

Report on the Actuarial Valuation of
the Post-Employment Medical Aid subsidy liability of

**National Museum
(Bloemfontein)**

with reference to GRAP 25

as at 31 March 2024

28 March 2024

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EXECUTIVE SUMMARY

1. An actuarial valuation has been performed of the liability in respect of the **post-employment medical aid subsidy** to employees and retirees of the **National Museum** and to their registered dependants.
2. The **effective date of this valuation is 31 March 2024** and its purpose is to enable NASMUS to provide appropriate disclosure in their Financial Statements in respect of this liability.
3. At the Valuation Date, **membership** of health care arrangements entitled to a post-employment medical aid subsidy was, according to information provided:

Category	Count
In-service (employee) members	25
Continuation (retiree and widow) members	33
Total	58

4. The **unfunded liability** in respect of past service has been estimated as follows:

Category	Rands
In-service (employee) members	12,642,000
Continuation (retiree and widow) members	21,973,000
Total	34,615,000

5. The **current-service costs** for the years ending 31 March 2024 and 31 March 2025 were estimated as follows:

Period	Rands
Year ending 31/03/2024 (current period)	372,050
Year ending 31/03/2025 (ensuing period)	361,000

6. As the results are particularly sensitive to the assumptions made, it is important that they are treated with a degree of caution. The impact of deviations between actual experience and the assumptions made is presented in Section 7.
7. The **projected unit credit method** has been used to value the liabilities. The liability for in-service members is accrued over their expected working lifetimes. The **average expected remaining working-lifetime** of eligible in-service members is **7.7 years**.
8. The possible effects of COVID-19 have not been included in the report's main figures but are discussed in more detail in Section 7: Sensitivity Analysis.
9. It is recommended that the next valuation be performed as at 31 March 2025.

SECTION 1: INTRODUCTION

1.1 Introduction

Management of the National Museum, referred to in this report as “NASMUS”, requested an actuarial valuation of its liability in respect of post-employment health care benefits to employees and retired employees and to their registered dependants.

Per the Accounting Standards Board, NASMUS should account for the net defined benefit liability under the Standard of Generally Recognised Accounting Practice 25 (GRAP 25), which is based on the International Public Sector Accounting Standard 39 (IPSAS 39), which in turn is based on the International Accounting Standard 19 (IAS 19).

The purpose of this evaluation is to enable NASMUS to appropriately disclose its employee benefit obligations as at 31 March 2024.

1.2 Scope of Valuation

The effective date of the valuation is 31 March 2024 (the “Valuation Date”).

The valuation considers all employees, retirees and their dependants whose participation in the health care arrangements entitles them to a post-employment medical aid subsidy. Statistics on eligible individuals are summarised in Section 2 and the health care arrangements are outlined in Section 3.

The post-employment health care liability is not a funded arrangement, i.e. no separate assets have been set aside to meet this liability.

The accounting standards require that an employer’s liability be based on the cost of the benefits provided by the employer. The Medical Schemes Act 1998 enforces community rating which means that the contributions payable by retirees are the same as those paid by younger members. The employer’s cost can therefore be taken as the expected contributions only, as opposed to the expected cost of actual medical aid benefits. The difference, namely the cross-subsidy liability, is a contingent liability and need not be reflected in the Financial Statements. A South African Institute of Chartered Accountants (SAICA) newsletter confirms this. However, in some circumstances, such as for a closed medical scheme, the cross-subsidy liability may need to be included. These issues are elaborated on in Section 4.

The previous actuarial valuation of NASMUS’s unfunded health care liability was undertaken as at 31 March 2023. This valuation is referred to in Section 6, where its results are compared to these results.

This report is addressed to the management of NASMUS. ARCH Actuarial Consulting has maintained confidentiality of all data, information and results.

This report meets the requirements of GRAP 25 as well as those of Advisory Practice Note 301 issued by the Actuarial Society of South Africa.

SECTION 2: MEMBERSHIP SUMMARY

2.1 Introduction

Data of the eligible in-service members and continuation members was received from NASMUS in March 2024. Several tests of validity and reasonability were performed on this data. No independent verification of this information was undertaken. Appendix 1 contains a list of the data checks performed. Appendix 2 contains a more detailed age breakdown of the membership.

2.2 In-service Membership

Table 2.1 summarises the eligible in-service membership at the Valuation Date.

Table 2.1 Summary of the in-service membership

	Female	Male	Total
Number of in-service members	17	8	25
Average age	53.5	57.1	54.7
Average past service	27.1	28.7	27.6

2.3 Continuation Membership

Table 2.2 details the continuation membership at the Valuation Date.

Table 2.2 Summary of the continuation membership

	Female	Male	Total
Number of principal members	22	11	33
Average age	72.7	70.7	72.0
Proportion with a spouse dependant	0%	55%	18%
Average subsidy per month (2024 value)	R 4,001	R 7,474	R 5,158

2.4 Uncovered Employees and Retirees

This valuation is focused on the liability that NASMUS faces in respect of employees and continuation members currently covered by medical aid arrangements.

However, it is important to be aware of any potential liability that may arise in respect of employees who do not currently participate in these arrangements. These may include, for example, lower-income employees, members of unions or employees covered by a spouse's medical scheme. There may also be retirees who have the right to join the health care arrangement and may do so in future.

In addition, the government is in the process of implementing Social Health Insurance for all formally employed people, although it is unclear, at this stage, how this will affect the employer's post-employment health care liability.

