

Anwar Associates Consulting Actuaries

GOVERNMENT OF THE KHYBER PAKHTUNKHWA

Peshawar, Pakistan

PART ONE

Actuarial Valuation of Khyber Pakhtunkhwa Pension Fund as at 30.06.2020

WITH REFORM OPTIONS

Monday, June 21, 2021



Anwar Associates Consulting Actuaries

Mr. Safeer Ahmed Additional Secretary Finance Finance Department, GoKP Peshawar Dated 21st June 2021 Our Ref: GPP-KP/06/21

Dear Sir,

Subject: Our Contract with Governance and Policy Project (GPP-KP) Planning & Development Department Khyber Pakhtunkhwa Contract No. PK-GPP KPK-158142-CS-CQS dated 24th August 2020 for the Actuarial Valuation as at 30.06.2020 of the Employee Benefit Schemes for the Employees of the Government of Khyber Pakhtunkhwa (GoKP).

We wish to submit that our Full Report in respect of the above referred Contract will consist of Five Parts.

Each Part will relate to the different Employee Benefit Schemes and the Deliverables therein, as follows:

PART **ONE** – Pension Scheme PART **TWO** – General Provident Investment Fund (GPIF) PART **THREE** – Retirement Benefit and Death Compensation (RBDC) PART **FOUR** – Benevolent Fund (BF) PART **FIVE** – Universal Pension Fund/DB/DC Schemes for New Employees

As specified in our Inception Report, we are now pleased to enclose drafts of PART ONE and PART FIVE of the Full Report, for your consideration and further discussions.

Please do let us know if any further clarification is desirable in respect of any matter, mentioned in these Reports.

We look forward to your response in the near future.

With Kind Regards

Chaudhary M Anwar FIA, FPSoA, FLMI CEO and Chief Actuary

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PART ONE (Pension Scheme)

This Part One of the Report give detail of the results of the Actuarial valuation of the Pension Scheme as on 30-6-2020, according to the existing terms and conditions, as listed in Annexure I.

The results given herein are according to the Deliverables specified in our Contract with Governance and Policy Project (GPP-KP) Planning & Development Department Khyber Pakhtunkhwa Contract No. PK-GPP KPK-158142-CS-CQS dated 24th August 2020 for the Actuarial Valuation as at 30.06.2020 of the existing Pension Scheme for the Active Employees and Pensioners of the Government of Khyber Pakhtunkhwa (GoKP).

The data according to our specifications, in respect of the Active employees and Pensioners as at the Valuation date was provided by Accountant General's (AG's) Office, Government of Khyber Pakhtunkhwa.

The Data in respect of individual employees and Pensioners was verified and the results were adjusted for any minor inaccuracies in the data.

Deliverables relating to Pension Scheme

- 1. Measurement of GoKP liabilities on account of providing employeesbenefits:
 - a. Measurement includes both point (end June 2020) and future projections. Projections' time horizon shall extend till the logical end-objective of the analysis is reached or otherwise ordinarily 30 years.
 - b. Liabilities include measuring both stock (Present Value June 2020, and in line with IPSAS standard 39) and flow (annual budget cash-out flow projections) with major analytical emphasis on the latter variable. FD managers could relate more closely to annual budget pension allocation head and that too separately for commutation, and monthly component.
 - c. Liabilities further include measuring all direct, indirect, quasi-, or contingent liabilities and actuarial valuation thereof.
 - d. Sensitivity analysis of liabilities vis-à-vis those variables where it makes analytical sense to do so.
 - e. Current split of employee to Government contribution for current schemes of retirement benefits BPS-wise and within each BPS, seniority wise (few BPS may be lumped together).

2. Funded status, (shortfall if any), or Funded ratio for Pension scheme with recommendations on level of employees' contribution:

- a. Contribution rates to fund to achieve adequate funded status.
- b. Commencing contribution from employees for Pension benefit and projections of funded status to achieve meaningful level.
- **3.** Report shall present brief introduction, background, history of major changes of the Pension scheme:
 - a. Review of pension rules and recommending two to three most effective changes.
 - b. Detail major changes to the terms of the Pension scheme in the past 40 years and present expectations of the future changes.
 - c. Estimate impact of previous two revisions in the commutation table values on budgetary pension outlay.
 - d. Estimate future projection of beyond-wife family pension outlay as percent of total (and family) pension cost, and if possible, point out, share of widow daughter, divorce daughter, and widow sister in it.
 - e. Measure budgetary outlay impact of Pension commutation vs. monthly portion revision from current 35%:65% to 50%:50%;
 - f. Estimate potential additional cost to GoKP by offering Pension Selling scheme (0% commutation and increases applicable on higher base). How much higher than market interest paid on such implicit borrowing from retiring employees?
 - g. Measure separately and / or validate internal work pertaining to impact estimate of two rule changes (retirement age to 63 and pension not commencing before the age of 55 years) on budgetary outlay savings.
- 4. Comprehensive characteristics on the pool of current & retired employees and major trends, upcoming bulge in liabilities:
 - a. Current employee's (both civil & public servants) statistics, their distribution Basic Pay Scale (BPS) wise, and department-wise. How many would retire each year; where is the bulge? etc.
 - b. Retired employee's statistics, their distribution age-wise, mortality, where is the bulge? etc.
 - c. Calculate cost per month to GoKP for provision of pension benefits, BPS wise in terms of basic & gross salary.
 - d. Assessment of Gross versus Basic salary ratio, in each BPS service tenure wise.

- e. Number and BPS / pay-expense wise composition of contractual workers population (with separate numbers for ex-FATA employees) and computation of the impact on Pension Schemes liabilities in case contractual workers are regularized.
- f. Impact of past two employee regularization Acts.
- g. Emerging trends in non-civil servant (all public servants, employees of companies, semi / autonomous bodies, Medical Teaching Institutes, other bodies vying for pension or pension like benefits);
- h. Illustrative chart: Evolution / projections of pensionable pool of employees with or without DC plan under most likely scenario(s).

SECTION I

Deliverable 1

The results/comments in respect of the Deliverable 1 are given below.

1. Measurement of GoKP liabilities on account of providing Pension Benefits

a. Cash Flow Projection of Pension Payments for next 30 years

The Cash Flow Projection of Pension payments comprising all types of pensions and commutation over the next 30 years, as from the financial year 2021-22, using the assumptions as outlined in Annexure II, are as shown in Table No. 1 below.

In this Projection we have taken into account the expected new entrants over the years and this assumption is mentioned in annexure II.

This Projection is likely to enable Finance Department (FD) managers to relate more closely to annual budget pension allocation head separately for commutation, and pension payments.

| | Cash Flow Projection of Pension Payments (Rs. Billions) | | |
|---------|---|---------|---------|
| Year | Lumpsum Payments (Commutation and Gratuity) | Pension | Total |
| 2021-22 | 19.637 | 76.001 | 95.638 |
| 2022-23 | 24.534 | 86.333 | 110.867 |
| 2023-24 | 27.229 | 97.861 | 125.090 |
| 2024-25 | 31.617 | 111.047 | 142.664 |
| 2025-26 | 35.348 | 125.690 | 161.037 |
| 2026-27 | 37.183 | 141.523 | 178.707 |
| 2027-28 | 39.030 | 158.646 | 197.676 |
| 2028-29 | 45.541 | 178.020 | 223.561 |
| 2029-30 | 45.042 | 198.547 | 243.589 |
| 2030-31 | 42.433 | 221.282 | 263.716 |
| 2031-32 | 41.847 | 246.868 | 288.715 |
| 2032-33 | 44.661 | 275.108 | 319.769 |
| 2033-34 | 45.042 | 306.441 | 351.483 |
| 2034-35 | 46.429 | 340.673 | 387.103 |
| 2035-36 | 48.733 | 378.590 | 427.323 |
| 2036-37 | 54.480 | 422.681 | 477.161 |

