the degree to which these reserve accounts can be funded at the current and previous valuation dates:

Contingency Reserve Accounts	31 March 2012 (required) R million	31 March 2012 (established) R million	31 March 2010 (required) R million	31 March 2010 (established) R million
Contributing member data (Appendix F1)	10 050	10 050	23 679	23 679
Pensioner data (Appendix F1)	-	-	1 264	1 264
Discriminatory practices reserve (Appendix F2)	4 711	4 711	4 936	4 936
Solvency reserve (Appendix F3)	254 000	14 954	208 000	
100% CPI Reserve (Appendix F5)	183 553	10 808	118 129	64 282 (across the 3 reserves)
Mortality Improvement (Appendix F6)	26 628	1 568	18 748	
<b>Combined Reserves</b>	<b>478 942</b>	<b>42 091</b>	<b>374 756</b>	<b>94 161</b>

The reserve accounts reflected in Appendix F1 and Appendix F2 have been funded in full, whilst the reserves in the balance of the sections have been funded to the extent affordable, some 5.9%.

## Section 7: Valuation Results

In considering the results of the valuation it is important to separate past service accrued benefits (i.e. service rendered up to the valuation date) from future service (i.e. service to be rendered after the valuation date). The accrued service actuarial liabilities and determination of the required contribution rates are set out in detail in Appendix G.

### 7.1 Past Service: Financial Status

In respect of past service, the value of the accrued service actuarial liability is compared with the fair value of the assets at the valuation date.

The accrued service actuarial liability is the amount of money that would be required in the Fund at the valuation date to fund existing pensions and to provide the existing members with retirement benefits based on their pensionable service rendered to the valuation date and on their estimated pensionable emoluments at retirement date. In addition, allowance is made for the accrued portion of the value of the spouse's pension that applies on death, for members who die in service before retirement. No allowance is made for withdrawal from the Fund.

The difference between the fair value of the assets and the accrued service actuarial liability is the past service surplus or, if negative, the past service deficit at the valuation date. The valuation revealed a surplus of R27 330 million on the minimum funding basis and is made up as follows:

Financial position as at	31 March 2012 R'm	31 March 2010 R'm
Fair value of assets	1 038 946	801 004
Less Contributing members liability	(773 805)	(526 190)
Pensioner liability	(223 049)	(180 647)
Deferred pensioner liability	(1)	(6)
Data reserve	(10 050)	(24 943)
Past discriminatory practice reserve	(4 711)	(4 936)
<b>Past service surplus before reserves</b>	<b>27 330</b>	<b>64 282</b>
<b>Minimum funding level <sup>(1)</sup></b>	<b>102.7%</b>	<b>108.7%</b>
Less Mortality improvement reserve	(26 628)	(18 748)
Pension increase reserve (past service)	(105 614)	(70 533)
Pension increase reserve (future service)	(77 939)	(47 596)
Solvency reserve	(254 000)	(208 000)
<b>Past service surplus after reserves</b>	<b>(436 851)</b>	<b>(280 595)</b>
<b>Long term funding level <sup>(2)</sup></b>	<b>70.4%</b>	<b>74.1%</b>

Given that the full contingency reserve accounts cannot be established, we recommend that the reserves be limited to the amount available, i.e. R27 330 million.

#### 1. Minimum Funding Level

The minimum funding level at the valuation date, which is determined as the long-term funding level excluding solvency reserves and contingency reserves is 102.7% and therefore exceeds the Trustees'

targeted minimum funding level of 90%. At the previous valuation date, the minimum funding level was 108.7%.

## 2. Long-term Funding Level

If the contingency reserves are fully provided for, the long-term funding level would be 70.4% at the current valuation date, which is below the Trustees' targeted long-term funding level of 100%. The Trustees are therefore only able to establish the contingency reserve accounts to the extent of R27 330 million, some 5.9% of the required contingency reserve accounts.

The corresponding funding level at the previous valuation date, if all recommended contingency reserve were held in full, was 74.1%. Thus the Trustees were only able to establish the contingency reserve accounts to the extent of R64 282 million, some 18.6% of the required contingency reserve accounts.

## 7.2 Future Service: Required Contribution Rate

### 7.2.1 Required future contribution rate

The employer's required contribution rate, as a percentage of pensionable salaries, at the current and previous valuation dates, without having regard to the accrued surpluses, is reflected in the table below:

Required Contribution Rate	31 March 2012	31 March 2010	31 March 2009
Total required contribution rate	22.9%	21.4%	24.9%
Less: Contributions by member	(7.5%)	(7.5%)	(7.5%)
<b>Required employer contribution rate</b>	<b>15.4%</b>	<b>13.9%</b>	<b>17.4%</b>
Current employer contribution rate	13.5%	13.5%	13.5%
<b>(Excess) / shortfall between actual and required contribution rate</b>	<b>1.9%</b>	<b>0.4%</b>	<b>3.9%</b>

### 7.2.2 Breakdown of theoretical contribution rate by employer type

The theoretical underlying required contribution rates for the categories *Services* and *Other* as at 31 March 2012, reflected at the current and previous valuation dates, are shown below:

Required Contribution Rate split by employer	31 March 2012		31 March 2010	
	Services	Other	Services	Other
Funded benefits	26.5%	21.9%	23.3%	19.0%
Current cost benefits	0.3%	0.3%	2.2%	1.5%
<b>Total contribution rate required</b>	<b>26.8%</b>	<b>22.2%</b>	<b>25.5%</b>	<b>20.5%</b>
Less: Contributions by member	(7.5%)	(7.5%)	(7.5%)	(7.5%)
<b>Required employer contribution rate</b>	<b>19.3%</b>	<b>14.7%</b>	<b>18.0%</b>	<b>13.0%</b>
Actual employer contribution rate	16.0%	13.0%	16.0%	13.0%
<b>(Excess) / shortfall between actual and required contribution rate</b>	<b>3.3%</b>	<b>1.7%</b>	<b>2.0%</b>	<b>0.0%</b>

### 7.2.3 Cost of additional pensionable service for Services members

The following table provides an indication of the effect on the contribution rate in respect of members of the *Services* category, who qualify for an additional 25% enhancement to their years of pensionable service greater than 10 years. We have shown the results including and excluding the additional 25% enhancement, and at both the current and previous valuation dates:

Additional cost for Services Members	31 March 2012		31 March 2010	
	Including 25%	Excluding 25%	Including 25%	Excluding 25%
Funded benefits	26.5%	22.7%	23.3%	20.1%
Current cost benefits	0.3%	0.3%	2.2%	2.2%
<b>Total contribution rate required</b>	<b>26.8%</b>	<b>23.0%</b>	<b>25.5%</b>	<b>22.3%</b>
Less: Contributions by member	(7.5%)	(7.5%)	(7.5%)	(7.5%)
<b>Required employer contribution rate</b>	<b>19.3%</b>	<b>15.5%</b>	<b>18.0%</b>	<b>14.8%</b>
Actual employers contribution rate	16.0%	16.0%	16.0%	16.0%
<b>(Excess) / shortfall between actual and required contribution rate</b>	<b>3.3%</b>	<b>(0.5%)</b>	<b>2.0%</b>	<b>(1.2%)</b>

As indicated in the results above, the cost of the service enhancement in respect of *Services* members amounts to approximately 3.8% of pensionable salaries on the *best estimate* valuation basis. Although this is higher than the difference in contributions actually being paid by the *Services* employers (16%) and “*Other*” employers (13%), it highlights the appropriateness of the difference in contribution rates.

### 7.2.4 5% equity risk premium allowance

For purposes of testing the appropriateness of the current level of contributions as at 31 March 2012, a 5% equity risk premium over the long-term bond yield assumption was considered. The use of this assumption for determining the future funding requirements must be seen as a risk budgeting exercise for the employers. To the extent that equities over the long term earn a risk premium of 5% over bonds (i.e. experience is as assumed), the required level of contributions at the rates below would then be adequate. It should, however, be appreciated that the higher the assumed equity risk premium, the lower will be the required contribution rates, but that this also carries a greater risk of requiring additional contributions into the future should experience not be in line with that assumed:

Required Contribution Rate on 5% and 3% Equity Risk Premium	5% Equity Risk Premium		3% Equity Risk Premium (Valuation basis)	
	Services	Other	Services	Other
Funded benefits	21.0%	17.2%	26.5%	21.9%
Current cost benefits	0.3%	0.3%	0.3%	0.3%
<b>Total contribution rate required</b>	<b>21.3%</b>	<b>17.5%</b>	<b>26.8%</b>	<b>22.2%</b>
Less: Contributions by member	(7.5%)	(7.5%)	(7.5%)	(7.5%)
<b>Required employer contribution rate</b>	<b>13.8%</b>	<b>10.0%</b>	<b>19.3%</b>	<b>14.7%</b>
Actual employer contribution rate	16.0%	13.0%	16.0%	13.0%
<b>(Excess) / shortfall between actual and required contribution rate</b>	<b>(2.2%)</b>	<b>(3.0%)</b>	<b>3.3%</b>	<b>1.7%</b>

Based on the 5% equity risk premium assumption the required employer contribution rate is 13.8% for *Services* members and 10.0% for *Other* members. On this basis, there is an excess contribution of 2.2% for *Services* members and an excess contribution of 3.0% for *Other* members. We point out again the associated risks mentioned above in contributing at this reflected rate, and recommend that the risks are communicated to the employer.

Looked at a different way, for the current 16% contribution rate in respect of *Services* members to prove adequate (and other experience is as assumed), an equity risk premium of 4.2% over the long-term bond yield assumption would need to be achieved. Similarly, for the current 13% contribution rate in respect of *Other* members to prove adequate (and other experience is as assumed), an equity risk premium of 3.7% over the long-term bond yield assumption would need to be achieved.

## Section 8: Inter-valuation Experience

Even if a valuation is performed on exactly the same basis as was adopted at the previous valuation date, it is to be expected that a surplus or deficit will arise during the inter-valuation period, due to the actual experience of the various factors affecting the Fund differing to some extent from those assumed when assessing the required contribution rate and in calculating the liabilities at the previous valuation date.

It is possible to quantify these differences and, when the analysis is performed at each consecutive valuation, it assists the actuary in deciding if the particular factor giving rise to a surplus or deficit in the Fund is of a temporary or permanent nature. If it appears to be of a permanent nature, an appropriate adjustment can be made to future valuation assumptions.

The fair value surplus on the minimum funding basis was R64 282 million as at 31 March 2010. After establishing the contingency reserves at a level that was affordable the fair value surplus on the long-term funding basis was Nil as at 31 March 2010. This fair value surplus on the minimum funding basis has decreased to a level of R27 330 million as at 31 March 2012.

After establishing contingency reserves at a level that is affordable, the long-term surplus decreased to Nil as at 31 March 2012. The main factors contributing to the change in the actuarial surplus during the inter-valuation period are set out in the following table.