SECTION 3: POST-EMPLOYMENT MEDICAL AID SUBSIDY POLICY

Employees appointed before 2009 will receive a post-employment subsidy of $\frac{2}{3}$ ^{rds} of the contribution payable if they complete a minimum of five years of uninterrupted medical aid membership at retirement. However, some employees appointed in 2007 and 2008 are not eligible for this benefit.

Continuation members and their eligible dependants receive a $\frac{2}{3}$ ^{rds} subsidy.

Upon a member's death-in-service, surviving dependants are not entitled to commence receipt of the subsidy. Upon a member's death-in-retirement, surviving dependants are entitled to continue to receive the same subsidy.

The contribution rates used are contained in Appendix 3.

SECTION 4: VALUATION METHOD

4.1 Introduction

SAICA revised the Statement of Generally Accepted Accounting Practice, then known as AC 116, in 2001. This statement was based on IAS 19 as published by the International Accounting Standards Committee. One of the effects of this revision was to require the inclusion of post-employment benefits other than those for retirement.

GRAP 25, derived from IPSAS 39 and IAS 19, has been approved by the ASB and the Minister of Finance, and is effective for financial periods commencing on or after 1 April 2023. It applies to institutions falling within the ambit of the Finance Management Act.

There remains room for interpretation of GRAP 25. With reference to health care benefits, there is not an exact definition of what constitutes the employer's liability. As a result, it is important to understand the various components that make up the liability and that will in turn determine what the employer should reflect in its financial statements. The following two sections describe the potential constituents of the liability.

4.2 Components of Health Care Liabilities

Contribution rates tables are based only on type and number of dependants, and income. As expected health care costs (or claims) tend to increase with average age, younger (in-service) members generally subsidise older (continuation) members.

Contributions-based Liability: This is the present value of all future post-retirement health care contributions expected to become payable under the employer's health care arrangements, based on the assumptions made. It may be regarded as the amount that should be set aside today to cover all expected post-retirement health care contributions (both the employer and continuation members' shares) for the current membership.

Benefits-based Liability: This is the present value of all future post-retirement health care costs expected to become payable under the employer's health care arrangements, based on the assumptions made. It may be regarded as the amount that should be set aside in today's terms to cover all expected post-retirement health care benefits payable for the current membership, ignoring what contributions may be payable.

Cross-subsidy Liability: This is the difference between the Benefits-based Liability and the Contributions-based Liability, as defined above. It may be regarded as the amount of money in present-day terms that is expected to flow from other members of the medical scheme(s) in question, to cover the shortfall between post-retirement benefits and contributions payable. These other members are generally in-service members of the employer, and/or of other employers participating in the medical scheme(s). The liability disclosed in this report does not include any allowance for any potential Cross-subsidy Liability that may arise. The Cross-subsidy liability is not required for GRAP 25 recognition purposes.

4.3 Liabilities of the Employer

Past-service and future-service liability: Liabilities of an employer may be split between a past-service (or accrued) element and a future-service element. This serves to recognise the manner in which the accounting standards suggest that the liabilities be accrued uniformly over an employee's period of service. The method of accrual that has been used in this valuation is based on length of service at the valuation date relative to total potential service until the expected retirement date. *For example, a 40-year-old in-service member with 15 years of service and an expected retirement age of 60 has a total potential service of 35 years. In this case, assuming that the member "earns" an equal share for each year of service, the past-service liability assumed to have accrued at the valuation date, is then 15/35 of the total liability. The future service liability is the difference between the total liability and the past-service liability. The current service cost for the following year is determined as the amount assumed to accrue to the member over the next 12 months. In this example, this amounts to 1/35 of the total liability.*

Given the process described above, the liability in respect of current continuation members may be regarded as fully accrued and is therefore not split between a past-service (or accrued) and future-service element.

It should be noted that, in cases where the employer continues to pay a health care subsidy to the widow[er] and/or children of employees who die while in service, there is a liability contingent upon the death of an employee prior to retirement. This so-called **Death-in-service Liability** would be regarded as a post-employment liability under the requirements of GRAP 25.

Accrued Liability: In defining what liability the employer should focus on for accounting purposes, a sensible starting point is the value of the employer's share of the Contributions-based Liability. This is based on the subsidy policy in question, whether it is defined via contracts of employment or established practice.

Cross-subsidy Liability: The employer's share of the Cross-subsidy Liability (as defined above) may in certain circumstances be regarded as a contingent liability of the employer, for example, should the law governing medical schemes be changed in the future to allow for age-based contribution rates. This potential liability has not been evaluated as part of this exercise.

Unfunded Accrued Liability: This is the difference between the Accrued (or past-service) Liability and the value of any off-balance sheet assets that have been accumulated specifically by the employer to provide for its post-retirement health care liabilities.

4.4 Accounting Requirements

The Projected Unit Credit Method has been used to value the liabilities.

The GRAP 25 statement contains significant detail on the accounting approach required with regard to post-retirement "defined benefit" plans.

SECTION 5: KEY ASSUMPTIONS

5.1 Introduction

In estimating the liability for the post-employment health care benefits a number of assumptions are required. The GRAP 25 statement places the responsibility on management to set these assumptions, as guided by the principles set out in the Statement and in discussion with the actuary.