Table No. 1

| 59.177 | 471.088 | 530.266 |
|---------|---|--|
| 69.700 | 525.088 | 594.788 |
| 79.110 | 586.101 | 665.211 |
| 89.641 | 653.208 | 742.849 |
| 96.758 | 725.865 | 822.623 |
| 119.945 | 807.700 | 927.645 |
| 134.309 | 899.052 | 1,033.361 |
| 149.544 | 1,000.182 | 1,149.726 |
| 148.913 | 1,109.512 | 1,258.425 |
| 158.661 | 1,229.736 | 1,388.397 |
| 173.279 | 1,363.774 | 1,537.053 |
| 181.293 | 1,511.230 | 1,692.523 |
| 188.221 | 1,674.610 | 1,862.831 |
| 195.998 | 1,863.531 | 2,059.529 |
| | 69.700 79.110 89.641 96.758 119.945 134.309 149.544 148.913 158.661 173.279 181.293 188.221 | 69.700525.08879.110586.10189.641653.20896.758725.865119.945807.700134.309899.052149.5441,000.182148.9131,109.512158.6611,229.736173.2791,363.774181.2931,511.230188.2211,674.610 |

b. Pension Scheme Liability for the Active Employees and Pensioners

I. The Accrued Actuarial Liability for the past service of the Active Employees and all current Pensioners as at 30.06.2020, based on the data provided and the assumptions and methodology outlined in Annexure II of this Report, is as shown in Table No.2 below:

Table No. 2

| | Accrued Actuarial Liability |
|--|-----------------------------------|
| | (Rs. Billion) |
| Accrued Actuarial Liability on account of: | |
| a) Active Employees | |
| Normal & Early Retirement | 1,555.493 |
| o Family | 236.722 |
| o Invalid | 159.194 |
| b) Pensioners | |
| o Self | 856.360 |
| • Family | 215.700 |
| Total Accrued Actuarial Liability as at 30.06.2020 | 3,023.468 |
| Fund Assets | 53.564 |
| Fund Deficit as at 30.06.2020 | 2,969.904 |

Total Accrued liability of the Pension Scheme as at 30.06.2020 is **Rs. 3,023.468** billion.

As compared to the Fund Assets there is a Deficit of **Rs.2,969.904** billion as at 30.06.2020.

II. Statement of Liabilities as per IPSAS-39

IPSAS-39 replaced the earlier accounting standard of IPSAS-25, with effect from 01.01.2018. The IPSAS-39 financial statements and disclosures with respect to the Pension Scheme as of 30.06.2020 are as follows. All figures given are in Rupees Billion.

i. Statement of Financial Position as at Beginning of the Period

| Present Value of Defined Benefit Obligations as at the Beginning of the Period | 2,769.367 |
|--|-----------|
| Less Fair Value of Plan Assets | (45.521) |
| Defined Benefit Liability as at the Beginning of the Period as at 1 July 2019 | 2,723.846 |

ii. Statement of Financial Position as at End of the Period

The amount to be recognized as the net defined benefit liability for the GoKP Pension Scheme as at 30 June 2020 is as follows:

| Present Value of Defined Benefit Obligations as at End of the Period | 3,023.468 |
|--|-----------|
| Less Fair Value of Plan Assets | (53.564) |
| Defined Benefit Liability as at End of the Period as at 30 June 2020 | 2,969.904 |

iii. Statement of Financial Performance

The amount to be recognized as a defined benefit expense for the GoKP Pension Scheme in the financial year 2019-2020 is as follows:

| Service Cost | 100.855 |
|---|---------|
| Net Interest on Net Defined Benefit Liability (Asset) | 272.235 |
| Remeasurements Cost | - |
| Total Amount Chargeable to P&L Account | 373.091 |

iv. Reconciliation of Present Value of Defined Benefit Obligations

Opening PVDBO has been estimated from the valuation data received as of 30 June 2020, assuming similar benefit structure on both opening and closing dates.

| Present Value of Defined Benefit Obligations as at the Beginning of the Period | 2,769.367 |
|---|-----------|
| Service Cost (Current Service Cost + Past Service Cost + Gains/Losses on Settlements) | 100.855 |
| Interest on Defined Benefit Obligation | 276.937 |
| Benefits Paid | (81.260) |
| Actuarial (Gains)/Losses | (42.431) |
| Present Value of Defined Benefit Obligations as at End of the Period | 3,023.468 |

v. Reconciliation of Fair Value of Plan Assets

| Fair Value of Plan Assets as at the Beginning of the Period | 45.521 |
|--|--------|
| Total Contributions made during the Year | 2.989 |
| Interest Income during the year | 4.702 |
| Benefits Paid during the Year | - |
| Return on Plan Assets excluding Interest Income | 0.352 |
| Fair Value of Plan Assets as at End of the Period as at 30.06.2020 | 53.564 |

vi. Remeasurements of Net Defined Benefit Liability

| Actuarial (Gains)/Losses due to changes in Demographic Assumptions | - |
|--|----------|
| Actuarial (Gains)/Losses due to changes in Financial Assumptions | - |
| Actuarial (Gains)/Losses due to experience adjustments | (42.431) |
| Return on Plan Assets | (0.352) |
| Effect of Changes in Asset Ceiling | - |
| Amount Chargeable to Other Comprehensive Income (OCI) | (42.783) |

vii. Reconciliation of Net Defined Benefit Liability

| Defined Benefit Liability as at the Beginning of the Period | 2,723.846 |
|--|-----------|
| Cost Chargeable to P&L during the Period | 373.091 |
| Cost Chargeable to OCI | (42.783) |
| Benefits paid directly by the Government | (81.260) |
| Contribution/Benefits Paid | (2.989) |
| Net Defined Benefit Liability as at End of the Period as at 30.06.2020 | 2,969.904 |

viii. Statement of Financial Performance for the Next Year

The estimated amount to be recognized as a defined benefit expense for the GoKP Pension Scheme in the financial year 2020-2021 is as follows:

| Service Cost | 120.926 |
|---|---------|
| Net Interest on Net Defined Benefit Liability (Asset) | 307.703 |
| Remeasurements Cost | |
| Total Amount Chargeable to P&L Account | 428.629 |

c. Measuring Liabilities including all direct, indirect, quasi-, or contingent liabilities.

All direct, indirect, quasi-, or contingent liabilities have been accounted for in the assumptions used for the calculation of actuarial liability (please see Annexure II), except no provision have been made for the administrative expenses incurred by the GoKP in the management of the Pension Scheme, on the assumption that these expenses will continue to be borne as at present.

d. Sensitivity Analysis of the Pension Scheme Liability

To determine the variations in the Pension Scheme liability because of changes mainly in the economic assumptions, the liability has been calculated assuming different Discount rates, Percentage increases in Pensionable pay and Expected Rate of increases in Pension. Generally, the economic assumptions have greater financial impact on the actuarial valuation results as compared to demographic assumptions.

We have conducted the following sensitivity analyses:

- i. Determined past service accrued liability and future contribution rate (as percentage of pensionable salaries) by increasing discount rate by one percentage point (i.e. 11%) and keeping all other assumptions unchanged.
- ii. Determined past service accrued liability and future contribution rate (as percentage of pensionable salaries) by decreasing discount rate by one percentage point (i.e. 9%) and keeping all other assumptions unchanged.
- Determined past service accrued liability and future contribution rate (as percentage of pensionable salaries) by increasing salary growth rate by one percentage point (i.e. 10%) and keeping all other assumptions unchanged.
- iv. Determined past service accrued liability and future contribution rate (as percentage of pensionable salaries) by decreasing salary growth rate by one percentage point (i.e. 8%) and keeping all other assumptions unchanged.
- v. Determined past service accrued liability and future contribution rate (as percentage of pensionable salaries) by increasing pension growth rate by one percentage point (i.e. 9%) and keeping all other assumptions unchanged.
- vi. Determined past service accrued liability and future contribution rate (as percentage of pensionable salaries) by decreasing pension growth rate by one percentage point (i.e. 7%) and keeping all other assumptions unchanged.