	Inter-valuation Period Rand million
<b>Surplus brought forward from previous valuation</b>	Nil
Interest on opening surplus	-
Change in opening surplus	(9 317)
Investment returns	28 170
Basis change	(52 748)
Methodology change	(46 669)
Employer contributions	(573)
Expense allowance	(160)
Salaries	(6 569)
Pension increases	(537)
Withdrawal profits	12 204
Retirement profits	487
Death in service strain	(3 445)
Other benefit profits	(60)
Pensioner movements	571
Reduction of contingency reserve accounts	78 541
Miscellaneous items	105
<b>Surplus at the current valuation date</b>	<b>Nil</b>

A number of the items in the table above interact with each other and should not be viewed in isolation. Specific comments relative to the more important items in the analysis of surplus are as follows:

**Change in opening surplus:**

This item has arisen as a result of changes to the valuation data effective at the previous valuation date. There have been a number of data corrections verified by the Fund's administrator. There are also a number of records that were not included in the liability at the previous valuation date which now appear in the current data.

We note that the administrator has made amendments to the members' records in respect of the change in the Non-Statutory Forces dispensation. These changes have increased the liability in respect of these members and we have offset the amount owing by the Employer against this change in data.

**Investment returns:**

A surplus arises to the extent that the investment return achieved on the fair value of the assets was greater than that assumed. The Fund has earned an approximate return, net of management fees, of 12.77% per annum over the two years ending 31 March 2012. This is in excess of the assumed discount rate (10.70%) and has resulted in a gain to the Fund. This item of surplus has been calculated based on the fair value of assets.

**Basis change:**

This item relates to the changes in the basis, in particular, the change in the net pre- and post-retirement discount rates. Both the net pre- and post-retirement discount rates have decreased, resulting in an increase in the best estimate liabilities and thus a strain to the Fund.

**Methodology change:**

During the course of the valuation, we have made changes to some of the methodology applied by the previous actuary in calculating the best estimate liability. The most significant change is the introduction into the past service liability of the accrued portion of the death-in-service lump-sum benefit. This is now funded partially in the accrued liabilities and partly in the future service contribution rate (which reduces as a result of this change).

This was done in order to achieve consistency with the funding methodology in respect of the other elements of the death benefit and the ill-health benefit.

We have also introduced an early retirement reduction table into the basis to reflect the rules of the fund on early retirement for members.

We have also changed the spouse's reversion from the 55% allowed for previously to 50% to reflect the benefit in terms of the rules of the Fund. It was felt the 55% allowance introduced a margin of conservatism which was unnecessary.

**Contributions:**

The actual contributions paid are compared with those theoretically required in terms of the standard contribution rate at the previous valuation date based on actual salaries and membership. The actual total employer contributions were less than required to fund the benefits accrued over the year. This has resulted in a strain to the Fund.

The employer contribution loss reflects the fact that the Employer is not contributing at the rate required to fund the benefits on the valuation basis, largely in respect of the *Services* members.

**Expense allowance:**

An allowance for expenses is made in the required employer contribution rate (0.2% of pensionable emoluments) as per the previous valuation. The actual expenditure for the year was more than the allowances above, resulting in a strain to the Fund. The allowance has been increased to 0.3% of pensionable salaries for the current valuation, based on the Fund's budgeted expenditure.

**Salaries:**

Salary increases granted to members during the inter-valuation period were more than expected and this resulted in a strain to the Fund. Normally excess interest earnings would cover this cost, i.e. this cost can be offset against the interest profit reflected above.

**Pension Increases:**

This item quantifies the cost of granting pension increases at a level greater than that allowed for in the actuarial assumptions. Normally excess interest earnings would cover this cost, i.e. this cost can be offset against the interest profit reflected above. The previous basis made allowance for pension increases of 4.60% per annum. The increases granted of 4.5% at 1 April 2011 and 4.8% at 1 April 2012 are slightly higher than this allowance, resulting in a strain to the Fund.

**Withdrawal profits:**

This is a large item in the two-year analysis. It may have arisen from a number of different sources (for example, the calculation of the benefits awarded in the financial statements is based on a reconciliation of the "Benefits Due Provision" exercise we conducted in the preparation of the financial statements – any changes in the methodology here will create a profit or loss). Another cause would be the change in the actuarial interest factors, and the derivation of those factors at the younger ages.

The biggest contributor to the gain arising is, in our estimation, the fact that the cash resignation benefit is significantly lower than the members' actuarial reserve at exit. Thus, members taking the cash resignation benefit will generate a surplus on exit.

This source of surplus is likely to disappear as a result of the amendment to the withdrawal benefit to reflect actuarial interest, irrespective of whether cash is taken.

**Pensioner movements:**

The pensioner movement gain arises as a result of the pensioners experiencing slightly heavier mortality than assumed over the valuation period.

**Reduction in contingency reserves:**

We have recommended that the reserves to be held in respect of possible data errors be reduced – this has generated a profit through holding lower reserves. We have also not been able to establish the full level of the required reserves (in fact, we were not able to establish the same level of reserves as held previously). We built the reserves up over the inter-valuation period using investment returns and cashflow, and then ultimately released the amount the Fund was not able to afford.

## Section 9: Certification

I certify that:

- The value of the assets of the Fund is sufficient to cover the accrued actuarial liability at the valuation date and therefore the Fund is financially sound on the minimum funding basis;
- The financial condition of the Fund has been assessed by considering the assets of the Fund in relation to its liabilities based on best estimate assumptions;
- In addition, the amount of contingency reserves to allow for some fluctuations in asset values and improvements in longevity have been determined; The Fund does not however, have sufficient assets to cover the recommended contingency reserves in full. Allowing for the contingency reserves in full will reflect a long-term funding level of 70.4%.
- Given that the valuation is of necessity based on assumptions regarding the future, the assessed value of the liabilities and contingency reserves may prove to be more or less than is required in practice.
- If the liabilities and the amount of the contingency reserves set up prove to be inadequate in future, Trustee action will be required to rectify the position. This may involve, *inter alia*, the reduction of future benefit accruals or an increase in the required contribution rate, subject to the required consultations in terms of the GEP Law.
- Subject to the above and provided that the employer contributes at a rate of 19.3% of total pensionable salaries in respect of *Services* members and 14.7% in respect of *Other* members, the financial soundness of the Fund on the minimum funding basis should be maintained until at least the next actuarial valuation of the Fund.
- The employer contributed at a rate of 16.0% of total pensionable salaries in respect of *Services* members and 13.0% in respect of *Other* members as at the valuation date. For the purpose of testing the appropriateness of the current level of contributions, a 5% equity risk premium over the long-term bond yield assumption was considered. This is a less conservative assumption than that used for valuing the past service financial position of the Fund. The use of this assumption for determining the future funding requirements must be seen as a risk budgeting exercise for the employers. To the extent that equities over the long term earn a risk premium of 5% over bonds (and experience is as assumed), a lower level of contributions would be adequate. It should, however, be appreciated that the higher the assumed equity premium the lower will be the required contribution rates but that this also carries a greater risk of requiring additional contributions into the future should experience not be in line with that assumed.

Based on the 5% equity risk premium assumption, the required employer contribution rate is 13.8% for *Services* members and 10.0% for *Other* members. On this basis there is an excess contribution of 2.2% for *Services* members and an excess contribution of 3.0% for *Other* members. To the extent that the employer is comfortable accepting this level of risk we would recommend no changes to the current contributions for the *Services* and *Other* categories. This does, however, require an appreciation by the employer of the associated risks mentioned above, and we recommend that this is communicated to the employer.

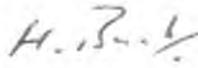
For the current 16% contribution rate in respect of *Services* members to prove adequate (and other experience is as assumed), an equity risk premium of 4.2% over the long-term bond yield assumption would need to be achieved. Similarly, for the current 13% contribution rate in respect of *Other* members to prove adequate (and other experience is as assumed), an equity risk premium of 3.7% over the long-term bond yield assumption would need to be achieved.

- The cost of the service enhancement in respect of *Services* members amounts to approximately 3.8% of pensionable salaries, which is higher than the current difference in contributions paid by and in respect of *Services* and *Other* members.
- The level of contributions should be monitored on an annual basis to ensure that it is in line with the funding level policy adopted. In line with rule 7.2, which states that the employer contributions should be sufficient to ensure that the Fund is able to meet its obligations at all times, subject to a minimum funding level of 90%, the GEPF Funding Policy adopted by the Board of Trustees requires the Trustees to ensure that the minimum funding level is above 90%. This can therefore be viewed as the primary funding objective of the Fund. The funding level of the Fund of 102.7% as at the valuation date was in excess of the minimum funding level.
- The actual contributions to the Fund must be determined by the employer in consultation with the Board and with the Minister, with due regard to the recommendations of the most recent actuarial valuation of the Fund. The Funding Policy also stipulates that the Board of Trustees should strive to maintain the long-term funding level at or above 100%. The long term funding level of the Fund at the valuation date equalled 70.4%. The Fund at the valuation date therefore meets its minimum funding level, but as the contingency reserves are not fully funded, does not meet its long-term funding objective.
- We recommend that the key demographic assumptions used for the Fund be monitored through an experience analysis exercise every three to five years. The next analysis should be completed prior to the next valuation of the Fund, and should include an investigation into any expected future mortality improvements for both active members and pensioners.
- The appropriate method of valuing assets, in conjunction with the appropriate level of solvency reserve will continue to be investigated for future valuations.
- On the basis that the Fund has met its minimum funding objectives and that the current contributions are expected to cover the cost of future benefits with specific reference to the risks mentioned above as well as the fact that the contingency reserves are only 5.9% funded, we can confirm that the Fund was in a sound financial condition as at 31 March 2012.

I also certify that:

- I am satisfied with the suitability of the Fund's investment strategy, the nature of the assets of the Fund and that the matching of the assets with the liabilities is, in my opinion, adequate.
- Given the current financial condition and size of the Fund, the self-insurance of death and ill-health retirement risks remains appropriate.