It should be noted that the valuation method and assumptions do not affect the ultimate cost of the post-employment health care arrangement – this is determined by actual experience and by the benefits provided. The method and assumptions influence how the past service liability and future-service costs are recognised over time.

The key financial and demographic assumptions are summarised below. A more detailed outline of these assumptions is contained in Appendix 4.

5.2 Key Financial Assumptions

Table 5.1 summarises the key financial assumptions used for the liabilities at the Valuation Date and the expense figures for the ensuing year.

Table 5.1: Key financial assumptions

Assumption	Value p.a.
Discount rate	12.45%
Health care cost inflation rate	7.99%
Net discount rate	4.13%

The next contribution rate increase was assumed to occur at 1 January 2025.

5.3 Key Demographic Assumptions

Table 5.2 summarises the key demographic assumptions used.

Table 5.2: Key demographic assumptions

Assumption	Value
Average retirement age	62
Continuation of membership at retirement	95%
Proportion with a spouse dependant at retirement	60%
Mortality during employment	SA 85-90
Mortality post-employment	PA(90) -1 with a 1% mortality improvement p.a. from 2010
Withdrawal from service (sample annual rates)	See Table A4.2

SECTION 6: RESULTS

6.1 Introduction

The results presented in this report focus on the Accrued Liability, as described in Section 4.3. This section contains a summary of the results. A simplified projection is included in Appendix 5.

6.2 Accrued Liability

Table 6.1 summarises NASMUS's Accrued Liability as at the Valuation Date.

Table 6.1: Accrued Liability (R millions)

Category	31/03/2023	31/03/2024
In-service members	12.520	12.642
Continuation members	18.279	21.973
Total accrued liability	30.799	34.615
Value of assets	0.000	0.000
Total unfunded accrued liability	30.799	34.615
Expected current portion of liability (payable within 12 months)	1.764	2.277
Expected non-current portion of liability (payable thereafter)	29.035	32.338

6.3 Current-Service and Interest Costs

Table 6.2 summarises the Current-Service and the Interest Costs for the current and next financial years.

Table 6.2: Current-Service and Interest Costs (Rands)

Current-Service and Interest Costs	Year Ending 31/03/2024	Year Ending 31/03/2025
Current-service cost (eligible in-service members)	372,050	361,000
Interest cost (all eligible individuals)	3,643,921	4,172,000

Notes to Table 6.2:

- The current service cost reflects the additional liability that is expected to accrue in respect of employees' service over the corresponding year.
- The Interest Cost represents the accrual of interest on the Total Accrued Liability, allowing for benefit payments, over the corresponding year. This arises because the post-employment medical aid contributions are one year closer to payment.

6.4 Comparison with Previous Valuation

6.4.1 Introduction

The most recent valuation of NASMUS's unfunded health care liability was undertaken as at 31 March 2023.

This section compares the figures between the valuation dates and summarises the primary reasons for the change in liabilities.

6.4.2 Comparison of Vital Statistics

Table 6.3 presents vital statistics on eligible in-service members at the valuation dates.

Table 6.3: Comparison of in-service statistics

In-Service Members	31/03/2023	31/03/2024
Number of in-service members	31	25
Average age	55.2	54.7
Average past service	26.6	27.6
Average current value of post-employment subsidy p.m.	R 5,558	R 5,514

Table 6.4 summarises the continuation membership at the valuation dates.

Table 6.4: Comparison of continuation membership

Continuation Members	31/03/2023	31/03/2024
Number of principal members	29	33
Proportion with a spouse dependant	unknown	18%
Average age of members	73.5	72.0
Average subsidy per month	R 4,959	R 5,158

6.4.3 Comparison of Valuation Assumptions

Table 6.5 compares the assumptions used at the current and previous valuation dates.

Table 6.5: Comparison of assumptions

Assumption	31/03/2023	31/03/2024
Discount rate	12.18%	12.45%
Health care cost inflation rate	8.20%	7.99%
Net discount rate	3.68%	4.13%
Average retirement age	62	
Mortality during employment	SA 85-90	
Mortality post-employment	PA(90) -1 with a 1% mortality improvement p.a. from 2010	
Withdrawal rates	See Table A4.2	
Proportion with a spouse dependant at retirement	60%	
Continuation of membership at retirement	95%	

6.4.4 Comparison of Liability Results

Table 6.6 summarises the liability results at the Valuation Date relative to the previous valuation date of 31 March 2023.

Table 6.6: Comparison of liability results

Total Unfunded Liability (R Millions)	31/03/2023	31/03/2024	Impact
In-service members	12.520	12.642	1%
Continuation members	18.279	21.973	20%
All eligible individuals	30.799	34.615	12%
Average Liability Per Individual (Rands)			
In-service members	403,866	505,680	25%
Continuation members	630,321	665,848	6%
All eligible individuals	513,319	596,810	16%

6.4.5 Reasons for the Movement in the Liability

The **total liability** has increased by 12% (or R 3.816 million) since the last valuation. A numerical analysis of the unexpected movement (actuarial gain/loss) is provided in the next section.

The main reasons for the actual movement in the liability are listed next.

In-Service Members

The **average in-service member liability** has increased by 25% since the last valuation due to an increase in the average past service.

This impact was partially offset by:

- a decrease in the average age which means members are further from retirement (more discounting);
- a decrease in the average post-employment subsidy; and
- an increase in the net discount rate.

The **total in-service member liability** has increased by 1% due to the above, partially offset by a decrease in the number of in-service members.