The following Table No.3 summarizes the effect of various Scenarios on the Pension Scheme liability as at 30.06.2020 and the Contribution Rate as % age of Pensionable pay to fund Future Accrual of Benefits.

| | | Assumptions | | | |
|-----------------|------------------|---|--|--|-------------------------------------|
| Scenarios | Discount Rate | Expected Increase in Pensionable Pay | Expected Rate of Pension Increase | Accrued Pension Liability as at 30.06.2020 | Percentage Increase/Decreas e |
| | | | | (Rs. million) | |
| Base Scenario | 10% | 9% | 8% | 3,023,468 | |
| Sensitivity-I | 11% | 9% | 8% | 2,603,693 | 13.9% |
| Sensitivity-II | 9% | 9% | 8% | 3,574,021 | -18.2% |
| Sensitivity-III | 10% | 10% | 8% | 3,184,948 | -5.3% |
| Sensitivity-IV | 10% | 8% | 8% | 2,883,669 | 4.6% |
| Sensitivity-V | 10% | 9% | 9% | 3,377,975 | -11.7% |
| Sensitivity-VI | 10% | 9% | 7% | 2,738,356 | 9.4% |

Table No. 3

e. Split of employee contribution for Pension scheme.

Currently the cost of Pension Scheme is being fully borne by the GoKP and there are no contributions by the employees.

SECTION II

Deliverable 2

The results/comments in respect of the Deliverable 2 are given below.

2. Funded status and recommendations

a. Pension Scheme- Deficit and required rates of Contribution for full Funding.

- i. The Total accrued Actuarial Liability of the Pension Scheme as at 30.06.2020 is determined to be Rs.3,023.468 billion.
- ii. There is a huge a Deficit of Rs.2,969.904 billion as at 30.06.2020.
- iii. To fund **only future liability as it accrues**, the required annual contribution rate payable to the Pension Fund is 62.4% of pensionable pay.
- iv. To fund **only Current Deficit of Rs.2,969.904 billion**, the required annual contribution rate payable to the Pension Fund is 140% of pensionable pay.
- v. To fund the **Current Deficit of Rs.2,969.904 billion and future liability as it accrues,** the total required annual contribution rate payable to the Pension Scheme is **202.4%** of pensionable pay.

b. Funding of the Pension Scheme

For a normal Pension Scheme of any Organisation, it would be prudent to set up a Pension Fund which should always be adequate to meet the Actuarial Liability of the benefits payable to the existing members and pensioners. This is purely necessary to guarantee the payment of future cash benefits and pensions to the employees, even in the event the Organisation becomes insolvent.

In our opinion, for a Pension Scheme for Civil Servants, where benefits are guaranteed by the Government, it is not prudent that the Scheme should be fully Funded, especially when the Government is already borrowing funds for current and developmental expenses. Such a type of Funding Strategy is only feasible where the Government have surplus funds or there are specific donations from foreign donors for this purpose.

In the case of Pakistan, where we already have a huge debt burden, we do not see any logic in using borrowed money to build up a Pension Fund.

Thus, it is suggested that the payment to the Pension Fund each year should be on 'Pay as You Go' basis and all future pension payments should be made from the Pension Fund. We may also mention that the above recommended Funding method is being followed even in quite a few economically developed countries.

Under this Method, at the time of each Actuarial Study of the Pension Liabilities after every three years, the Consultant may recommend an annual Rate of Contribution, as percentage of the Provincial Revenue, which should be payable to the Pension Fund, during the next three years.

This recommended amount of Contribution will be paid to the Fund each year and all pension payments will be debited to the Fund.

Any surplus money in the Fund not immediately required for payment of the benefits, will be invested to earn maximum interest.

The existing Fund can continue and will be a buffer for any temporary future shortfall in the receipts and expenditure of the Fund.

i. Annual Contribution Rate on 'Pay as You Go' Funding basis.

On the basis of our study/analysis of the past experience and future projections of the expected GoKP Revenues, and Pensions outgo, and making necessary provision for likely variations in the assumptions, we are of the opinion that a Contribution Rate of **18%** of the GoKP Revenue each year over the next three years, beginning from 2021-22, to the Pension Fund, will be adequate to meet the Pension expenditure during this period. This rate has been determined also taking into consideration any possible decrease in the projected revenue.

On necessary Funds being transferred to the Pension Scheme, all Pension expenditure should be debited to the Fund. The Fund will continue to invest the surplus moneys in secure investments, with highest returns.

The existing amount in the fund and any future surplus will continue to be as reserve for any increase in the pension expenditure over the years.

The suggested Contribution rate may be reviewed at the next Actuarial Valuation of the Pension Scheme, at least after each three years, by the then appointed Consultants.

SECTION III

Deliverable 3

3. The results/comments in respect of the Deliverable 3 are given below.

a. Recommending most Effective Parametric Reforms.

There are various parametric changes or combinations of parametric changes that may be considered to make the Pension Scheme financially sustainable for GoKP.

These changes include increase in retirement age, defining minimum age requirement for early retirement, rationalizing family benefits by reducing the list of eligible dependents and gradual reduction in ad-hoc increases/medical allowance for new retirees.

It may be pointed out that Pakistan has the highest Replacement rate (i.e. Pension as compared to the last pensionable pay) in the region, mainly because of the ad-hoc increases in the pension and payment of Medical allowance. Our Rate is 130% as at 30.6.2020 as compared to 45% in India.

The recommended Pension Reforms are shown here in Tabular form for Comparison purposes. Only the Revised Accrued Liabilities of the Active Employees for different Reform Options have been compared with the existing Accrued Liability of the Active Employees.

| Panaion Reforms Ontions | Active Employees Accrued Liability as at 30.06.2020 | Reduction in Active Employees Accrued Liability | Percentage Reduction in Active Employees Accrued |
|---|---|---|--|
| Pension Reforms Options Pension Scheme with Existing | (Rs. million) 1,951,408 | (Rs. million) | Liability |
| Benefits | 1,991,400 | | |
| 1. Early Retirement after 25 years | 1,932,965 | 18,443 | 0.95% |
| of service or age 55 years, | | | |
| whichever is later. | | | |
| 2. Gradual Reduction in Ad-hoc | 1,352,762 | 598,647 | 30.68% |
| Pension increase | | | |
| 3. No Medical allowance payable | 1,754,883 | 196,525 | 10.07% |
| for future retirees. | | | |
| 4. Increase in Retirement age of | 1,928,732 | 22,676 | 1.16% |
| one year each year as from 1st July | | | |
| 2021 to 65 years, with pension | | | |
| accrual rate being 2% after age 60 | | | |

Table No. 4

In Table 4 above it will be seen that even by gradual Reduction in the total Ad-hoc pension increases and no payment of Medical Allowance, the total reduction in Accrued Liability will be **40.75%**

b. Detail major changes to the terms of the Pension scheme

Detail major changes to the terms of the Pension scheme in the past 40 years and present have been given in Annexure IV.

c. Impact of previous two revisions in the commutation table

The following Table summarizes the effect of previous two revisions in the commutation table on the Pension Scheme liability as at 30.06.2020.

| | Active Employees Accrued Liability as at 30.06.2020 (Rs. million) | Increase in Active Employees Accrued Liability (Rs. million) | Percentage Increase in Active Employees Accrued Liability |
|---|--|--|---|
| PensionSchemewithExistingCommutationfactors i.e.12.3719 at age 60(Effective from 01.12.2001) | 1,951,408 | | |
| 5. Pension Scheme with Commutation factors i.e. 15.4649 at age 60 (Effective from 01.07.1986) | 1,962,277 | 10,869 | 0.56% |
| | Active Employees Accrued Liability as at 30.06.2020 (Rs. million) | Reduction in Active Employees Accrued Liability (Rs. million) | Percentage Reduction in Active Employees Accrued Liability |
| 6. Pension Scheme with Commutation factors i.e. 11.886 at age 60 (Effective from 01.07.1966) | 1,941,697 | 9,712 | 0.50% |

d. Reduction in Actuarial Liability due to no payments beyond-wife family for new pensioners

| | Active | Reduction in | Percentage |
|--------------------------|-----------------|---------------|------------|
| | Employees | Active | Reduction |
| | Accrued | Employees | in Active |
| | Liability as at | Accrued | Employees |
| | 30.06.2020 | Liability | Accrued |
| | (Rs. million) | (Rs. million) | Liability |
| 7. Impact of beyond-wife | | | |
| family pension cost | 1,927,680 | 23,728 | 1.22% |

e. Impact of Pension commutation vs. monthly portion revision from current 35%:65% to 50%:50%;

| | Active | Reduction in | Percentage |
|---|-----------------|---------------|------------|
| | Employees | Active | Reduction |
| | Accrued | Employees | in Active |
| | Liability as at | Accrued | Employees |
| | 30.06.2020 | Liability | Accrued |
| | (Rs. million) | (Rs. million) | Liability |
| 8. Impact of Pension commutation vs. monthly portion revision from current 35%:65% to 50%:50%; | 1,816,513 | 134,895 | 6.91% |

f. Impact of potential additional cost to GoKP by offering Pension Selling scheme (i.e. 0% commutation).

