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Occupied Palestinian Territory

Actuarial valuation of the schemes administered by the Palestinian Pension Agency as of 31 December 2012

ILO Regional Office for Arab States
ILO Financial and Actuarial Service (ILO FACTS)
Social Protection Department
International Labour Office
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Contents

Abbreviations and acronyms

DB	Defined-benefit (component of Scheme 2)
DC	Defined-contribution (component of Scheme 2)
GAP	General average premium
GDP	Gross domestic product
GPC	General Personnel Council
ILO	International Labour Office
ILO FACTS	ILO Financial and Actuarial Service
MoF	Ministry of Finance
NRA	Normal retirement age
oPt	Occupied Palestinian Territory
PAYG	Pay-as-you-go
PCBS	Palestinian Central Bureau of Statistics
PPA	Palestinian Pension Agency
TFR	Total fertility rate

Acknowledgments

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The Director-General of the ILO would like to express his appreciation to Dr. Majed A. Helou, Chief Executive Officer of the PPA, for extending his trust in the ILO for conducting this actuarial valuation. Thanks also to the staff of the PPA who provided the information and data necessary for the actuarial valuation, in particular Ms. Salama Abusalim, Actuarial Specialist and Mr. Mohammed Mohaisen, Investment Manager.

Executive summary

The actuarial valuation is performed on the basis of data as of 31 December 2012. It represents the first formal actuarial valuation of the schemes administered by the PPA.

Schemes under review

PPA administers four schemes. The main characteristics of the schemes are:

	Aged more than 45 on 1 September 2006		Aged less than 45 on 1 September 2006 and new entrants	
	Civilians	Security forces	Civilians	Security forces
Scheme 1	Gaza			
Scheme 2			West Bank and Gaza	West Bank and Gaza
Scheme 3		West Bank and Gaza		
Scheme 4	West Bank			

Financial responsibility of the PPA

The Ministry of Finance is held responsible for all expenses related to Scheme 3 and Scheme 4. In the case of Scheme 1 and Scheme 2, the PPA assumes the financial responsibility. However, the situation is not clear for Security forces of Scheme 2. For this group, the MOF transfers monthly to the PPA the funds necessary to pay current benefits and no debt of the Ministry of Finance towards the PPA has been identified regarding contribution arrears.

Contribution arrears

The PPA must deal with important contribution arrears from the Ministry of Finance. According to PPA estimates, contribution arrears amount to 3,537.2 million NIS as at 31 December 2012. Given the financial difficulties this causes to the PPA, immediate actions must be taken in order to force the Ministry of Finance to meet its obligations regarding the payment of contributions to the PPA.

No new enrolment of private sector workers

Pension law No 7 of 2005 was supposed to integrate employees of both public and private sectors. In that context, some NGOs and private sector enterprises have joined Scheme 2 since 2006. However, the government intends to create a separate pension scheme for the private sector. Consequently, it is assumed in this valuation that no additional private sector enterprises will join the PPA in the future.

Demographic and financial projections of the PPA

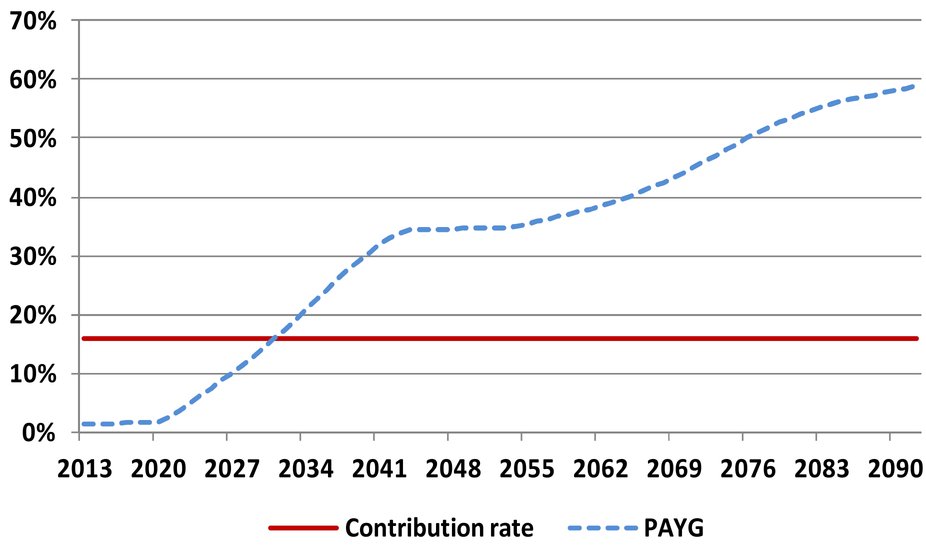
The report presents results regarding the four schemes administered by the PPA but concentrates its analyses on Scheme 2 which is the scheme open to new entrants.