Continuation Members

The **average continuation member liability** has increased by 6% since the last valuation due to an increase in the average subsidy and a decrease in the average age. These impacts were partially offset by an increase in the net discount rate.

The **total continuation member liability** has increased by 20% due to the above, combined with an increase in the number of continuation members.

6.4.6 Analysis of the Unexpected Movement in the Liability

Table 6.7 analyses the extent of unexpected increases or decreases in the liability over the valuation period. These unexpected movements (otherwise termed Actuarial Gains and Losses) are separated into three main components: the effect of the change in the basis (assumptions), unexpected increases in the subsidies, and unpredicted movements in the membership profile.

Table 6.7: Actuarial Gains and Losses

Actuarial (gain)/loss for the period	1,563,687
Contribution to actuarial loss:	
Basis changes: increase in net discount rate	(1,707,000)
Subsidy inflationary increases higher than assumed	489,000
Changes to membership profile different from assumed	2,781,687

Since ARCH did not conduct the previous valuation, a detailed analysis of the loss due to **membership profile changes** could not be performed.

6.5 History of Liabilities, Assets and Experience Adjustments

Table 6.8 summarises the accrued liabilities and the plan assets for the current period and the previous four periods.

Table 6.8: History of liabilities and assets (R millions)

Liability History	31/03/2020	31/03/2021	31/03/2022	31/03/2023	31/03/2024
Accrued liability	26.378	30.848	32.889	30.799	34.615
Fair value of plan asset	0.000	0.000	0.000	0.000	0.000
Deficit / (surplus)	26.378	30.848	32.889	30.799	34.615

Table 6.9 summarises the experience adjustments for the current period and the previous four periods. Experience adjustments are the effects of differences between the previous actuarial assumptions and what has occurred.

Table 6.9: History of experience adjustments: Gains and Losses (R millions)

Experience Adjustments	Year Ending 31/03/2020	Year Ending 31/03/2021	Year Ending 31/03/2022	Year Ending 31/03/2023	Year Ending 31/03/2024
Liabilities: (gain) / loss	(0.240)	(1.142)	(1.862)	unknown	3.271
Assets: gain / (loss)	0.000	0.000	0.000	0.000	0.000

SECTION 7: SENSITIVITY ANALYSIS

7.1 Introduction

The results presented in Section 6 are based on a number of assumptions. The extent to which the actual liability faced in the future by NASMUS differs from these results will depend on the extent to which actual experience differs from the assumptions made.

The assumption which tends to have the greatest impact on the results is the rate of health care cost inflation relative to the discount rate.

7.2 Sensitivity Results

The liability at the Valuation Date was recalculated to show the effect of:

- (i) a one percentage point increase and decrease in the assumed rate of health care cost inflation;
- (ii) a one percentage point increase and decrease in the discount rate;
- (iii) a one-year age increase and decrease in the assumed rates of post-employment mortality;
- (iv) a one-year decrease in the assumed average retirement age; and
- (v) a decrease of ten percentage points in the assumed proportion of in-service members that remain members at retirement.

Table 7.1 summarises the results of the sensitivity analysis.

Table 7.1: Sensitivity Analysis on the Accrued Liability (R Millions)

Assumption	Change	In-Service Members	Continuation Members	Total	% Change
Central assumptions		12.642	21.973	34.615	
Health care inflation rate	+1%	14.487	23.870	38.357	11%
	-1%	11.106	20.312	31.418	-9%
Discount rate	+1%	11.149	20.342	31.491	-9%
	-1%	14.456	23.860	38.316	11%
Post-employment mortality	+1 yr	12.322	21.262	33.584	-3%
	-1 yr	12.958	22.684	35.642	3%
Average retirement age	-1 yr	13.497	21.973	35.470	2%
Membership continuation	-10%	11.311	21.973	33.284	-4%

Note to Table 7.1: The post-employment mortality adjustment “-1 yr”, for example, assumes that someone aged 70 will experience the mortality of someone aged 69. The liability is expected to increase under this scenario because members are expected to live longer.

The table above indicates, for example, that if medical inflation is one percentage point greater than the long-term assumption made, the liability will be 11% higher than that shown.

Table 7.2 summarises the results of this analysis on the Current-Service and Interest Costs for the year ending 31 March 2024. **These figures were derived at the last valuation and were presented in that report.**

Table 7.2: Sensitivity Analysis on Current-Service and Interest Costs for year ending 31/03/2024

Assumption	Change	Current-Svc. Cost	Interest Cost	Total	% Change
Central assumptions		372,050	3,643,921	4,015,971	
Health care inflation rate	+1%	434,353	4,041,149	4,475,502	11%
	-1%	320,625	3,301,492	3,622,117	-10%
Discount rate	+1%	324,898	3,589,547	3,914,445	-3%
	-1%	429,542	3,697,183	4,126,725	3%
Post-employment mort.	-1 yr	372,050	3,721,646	4,093,696	2%
Average retirement age	-1 yr	478,968	3,979,666	4,458,634	11%
Membership continuation	-10%	334,845	2,098,655	2,433,500	-39%

Table 7.3 summarises the results of this analysis on the Current-Service and Interest Costs for the year ending 31 March 2025.