| | Active | Increase in | Percentage |
|---|-----------------|----------------|-------------|
| | Employees | Active | Increase in |
| | Accrued | Employees | Active |
| | Liability as at | Accrued | Employees |
| | 30.06.2020 | Liability (Rs. | Accrued |
| | (Rs. million) | million) | Liability |
| 9. Impact of potential additional cost to GoKP by offering Pension Selling scheme (i.e. 0% commutation). | 2,311,098 | 359,689 | 18.43% |

g. Impact of two rule changes (retirement age to 63 and pension not commencing before the age of 55 years).

| | Active | Reduction in | Percentage |
|---|-----------------|---------------|------------|
| | Employees | Active | Reduction |
| | Accrued | Employees | in Active |
| | Liability as at | Accrued | Employees |
| | 30.06.2020 | Liability | Accrued |
| | (Rs. million) | (Rs. million) | Liability |
| 10. Increase in Retirement age immediately as from 1st July 2021 to 63 years (with maximum service of 30 years), Early Retirement after 25 years of service or age 55 years, whichever is later. | 1,816,979 | 134,429 | 6.89% |

h. Comparison of Cash Flow Projection of Pensions Expenditure (for existing and new Pensioners) during next 10 years for 10 different Reform Options

| | | Parametric Changes | | | | | | |
|-------------|----------|--------------------|----------|----------|----------|----------|----------|----------|
| | Base | Option | Option | Option | Option | Option | Option | Option |
| | Scenario | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| | | | | Total Pa | • | | | |
| Year | | | [| Rs. Bi | llion | [| | |
| | | | | | | | | |
| 2021-22 | 95.64 | 94.39 | 94.60 | 95.23 | 83.48 | 100.07 | 94.14 | 93.79 |
| 2022-23 | 110.87 | 109.39 | 108.61 | 109.83 | 102.11 | 116.17 | 109.16 | 108.57 |
| 2023-24 | 125.09 | 122.77 | 121.07 | 123.36 | 111.47 | 131.01 | 123.24 | 120.91 |
| 2024-25 | 142.66 | 138.11 | 136.12 | 140.07 | 118.26 | 149.65 | 140.54 | 137.95 |
| 2025-26 | 161.04 | 154.53 | 151.13 | 157.41 | 130.18 | 168.60 | 158.79 | 153.98 |
| 2026-27 | 178.71 | 170.91 | 165.05 | 173.91 | 143.52 | 186.63 | 176.07 | 169.5 |
| 2027-28 | 197.68 | 188.80 | 179.85 | 191.66 | 162.87 | 205.94 | 195.74 | 189.1 |
| 2028-29 | 223.56 | 213.04 | 200.50 | 215.94 | 182.05 | 232.93 | 221.13 | 212.51 |
| 2029-30 | 243.59 | 231.93 | 215.13 | 234.35 | 202.64 | 253.32 | 240.91 | 230.82 |
| 2030-31 | 263.72 | 248.62 | 231.06 | 252.96 | 222.18 | 273.95 | 260.61 | 255.52 |
| Total | 1,742.54 | 1,672.49 | 1,603.12 | 1,694.72 | 1,458.76 | 1,818.26 | 1,720.31 | 1,672.65 |
| %age | | 4.0% | 8.0% | 2.7% | 16.3% | -4.34% | 1.28% | 4.01% |
| differences | | | | | | | | |

Table No. 5

| | | Parametric Changes | | | |
|-------------|----------|--------------------|----------|----------|--|
| | Base | Option | Option | Option | |
| | Scenario | 8 | 9 | 10 | |
| | | Total Pa | | | |
| Year | | Rs. Bi | llion | | |
| | | | | | |
| 2021-22 | 95.64 | 101.09 | 81.77 | 77.09 | |
| 2022-23 | 110.87 | 116.43 | 97.12 | 84.95 | |
| 2023-24 | 125.09 | 130.13 | 113.08 | 94.41 | |
| 2024-25 | 142.66 | 147.63 | 131.48 | 115.17 | |
| 2025-26 | 161.04 | 164.77 | 153.58 | 132.01 | |
| 2026-27 | 178.71 | 184.95 | 176.29 | 144.29 | |
| 2027-28 | 197.68 | 206.63 | 201.01 | 150.18 | |
| 2028-29 | 223.56 | 232.24 | 230.95 | 181.38 | |
| 2029-30 | 243.59 | 249.96 | 257.70 | 200.40 | |
| 2030-31 | 263.72 | 273.72 | 284.19 | 213.72 | |
| Total | 1,742.56 | 1,807.55 | 1,727.17 | 1,393.59 | |
| %age | | -3.73% | 0.88% | 20.03% | |
| differences | | | | | |

i. Percentage differences in Cash Outgo, as shown above, in the Pension Expenditure during next 10 years for different Reform Options

| | Parametric Changes | | | | | |
|---------------------|--------------------|----------|--------------|--------------|----------|----------|
| | Option 1 | Option 2 | Option 3 | Option 4 | Option 5 | Option 6 |
| Year | | | Change in To | tal Payments | 5 | |
| 2021-22 | 1.3% | 1.1% | 0.4% | 12.7% | -4.6% | 1.6% |
| 2022-23 | 1.3% | 2.0% | 0.9% | 7.9% | -4.8% | 1.5% |
| 2023-24 | 1.9% | 3.2% | 1.4% | 10.9% | -4.7% | 1.5% |
| 2024-25 | 3.2% | 4.6% | 1.8% | 17.1% | -4.9% | 1.5% |
| 2025-26 | 4.0% | 6.2% | 2.3% | 19.2% | -4.7% | 1.4% |
| 2026-27 | 4.4% | 7.6% | 2.7% | 19.7% | -4.4% | 1.5% |
| 2027-28 | 4.5% | 9.0% | 3.0% | 17.6% | -4.2% | 1.0% |
| 2028-29 | 4.7% | 10.3% | 3.4% | 18.6% | -4.2% | 1.1% |
| 2029-30 | 4.8% | 11.7% | 3.8% | 16.8% | -4.0% | 1.1% |
| 2030-31 | 5.7% | 12.4% | 4.1% | 15.8% | -3.9% | 1.2% |
| %age differences | 4.0% | 8.0% | 2.7% | 16.3% | -4.34% | 1.28% |

Table No. 6

| | Parametric Changes | | | | |
|---------------------|--------------------|--------------|-----------------|------------------|--|
| | Option 7 | Option 8 | Option 9 | Option 10 | |
| Year | | Change in To | tal Payments | | |
| 2021-22 | 1.9% | -5.7% | 14.5% | 19.4% | |
| 2022-23 | 2.1% | -5.0% | 12.4% | 23.4% | |
| 2023-24 | 3.3% | -4.0% | 9.6% | 24.5% | |
| 2024-25 | 3.3% | -3.5% | 7.8% | 19.3% | |
| 2025-26 | 4.4% | -2.3% | 4.6% | 18.0% | |
| 2026-27 | 5.2% | -3.5% | 1.4% | 19.3% | |
| 2027-28 | 4.3% | -4.5% | -1.7% | 24.0% | |
| 2028-29 | 4.9% | -3.9% | -3.3% | 18.9% | |
| 2029-30 | 5.2% | -2.6% | -5.8% | 17.7% | |
| 2030-31 | 3.1% | -3.8% | -7.8% | 19.0% | |
| %age differences | 4.01% | -3.73% | 0.88% | 20.03% | |

SECTION IV Deliverable 4

The results/comments in respect of the Deliverable 4 are given below. 4. Comprehensive characteristics of Current Active & Retired Employees

a. Current employee's statistics

The age, past service and pensionable pay distributions of current active employees were determined using the data provided by AG Office. These distributions are shown in Annexure V.

b. Retired employee's statistics

Comprehensive age wise, BPS wise distributions of current pensioners are shown in Annexure V.

c. Cost per month to GoKP for provision of pension benefits, in terms of Basic & Gross salary.