For Scheme 2, the ratio of contributors to pensioners, which stands at 22.8 in 2013, will rapidly decrease to 6.2 in 2025 and will be around 1.0 at the end of the projection period (2090). In the long term, there will be only one contributor to support each pensioner.

The cost of a scheme, on a going-concern basis, may be measured by the general average premium (GAP). The GAP represents the constant contribution rate necessary to finance all benefits over a period of 80 years. The GAP is estimated at 39.0 percent of insurable earnings for Scheme 2 (which may be further disaggregated into 33.3 percent for Civilians and 45.6 for Security forces). This GAP may be compared to the total contribution rate of 16.0 percent jointly paid by employees and employers. It demonstrates the insufficiency of the current contribution rate.

The pay-as-you-go (PAYG) cost of the schemes represents the contribution rate that would be necessary to finance the current annual expenditures in the absence of reserve funds. The PAYG of Scheme 2 is below 2.0 percent until 2020, but it increases very rapidly thereafter to reach 34.7 percent in 2050 and 58.1 in 2090.

SCHEME 2 – Comparison of PAYG and contribution rate (2013-2093)



Proposed modifications to Scheme 2

The results of the actuarial valuation show that Scheme 2 would have to face very important contribution rate increases in the future in order to keep the present provisions unchanged. The report presents a series of measures that are aimed at improving the financial condition of Scheme 2. They include:

- Gradual increase of the retirement age;
- Less attractive early retirement conditions;
- Pensions based on career average earnings instead of final earnings;

- Indexing of pensions based on CPI instead of wages;
- Reduction of the accrual rate of pensions from 2.0 percent to 1.5 percent per year;
- Increase of contribution rates.

By adopting these modifications and applying the following contribution rate schedule in the future, it would be possible to keep the scheme in good financial condition.

Year	**Contribution rate** (% of insurable earnings)
2013-2036	16.0%
2037-2042	17.0%
2043 +	18.0%

The defined-contribution component of Scheme 2

The defined-contribution (DC) component of Scheme 2 has not been really implemented. Contributions are not actually collected regarding that component, so that participants' individual accounts have not yet been created.

Given the problems of application of the DC component of the law, the incapacity of the Ministry of Finance to pay contribution arrears and the difficulty to invest those funds in the current financial environment, it should be envisaged to review this part of the law. One possibility would be to reorient this contribution income into the DB component of Scheme 2 in order to reinforce its financial status of the DB component.

Introduction

This represents the first actuarial valuation of the schemes administered by the Palestinian Pension Agency (PPA). The valuation is performed on the basis of data as of 31 December 2012, which represents the date of the most recent complete database and latest available PPA financial statements.

Section 1 of the report presents the general context of the valuation. Section 2 analyses the financial operations of the PPA for the period 2008-2012. The actuarial projections are presented in Section 3. Section 4 proposes different measures to improve the financing of the PPA schemes and Section 5 discusses some other topics. The description of the schemes, the methodology of the valuation, the general demographic and macroeconomic framework and the actuarial bases of the valuation are described in annex.

1. Context of the valuation

This valuation represents the first formal actuarial valuation of the schemes administered by the PPA. Hence it does not include a reconciliation with the previous valuation, as it is generally the case in an actuarial report.

This section presents the schemes under review (described in detail in Annex 1) and outlines different considerations that have influenced the way the actuarial valuation was conducted.

1.1 The schemes under review

Adoption of Pension law No 7 of 2005 brought a fundamental reform of the civil service pension system in Palestine.

The Pension Law N° 7 of 2005 has integrated the two former civil servants' schemes that had been inherited from Jordan (for the West Bank civil servants) and Egypt (for the Gaza strip civil servants) and the pension scheme for security forces personnel. Since the enactment of the Pension Law N° 7 of 2005, all newly hired civil servants become members of the new scheme regardless of their location, whereas the employees older than age 45 as of 1 September 2006 continue to be covered under the old schemes (Law N° 8 of 1964, Law N°16 of 2004 and Law N° 34 of 1959). Participation under the four schemes administered by the PPA is summarized in Table 1.1.

Schemes 1, 3 and 4 are closed to new entrants and are being phased out. From 2021, these schemes will count no active members (only pensioners). Hence Scheme 2 (Pension Law Nº 7 of 2005) is becoming the principal pension instrument for future public sector employees. It covers all employees of the public sector (civilians and security forces) who were aged less that 45 on 1 September 2006, and those hired after that date. It also covers the employees of certain NGOs and private sector enterprises who joined the scheme after 1 September 2006.

Annex 1 presents a summary of the provisions of the different schemes.