Table 7.3: Sensitivity Analysis on Current-Service and Interest Costs for year ending 31/03/2025

Assumption	Change	Current-Svc. Cost	Interest Cost	Total	% Change
Central assumptions		361,000	4,172,000	4,533,000	
Health care inflation rate	+1%	424,000	4,637,000	5,061,000	12%
	-1%	308,000	3,774,000	4,082,000	-10%
Discount rate	+1%	313,000	4,087,000	4,400,000	-3%
	-1%	419,000	4,260,000	4,679,000	3%
Post-employment mortality	+1 yr	351,000	4,044,000	4,395,000	-3%
	-1 yr	369,000	4,300,000	4,669,000	3%
Average retirement age	-1 yr	333,000	4,276,000	4,609,000	2%
Membership continuation	-10%	322,000	4,008,000	4,330,000	-4%

7.3 Impact of COVID-19

It is difficult to estimate what impact the pandemic is likely to have on NASMUS's liability at this stage. There is still much uncertainty as to how it will affect mortality in the medium to long term, and what effect treatments and/or vaccines will have.

The sensitivities in Table 7.1 (and 7.3) above may be used to understand the potential impacts on the liability (and expenses) of, for example, an increase in the expected health care cost inflation rate, or an increase in the discount rate, or a reduction in expected longevity (“+1 yr” in the tables).

Once any long-term impacts of COVID-19 on the various valuation parameters becomes more evident, appropriate adjustments to the parameters will be feasible. In the meanwhile, any short-term impacts of actual experience being different to the current long-term assumptions will contribute to actuarial gain/loss items.

SECTION 8: CONCLUSION

8.1 Introduction

This valuation report contains the relevant detail of the methodology and results of the actuarial valuation of the National Museum's liability in respect of post-employment health care benefits to employees and retired employees of NASMUS, and to their registered dependants. The report is addressed to the management of NASMUS.

8.2 Accrued Liability

NASMUS's **Accrued Unfunded Liability** at 31 March 2024 is estimated at **R 34,615,000**.

The **Current-Service Cost** for the year ending 31 March 2024 is estimated at **R 372,050**. It is estimated to be **R 361,000** for the ensuing year.

This amount is based on NASMUS's Accrued Contributions-based Liability and takes no account of any potential contingent Cross-subsidy Liability.

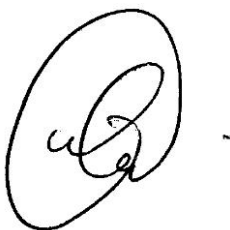
It is my opinion that the value placed on the Accrued Liability represents a reasonable best estimate thereof.

8.3 Periodic Valuations

There are various factors that influence NASMUS's post-employment health care liability. The employer has little or no control over many of these: the medical scheme's benefit structure and related contribution rates, changes in legislation, increases in the cost of and utilisation of medicines and medical services, and advances in medical technology.

As the results are sensitive to the assumptions made, it is important that they are treated with a degree of caution.

In light of the above it is recommended that the next valuation be performed as at 31 March 2025.



Chanan Weiss BSc

Fellow of the Actuarial Society of South Africa

In my capacity as a Director of ARCH Actuarial Consulting (Pty) Ltd

28 March 2024

APPENDIX 1: SUMMARY OF DATA CHECKS

The following tests of reasonability were performed on the data received (where applicable).

Eligible in-service and continuation members were checked for completeness of date of birth, gender, income where necessary, and medical aid scheme, option and dependants. In-service members' dates of employment were also checked.

In addition, the following data checks were performed for both in-service and continuation members, where applicable:

- dates are valid;
- ages within reasonable ranges;
- periods of employment within reasonable ranges, and consistent with dates of birth; and
- incomes within reasonable ranges.

The following statistics were calculated for both in-service and continuation members, where applicable, and were checked for reasonability:

- average age;
- average number of dependants;
- average period of employment; and
- average subsidy per month.

Where information was not clear or not provided, the valuation was conducted on the premise that the information provided was correct or appropriate assumptions were made.

APPENDIX 2: DETAILED MEMBERSHIP SUMMARY

A2.1 In-Service Member Age Profiles

Table A2.1 below summarises the age profile of the in-service membership as at the Valuation Date entitled to a post-employment subsidy.

Table A2.1: Age Profile of In-service Membership

Age Band	Female	Male	Total
<41	0	0	0
41-50	6	2	8
51-60	7	4	11
>60	4	2	6
Total	17	8	25

A2.2 Continuation Membership

Table A2.2 below summarises the age profile of the continuation membership as at the Valuation Date.

Table A2.2: Age Profile of Continuation Membership

Age Band		Female	Male	Total
<51	Number of principal members Proportion with a spouse dependant Average subsidy p.m. (2024 value)	0 0%	0 0%	0 0%
51-65		5 0% R 3,948	3 67% R 7,767	8 25% R 5,380
66-75		11 0% R 4,090	4 50% R 7,206	15 13% R 4,921
>75		6 0% R 3,881	4 50% R 7,522	10 20% R 5,337
Number of principal members		22	11	33
Proportion with a spouse dependant		0%	55%	18%
Average subsidy per month (2024 value)		R 4,001	R 7,474	R 5,158

A2.3 Medical Aid Membership Summary

A summary of the membership per medical scheme and option is shown in Table A2.3.