1. To fund the only future liability as it accrues, the required annual contribution rate payable to the Pension Fund is **62.4% of pensionable pay.**

2. To fund the Current Deficit of Rs.2,969.904 billion, the required annual contribution rate payable to the Pension Fund is **140% of pensionable pay.**

Pensionable payroll represents 55.0% of gross payroll. Based on this;

3. To fund the only future liability as it accrues, the required annual contribution rate payable to the Pension Fund is **36.55% of Gross Pay.**

4. To fund the Current Deficit of Rs.2,969.904 billion, the required annual contribution rate payable to the Pension Sc heme is **79.81% of Gross Pay.**

Following table represent the annual cost of total pension benefits as the percentage of Gross Salary and Basic salary.

| Year | Basic Salary | Gross Salary |
|---------|--------------|--------------|
| 2021-22 | 53% | 29% |
| 2022-23 | 57% | 31% |
| 2023-24 | 60% | 33% |
| 2024-25 | 64% | 35% |
| 2025-26 | 68% | 37% |
| 2026-27 | 71% | 39% |
| 2027-28 | 73% | 40% |
| 2028-29 | 78% | 43% |
| 2029-30 | 80% | 44% |
| 2030-31 | 81% | 44% |

ANNEX I

Summary of the Benefit Structure of Khyber Pakhtunkhwa Pension Scheme

All regular employees of the Government of Khyber Pakhtunkhwa, who are members of Pension Scheme are entitled to the following benefits on normal and early retirement, death and disability, as at June 30th 2020:

Normal Retirement Pension at age 60years

If service is less than 5 years:

• Nil Benefit

If service is greater than 5 and less than 10 years:

• A lump sum gratuity is payable. The rate of gratuity is calculated as per the following formula:

Gratuity=Last Drawn Pensionable Pay x Pensionable Service

If service is 10 years or greater:

• The rate of pension at normal retirement age is (7/300) 2.33% of the last drawn pensionable Pay for each year of service subject to a maximum service period of 30 years. The maximum pension amount is thus limited to 70% of the last drawn pensionable Pay

The employees can surrender up to a maximum of 35% of the gross pension in lieu of a lumpsum-commuted value. The commuted value at age 60 shall be calculated as per the following formula:

Commuted Value =12.37 x amount of pension surrendered x 12

Early Retirement Pension after 25 years of service

Early retirement Pension is being paid on retirement after completion of 25 years of service, irrespective of the age of the retiree. The rate of pension at early retirement age is 2.33% of the last drawn pensionable Pay for each year of service subject to a maximum service period of 30 years. The maximum pension amount is thus limited to 70% of the last drawn pensionable Pay

The employees can surrender up to a maximum of 35% of the gross pension in lieu of a lumpsum-commuted value. The age-based commutation factors are set out in the table (later in the section).

For the base calculations, the Early Retirement is after 25years of service without any condition of the age being 55years, as are the existing conditions. We have also made calculations with the condition of retirement age of at least 55years to show the reduction in Liability and Contribution rate. This is Reforms Option 1.

Death in Service

If service is less than 5 years:

• Nil Benefit

If service is greater than 5 and less than 10 years:

• A lump sum gratuity is payable. The rate of gratuity is calculated as per the following formula:

Gratuity = 1.5 x Last Drawn Pensionable Pay x Service

If service is greater than 10 years or more- Family Pension

• The basic pension shall be 2.33% of the last drawn pensionable Pay for each year of service subject to a maximum service period of 30 years

Family Pension=75% x basic pension

In addition to the above, the Family is entitled to 25% of the commuted value of gross pension. The age-based commutation factors are set out in the table (later in the section)

Death after Retirement

In case of death after retirement, the Family is entitled to receive 75% of the pension being received by the retiree.

The list of entitled family members is as follows:

| Relationship | Eligibility for Pension | | |
|--------------------------|--|--|--|
| Widow | Up to death or remarriage | | |
| Widower | Up to death or remarriage | | |
| Son(s) | Dependent and below 24 years of age (for life if disabled) | | |
| Daughters | Unemployed unmarried daughters for life (for life if disabled) | | |
| | IF NONE OF THE ABOVE | | |
| Widowed daughter | Up to 10 years from death | | |
| Widow of Deceased Son | Up to 10 years from death | | |
| Son of deceased son | Up to 10 years from death if dependent and below 24 years of age | | |
| Daughter of deceased son | Up to 10 years from death if unemployed and unmarried | | |
| Widowed daughter of | | | |
| deceased son | Up to 10 years from death if unemployed and unmarried | | |
| | IF NONE OF THE ABOVE | | |
| Father | Up to death | | |
| Mother | Up to death | | |
| Brother | Up to 10 years from death if below 21 years of age | | |
| Sister | Up to 10 years from death if unmarried | | |
| Widowed Sister | Up to 10 years from death if unmarried | | |
| Divorced Daughter | Up to 10 years from death | | |
| Divorced Sister | Up to 10 years from death | | |

Ill-health Retirement Pension

If service is less than 5 years:

• Nil Benefit

If service is greater than 5 and less than 10 years:

• A lump sum gratuity is payable. The rate of gratuity is calculated as per the following formula:

Gratuity = 1.5 x Last Drawn Pensionable Pay x Service

If service is 10 years or more:

• The basic pension is 2.33% of the last drawn pensionable Pay for each year of service subject to a maximum service period of 30 years.

The employee can surrender up to a maximum of 35% of the gross pension in lieu of a lumpsum-commuted value.

Immediate (Ad hoc) Pension Increase

According to the notifications issued by the Government of Khyber Pakhtunkhwa, with effect from 1st July 2019, the Net Pension amount payable for new retirees will increase by 85.2% after allowing for the previous increases as follows:

| Year | Effective Date | Rate of Increase |
|------|----------------|------------------|
| 2011 | 01.07.2011 | 15% |
| 2015 | 01.07.2015 | 10% |
| 2016 | 01.07.2016 | 10% |
| 2017 | 01.07.2017 | 10% |
| 2018 | 01.07.2018 | 10% |
| 2019 | 01.07.2019 | 10% |

The reasoning for the continuation of these increases is said to be to adjust for the anomaly arising from providing pension increases but no increase in pensionable wage: a person retiring before effective date would receive pension increase whereas similar person retiring afterwards would not and hence receive lesser pension.

Minimum Pension

Minimum pension payable to a retired employee is Rs.10,000/- per month. Minimum pension payable to a Family pensioner is Rs. 7,500/- per month (i.e. 75% of Rs.10,000).

Commutation Table

Following is the age – based commutation table showing commutation factors at ages 20-60.

| Age | Commutation | Age | Commutati | Age | Commutati |
|-----|-------------|-----|------------|-----|------------|
| | Factors | | on Factors | | on Factors |
| 20 | 40.5043 | 36 | 28.3362 | 52 | 17.0050 |
| 21 | 39.7341 | 37 | 27.5908 | 53 | 16.3710 |
| 22 | 38.9653 | 38 | 26.8482 | 54 | 15.7517 |
| 23 | 38.1974 | 39 | 26.1009 | 55 | 15.1478 |
| 24 | 37.4307 | 40 | 25.3728 | 56 | 14.5602 |
| 25 | 36.6651 | 41 | 24.6406 | 57 | 13.9888 |
| 26 | 35.9006 | 42 | 23.9126 | 58 | 13.4340 |
| 27 | 35.1372 | 43 | 23.1840 | 59 | 12.8953 |
| 28 | 34.3750 | 44 | 22.4713 | 60 | 12.3719 |
| 29 | 33.6143 | 45 | 21.7592 | | |
| 30 | 32.8071 | 46 | 21.0538 | | |
| 31 | 32.0974 | 47 | 20.3555 | | |
| 32 | 31.3412 | 48 | 19.6653 | | |
| 33 | 30.5869 | 49 | 18.9841 | | |
| 34 | 29.8343 | 50 | 18.3129 | | |
| 35 | 29.0841 | 51 | 17.6526 | | |

Restoration

The retirees shall be entitled to pension restoration of their commuted part with indexation after lapse of the whole number of years of the commutation factor.