**Signature:**



**Signature:**



**Date:**

22 November 2012

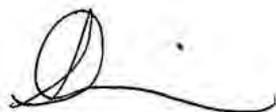
**Date:**

22 November 2012

Name: Howard Buck  
Valuator  
Qualifications: B.Sc. FASSA  
Name of Employer: Towers Watson  
Position: Associate  
Address: 1<sup>st</sup> Floor  
44 Melrose Boulevard  
Melrose Arch, 2196

Name: Kerrin Lynch  
Actuary  
Qualifications: B. Sc. FASSA  
Name of Employer: Towers Watson  
Position: Associate  
Address: 1<sup>st</sup> Floor  
44 Melrose Boulevard  
Melrose Arch, 2196

**Signature:**



**Date:**

22 November 2012

Name: Jainudin Cariem  
Actuary  
Qualifications: B. Bus.Sc. FASSA  
Name of Employer: Towers Watson  
Position: Associate  
Address: 240 Main Road  
Rondebosch  
Cape Town, 7700

*Our primary professional regulator is the Actuarial Society of South Africa*

# Appendix A: Summary of the Fund

## A.1 Definitions

Concept	Criteria	Definition
<b>Actuarial Interest</b>	Ages less than 55	$N(\text{adj}) \times \text{FAS} \times F(Z)$
<b>N(adj)</b>		Member's adjusted service at termination date
<b>F(Z)</b>	Ages less than 55	A factor determined by the Board of Trustees and the Minister of Finance acting on the advice of the Actuary
<b>FAS</b>		Average pensionable salaries during the last 24 months of pensionable service
<b>Actuarial Interest</b>	Ages more than 55	$G + A \times A(X)$ , with G and A calculated according to the formula for more than 10 years of service
<b>A(X)</b>	Ages more than 55	A factor determined by the Board of Trustees and the Minister of Finance acting on the advice of the Actuary
<b>Annuity (A)</b>	Service more than 10 years	$1/55 \times \text{FAS} \times \text{Service} + \text{R}360$ per annum
<b>Annuity (A)</b>	Service less than 10 years	Nil
<b>Gratuity (G)</b>	Service more than 10 years	$6.72\% \times \text{FAS} \times \text{Service}$
<b>Gratuity (G)</b>	Service less than 10 years	$15.5\% \times \text{FAS} \times \text{Service}$
<b>Annuity increases</b>		Determined by the Board of Trustees acting on the advice of the Actuary
<b>Pension age</b>		In accordance with service conditions. For the purposes of this valuation the pension age was assumed to be 60
<b>Pensionable Salary</b>		The basic annual salary plus any other emoluments recognised as pensionable
<b>Pensionable service</b>		Period since commencing service with the employer during which contributions were paid, including any additional service purchased and excluding any periods of leave-without-pay not allowed for in the Rules
<b>Total projected pensionable service</b>		Period from commencement of pensionable service until the normal retirement date at pension age
<b>Prospective service</b>		Period from the current age until the pension age

## A.2 Benefits

Benefit	Criteria	Definition
<b>Normal Retirement</b>	Service less than 10 years	A gratuity equal to member's actuarial interest.

Benefit	Criteria	Definition
<b>Normal Retirement</b>	Service more than 10 years	<ul style="list-style-type: none"> <li>● Gratuity (G) and Annuity (A), where:</li> <li>● G is increased by 12% for members of the SANDF who are younger than 53 years at retirement</li> <li>● In the case of <i>Services</i> members, pensionable service is increased by 25% for each year of pensionable service in excess of 10</li> </ul>
<b>Early Retirement</b>	Ages less than 60	As for normal retirement but reduced by $\frac{1}{3}\%$ for each complete month between the member's actual and normal retirement date.
<b>Late Retirement</b>	Ages more than 60	Benefits as for normal retirement but dependant on Employer approval
<b>III-health Retirement</b>	Service less than 10 years	A gratuity of 1.33 times the Gratuity G
<b>III-health Retirement</b>	Service more than 10 years	<ul style="list-style-type: none"> <li>● A gratuity of G and an annuity of A with lengths of pensionable service adjusted as below.</li> <li>● Pensionable service is increased by the smaller of five years, one third of pensionable service or prospective service</li> <li>● In the case of <i>Services</i> members, pensionable service is also increased by 25% for each year of completed service in excess of 10</li> <li>● The gratuity is increased by 12% for members of the SANDF who are younger than 53 years at retirement</li> </ul>
<b>Death benefit before retirement</b>	Service less than 10 years	A gratuity of the greater of final average salary and actuarial interest
<b>Death benefit before retirement</b>	Service more than 10 years	<ul style="list-style-type: none"> <li>● A gratuity of five times Annuity A plus a gratuity of G</li> <li>● In the case of <i>Services</i> members, pensionable service is also increased by 25% for each year of completed service in excess of 10</li> <li>● Pensionable service is increased by the smaller of five years, one third of pensionable service or prospective service</li> </ul>
<b>Death benefit before retirement</b>	Potential Service more than 10 years	<ul style="list-style-type: none"> <li>● Spouse's pension of 50% of the Annuity A</li> <li>● Pensionable service is based on full potential service</li> <li>● In the case of <i>Services</i> members, pensionable service is also increased by 25% for each year of completed service in excess of 10</li> </ul>
<b>Death benefit after retirement</b>		<ul style="list-style-type: none"> <li>● Spouse's annuity of 50% of the member's annuity, Unless the member has elected a greater spouse's annuity in lieu of a reduced current pension or gratuity.</li> <li>● If death occurs within five years of retirement, then a gratuity of the balance of five years' annuity payments, excluding the R360 per annum payment.</li> </ul>
<b>Funeral benefit</b>		A funeral benefit of R7 500 on the death of a member, pensioner or spouse and of R3 000 on the death of an eligible child or a stillborn child.

Benefit	Criteria	Definition
Orphan's pension		<ul style="list-style-type: none"> <li>● 10% of the member's annuity on the death of the member or the surviving spouse of the member subject to a minimum determined by the trustees which cannot be less than R200 per month.</li> <li>● 10% of the pensioner's annuity on the death of the pensioner. If the orphan's pension becomes payable on the death of a surviving spouse who was in receipt of a spouse's pension, the orphan's pension will be increased by the ratio of the spouse's pension at the date of his or her death to the initial spouse's pension. Effective 31 March 2009, this benefit is subject to a minimum amount determined by the Trustees, which cannot be lower than R200 per month</li> </ul>
Discharge benefit		On discharge due to abolition of post or in the interest of the employer, the benefit is as for ill-health retirement
Resignation benefit		<ul style="list-style-type: none"> <li>● On discharge due to misconduct or resignation or ill-health occasioned by own doing, a gratuity equal to 7.5% x FAS x pensionable service.</li> <li>● This is increased by 10% for each completed year between 5 and 15 years of pensionable service</li> <li>● The benefit is subject to a minimum of the actuarial interest from 1 April 2012</li> </ul>
Injury on duty		The rules specify various gratuities and annuities which are payable. These are, however, paid directly by the State and are not funded. They have been ignored for the purpose of this valuation

The above summary outlines the main benefits as they apply to the majority of members. Certain members (Directors General, teachers and SANDF members with long service, etc.) may be subject to special provisions, which have not been listed above. We understand that the number of such members is not significant in terms of the overall membership.

### Pension Increase Policy

The Board of Trustees have adopted a formal pension increase policy in order to give effect to section 25 of the GEP Law and GEPF Rule 23, to establish the pension increase that is affordable and to guide the Trustees in their determination of the annual pension increase. According to Rule 23, the Fund aims to grant minimum pension increases, if affordable, of 75% of inflation (basic increase) plus a minimum pension equal to 75% of the original pension increased with full inflation.

The GEPF Pension Increase Policy states that in making their pension increase recommendation:

*“8.2.1.1 The B&A Committee will recommend an inflation related increase, comprising of the Basic Increase and, possibly, a Further Inflation Related Increase. In considering the Further Inflation Related Increase, the B&A Committee may take account of the National Treasury's forward estimate of inflation, or anticipated general increases in public service salaries, or increases in social grants, as well as the balance in the Notional Pensioner Account.*

*If the full Basic Increase cannot be granted because of the affordability provision in 10 below, a proportionate share will be granted.*

*The B&A Committee may recommend one or more of a Catch-up Increase and a Supplementary Increase, in addition to the inflation related increase in 8.2.1.1”*

In addition, the pension increase policy states that the Trustees may approve a pension increase recommendation provided that, after the recommended increase, the Fund's funding level is higher than the minimum funding level (see Funding Level Policy below), or where the employer has committed to paying such amounts as will increase the funding level to the minimum funding level, after the recommended increase, within the next three years.

In order to allow the Trustees greater discretion in granting pension increases of 100% of CPI at times when such increases may not otherwise be affordable, an additional reserve has been established, to the extent affordable (see Appendix F).

### **A.3 Contribution Rates**

The contribution rates being paid at the current valuation date are reflected below:

<b>Contributions</b>	<b>Criteria</b>	<b>Definition</b>
<b>Member contributions</b>		7.5% of pensionable salaries
<b>Employer contributions</b>	<i>Services</i>	16% of pensionable salaries
<b>Employer contributions</b>	<i>Other</i>	13% of pensionable salaries

### **A.4 Expenses**

Running expenses are borne by the Fund. The expense budget for the year following the valuation date has been set at 0.3% of pensionable salaries.

Additional costs caused by early retirement or discharge, other than due to ill-health, are borne by the Government or the employer or both (as required in the GEP Law 17(4)).

## Appendix B: Summary of Membership and Data

### B.1 Active Member Data as at 31 March 2012

Active members	Number of members	Annual pensionable emoluments R'000	Accrued pension R'000	Average past service	Average Liability R'000
<20	503	36 481	787	0 years 9 months	18.25
20-25	32 535	3 633 010	118 905	1 years 8 months	48.09
25-30	126 914	15 818 092	1 020 062	3 years 4 months	99.10
30-35	157 872	21 233 310	2 227 146	5 years 4 months	164.68
35-40	201 442	31 552 870	5 497 584	8 years 9 months	316.75
40-45	234 831	41 193 320	10 902 554	13 years 7 months	555.60
45-50	218 810	40 758 970	13 873 912	17 years 8 months	795.36
50-55	169 838	32 645 756	13 361 742	21 years 4 months	1 042.76
55-60	110 108	20 853 237	9 628 290	23 years 9 months	1 227.17
>60	45 541	8 161 134	3 636 206	22 years 11 months	1 166.49
<b>Total</b>	<b>1 298 394</b>	<b>215 886 180</b>	<b>60 267 188</b>	<b>13 years 5 months</b>	<b>595.97</b>

### B.2 Active Member Data as at 31 March 2010

Active members	Number of members	Annual pensionable emoluments R'000	Accrued pension R'000	Average past service	Average Liability R'000
<20	900	57 421	893	0 years 6 months	8.72
20-25	34 954	3 144 825	97 450	1 years 6 months	27.23
25-30	116 487	12 077 588	710 894	2 years 11 months	58.58
30-35	152 453	18 158 574	1 863 391	5 years 1 months	112.82
35-40	210 377	29 540 092	5 422 388	9 years 3 months	245.56
40-45	232 176	35 732 174	9 585 805	13 years 10 months	412.66
45-50	201 128	32 517 510	11 007 852	17 years 7 months	585.17
50-55	152 251	24 929 422	10 019 846	20 years 10 months	766.74
55-60	94 471	14 931 914	6 656 793	22 years 8 months	894.36
>60	39 851	6 008 067	2 545 012	21 years 7 months	873.68
<b>Total</b>	<b>1 235 048</b>	<b>177 097 587</b>	<b>47 910 324</b>	<b>12 years 12 months</b>	<b>426.05</b>

A reconciliation of the active membership from 31 March 2010 to 31 March 2012 is shown below:

	Number of members	Number of members
<b>Number of members in force at 31 March 2010</b>		<b>1 235 048</b>
Data adjustments		22 978
Exits prior to 31 March 2010		(3 560)
<b>Revised number of members at 31 March 2010</b>		<b>1 254 466</b>
New entrants in the period		139 214
Exits in the period		(95 286)
Withdrawals	(57 217)	
Retirements	(29 094)	
Ill Health	(1 519)	
Deaths	(7 456)	
<b>Number of members in force at 31 March 2012</b>		<b>1 298 394</b>