Table A2.3: Medical Aid Membership Summary

Medical Aid Scheme	Medical Aid Option	In-Service Members	Continuation Members	Total
Bestmed	Beat2 Non-Network	3	0	3
	Beat3 Non-Network	1	0	1
	Pace1	12	14	26
	Pace2	8	7	15
	Pace3	1	11	12
	Rhythm2	0	1	1
Total on medical aid		25	33	58

APPENDIX 3: CONTRIBUTION RATE TABLES

The total monthly contributions applicable to the medical scheme arrangements for the calendar year 2024 are shown in Table A3.1.

Table A3.1: Monthly contributions for health care arrangements

Medical Aid Scheme	Medical Aid Option	Income Band	Main	Adult	Child
Bestmed	Beat2 Non-Network		2,545	1,976	1,071
	Beat3 Non-Network		3,724	2,656	1,314
	Pace1		5,061	3,555	1,277
	Pace2		7,212	7,072	1,590
	Pace3		8,280	6,665	1,424
	Rhythm2	0	2,100	1,996	1,264
		5,501	2,523	2,397	1,514
		8,501	3,027	2,725	1,514

APPENDIX 4: DETAILED ASSUMPTIONS

A4.1 Introduction

In estimating the unfunded liability for post-employment health care benefits a number of assumptions are required. GRAP 25 requires the actuarial assumptions to be unbiased (i.e. neither imprudent nor excessively conservative) and mutually compatible (i.e. reflective of the economic relationships between factors such as return on assets and inflation rates). This appendix reviews the most important of these assumptions.

A4.2 Financial Assumptions

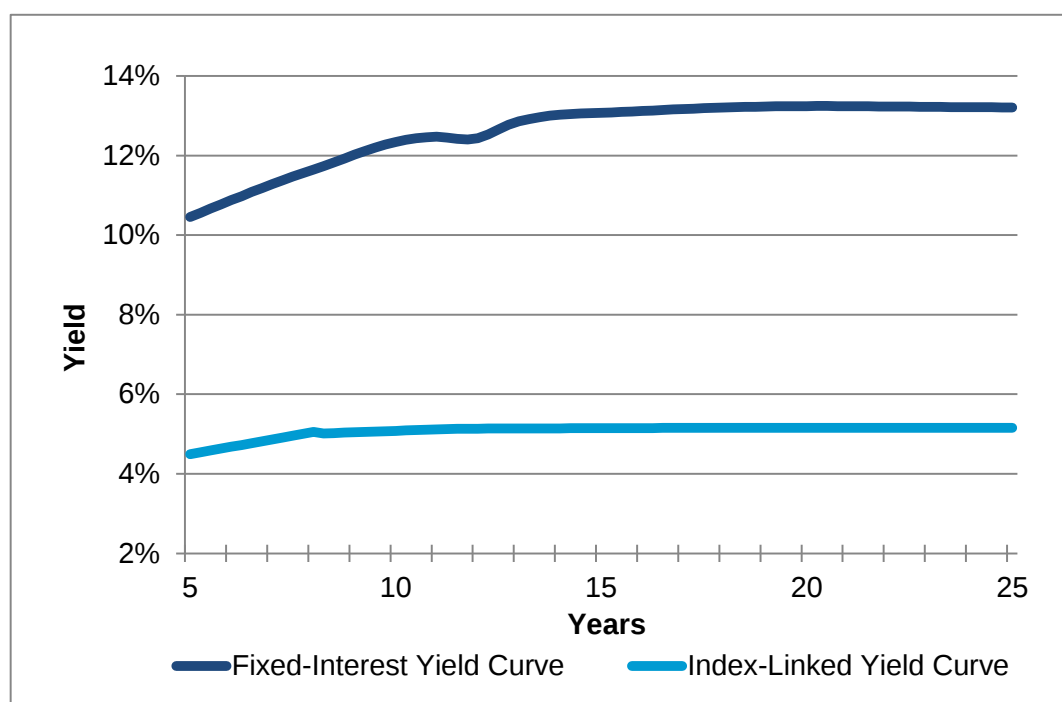
It is difficult to predict future investment returns and health care cost inflation rates. The relationship between them is more stable and therefore easier to predict. GRAP 25 requires that financial assumptions be based on market expectations at the Valuation Date for the period over which the liability obligations are to be settled.

Discount Rate

GRAP 25 stipulates that the choice of this rate should be derived from government bond yields consistent with the estimated term of the post-employment DBO. However, where there is no deep market in government bonds with a sufficiently long maturity to match the estimated term of all the benefit payments, current market rates of the appropriate term should be used to discount shorter term payments, and the discount rate for longer maturities should be estimated by extrapolating current market rates along the yield curve.

Consequently, a discount rate of 12.45% per annum has been used. The corresponding index-linked yield at this term is 5.13%. These rates do not reflect any adjustment for taxation. These rates were deduced from the interest rate data obtained from the Johannesburg Stock Exchange after the market close on 28 March 2024.

Figure A4.1: Fixed-interest and index-linked bond yield curves as at 28 March 2024



These yields were obtained by calculating the duration of the total liability and then taking the fixed-interest and index-linked yields from the respective yield curves at that duration using an iterative process (because the yields depend on the duration, which in turn depends on the liability). The two main components of the liability, and their respective durations, are shown in table A4.1 below.

Table A4.1: Durations of the components of the liability

Component	Duration (Years)
Employees' post-employment subsidy liability	15.54
Continuation members' subsidy liability	8.96
Liability-weighted average	11.25

Health Care Cost Inflation Rate

This assumption is required to reflect estimated future changes in the cost of medical services, resulting from both inflation and specific changes in medical costs (for example, due to technological advances or changes in utilisation patterns). Any assumption regarding future medical scheme contribution increases is therefore subjective.