Medical Allowance

All the retirees retiring in Basic Pay Scales (BPS) 16 to BPS-22 and in BPS 1 to BPS 15 are entitled to Medical Allowance at the rate of 20% and 25% respectively of the net monthly pension at the time of retirement. Medical Allowance amount is increased by 25% immediately for new pensioner.

ANNEX II

Assumptions used for the Actuarial Valuation.

The Assumptions used for the purpose of the Actuarial Valuation comprise of Financial assumptions, Demographic assumptions, and Other General assumptions

The key components, of Financial assumptions are:

- Discount Rate
- Rate of Increase in Pensionable pay
- Rate of Increase in Pensions
- Rate of increase in Medical allowance
- o New Entrants for Cash Flow Projections

The key components of Demographic assumptions are:

- Mortality Rate
- Withdrawal Rate
- Disability (Ill-health) Rates
- Early Retirement Rates-assuming retirement after 25years of service, with no age restriction of 55years.

The Other General assumptions relating to:

- Expenses of Management
- Nature of the Group
- The Benefit structure of the Fund
- o Immediate (Ad-hoc) Pension Increases for New Retirees

Financial assumptions

i. Discount Rate

The Committee of the Pakistan Society of Actuaries (PSoA) on Discount Rate issues recommendations on quarterly basis, as regards the Discount Rates applicable for different weighted average durations of the Pension and Gratuity Funds. While determining these Discount Rates the Committee takes into consideration the yields on PIBs of different terms, issued by the State Bank of Pakistan.

Thus, a Discount Rate of 10% is used, which is according to the Committee's Rates recommendations issued as per PSoA GN 4.

ii. Rate of Increase in Pensionable pay

The Discount rate and the Rate of increase in Pensionable pay are usually inter-related since during periods of inflation, both tend to rise in conformity with each other.

From actuarial Valuation point of view, it is the difference between these two rates that matters, and not their individual values in isolation.

It has been assumed that the long-term Rate of increase in Pensionable pay will be 9% per annum.

The difference of 1% between the Discount Rate and the long-Term Rate of increase in Pensionable pay is considered appropriate and is within the internationally and locally recognized norms.

iii. Rate of increase in Pension

The long-term Rate of increase of pension has been assumed as 8% per annum. This is based upon past-history of increases/indexation allowed by the Provincial Government from time to time and future expectations because of likely higher future rate of inflation.

iv. Rate of Increase in Monthly Medical Allowance

It has been assumed that the monthly Medical Allowance will increase at 5.00% per annum.

v. New Entrants for Cash Flow Projections

It has been assumed that each year the net increase (allowing for all exits/entrants) in the strength of the total employees will be 1%.

New entrants are assumed as uniformly distributed over ages 20 to 29.

Demographic assumptions valuation

i. Mortality Rates

It has been assumed that the Mortality experience of the Active Employees will be according to SLIC (2001-2005) Mortality Table with 2-year set-back.

The Mortality experience of the pensioners has been assumed to correspond to SLIC (2001-2005) Mortality Table with 2 years set-back.

The Mortality experience of the widow pensioners has been assumed to correspond to SLIC (2001-2005) Mortality Table with 2-year set-back.

It has been assumed that the female spouse of a male employee is three years younger than her husband.

Based on the above assumptions the Life Expectancy of the Male at age 60 is till age 83 and for a female at age 60 the Life Expectancy is till age 86.

ii. Withdrawal, Ill-health, and Early Retirement Rates

The Active Employee's Withdrawal, Ill-health and Early Retirement Rates used are based on the experience of the Public-sector employee benefit Funds in Pakistan. All the above-mentioned Rates are shown in Annex III.

Early Retirement is after 25 years of service without any condition of the age being 55 years, as are the existing conditions.

Other General assumptions

i. Expenses of Management

As in the previous Actuarial valuation it has been assumed that the expenses for the management of Pension Scheme/ would be borne by GoKP, and accordingly no provision has been made in the actuarial Valuation of the liability.

ii. Nature of the Group

To determining the Actuarial Liability a closed Group has been assumed, which means, that there will be no new entrants in the existing group of Active Employees.

However, for the purposes of calculating the Cash Flow Projections, it has been assumed that each year the net increase (allowing for all exits/entrants) in the strength of the total employees will be 1%

New entrants are assumed as uniformly distributed over ages 20 to 29.

iii. Benefit Structure under the Existing Pension Scheme

It has been assumed that the terms and conditions for the payment of benefits under the Existing Pension Scheme will continue. No provision has been made for any changes etc. in the future, which may be made by the Government.

These terms and conditions for the Existing Pension Scheme are given in Annexure I.

iv. Immediate (Ad-hoc) Pension Increases for New Retirees

Provision has been made while determining the Actuarial Liability of the increase in pension allowed by the Government according to notification No. FD-SOSR-II/4-111/2019 dated 18th July 2019 to the new Retirees as from 1st July 2019 also allowing for the previous six increases in pension amounts.

Method used for the Actuarial Valuation of the Pension Scheme Liability

The Actuarial Method being used to determine the Actuarial liability and the future Contribution rate in respect of each of the Benefit Scheme is known as Projected Unit Credit Method (PUCM). This method is mandated by the International Public Sector Accounting Standard 39 (IPSAS-39).

This involves projecting each unit of benefit earned over a period plus earlier periods, to leaving service, retirement, death or other future exit states, allowing for probabilities of reaching those states, also allowing for salary escalation over time, and then discounting those benefits to the valuation date.

The resultant estimated liability amount reflects full expected service cost, to each of leaving service, retirement or death, or other exit states.

The Current Service Cost is determined by dividing, for each employee, their total liability by total expected service and then aggregating the Current Service Cost for all members. The Current Service Cost can be viewed as the cost accruing over the next year, allowing for escalation and discounting to the different possible dates of payment.

To determine the Defined Benefit Obligation ("DBO"), we subtract from the total estimated liability the Current Service Cost multiplied by expected future service. This is, in effect, the liability that should be held at the date of the valuation, for service and benefits accrued up to the date of the valuation.

Differences between expectations and fact emerge as actuarial gains or losses and are amortized immediately the next year.

ANNEX III

Pension Payments against projected Government Revenue for next 20 years

The following Table summarizes the Pension Payments against projected Government Revenue for next 20 years:

| | | | | | Rs. Billion |
|---------|--|-------------------|------------------------------|-----------------------|--|
| Year | Lumpsum Payments (Commutation and Gratuity) | Annual Pension | Total Pension Payments | Projected Revenue* | Pension Expense as % of Revenue |
| 2021-22 | 19.637 | 76.001 | 95.638 | 744.634 | 14.1% |
| 2022-23 | 24.534 | 86.333 | 110.867 | 819.097 | 14.9% |
| 2023-24 | 27.229 | 97.861 | 125.090 | 901.007 | 15.3% |
| 2024-25 | 31.617 | 111.047 | 142.664 | 991.108 | 15.8% |
| 2025-26 | 35.348 | 125.690 | 161.037 | 1,090.219 | 16.2% |
| 2026-27 | 37.183 | 141.523 | 178.707 | 1,199.241 | 16.4% |
| 2027-28 | 39.030 | 158.646 | 197.676 | 1,319.165 | 16.5% |
| 2028-29 | 45.541 | 178.020 | 223.561 | 1,451.081 | 16.9% |
| 2029-30 | 45.042 | 198.547 | 243.589 | 1,596.189 | 16.8% |
| 2030-31 | 42.433 | 221.282 | 263.716 | 1,755.808 | 16.5% |
| 2031-32 | 41.847 | 246.868 | 288.715 | 1,931.389 | 16.4% |
| 2032-33 | 44.661 | 275.108 | 319.769 | 2,124.528 | 16.6% |
| 2033-34 | 45.042 | 306.441 | 351.483 | 2,336.980 | 16.5% |
| 2034-35 | 46.429 | 340.673 | 387.103 | 2,570.679 | 16.6% |
| 2035-36 | 48.733 | 378.590 | 427.323 | 2,827.746 | 16.6% |
| 2036-37 | 54.480 | 422.681 | 477.161 | 3,110.521 | 16.9% |
| 2037-38 | 59.177 | 471.088 | 530.266 | 3,421.573 | 17.0% |
| 2038-39 | 69.700 | 525.088 | 594.788 | 3,763.730 | 17.4% |
| 2039-40 | 79.110 | 586.101 | 665.211 | 4,140.103 | 17.7% |
| 2040-41 | 89.641 | 653.208 | 742.849 | 4,554.113 | 16.3% |

*It has been assumed that long-term growth in Government Revenue would not be less than 10% per annum from FY2021-22 onwards.