### B.3 Pensioner Data as at 31 March 2012

Age group	Retired Members	Annual pension R'000	Dependants	Annual pension R'000
< 46	3 151	130 001	20 632	748 457
46-50	5 363	278 064	13 338	446 722
51-55	10 151	617 786	13 426	430 147
56-60	18 877	1 359 761	13 510	408 845
61-65	41 365	3 133 873	13 211	408 827
66-70	53 317	3 465 797	13 108	456 895
71-75	43 588	2 787 163	13 019	511 357
76-80	25 096	1 775 011	11 439	535 571
81-85	13 709	1 154 059	9 167	500 793
>85	8 290	775 740	7 640	450 186
<b>Total</b>	<b>222 907</b>	<b>15 477 255</b>	<b>128 490</b>	<b>4 897 800</b>

### B.4 Pensioner Data as at 31 March 2010

Age group	Retired Members	Annual pension R'000	Dependants	Annual pension R'000
< 45	3 974	147 004	19 018	598 857
46-50	6 219	291 950	11 154	324 479
51-55	11 116	621 900	11 670	328 934
56-60	17 345	1 071 859	11 558	311 325
61-65	35 169	2 192 052	12 197	347 870
66-70	50 363	2 875 682	12 222	399 172
71-75	42 053	2 479 052	12 762	466 010
76-80	23 495	1 556 713	11 150	492 500
81-85	13 718	1 078 942	9 323	462 388
>85	8 479	714 257	8 041	433 292
<b>Total</b>	<b>211 931</b>	<b>13 029 411</b>	<b>119 095</b>	<b>4 164 827</b>

**B.5 Suspended Pensioner Data as at 31 March 2012 and 31 March 2010**

Age group	Suspendeds 2012	Annual pension 2012 R'000	Suspendeds 2010	Annual pension 2010 R'000
< 45	611	14 775	1 145	22 486
46-50	407	8 789	608	11 507
51-55	409	8 073	629	13 050
56-60	483	9 587	692	11 971
61-65	617	11 511	929	17 816
66-70	704	11 961	1 210	20 981
71-75	640	10 542	837	14 590
76-80	487	9 242	547	9 400
81-85	398	9 048	450	9 082
>85	385	14 150	480	14 873
<b>Total</b>	<b>5 141</b>	<b>107 678</b>	<b>7 527</b>	<b>145 756</b>

A reconciliation of the pensioner and suspended pensioner data from 31 March 2010 to 31 March 2012 is shown below:

	Pensioners	Suspended Pensioners
<b>Number of pensioners at 31 March 2010</b>	<b>331 026</b>	<b>7 527</b>
Deaths prior to 1 April 2010	(3 115)	-
New pensioners prior to 1 April 2010	10 835	-
<b>Revised number of pensioners at 31 March 2010</b>	<b>338 746</b>	<b>7 527</b>
New pensioners	43 685	-
Suspended pensioners reinstated	2 749	(2 749)
New suspended pensioners	(2 816)	2 816
Deaths of pensioners/suspended pensioners	(25 690)	(2 453)
<b>Number of pensioners at 31 March 2012 *</b>	<b>356 674</b>	<b>5 141</b>

\*Includes 5 277 pensioners that were reflected as retirements or dependants of members who died in service, that were not included in the pensioner data provided. This is largely due to a timing issue – the member has retired but the pension has not yet been set up.

**B.6 Deferred Pensioner Data as at 31 March 2012 and 31 March 2010**

A reconciliation of the deferred pensioner data from 31 March 2010 to 31 March 2012 is shown below:

	Number of deferred pensioners	Number of deferred pensioners
<b>Number of deferred pensioners at 31 March 2010</b>		<b>16</b>
Adjustments for non Fund deferred pensioners*		(2)
<b>Revised deferred pensioners at 31 March 2010</b>		<b>14</b>
New entrants in the period		-
Exits in the period		(3)
Retirements	(2)	
Deaths	(1)	
<b>Number of deferred pensioners at 31 March 2012</b>		<b>11</b>

\*These are in respect of deferred pensioners that were incorrectly included in the 2010 data. After consultation with the administrator they have confirmed that these are not Fund deferred pensioners.

**B.7 Comparative Data**

	31 March 2012		31 March 2010	
	Number of members	Annual emoluments / pension R'000	Number of members	Annual emoluments / pension R'000
<b>Active Members</b>				
Males	565 358	96 308 168	546 927	80 212 299
Females	733 036	119 578 012	688 121	96 885 288
<b>Total</b>	<b>1 298 394</b>	<b>215 886 180</b>	<b>1 235 048</b>	<b>177 097 587</b>
<b>Active Members</b>				
Services	202 682	34 339 895	225 168	29 434 475
Other	1 095 712	181 546 285	1 009 880	147 663 112
<b>Total</b>	<b>1 298 394</b>	<b>215 886 180</b>	<b>1 235 048</b>	<b>177 097 587</b>
<b>Pensioners / Widow(er)s</b>				
Males	112 936	9 202 533	109 661	8 083 990
Females	238 461	11 172 522	221 365	9 110 248
<b>Total</b>	<b>351 397</b>	<b>20 375 055</b>	<b>331 026</b>	<b>17 194 238</b>
<b>Suspended Pensioners</b>				
Males	1 783	44 116	2 651	60 079
Females	3 358	63 562	4 876	85 677
<b>Total</b>	<b>5 141</b>	<b>107 678</b>	<b>7 527</b>	<b>145 756</b>
<b>Deferred Pensioners</b>				
Males	11	203 585	15	497 461
Females	-	-	1	7 950
<b>Total</b>	<b>11</b>	<b>203 585</b>	<b>16</b>	<b>505 411</b>

We have performed a number of reasonability and consistency checks on the data provided by the administrators as well as a comparison of the data used as at 31 March 2010, the previous valuation date with that provided as at 31 March 2012, the current valuation date. These are discussed below per the different types of membership.

## **B.8 Active Member Data Checks**

### **Membership build-up and adjustments**

A breakdown of the membership reconciliation is provided above. This was used to confirm that the total number of members at the previous valuation, plus any new entrants, less any exits (including S-cases) during the valuation period, match the total membership as at the current valuation date. The build-up had to be adjusted by 19 418 contributing members at the previous valuation date and 22 031 contributing members at the current valuation date.

The adjustment of contributing members is a net adjustment comprised of the following components:

- There were 22 978 contributing members who appeared in the 2012 data set, but who were not included in the 2010 data set as either contributing members or exited members. These members have been included in the number of members at the start of the period.
- There were 3 560 contributing members who were included in the 2010 final valuation data used by the previous actuaries to the Fund, but were in actual fact exited members prior to 31 March 2010 according to the S-case data files provided over the valuation period. These members were excluded from the number of contributing members at the start of the period.
- There were 24 293 contributing members in the 2010 final valuation data used by the previous actuaries to the Fund, who were not included in the data set used in the valuation as at 31 March 2012. These were members whose records disappeared during the inter-valuation period and were not part of exited members records. Furthermore 2 395 of these members exited the Fund during the valuation period as per the S-case data files provided. The remaining members were added to the number of contributing members at the end of the valuation period.
- There were 133 members that were recorded as new entrants according to the 2011 data provided but were not included in the 2012 data set as either actives or exited members. These members have been included in the number of contributing members at the end of the period.

### **Static data checks**

The table below shows the changes and problems in respect of static data between the current and previous valuation dates, 31 March 2012 and 31 March 2010, respectively.

<b>Changes in static data from previous to current valuation date</b>	<b>Total</b>
Date of birth	723
Gender	175
Pensionable service date prior to date of birth	7
Pensionable service date	12 688

The changes on the above have been queried with the administrators of the Fund. In responding to our queries, the administrators of the Fund have confirmed that these changes were part of the data cleaning operation that took place during the inter-valuation period.

**Former NSF Members**

We note that there was an adjustment to the purchase of service in respect of former NSF members during the valuation period, as it was expected to take place. We have checked that the purchase of service provided by the administrators of the Fund is consistent to what was calculated by the previous actuaries, in respect of those members who formed part of the valuation membership. Our checks revealed some differences, which might be due to rounding error on the administrators' system – the differences were more evident in respect of members with purchase of service of below one year (the administrators' data reflected nil additional service in respect of members with less than six months purchase of service and one in respect of members with more than six months and less than a year as per the previous actuaries' calculated purchase of service).

**Checks on date of birth and gender to those implied by member's identity number**

Approximately 99% of the valuation data provided by the administrators of the Fund contained a valid identity member number. We have performed reasonability checks on the date of birth and gender provided in the valuation data to those implied by the member's identity number. As a result, members' dates of birth and genders provided in the valuation data appeared to be reasonably consistent with those implied by the members' identity numbers.

**Missing data**

The table below shows the number of missing data within each data entry as at 31 March 2012, the current valuation date.

Description	Total
Date of birth	11
Gender	10
Pensionable service date	50

The above queries have been raised with the administrators of the Fund and were resolved to a satisfactory level.

**Dates outside of a reasonable range**

The table below shows the number of in-service data entries outside of a reasonable range as at 31 March 2012, the current valuation date.

Description	Range	Total
Date of birth	Before 1 Apr 1937 or after 1 Apr 1996	758
Pensionable service date	Before 1 Apr 1962 or after 1 Apr 2012	83

The above were not queried with the administrators of the Fund for two reasons: the administrators noted these anomalies in their admin data report they provided to us and also these were consistent with what the previous actuaries used as at 31 March 2010, the previous valuation. Therefore, we treated the above dates as being correct.

## Salaries and Contributions checks

### Salaries

The table below shows the number of invalid or unreasonable salaries based on the data provided by the administrators of the Fund as at 31 March 2012, the current valuation date.

Description	Total
Manual Contributors (zeros or ones salaries)	18 759
Other Contributors with salaries below R55 000 per annum	10 180

The administrators of the Fund confirmed that the salaries with zeros or ones are in general manual contributors. We have therefore, assumed the average salary of the Fund in respect of these members for the purpose of our valuation. With regard to salaries below R55 000 per annum, we have adjusted the salaries to reflect the minimum of R55 000 per annum. The minimum salary of R55 000 per annum was provided by the administrators of the Fund, which is consistent to what the previous actuaries used as at 31 March 2010 together with average salary increases granted during the valuation period.

### Contributions

The table below shows the salaries including the valuation data salaries adjustments and assumptions as well as salaries implied by the contributions in the financial statements of the Fund as at 31 March 2012, the current valuation date.

Description	Total (R' m)
Salaries – Implied following the adjustments and assumptions	205 733
Salaries – Contribution implied salaries taken from the financial statements	210 156

It is difficult to draw substantive conclusions based on the above reasonability checks. The valuation data would reflect salaries at a point in time (i.e. the valuation date) while contributions implied by the financial statements would reflect the salaries during the financial year (i.e. including those of members who exited during the financial year). However, we do not expect significant differences between the two numbers for a fund such as GEPF and the amounts are not unreasonable.