A health care cost inflation rate of 7.99% has been assumed. This is 1.50% in excess of expected CPI inflation over the expected term of the liability, namely 6.49%. A larger differential would be unsustainable, eventually forcing members to less expensive options. This implies a net discount rate of 4.13% which derives from $((1+12.45\%)/(1+7.99\%))-1$.

The CPI inflation assumption of 6.49% was obtained from the differential between market yields on index-linked bonds consistent with the estimated term of the liabilities (5.13%) and those of fixed interest bonds (12.45%) with a risk premium adjustment for the uncertainty implicit in guaranteeing real increases (0.50%). This was therefore determined as follows: $((1+12.45\%-0.50\%)/(1+5.13\%))-1$.

The next contribution increase was assumed to occur with effect from 1 January 2025.

A4.3 Demographic Assumptions

Demographic assumptions are required to estimate the changing profile of employees and retirees who are eligible for the post-employment medical aid subsidy.

Mortality During Employment

SA85-90 ultimate table, adjusted for female lives.

Post-Employment Mortality

PA(90) ultimate table, adjusted down by one year of age, and a 1% annual compound mortality improvement from 2010. This means that we expect 1% fewer people to die next year. In the year thereafter, we expect 1.99% fewer people to die, i.e. 1.99% is derived from $[1 - (1 - 1\%)^2]$, and so on.

Average Retirement Age

The normal retirement age of employees is 65. It has been assumed that in-service members will retire at age 62 on average, which then implicitly allows for expected rates of ill-health and early retirement. In-service members who have passed the assumed average retirement age, have been assumed to retire at their next birthday.

Withdrawal from Service

If an in-service member leaves, the employer's liability in respect of that employee ceases. It is therefore important not to overstate withdrawal rates. The assumed rates are set out below.

Table A4.2: Withdrawal rates

Age	Rate		Age	Rate
20 – 24	9%		40 – 44	5%
25 – 29	8%		45 – 49	4%
30 – 34	6%		50 – 54	3%
35 – 39	5%		55+	0%

Continuation of Membership

It has been assumed that 95% of in-service members will remain on NASMUS's health care arrangement should they stay until retirement.

Family Profile

It has been assumed that female spouses will be five years younger than their male counterparts. Furthermore, we've assumed that 60% of eligible in-service members on a health care arrangement at retirement will have a subsidised spouse dependant. For current retiree members, actual subsidised spouse dependants were used and the potential for remarriage was ignored.

Minimum Medical Aid Membership

In order to qualify for the post-employment subsidy, an employee must be a member of a medical aid scheme for at least the last 5 years prior to retirement. In the absence of dates of joining medical aid schemes, it has been assumed that all in-service members indicated to be eligible for this benefit will meet this condition.

A4.4 Medical Scheme Option

It has been assumed that continuation members will remain on the same medical scheme and option.

In-service members were assumed to remain on the same medical scheme and option, should they continue to receive the subsidy after retirement.

A4.5 Plan Assets

Management has indicated that there are no long-term assets set aside off-balance sheet in respect of NASMUS's post-employment health care liability.

A4.6 Other Assumptions

It was assumed that NASMUS's health care arrangements and subsidy policy would remain as outlined in Section 3. Furthermore, it was assumed that the level of benefits receivable, and the contributions payable in respect of such, would remain unchanged, with the exception of allowing for inflationary adjustments. Implicit in this approach is the assumption that current levels of cross-subsidy from in-service members to continuation members within the medical scheme are sustainable and will continue.

APPENDIX 5: FURTHER TABLES FOR GRAP 25 COMPLIANCE

A5.1 Introduction

The GRAP 25 Statement sets out the measurement, recognition and disclosure requirements in accounting for post-retirement “defined benefit” plans.

We have included in this appendix further tables (i.e. in addition to those in the main body of this report) that may assist NASMUS and their auditors in achieving GRAP 25 compliance.

Appendix 7 contains a summary which matches the GRAP 25 disclosure requirements and corresponding sections of this report.

A5.2 Past and Future Changes in the Accrued Liability

Table A5.1 shows the development of the accrued liability over the current period and projects NASMUS's Unfunded Accrued Liability and periodic costs over the two-year period following the Valuation Date.

Table A5.1 Past year and future projected Liability

	Year Ending 31/03/2024	Year Ending 31/03/2025	Year Ending 31/03/2026
Opening accrued liability	30,799,151	34,615,000	36,871,000
Current-service cost	372,050	361,000	406,000
Interest cost	3,643,921	4,172,000	4,430,000
Expected subsidy (benefit) payments	* (1,763,809)	(2,277,000)	(2,655,000)
Total annual expense	2,252,162	2,256,000	2,181,000
Actuarial loss / (gain)	1,563,687		
Closing accrued liability	34,615,000	36,871,000	39,052,000

Notes to Table A5.1:

- These projections assume that NASMUS's health care arrangements and subsidy policy will remain as outlined in Section 3, and that all the actuarial assumptions made are borne out in practice. In addition, it is assumed that no contributions are made by NASMUS towards prefunding its liability via an off-balance sheet vehicle.
- Contributions or benefits paid refer to medical scheme contributions made by NASMUS with respect to its subsidy of current continuation members.
- There are no Past Service Costs, Curtailments or Settlements to reflect.