Major changes to the terms of the Pension scheme in the past

The material factors (changes in Pension rules) resulting in the increases of Past Service Actuarial Liability and the Contribution Rate are as follows:

i. GoKP, in line with the Federal and other provincial governments, not only entitles pension increases to its existing pensioners but also future pensioners as and when they become entitled. Currently this approach applies to six previous pension increases resulting in formula net pensions being increased by approximately 85.2%.

Although increases applicable from 2010, 2012, 2013 and 2014 have ceased to apply due to merger of related non-pensionable allowances into pensionable pay a number of increases continue to apply. The increases which continue to apply to new retirees as of the valuation date are listed below:

| Year | Effective Date | Rate of Increase |
|------|----------------|------------------|
| 2011 | 01.07.2011 | 15% |
| 2015 | 01.07.2015 | 10% |
| 2016 | 01.07.2016 | 10% |
| 2017 | 01.07.2017 | 10% |
| 2018 | 01.07.2018 | 10% |
| 2019 | 01.07.2019 | 10% |

The reasoning for the continuation of these increases is said to be to adjust for the anomaly arising from providing pension increases but no increase in pensionable wage: a person retiring before effective date would receive pension increase whereas similar person retiring afterwards would not and hence receive lesser pension. However, this is a flawed policy response to the observed anomaly and requires review.

ii. In 2001 new pay scales were introduced together with some changes in the pension rights, all employees were given the option to accept these new pay/pension conditions or continue under existing terms: this included discontinuation of the benefit of restoration of commuted portion of pension (this was done in 2001 to correct an irrational benefit commitment introduced in the 1980's. There is no international practice to support the concept of restoration.). Almost all employees opted for the new conditions, the exceptions were generally among those who were approaching their superannuation age.

As a consequence of the Supreme Court Order of 31.03.2014 the benefit of restoration of commuted portion of the pension was reinstated. This change in pension rules was to be applied retroactively and entitled to all arrears, i.e. compensated assuming that the change never took effect.

Additionally, the commuted portion of pension is restored after providing all pension increases awarded during the commuted period (including pension indexations provided at retirement, currently the six increases mentioned above).

- iii. Changes in Pension benefits (such as 75% of gross pension payable to spouse, continuation of pension to widow/divorced daughter, divorced sister etc.).
- iv. Last three years Average emoluments replaced by last pay. However most sustainable defined benefit programs determine pension using career average salaries, uprated to reflect impact of inflation or average wage increase.
- v. The concept of minimum monthly pension was introduced in 1988 and initially applied to "gross pension". In recent years the minimum has been enhanced to Rs.7,500 for family pension cases and Rs.10,000 for other pension cases and is now applied to "net pension".
- vi. Medical Allowance was introduced w.e.f. 1st July 2010 and 20% one-time increase was also provided in July 2015. Currently Grade 1-15 employee are entitled to medical allowance at the rate of 31.25% of net pension and Grade 16-22 are receiving at the rate of 25% of net pension.
- vii. Change in Commutation Factors: following is the summary of changes in commutation factors from beginning to date at age 60:

| Age | 01.12.2001 | 01.07.1986 | 01.07.1966 | Before July 1966 |
|-----|------------|------------|------------|---------------------|
| 60 | 12.3719 | 15.4649 | 11.886 | 9.97 |

Commutation functions are simple and efficient way to calculate the actuarial present value of contingent payments. They are a function of a deterministic survival model and a constant and level rate of return.

ANNEX V

Data of Active Employees

Active Employees

The Table No.IA below shows the summary of the data of the Active Employees used for the Actuarial Valuation.

| Number of Active Employees | 504,779 |
|---------------------------------|-------------------|
| Total Monthly Pensionable pay | Rs. 11.831Billion |
| Average Monthly Pensionable pay | Rs.23,438 |
| Average age | 39 Years |
| Average past service | 13.5 Years |

Table No. IVA

The Table No. IVB below shows the distribution of 504,779 Active Employees according to **Basic Pay Scale**:

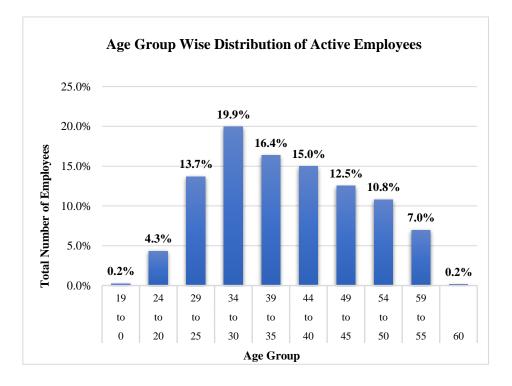
| Pay Grade | Number of Employees | % of Total Number | Average Monthly Pensionable Pay (Rs.) |
|-----------|------------------------|----------------------|--|
| 1 | 3,371 | 0.6679% | 11,752 |
| 2 | 3,696 | 0.7323% | 14,262 |
| 3 | 65,142 | 12.9050% | 12,191 |
| 4 | 44,557 | 8.8269% | 17,100 |
| 5 | 20,683 | 4.0975% | 15,111 |
| 6 | 6,326 | 1.2531% | 14,881 |
| 7 | 99,653 | 19.7419% | 15,270 |
| 8 | 1,413 | 0.2799% | 19,770 |
| 9 | 16,016 | 3.1729% | 19,925 |
| 10 | 1,568 | 0.3106% | 20,385 |
| 11 | 15,347 | 3.0403% | 21,029 |
| 12 | 61,754 | 12.2339% | 19,242 |
| 13 | 4,354 | 0.8626% | 34,347 |
| 14 | 25,506 | 5.0530% | 29,949 |
| 15 | 53,228 | 10.5448% | 31,560 |
| 16 | 49,420 | 9.7905% | 38,539 |
| 17 | 21,461 | 4.2516% | 46,857 |
| 18 | 7,341 | 1.4543% | 64,425 |
| 19 | 3,188 | 0.6315% | 93,338 |
| 20 | 654 | 0.1297% | 116,107 |
| 21 | 98 | 0.0194% | 142,348 |
| 22 | 2 | 0.0004% | 149,709 |
| Total:- | 504,779 | 100% | 23,438 |

Table No. IVB

| | Age Group Wise Distribution of Active Employees | | | | | |
|--------------|---|----|---------|-------------------|--|--|
| | Age Group | | Number | % of Total Number | | |
| 0 | То | 19 | 1,255 | 0.2% | | |
| 20 | То | 24 | 21,872 | 4.3% | | |
| 25 | То | 29 | 69,084 | 13.7% | | |
| 30 | То | 34 | 100,688 | 19.9% | | |
| 35 | То | 39 | 82,616 | 16.4% | | |
| 40 | То | 44 | 75,657 | 15.0% | | |
| 45 | То | 49 | 63,186 | 12.5% | | |
| 50 | То | 54 | 54,448 | 10.8% | | |
| 55 | То | 59 | 35,183 | 7.0% | | |
| 60 and above | | ; | 791 | 0.2% | | |
| Gran | d Total | l | 504,779 | 100% | | |