## B.9 Pensioner Data Checks

### Membership build-up and adjustments

We performed a reconciliation of pensioners and suspended pensioners. This was used to confirm that the total number of pensioners and suspended pensioners at the previous valuation, plus any new pensioners and suspended pensioners reinstated, less any deaths and new suspended pensioners, match to the total number of pensioners and suspended pensioners as at the current valuation date. We have adjusted the pensioner membership provided by the administrators of the Fund at the beginning and at the end of the valuation period by 7 720 and 8 963 respectively.

The adjustment to the pensioners is a net adjustment comprised of the following components:

- There were 10 835 pensioners in the 2012 data set with dates of commencement of pensions prior to 1 April 2010 and who were not included in the data set used in the valuation as at 31 March 2010. These pensioners were added to the number of pensioners at the start of the valuation period.
- There were 3 115 pensioners who appeared in the March 2010 data set, but who had dates of death prior to 1 April 2010 according to the 2012 data. These pensioners have been removed from the number of pensioners at the start of the period.
- There were approximately 4 321 members that appeared in the active valuation data as retirements during the valuation period with more than 10 years of pensionable service and had not been reflected in the pensioner data as new pensioners by 31 March 2012. Furthermore it was approximated that some 956 spouses in respect of members who died in service had not been classified as pensioners by 31 March 2012. These retirements and spouses were added to the number of pensioners at the end of the valuation period.
- There were 8 846 principal pensioners who were identified with termination dates in the pensioner data file. Furthermore there were 5 903 members that appeared as both active pensioners and as suspended pensioners (according to the full suspended data file), with their suspension date being later than the last payment date in the pensioner data file. These pensioners were removed from the pensioner data set at the end of the period.
- There were 740 pensioners who appeared in the 2010 data set, but who were not included in the 2012 data set as either current pensioners or exits. Following discussions with the administrators of the Fund, 500 out of the 740 pensioners were included in the 2012 data as current pensioners.
- There were 9 pensioners that were removed from the final 2012 data set due to inconsistencies in their data, subsequent to them being queried.

### Static Data Checks

The table below shows the changes in respect of pensioners' static data between the current and previous valuation dates, 31 March 2012 and 31 March 2010, respectively.

Changes on static data from previous to current valuation date	Pensioner	Suspended pensioner
Date of birth	253	-
Gender	103	-
Pension commencement date	1 811	22
Pensioner status	60	-

### Checks on date of birth and gender to those implied by member's identity number

We have performed reasonability checks on the changed dates of birth and gender provided in the pensioner data to those implied by the pensioner's identity number and these were queried with the administrators of the Fund where they did not correspond.

All changes of pension commencement date and pensioner status have been queried with the administrators of the Fund. In responding to our queries, the administrators of the Fund have confirmed that these changes were part of the data cleaning operation that took place during the current valuation period. All changes have been either verified or corrected.

There were 1 163 pensioners whose gender differs from that implied by their Identity Number. Following our query, the administrator of the Fund has requested us to base the valuation on the gender implied by their ID number.

### Missing data

The table below shows the number of pensioners with data missing as at 31 March 2012, the current valuation date. Following our query, the administrators of the Fund has provided us with updated data.

Description	Total
Pensioner status	63
Last pension payment	334

### Dates outside of a reasonable range or invalid

The table below shows the number of pensioners with data outside of a reasonable range as at 31 March 2012, the current valuation date.

Description	Pensioner	Suspended pensioner
Retired members with age at pension commencement date < 16	49	8
Retired members with age at pension commencement date >70	944	42
New spouses pensioners with incorrect pension commencement dates	8 193	-

The above were queried with the administrators of the Fund. According to discussions with the administrator, retired members with age at pension commencement less than 16 are either Ciskei child pension or orphans pension paid on the main member's record. For retired members with age at pension commencement older than 70, sample cases were checked by the administrators of the Fund and proved to be correct according to the information available them.

There were 4 pensioners and 2 suspended pensioners with pension commencement dates prior to their dates of birth. This has been discussed with the administrator of the Fund and updated information has been provided.

There were 8 193 spouses' pensioners whose pensions commenced during the valuation period, however their pension commencement dates were prior to 1 April 2010. After consulting with the administrator it was resolved that the pension commencement date for these spouses actually related to the original pensioner that now has died. For valuation purposes the pension commencement date for these new spouses has been set to the month end of the date on which the original pensioner died or to 1 April 2011 if the dates of death of the original pensioners were unknown.

## Pension payment checks

We have performed the following checks on pension payments:

### *Consistency check with pension payments in financial statements*

A comparison of the pension payments in the financial statements to the total pensions in the valuation data as at 31 March 2012 is shown in the table below:

	R'm
Accrued pensions in financial statements	19 263
Pensions in valuation data after adjustments	20 375

The difference above indicates that the amount used for the valuation is slightly higher than that implied by the financial statements, which would be expected due to the fact that the figure shown in the financial statement is the total of all the pension payments made during the financial year whereas the valuation data includes pensions at the last payment date.

### *Consistency check with pension payment at previous valuation date*

We have checked the consistency on pension payment data between the current and previous valuation dates, 31 March 2012 and 31 March 2010 respectively. We have queried the pension payments for the 1 570 pensioners that differed by more than 5% from 2010 data after applying pension increases.

The administrators of the Fund confirmed that one reason for the differences in the 2010 and 2012 pension was due to recalculations being performed and the pension adjusted accordingly. The second reason is related to the fact that pensioners can receive two pensions: an annuity from the Fund, and an additional or supplementary amount paid from another related fund (81 Fund – Military). Only the last payment made was extracted in the valuation data. All 1 570 pension payments have either been verified or corrected.

We note however that we are concerned that there are pensioners outside of the 1 570 queried above, that could have payments reflected in our valuation data that are in respect of the other related fund (81 Fund – Military) and not the GEPF. The administrator will need to verify these payments going forward.

### *Reasonable range*

Since there is no minimum pension that applies to the Fund, we have requested the administrators of the Fund to sample test 20 retired members and spouses receiving extremely low pension payment. The administrators of the Fund confirmed the pension payment is correct. For retired members, the low pension payment is from another fund that has been taken over by GEPF. For spouses the pension payment has been divided between multiple spouses depending on marriage type.

## Suspended pensioners data filtering

The suspended pensioner file was reconciled as follows:

Description	Number of records	Balance of records
Full dataset	17 785	17 785
Pensioners who are deceased and fully paid	(455)	17 330
Orphans pensions over age 21	(705)	16 625
Duplicate records	(305)	16 320
Records suspended for more than 5 years	(11 179)	5 141
<b>Suspended pensioners used</b>		<b>5 141</b>

### B.10 Additional checks

For each of the contributing members in our data files, we checked for missing dates of birth, dates of pensionable service, gender, salary and service type. We performed the following reasonability checks:

- Dates are valid
- Dates in logical order
- Ages in reasonable ranges
- Pensionable service in reasonable ranges
- Pensionable salaries in reasonable ranges
- Pensions in reasonable ranges
- Date of birth and gender corresponds to that implied by the member identity number, where applicable

We have calculated the following members' statistics and checked them for reasonability. We have also compared these with the previous valuation and between member classes in the current data:

- Average age and salary weighted age
- Average pensionable salary
- Average pensionable service
- Average contributions

We calculated similar statistics for the pensioners and compared them with the previous valuation and again between pensioner classes:

- Average age and pension weighted age
- Average pension
- Check spouse/former member ratio

A comparison of the investment income shown in the accounts with the expected rates of return on assets at the previous valuation was performed.

We checked the number of members that retired compared to the number of new pensioners.

We also checked that the number of former members' deaths compares to the number of new spouses.

We have checked a number of statistical distributions, for example of membership by age, etc.

We compared the market value of the assets as supplied by the Fund's asset consultants with the value in the financial statements.

We compared the contributions made by the members to the contributions made by the employers.

## **B.11 Conclusion**

Concerns still exist regarding data quality, e.g. the data adjustments necessary in the pensioner and membership build-up from the previous valuation, the results of the 'S'-case investigations, and the understatement of pensioner deaths/suspensions. It was therefore decided to maintain data contingency reserves as outlined in Appendix F of the report.

However we acknowledge that the steps taken by the administrator over the valuation period in order to ensure a better level in the quality of data provided was achieved. Furthermore we recognise the potential initiatives to be taken by the administrator going forward to minimise data issues.

Allowing for these data contingency reserve adjustments, we are generally satisfied with the overall appropriateness of the data for the purpose of calculating the Fund's liabilities.

## Appendix C: Consolidated Revenue Account

A reconciliation of the movement of the revenue account over the inter-valuation period is set out below:

	R'm		R'm
<b>Fund as at 31 March 2010</b>	<b>801 004 112</b>		
<b>Inflows:</b>		<b>Outflows:</b>	
Prior year adjustment - benefits	16 988	Pensions paid	37 887 566
Member contributions	30 036 655	Gratuity payments	9 394 281
Purchase of service	154 150	Withdrawal benefits	11 201 430
Transfers received	69 049	Death benefits	7 966 890
Employer contributions	60 575 220	Retrenchment benefits	483 363
Income from investments	60 024 008	NSF benefits	1 119 035
Adjustment to Fair Value of investments	163 020 198	Transfers out	210 582
		Other benefits	84 962
		General administration expenses	947 917
		Investment management fees	3 211 670
		Interest paid	3 446 487
		<b>Fund as at 31 March 2012</b>	<b>1 038 946 197</b>
	<b>1 114 900 380</b>		<b>1 114 900 380</b>

The above table represents a reconciliation of the net assets of the Fund from the previous to the current valuation date, including the movement of the Fund's reserve accounts as reflected in the audited financial statements.

## Appendix D: Valuation Basis and Method Adopted

The present value placed on the future payment of accrued defined benefit liabilities depends on the assumptions made in respect of the future experience of members and pensioners. Consistent with the previous valuation and the requirements of Professional Guidance of the Actuarial Society of South Africa, best estimate assumptions have been used for the calculation of the defined benefit liabilities for this valuation.

This appendix deals with the methodology and actuarial assumptions used in the valuation of the defined benefit member and pensioner liabilities of the Fund as at 31 March 2012 (with comparatives being provided at the previous valuation date).

### D.1 Investment Returns, Salary Increases and Pension Increases

The accrued liabilities have been calculated as the present value of the benefits that have accrued to defined benefit members in respect of service to the valuation date, allowing for future salary increases, expected benefit payments prior to retirement, and for pension increases payable after retirement on a basis consistent with past practice and with communication to members and pensioners.

The contribution rate for future service pension benefits (including withdrawal, death-in-service and normal/early/ill-health retirement pensions) for the active members has been established by calculating the contribution rate that is required in respect of benefits accruing over the two years following the valuation date with salaries being projected to retirement date for pension benefits. This method, the Projected Unit Method, produces an accurate estimate of future service costs provided new entrants enter and exits leave the Fund at such a rate that its composition by age, salary and gender remains stable and provided the actual experience does not differ markedly from the assumptions made.