* This is an estimate of subsidies (benefits) paid in respect of continuation members, based on the data at the previous valuation date. If the actual amount of subsidies paid is used instead of this estimate, then the actuarial loss / (gain) must change to exactly offset the impact, such that the closing defined benefit obligation remains unchanged. For example, if the actual amount of subsidies paid is R100,000 less than the estimate, then the actuarial loss / (gain) would have to reduce by R100,000 to leave the closing defined benefit obligation as is.

APPENDIX 6: LETTER TO AUDITORS



PO Box 12573, Mill Street, 8010
8 Rathfelder Avenue, Bel Ombre, Cape Town
tel 021 701 2277
www.archac.com ♦ info@archac.com

Analytics ♦ Retirement ♦ Compensation ♦ Health

28 March 2024, Cape Town

For the attention of the auditors

Dear Sirs

Information regarding the actuarial evaluation of the National Museum's post-employment medical aid liability as at 31 March 2024.

1. Professional certificate / licensing / membership

Below, please find a certificate confirming that I am an approved pension fund valuator and a member of the Actuarial Society of South Africa (ASSA). ASSA does not require actuaries to obtain separate approval for the GRAP 25 liability valuations. These valuations are very similar to pension fund valuations.

2. Experience and reputation in the field

I have been involved for more than 20 years, in over 1,000 valuations for more than 200 clients including the City of Cape Town, City of Tshwane and Transnet.

3. Employment by NASMUS

I am not employed by NASMUS and never have been.

4. Written instructions given by the entity

None by NASMUS. We have a standard data specification which was forwarded to and answered by NASMUS, enabling us to value the liability and prepare our report.

5. Conflicts of Interest

We do not face any conflicts of interest in undertaking to do this work.

6. Objectives and scope of the work performed

The purpose of the valuations is to realistically quantify the value of NASMUS's ongoing subsidisation of in-service and retirees' post-employment medical aid contributions in accordance with GRAP 25. This allows NASMUS to accurately update its financial statements. This is discussed further in our reports.

Standard actuarial methods and professional guidance are used in this work.

7. Clarification of our relationship with the entity

None. We were independently appointed to undertake the annual GRAP 25 actuarial valuation as at 31 March 2024.

8. Safeguards in place to ensure objectivity

In terms of our professional standards as members of ASSA, we are compelled to perform work according to professional guidance notes and must be professional in our undertaking. We understand this to mean that we must be objective and independent, and all conflicts of interests must be avoided.

The accounting standard (GRAP 25) prescribes most of the assumptions and methodology that is used in this valuation. The remainder of the assumptions are discussed with the client.

9. Procedures taken by us to establish whether the source data is complete

These are listed in our reports in Appendix 1: Summary of Data Checks.

10. Confidentiality of the entity's information

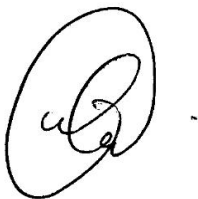
In our reports we state: "This report is addressed to the management of NASMUS. ARCH Actuarial Consulting has maintained confidentiality of all data, information and results arising from this valuation.". This is strictly adhered to.

11. Information regarding assumptions and methods used

This information is detailed in this report.

Please contact me should you have any other queries.

Kind regards

A handwritten signature in black ink, consisting of a large, stylized 'C' followed by a smaller, more complex signature.

Chanan Weiss

Practising Certificate: Valuator of Retirement Funds
(Defined Benefit, Defined Contribution)

We certify that **CHANAN WEISS** meets the requirements, as agreed between the Actuarial Society of South Africa ("ASSA") and the Financial Sector Conduct Authority, to qualify for a practising certificate as valuator of defined benefit, defined contribution retirement funds in terms of the Pension Funds Act, 1956.

This certificate is valid until 31 January 2027.

Qualification:

None.

Disciplinary complaints:

The member has not been found guilty of any unprofessional conduct.



Chief Executive

20 January 2023

APPENDIX 7: SUMMARY OF GRAP 25 DISCLOSURES

Table A7.1 GRAP 25 Paragraph .136 disclosure items and related Sections of this report

GRAP 25 Paragraph .136: Disclosure Item and Description		Location in Report
(a)	General description of the type of plan	Refer to Section 3
(b)	Reconciliation of opening and closing accrued liability values	Refer to Section A5.2
(c)	An analysis of the defined benefit obligation into amounts arising from plans that are wholly unfunded and amounts arising from plans that are wholly or partly funded.	Not applicable as there are no plan assets
(d)	Reconciliation of opening and closing plan asset fair values	Not applicable as there are no plan assets
(e)	Reconciliation of accrued liability and that reflected in the balance sheet	Based on recognition policy to be decided by NASMUS in conjunction with their auditors – for an illustrative disclosure refer to Table A5.3
(f)	Expense items recognised in Profit or Loss	Refer to Table A5.4
(g) (h) (i) (j)	Plan asset characteristics, including proportions in each major asset category and expected rates of return	Not applicable as there are no plan assets
(k)	Principal assumptions used as at the balance sheet date	Refer to Section 5 and Appendix 4
(l)	Sensitivity of valuation results to changes in main assumptions	Refer to Section 7.2
(m)	Liabilities and experience adjustments for current and previous four annual periods	Refer to Section 6.5
(n)	Best estimate of benefits payments expected in the next annual period	Refer to Section A5.2