Table No. IVC

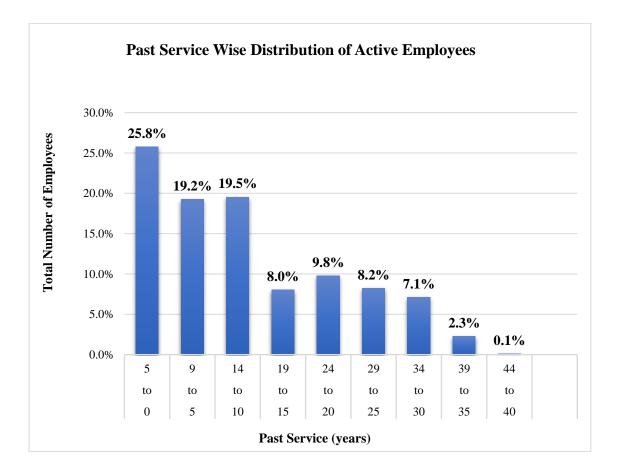
Figure No. IVC



| | Past Service Wise Distribution of Active Employees | | | | | | |
|----|--|----|-------------------------------|-------|-------------------|--|--|
| Pa | Past Service (years) | | Past Service (years) Number | | % of Total Number | | |
| 0 | То | 5 | 130,021 | 25.8% | | | |
| 5 | То | 9 | 97,080 | 19.2% | | | |
| 10 | То | 14 | 98,573 | 19.5% | | | |
| 15 | То | 19 | 40,479 | 8.0% | | | |
| 20 | То | 24 | 49,234 | 9.8% | | | |
| 25 | То | 29 | 41,434 | 8.2% | | | |
| 30 | То | 34 | 35,942 | 7.1% | | | |
| 35 | То | 39 | 11,422 | 2.3% | | | |
| 40 | То | 44 | 594 | 0.1% | | | |
| 45 | 45 and Above | | - | 0.0% | | | |
| | Grand Total | | 504,779 | 100% | | | |

Table No. IVD

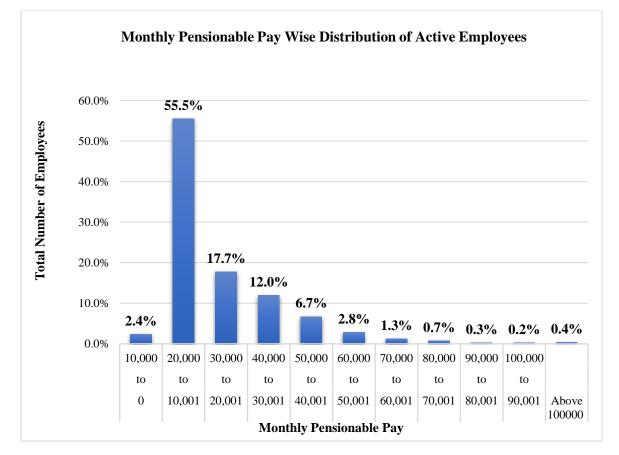
Figure No. IVD



| | Monthly Pensionable Pay Wise Distribution of | | | | | | |
|-------------|--|---------|---------|------------|--|--|--|
| | Active Employees | | | | | | |
| Mon | thly Pensionabl | e Pay | | % of Total | | | |
| | (Rs.000's) | | Numbers | Number | | | |
| 0 | То | 10 | 12,013 | 2.4% | | | |
| 11 | То | 20 | 280,235 | 55.5% | | | |
| 21 | То | 30 | 89,400 | 17.7% | | | |
| 31 | То | 40 | 60,383 | 12.0% | | | |
| 41 | То | 50 | 33,970 | 6.7% | | | |
| 51 | То | 60 | 14,315 | 2.8% | | | |
| 61 | То | 70 | 6,389 | 1.3% | | | |
| 71 | То | 80 | 3,761 | 0.7% | | | |
| 81 | То | 90 | 1,373 | 0.3% | | | |
| 90 | То | 100 | 1,162 | 0.2% | | | |
| | 100 and Above | | 1,779 | 0.4% | | | |
| Grand Total | | 504,779 | 100% | | | | |

Table No. IVE

Figure No. IVE



All Pensioners including Widow/widowers/Children

The Table below shows the bifurcation of 164,623 Pensioners between Employee Pensioners and Family Pensioners

Table No. IVF

| Total Monthly Pension | Rs. 4.260Billion |
|-------------------------------|------------------|
| Total Pensioners | 164,623 |
| Family Monthly Pension | Rs. 1.028Billion |
| Number of Family Pensioners | 56,083 |
| Monthly Pension | Rs. 3.232Billion |
| Number of Employee Pensioners | 108,540 |

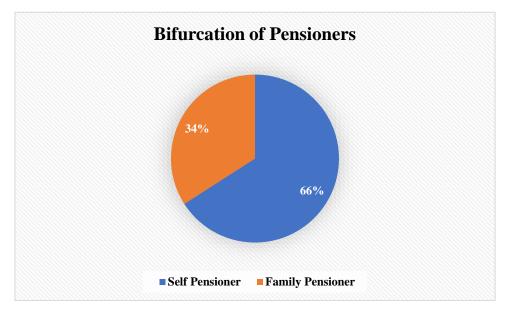


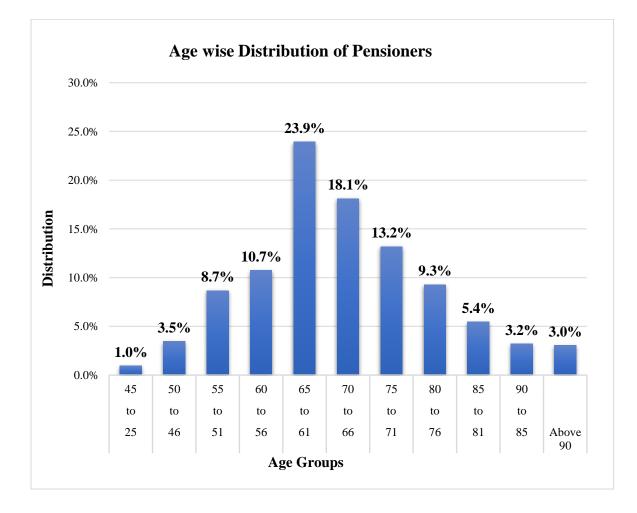
Figure No. IVF

The Tables and Figures below show the distribution of All Pensioners according to Age groups, and Monthly Pension amount groups.

| Ag | Age Group Wise Distribution of Pensioners | | | | | | |
|-----|---|----|---------|--------------|--|--|--|
| Age | Age Group | | Number | Distribution | | | |
| 25 | to | 45 | 1,569 | 1.0% | | | |
| 46 | to | 50 | 5,694 | 3.5% | | | |
| 51 | to | 55 | 14,278 | 8.7% | | | |
| 56 | to | 60 | 17,689 | 10.7% | | | |
| 61 | to | 65 | 39,388 | 23.9% | | | |
| 66 | to | 70 | 29,805 | 18.1% | | | |
| 71 | to | 75 | 21,689 | 13.2% | | | |
| 76 | to | 80 | 15,263 | 9.3% | | | |
| 81 | to | 85 | 8,971 | 5.4% | | | |
| 85 | to | 90 | 5,274 | 3.2% | | | |
| At | Above 90 | | 5,001 | 3.0% | | | |
| Gra | Grand Total | | 164,623 | 100% | | | |

Table No. IVG

Figure No. IVG



| Monthly Pension Amount Wise Distribution of Pensioners | | | | | | |
|--|---------------|-------------|-------------------|-------|--|--|
| Monthly Pension Amount | | Number | % of Total Number | | | |
| 0 | То | 10,000 | 19,345 | 11.8% | | |
| 10,001 | То | 20,000 | 64,333 | 39.1% | | |
| 20,001 | То | 30,000 | 30,102 | 18.3% | | |
| 30,001 | То | 40,000 | 20,996 | 12.8% | | |
| 40,001 | То | 50,000 | 12,459 | 7.6% | | |
| 50,001 | То | 60,000 | 5,188 | 3.2% | | |
| 60,001 | То | 70,000 | 3,240 | 2.0% | | |
| 70,001 | То | 80,000 | 2,281 | 1.4% | | |
| 80,001 | То | 90,000 | 1,757 | 1.1% | | |
| 90,001 | То | 100,000 | 1,487 | 0.9% | | |
| Above 10 | Above 100,000 | | 3,434 | 2.1% | | |
| Grand Total | | Grand Total | | 100% | | |

Table No. IVH

Figure No. IVH