## D.2 Investment Returns, Salary Increases and Pension Increases

The best estimate financial assumptions adopted have been set as follows:

Valuation assumptions	Best estimate 2012 valuation	Best estimate 2010 valuation
Long-term inflation	6.7%	5.7%
Yield on nominal bond for appropriate duration	9.4%	9.1%
Less yield on index-linked bond	(2.5%)	(3.4%)
Less Inflation Risk Premium	(0.2%)	(0.0%)
<b>Pre-retirement discounting</b>		
Net long-term investment return (A)	11.2%	10.7%
Gross return on nominal bond	9.4%	9.1%
Equity Risk Premium (based on a 3% ERP) <sup>(1)</sup>	1.8%	1.6%
Long-term salary increases (B) <sup>(2)</sup>	7.7%	6.7%
In excess of inflation	1.0%	1.0%
Inflationary increase	6.7%	5.7%
<b>Interest / salary differential [(1+A) / (1+B)] -1</b>	<b>3.25%</b>	<b>3.75%</b>
<b>Post-retirement discounting</b>		
Long-term investment return (A)	11.2%	10.7%
Pension increases (80% of long term inflation) (C)	5.4%	4.6%
<b>Net post retirement valuation rate [(1+A) / (1+C)] -1</b>	<b>5.50%</b>	<b>5.83%</b>

Note (1): It is our understanding that the allocation to equities has increased from 55% to 60%, thus increasing the ERP from 1.6% (being 3.0% x 55%) to 1.8% (being 3.0% x 60%). It is assumed that this allocation of 60% is applicable to both the active members and the pensioners.

Note (2): The actual salary increase awarded at May 2012 of 7.0% has been explicitly allowed for and the long-term assumption is then applicable from the following year.

For the purposes of the above calculations, the yields were estimated from the yield curve at the valuation date, taking consideration of the duration of the Fund's active member liabilities. It was considered reasonable to apply the same yield to both the active members and the pensioners as the impact of using different valuation bases was small.

The allowance for future inflation is the difference between the nominal and index linked bonds yields viz. {9.40% - 2.50%} = 6.90%. The result is reduced by an assumed inflation risk premium of 0.20%.

It can be seen from the above table that both the net pre- and post-retirement discount rates have decreased, resulting in an increase in the best-estimate liabilities, all else being equal.

### D.3 Promotional Salary Increases

In addition to the salary inflation assumed, merit and promotional increases have been assumed as follows:

Age	Other %	Services %
20	10.0	5.9
25	8.0	4.6
30	5.0	3.8
35	2.9	3.2
40	2.0	2.3
45	1.5	1.4
50	1.4	1.0
55	1.1	1.0

The scale of promotional increases is the same as that used for the previous valuation.

### D.4 Pension Increases

The liabilities in respect of pension payments have been discounted at a rate of 5.50% per annum.

The allowance for pension increases depends on the reasonable expectations of pensioners and on the pension increase policy adopted and implemented in accordance with the requirements of Rule 23 of the Fund. The pension increase policy targets pension increases of 75% of the increase in the consumer price index subject to a minimum pension equal to 75% of the original pension increased with full inflation, further subject to the affordability thereof. We have assumed that this can be represented by a pension increase of 80% of the inflation rate.

### D.5 Demographic Assumptions

We have not as yet, had the opportunity to interrogate the experience of the Fund as far as the demographic assumptions are concerned. Our proposal is therefore to retain the demographic assumptions as was used in the previous valuation basis.

Following the completion of the 2012 valuation, we would propose to undertake a full investigation into the decrement experience of the Fund. Following this investigation, a comprehensive review of the current decrement assumptions can be undertaken.

A sample of the independent decrement tables that were used in the current valuation is shown as follows:

**Pre-retirement mortality rates**

Age	Male Services %	Female Services %	Male Other %	Female Other %
20	0.09	0.14	0.08	0.15
25	0.23	0.15	0.13	0.18
30	0.38	0.16	0.22	0.21
35	0.47	0.17	0.32	0.22
40	0.54	0.17	0.41	0.22
45	0.59	0.21	0.51	0.23
50	0.69	0.27	0.63	0.27
55	0.84	0.32	0.83	0.33
60	1.01	0.37	1.06	0.40
65	1.20	0.45	1.27	0.49

**Post-retirement mortality rates**

Age	Males %	Females %
50	2.00	0.86
55	2.00	0.92
60	2.00	1.04
65	2.28	1.29
70	3.24	1.66
75	4.85	2.24
80	7.44	3.42
85	12.01	5.82
90	18.60	9.89

**III-health retirement rates**

Age	Male Services %	Female Services %	Male Other %	Female Other %
20	0.00	0.00	0.00	0.00
25	0.02	0.01	0.00	0.01
30	0.11	0.08	0.02	0.02
35	0.24	0.16	0.05	0.05
40	0.43	0.26	0.11	0.11
45	0.72	0.48	0.21	0.20
50	1.15	0.70	0.38	0.35
55	1.79	0.86	0.64	0.60
60	2.31	0.94	0.76	0.75
65	2.39	0.53	0.00	0.00

**Normal health retirement rates**

Age	Male Services %	Female Services %	Male Other %	Female Other %
55	8.83	3.67	1.75	2.62
56	3.01	1.63	1.75	2.62
57	2.42	1.93	1.72	2.48
58	2.67	1.99	1.91	2.55
59	8.53	6.03	2.05	2.70
60	80.77	34.93	13.49	19.86
61	11.06	3.85	8.16	13.66
62	11.06	3.63	7.85	12.46
63	11.06	4.86	7.45	12.03
64	11.06	8.62	12.05	12.20
65	37.74	47.78	78.62	82.74

We propose further that the family statistics assumptions (e.g. proportion of members married at retirement and the age difference between husband and wife) be retained.

**Proportion married assumptions**

Age	Proportion married %
20	25.0
25	32.5
30	46.0
35	65.0
40	80.0
45	92.5
50	97.5
55	97.5
60+	97.5

We have assumed that on average a husband would be four years older than his wife.

**D.6 Expenses**

It was assumed that future administration expenses will be levied at a rate of 0.3% of payroll. This is based on the anticipated expenses as per the budget set by the GEPF and the Trustees.

**D.7 Commutation**

Members are paid a gratuity over and above their pension and no commutation of the pension is therefore allowed.

**D.8 Suspended pensioners**

Suspended pensioners have been valued on the same basis as in-force pensioners. Factors have then been applied to these calculated liabilities to allow for the reducing probability that pensions will recommence after they have been in suspension for several years. The factors applied are set in the table below:

Years on suspension at the valuation date	Percentage reinstated
0 – 1	100%
1 – 2	80%
2 – 3	60%
3 – 4	40%
4 – 5	20%
5+	0%

**D.9 Orphans' pensions**

No explicit allowance has been made in the valuation for the liability in respect of contingent orphans' pensions. Only the current orphans' pensions in payment have been included in the calculated liability.

## Appendix E: Sensitivity Analysis

The results of the actuarial valuation are dependent on a large number of assumptions regarding the financial development of the Fund. In order to provide the Trustees with an understanding of the sensitivity of the valuation results to changes in these assumptions, we have performed a sensitivity analysis. The sensitivity analysis assesses the impact on the valuation results of changes in the long-term assumptions.

The sensitivity of the long-term assumptions has been examined by varying the key differentials:

- the investment returns assumption;
- the rate of salary increase; and
- the rate of pension increases.

These variations are summarised below:

	Valuation assumption	Variation
Investment return	11.2% per annum	± 1%
Salary increase	7.7% per annum	± 1%
Pension increases	5.4% per annum	± 1%

The minimum funding level and required contribution rate under these differentials are summarised in the tables below:

### Minimum Funding Level

Assumption	-1%	Central	+1%
Investment return	87.79%	102.70%	118.69%
Salary increase	110.23%	102.70%	95.22%
Pension increases	110.15%	102.70%	95.23%

We highlight the impact of the 1% per annum change in the investment return. The valuation results are clearly sensitive to the change, and the Trustees should therefore consider this in light of the Equity Risk Premium allowed for in the valuation basis.

### Required contribution rate

Assumption	-1%	Central	+1%
Investment return	20.66%	15.38%	11.37%
Salary increase	12.69%	15.38%	18.60%
Pension increases	13.87%	15.38%	17.13%

## Appendix F: Contingency Reserves

### F.1 Data reserve

As a result of our concerns regarding the valuation data set out in Appendix B, it was deemed appropriate to maintain data reserves. The valuation liability may be understated as a result of errors or omissions in the valuation data. Although the data has been tested for overall reasonability and the administrator has undertaken an extensive exercise to improve the quality of the data, there remains the possibility that errors do exist in the data.

According to the previous valuation, the contributing member data reserve was set at 4.5% of the contributing member liability. While there are concerns over the validity of the data supplied by the administrator, we acknowledge the steps taken by the administrator over the inter-valuation period in order to ensure a satisfactory level in the quality of data provided was achieved. Furthermore we recognise the potential initiatives taken by the administrator going forward to minimise data issues. As such the contributing member data reserve has been set at a level of **1.30% of the contributing member liability** or some R10 050 million. This reserve is in respect of the following:

- Possible discrepancies between the CIVPEN and PERSAL data sets. The data is generally only adjusted when a member exits the Fund. This portion of the reserve is set at 0.75% of the contributing member liability, compared to 0.85% set at the previous valuation.
- At the previous valuation date, the previous actuaries set up a data reserve of 1.95% of the contributing member liability for outdated salary information in respect of manual contributors. Their rationale for this reserve was that the information contained in CIVPEN in respect of manual contributors was captured when a manual contributor joined the Fund and was not updated on a regular basis thereafter. As such, the salary information for valuation purposes would be understated.

As part of the data checking process during the current valuation, we checked the salary levels provided by the administrator (allowing for adjustments up to the minimum salary level) to the salary levels implied by the contributions in the annual financial statements. We are in general comfortable with the salary information supplied by the administrator after allowing for minimum salary adjustment.

The analysis of surplus item in respect of the member contributions also suggests that the salaries used reasonably reflects the salaries on which contributions are based. We believe it is appropriate to remove the reserve established for this purpose.

- A provision in respect of the future pension payments to members classified as 'S'-cases or their spouses. In the 'S'-cases exercise carried out annually for the Fund, allowance is made for possible outstanding benefits (including pension payments) payable as at the valuation date, based on the expected exit patterns, methodology and assumptions used for the exercise. Pension payments are included from each member's date of exit until the calculation date and the total provision is reflected in the financial statements of the Fund. A reserve has been established in respect of the future pension payments payable to these 'S'-case members should they retire or their spouses' should they die in service in terms of the assumptions set out in the 'S'-cases provision exercise as at 31 March 2012. This portion of the reserve amounts to 0.55% of the contributing member liability (previously 1.7% of contributing member liability).
- At the previous valuation date, the pensioner data reserve was set at R1 264 million and represented an explicit reserve in respect of suspended pensioners who could at a later date be reinstated. For the purposes of the current valuation, the pensioner data reserve has been

removed and the liability has now been included as part of the pensioner liability of the Fund as at 31 March 2012.

## F.2 Discriminatory Practices Reserve

We have also maintained the reserve in respect of previous discriminatory practices, being the accumulated value of 1% of the funding level in 1998. The value of this reserve, as per the Fund's financial accounts, was R4 855 million at the valuation date. The change in the value of the reserve since the last valuation relates to the allowance for Fund returns as well as the release of funds in respect of a number of draw-downs which have occurred during the inter valuation period.

The reconciliation of the discriminatory practices reserves over the inter-valuation period is reflected below:

Discriminatory Practices Reserve (R'000)	Past Discriminatory Reserve	General Assistants Reserve	Ciskei Strikers Reserve	Non-Statutory Forces Reserve
Balance at start	3 670 866	75 472	136 488	1 053 304
Administrative expenditure	-	-	(22)	(779)
Benefits Paid	-	-	(9 075)	(1 119 035)
Net investment income	954 997	9 512	16 974	66 510
Methodology change	-	-	(144 365)	-
<b>Total (R'm)</b>	<b>4 625 863</b>	<b>84 984</b>	<b>Nil</b>	<b>Nil</b>

The sum of the above reserve accounts amounts to R4 711 million, differing from the financial statements by R144 365 000 (the Ciskei Striker's Reserve). To date, the Fund has at the point of paying a benefit to an exiting member impacted by the Ciskei Strike, debited the reserve account to reflect the additional benefit paid. In practice, members have already been credited in full with the additional service and in order to be consistent with the liability (which reflects the full service), the reserve account should be released.

## F.3 Solvency reserve as per asset consultants

The level of the solvency reserve that could be established in the Fund as a buffer against investment volatility has been determined by the asset consultants on the same basis as in 2006 and in 2010 on a 1 in 10 year (10%) chance of the funding level falling below a certain level. The solvency reserve at the valuation date was determined to be **R254 000 million**.

## F.4 Solvency reserve – PF 117 approach: Discontinuance matched

Pension Fund Circular 117 released by the Financial Services Board outlines an alternative basis for setting up solvency reserves within funds. An allowance is made in the solvency valuation basis for the costs of implementing and maintaining the matched investment strategy of 0.50%. This allowance is the maximum permitted in terms of PF 117.

The lowest risk investment strategy would be to match the in-service member and pensioner liabilities using index-linked bonds, without any allowance for an equity risk premium. The investment risk contingency reserve should therefore be set relative to the cost of implementing such a strategy.

Accordingly, the solvency reserve has been calculated as the difference between:

- The past service liabilities calculated on the assumption that the Fund has implemented a matched investment strategy including an allowance for adverse future mortality experience; and
- The past service liabilities calculated on the best-estimate valuation basis.

In effect the solvency reserve represents the difference in past service liabilities on a conservative basis (to protect the long term solvency of the Fund and meet the reasonable benefit expectations of members and pensioners) and the liabilities on a realistic basis. A detailed breakdown is reflected in Appendix H.

At the valuation date index-linked bonds were trading at an average yield of 2.50%. The average yield on long dated nominal bonds at this date was 9.40%.

The maximum allowance for future inflation when determining the solvency reserve is the difference between the nominal and index-linked bond yields viz. {9.40% - 2.50%} = 6.90%.

For the purposes of the above calculations, the yields were estimated from the yield curve at the valuation date, taking consideration of the duration of the Fund's active member liabilities. The solvency valuation basis is thus as follows:

Solvency basis	Solvency Basis	Best Estimate Basis
Long-term inflation	6.9%	6.7%
Yield on nominal bond for appropriate duration	9.4%	9.4%
Less yield on real bond	(2.5%)	(2.5%)
Less Inflation Risk Premium	-	(0.2%)
<b>Pre-retirement discounting</b>		
Net long-term investment return (A)	8.9%	11.2%
Gross return on nominal bond	9.4%	9.4%
Equity Risk Premium (based on a 3% ERP) <sup>(1)</sup>	-	1.8%
Cost of implementing and matching strategy	(0.5%)	-
Long-term salary increases (B)	5.8%	7.7%
In excess of inflation <sup>(2)</sup>	(1.1%)	1.0%
Inflationary increase	6.9%	6.7%
<b>Interest / salary differential [(1+A) / (1+B)] -1</b>	<b>2.9%</b>	<b>3.2%</b>
<b>Post-retirement discounting</b>		
Long-term investment return (A)	8.9%	11.2%
Pension increases (80% of long term inflation) (C)	5.5%	5.4%
<b>Net post retirement valuation rate [(1+A) / (1+C)] -1</b>	<b>3.2%</b>	<b>5.5%</b>

Note (1): It is our understanding that the allocation to equities has increased from 55% to 60%, thus increasing the ERP on the *best estimate* basis from 1.6% (being 3.0% x 55%) to 1.8% (being 3.0% x 60%).

- (2): The real salary increase in excess of inflation has been set at a level that ensures a net 1.0% pre-retirement discount rate at the age of 40, after factoring in the Other members' promotional salary scale. This is in line with the requirements of Pension Fund Circular 117 in setting a discontinuance-matched solvency reserve.

The difference between the liabilities calculated on the above two bases amounts to some R268 274 million, i.e. a solvency reserve of this amount should be held were it affordable.

## F.5 100% CPI pension increase reserve

The Trustees of the Fund have decided to set up an explicit reserve to enable them to exercise greater discretion in granting future pension increases. In line with the pension increase policy of the Fund the valuation basis targets pension increases of 80% of CPI (being the targeted increase of 75% of CPI plus a margin for the purchasing power catch-up needed to ensure that 75% of the original pension maintains 100% of CPI increases).

The pension increase reserve has been established to provide for the possibility of granting pension increases of 100% of CPI. The level of the reserve includes a provision for the increase in the contributing member and pensioner liabilities and the value of the increase in contribution rates that would be required to make an allowance to be able to grant future pension increases of 100% of CPI. Establishing an explicit reserve allows the Trustees to target this level of increase without changing the valuation basis which assumes a pension increase target of 80% of CPI, as explained in Appendix D.3 of this report.

The 100% CPI pension increase reserve amounted to R183 553 million and the following table splits this reserve into its three components:

	Total (R'm)
Contributing member liability	79 359
Pensioner liability	26 255
Contribution rate	77 939
<b>100% CPI pension increase reserve</b>	<b>183 553</b>

## F.6 Mortality improvement

Significant mortality improvements have been observed internationally and it is likely that we will follow a similar pattern in South Africa. The improvements in the mortality rates at older ages are largely through the advances of science and medicine. It would be appropriate to include an explicit allowance for mortality improvement in this valuation as was done in the previous valuation.

### Mortality improvement for contributing members

In order to make an allowance for future improvements in mortality, we have used post-retirement mortality rates for contributing members equal to the mortality rates used in the best estimate valuation basis (derived from an experience analysis performed by the previous actuaries) rated down two and a half years. i.e. we assume that a future pensioner is two and a half years younger than their actual age which allows for a longer expected lifetime. This issue will continue to be investigated for future valuations.

### Mortality improvement for current pensioners

We have used mortality rates for pensioners equal to the mortality rates used in the best estimate valuation basis (derived from an experience analysis performed by the previous actuaries) rated down one and half years. That is, we assume that pensioners are one and a half years younger than their actual age.

### Value of mortality improvement reserve

The best estimate allowance for post-retirement mortality improvements amounts to R19 817 million and R6 811 million for contributing members and pensioners respectively.

## F.7 Summary of contingency reserves

Thus, the table below sets out a summary of the various reserves that are required by the Fund. We reflect the extent to which these reserves have been established at the current and previous valuation dates:

Contingency Reserve Accounts	31 March 2012 (required) R million	31 March 2012 (established) R million	31 March 2010 (required) R million	31 March 2010 (established) R million
Contributing member data (Appendix F1)	10 050	10 050	23 679	23 679
Pensioner data (Appendix F1)	-	-	1 264	1 264
Discriminatory practices reserve (Appendix F2)	4 711	4 711	4 936	4 936
Solvency reserve (Appendix F3)	254 000	14 954	208 000	
100% CPI Reserve (Appendix F5)	183 553	10 808	118 129	64 282 (across the 3 reserves)
Mortality Improvement (Appendix F6)	26 628	1 568	18 748	
<b>Combined Reserves</b>	<b>478 942</b>	<b>42 091</b>	<b>374 756</b>	<b>94 161</b>

The reserve accounts reflected in Sections F1 and F2 have been funded in full, whilst the reserves in the balance of the sections have been funded to the extent affordable, some 5.9%.

## Appendix G: Summary of Liabilities and Required Contribution Rates

### G.1 Past service liabilities

A comparison of the best-estimate liability at the current and previous valuation dates is set out below:

	Current Valn. R'000	Previous Valn. R'000
<b>Active member liability</b>	<b>773 805 100</b>	<b>526 189 989</b>
Members' normal retirement & spouses' post death pensions	621 364 971	439 444 223
Spouses' death in service pensions & lump sums	68 326 018	27 064 767
Members' and spouses' ill-health pensions & lump sums	84 114 111	59 680 999
<b>Pensioner liability</b>	<b>223 048 920</b>	<b>180 647 194</b>
Male pensioner liability	92 606 454	78 925 631
Female pensioner liability	76 413 960	57 962 331
Widower pensioner liability	4 279 151	3 106 640
Widow pensioner liability	48 960 078	40 652 592
Suspended pensioner liability	789 277	-
<b>Deferred Pensioner Liability</b>	<b>774</b>	<b>6 079</b>
<b>Total past service liabilities</b>	<b>996 854 794</b>	<b>706 843 262</b>

### G.2 Past service liabilities split by employer type

A breakdown of the current best-estimate in-service member liability between the employer types is set out below:

	Services R'000	Other R'000
<b>Active member liability</b>		
Members' normal retirement & spouses' post death pensions	112 896 293	508 468 678
Spouses' death in service pensions & lump sums	17 207 503	51 118 515
Members' and spouses' ill-health pensions & lump sums	30 589 687	53 524 424
<b>Total in-service member liabilities</b>	<b>160 693 483</b>	<b>613 111 617</b>

## Required Contribution Rate

The required contribution rate, in respect of the two years following the current valuation date is as follows (the one year contribution rate following the previous valuation is reflected for comparison):

	2012 rate	2010 rate
<b>Funded Benefits:</b>	<b>22.6%</b>	<b>19.8%</b>
Retirement Benefits	16.9%	15.5%
Death in Service Prospective Pensions	1.3%	1.4%
Death in Service Lump Sum	1.2%	0.0%
Ill Health Pensions	2.1%	2.4%
Ill Health Lump Sum	0.5%	0.0%
Mortality Improvement	0.6%	0.5%
<b>Current Cost Benefits:</b>	<b>0.3%</b>	<b>1.6%</b>
Lump sum death benefits	0.0%	1.3%
Funeral Benefits	0.0%	0.1%
Expenses	0.3%	0.2%
<b>Total Contribution Rate for Active Members</b>	<b>22.9%</b>	<b>21.4%</b>
Less: Member Contributions	(7.5%)	(7.5%)
<b>Required Employer Contribution Rate</b>	<b>15.4%</b>	<b>13.9%</b>
Current Employer Contribution Rate	13.5%	13.5%

### G.3 Required contribution rate split by employer type

	Services Members Current Valuation	Other Members Current Valuation
<b>Funded Benefits:</b>	<b>26.5%</b>	<b>21.9%</b>
Retirement Benefits	17.4%	16.8%
Death in Service Prospective Pensions	1.8%	1.2%
Death in Service Lump Sum	1.5%	1.2%
Ill Health Pensions	4.2%	1.7%
Ill Health Lump Sum	1.1%	0.4%
Mortality Improvement	0.5%	0.6%
<b>Current Cost Benefits:</b>	<b>0.3%</b>	<b>0.3%</b>
Lump sum death benefits	0.0%	0.0%
Funeral Benefits	0.0%	0.0%
Expenses	0.3%	0.3%
<b>Total Contribution Rate for Active Members</b>	<b>26.8%</b>	<b>22.2%</b>
Less: Member Contributions	(7.5%)	(7.5%)
<b>Required Employer Contribution Rate</b>	<b>19.3%</b>	<b>14.7%</b>
Current Employer Contribution Rate	16.0%	13.0%

**G.4 Cost of additional pensionable service for “Services” members**

	<b>Including 25%</b>	<b>Excluding 25%</b>
<b>Funded Benefits:</b>	<b>26.5%</b>	<b>22.7%</b>
Retirement Benefits	17.4%	14.7%
Death in Service Prospective Pensions	1.8%	1.5%
Death in Service Lump Sum	1.5%	1.4%
Ill Health Pensions	4.2%	3.8%
Ill Health Lump Sum	1.1%	0.8%
Mortality Improvement	0.5%	0.5%
<b>Current Cost Benefits:</b>	<b>0.3%</b>	<b>0.3%</b>
Lump sum death benefits	0.0%	0.0%
Funeral Benefits	0.0%	0.0%
Expenses	0.3%	0.3%
<b>Total Contribution Rate for Active Members</b>	<b>26.8%</b>	<b>23.0%</b>
Less: Member Contributions	(7.5%)	(7.5%)
<b>Required Employer Contribution Rate</b>	<b>19.3%</b>	<b>15.5%</b>
Current Employer Contribution Rate	16.0%	16.0%

## Appendix H: Solvency Reserve Details

### H.1 Accrued service actuarial Liabilities based on Solvency Reserve Basis

For illustrative purposes, we have reflected the breakdown of the solvency reserve account on the discontinuance matched approach. We note that the actual solvency reserve is determined by the asset consultants.

	Current Valn. R'000	Previous Valn. R'000
<b>Active member liability</b>	<b>988 090 011</b>	<b>586 642 246</b>
Members' normal retirement & spouses' post death pensions	795 351 561	490 611 843
Spouses' death in service pensions & lump sums	82 828 841	30 164 207
Members' and spouses' ill-health pensions & lump sums	109 909 609	65 866 196
<b>Pensioner liability</b>	<b>277 037 704</b>	<b>190 370 431</b>
Male pensioner liability	113 386 860	82 981 966
Female pensioner liability	94 103 697	61 052 723
Widower pensioner liability	5 410 291	3 276 664
Widow pensioner liability	63 156 535	43 059 078
Suspended pensioner liability	980 321	-
<b>Deferred Pensioner Liability</b>	<b>1 014</b>	<b>6 079</b>
<b>Total past service liabilities (Item 1)</b>	<b>1 265 128 729</b>	<b>777 018 756</b>

### H.2 Accrued service actuarial Liabilities Based on Valuation Basis

	R'000
<b>Total Past Service Liabilities (see Appendix G) (item 2)</b>	<b>996 854 794</b>

### H.3 Solvency reserve required on a discontinuance matched approach

	R'000
<b>Required Solvency reserve (item 1 – item 2)</b>	<b>268 273 935</b>

## Appendix I: Notional Pensioner Accumulation Amount

The Pension Funds Act prescribes a minimum pension increase equal to the greater of the increase that would be granted under the pension increase policy of the Fund and the lesser of:

- a “write-up” increase such that current pension liabilities equate to the value of the notional pensioner accumulation amount (the “NPAA”), if this amount is larger than current pension liabilities; or
- a CPI increase, where each pensioner is granted a CPI related increase since the inception of the pension.

The NPAA, mentioned in the first bullet point above, is calculated as described below. Our interpretation of the wording of the Act requires that the NPAA be calculated with reference to surviving pensioners only. A wider interpretation of this NPAA would suggest that it represents the assets attributable to the pensioners of the Fund, i.e. including profits realised on the death of pensioners.

Applying this wider interpretation of the NPAA to the Fund, we can effectively compare the “assets” backing the pensioner liability against the liability itself to determine whether any excess exists that could be utilised to strengthen the case for the award of a pension increase.

### **Calculation of notional pensioner accumulation amount for the current valuation:**

#### **A. *Opening balance***

The opening balance was set equal to the balance in the Notional Pensioner Accumulation Amount at the previous valuation date.

#### **B. *Pension payments***

The pension payment amounts were derived from the financial statements, assumed to be deducted uniformly over each financial year.

#### **C. *New entrants to the account***

All new retirements and all new spouses’ pensions arising from the death of a member are added into the NPAA (spouse’s pensions arising from deaths of pensioners are already reflected in the assets). The amount introduced into the account represents the best estimate actuarial liability and allowance for the appropriate funded contingency reserves at the date of the commencement of the pension.

#### **D. *Exits from the account***

There are no exits from the NPAA, as all the assets are assumed to remain behind for the purposes of meeting the pension increases for the remaining pensioners.

**E. Investment returns credited to the account**

The investment returns achieved by the Fund over the period, net of investment management fees, were credited to the account. The Fund has no assets specifically earmarked to meet the pensioner liability and it was therefore considered reasonable to use the returns applicable to the Fund as a whole.

We have reconciled the returns used to the reported returns over the same period and are satisfied that the returns used reflect the actual net investment return achieved by the Fund.

**F. Value of the Pensioner Accumulation Amount:**

The value of the notional pensioner accumulation amount calculated in terms of the above paragraphs amounted to **R 258 124 million** as at 31 March 2012. This exceeds the value of the best estimate actuarial liabilities by some **R 35 075 million (116% minimum funding level)**, but is less than the best estimate liabilities and the contingency reserves in respect of pensioners and suspended pensioners by some **R 51 980 million (83% long term funding level)**.

## Appendix J: Actuarial Interest Factors

The actuarial interest factors based on the statutory actuarial valuation as at 31 March 2010 that came into effect on 1 April 2011 have now been updated to reflect the revised results of the statutory actuarial valuation of the Fund as at 31 March 2012. In particular the change in basis since the previous valuation date warrants the need for a new set of actuarial interest factors. The relevant factors are set out in the tables below.

### J.1 $F_z$ factors applicable to members under the age of 55 years

Age	Current F(Z) Services	Current F(Z) Other	Proposed F(Z) Services	Proposed F(Z) Other
20	0.1912	0.1513	0.2400	0.1825
21	0.1924	0.1526	0.2402	0.1833
22	0.1936	0.1539	0.2403	0.1842
23	0.1949	0.1553	0.2405	0.1859
24	0.1961	0.1566	0.2407	0.1875
25	0.1973	0.1579	0.2410	0.1892
26	0.1985	0.1592	0.2412	0.1909
27	0.1997	0.1605	0.2415	0.1925
28	0.2009	0.1617	0.2417	0.1942
29	0.2022	0.1628	0.2420	0.1959
30	0.2034	0.1639	0.2425	0.1976
31	0.2045	0.1649	0.2430	0.1992
32	0.2055	0.1659	0.2435	0.2009
33	0.2064	0.1668	0.2440	0.2026
34	0.2071	0.1678	0.2445	0.2042
35	0.2078	0.1689	0.2450	0.2059
36	0.2084	0.1701	0.2460	0.2084
37	0.2090	0.1715	0.2470	0.2109
38	0.2097	0.1731	0.2480	0.2134
39	0.2105	0.1749	0.2489	0.2159
40	0.2114	0.1770	0.2499	0.2185
41	0.2127	0.1794	0.2506	0.2207
42	0.2142	0.1821	0.2521	0.2229
43	0.2161	0.1849	0.2533	0.2254
44	0.2184	0.1880	0.2551	0.2282
45	0.2210	0.1913	0.2575	0.2313
46	0.2239	0.1948	0.2598	0.2346
47	0.2270	0.1986	0.2625	0.2380
48	0.2304	0.2025	0.2655	0.2415
49	0.2340	0.2067	0.2686	0.2452
50	0.2376	0.2109	0.2717	0.2489
51	0.2414	0.2152	0.2758	0.2530
52	0.2453	0.2197	0.2792	0.2572
53	0.2493	0.2243	0.2835	0.2616
54	0.2532	0.2286	0.2878	0.2661

## J.2 $A_x$ factors applicable to members equal to and over the age of 55 years

Age	Current A(X) Services	Current A(X) Other	Proposed A(X) Services	Proposed A(X) Other
55	13.9140	12.4016	14.6421	13.3579
56	13.3518	11.8525	14.1700	12.9735
57	12.8610	11.4027	13.7888	12.6529
58	12.4271	11.0276	13.3885	12.3496
59	12.0061	10.8093	13.0892	12.0875
60	11.5873	10.6532	12.5468	11.6623
61	11.2312	10.7061	12.6723	11.9034
62	11.1341	10.9240	12.7673	12.0750
63	11.2400	11.2400	12.5792	12.2330
64	11.6165	11.6165	12.3771	12.2041
65	11.7820	11.7820	12.1752	12.1752
66	11.7604	11.7604	11.9536	11.9536
67	11.5456	11.5456	11.7263	11.7263
68	11.3259	11.3259	11.4943	11.4943
69	11.0997	11.0997	11.2560	11.2560
70	10.8658	10.8658	11.0102	11.0102
71	10.6251	10.6251	10.7579	10.7579
72	10.3783	10.3783	10.4999	10.4999
73	10.1250	10.1250	10.2359	10.2359
74	9.8653	9.8653	9.9659	9.9659
75	9.6002	9.6002	9.6909	9.6909
76	9.3307	9.3307	9.4121	9.4121
77	9.0570	9.0570	9.1296	9.1296
78	8.7798	8.7798	8.8441	8.8441
79	8.5012	8.5012	8.5578	8.5578
80	8.2227	8.2227	8.2725	8.2725

These actuarial interest factors are discussed in a separate report accompanying this statutory actuarial valuation titled: "*Actuarial Interest Factors following 31 March 2012 valuation*", and provides further detail on the methodology applied in deriving these factors.