Table 1.1 Summary of participation under the schemes administered by the PPA

	Aged more than 45 on 1 September 2006		Aged less than 45 on 1 September 2006 and new entrants	
	Civilians	**Security forces**	**Civilians**	**Security forces**
Scheme 1	Gaza			
Scheme 2			West Bank and Gaza	West Bank and Gaza
Scheme 3		West Bank and Gaza		
Scheme 4	West Bank			

1.2 Specific considerations

Respective financial responsibility of PPA and Ministry of Finance towards the schemes

A meeting of the PPA and Ministry of Finance was held in December 2010 to set up a mechanism of settling accounts between the two parties to the pension schemes. Following this meeting:

- The Ministry of Finance is held responsible for all expenses related to Scheme 3 and Scheme 4. With regard to these schemes, the role of the PPA is limited to the calculation of benefits, the payment of benefits and the control of eligibility during payment (family status). The MoF transfers monthly to the PPA the funds necessary to pay current benefits.
- In the case of Scheme 1 and Scheme 2, the PPA assumes the financial responsibility. Contributions due by employers and employees must be transferred to the PPA.[1] The PPA must keep in reserve the funds not used for the payment of current benefits. Despite this, the situation is not clear for Security forces of Scheme 2. For Security forces, the MOF transfers monthly to the PPA the funds necessary to pay current benefits and no debt of the Ministry of Finance towards the PPA has been identified regarding contribution arrears. There is no official agreement regarding the continuation of this procedure in the future.

Maintenance of separate accounts

Pension Law No 7 of 2005 required the maintenance of five different accounts (see box below). However, the financial statements of the PPA do not provide a clear distribution of total funds between the different schemes, while some figures concerning contributions and benefits are split between Scheme 1 and Scheme 2 (Civilian).

We propose, in Section 2.4, a distribution of the PPA assets as of 31 December 2012 between Scheme 1 and Scheme 2 (including contributions owed by the government). Because of the limited role of the PPA regarding Schemes 3 and 4, it is assumed that the accounts of these schemes have a zero value as of 31 December 2012.

[1] For the period from September 2006 to August 2007, contributions are due at the rate of former Scheme 4 for the Civilians and former Scheme 3 for the Security forces. The contribution rates of Scheme 2 (7% / 9%) are applicable from September 2007.

Pension Law N° 7 of 2005

Article 12

The Commission shall establish the following accounts:

1. *A special account for the entitlements and contributions of subscribers to the previous retirement system under the Law No. 8 of 1964 (the ten (10%) percent system).*
2. *A special account for the entitlements and contributions of officers, non-commissioned officers, and members of personnel of the Palestinian Security Forces pursuant to the Law of Insurance and Salaries of the Palestinian Security Forces No. 16 of 2004.*
3. *A special account for the entitlements and contributions of subscribers to the previous retirement system under the Law of Civil Retirement No. 34 of 1959 (the two (2%) percent system).*
4. *A special account for the purposes of the 'Defined Benefit System' set forth under this law.*
5. *A special account for the purposes of the 'Defined Contribution System' set forth under this law.*

The case of participants of Scheme 2 with service before September 2006

A problem exists with the treatment of service before and after 2006 for persons in Scheme 2. The law is not clear regarding the method to calculate pensions for these persons. The general rule is that all service should be calculated according to the new Law of 2005 (Scheme 2). However, an article mentions that the two periods of service should be calculated according to the law applicable at the time the services were rendered and imputed to the appropriate fund.

Article 115 of Pension Law Nº 7 of 2005 provides that the competent authorities shall transfer the entitled benefits of employees younger than 45 to their accounts in the new system within a period not to exceed two (2) years of the entry into force of the new law and such years of service would be recognized one for one in the new scheme. In reality, the transfer of funds and rights has not been executed, so the PPA presently treats these cases as if they were governed by two laws (for example, under Scheme 1 provisions for service before 2006 and Scheme 2 provisions for service after 2006). This causes problems, inter alia, in cases of death or invalidity where persons are considered as having accumulated service only since 2005. The dual problem would not exist if the contributions had been transferred within two years after the implementation of Pension Law Nº 7 of 2005, but the definition in Article 1 is not fulfilled for service prior to 1 September 2006 for employees younger than 45 on that date.

Pension Law N° 7 of 2005

Article 1 (Definitions)

Years of retirement service: The period of service that is admitted for retirement pursuant to the provisions of this law, the due financial amounts of which were paid in full to the Commission.

Article 112

So as not to contradict relevant laws (1959, 1964, and 2004), entitlements to retirement pension of civil employees and officers in the Security Forces shall not be violated by current retirement systems following the enforcement of the provisions of this law.

Article 115

The competent authorities shall transfer the entitled benefits of employees younger than forty-five (45) years of age to their accounts as per the current retirement system, pursuant to the previous laws, within a period not to exceed two (2) years from the date of the enforcement of this law. The conditions and data of transfer shall be as follows:

1. *(…)*
2. *The years of contribution shall be registered on the date of implementation at a ratio of one to one (1:1) in the retirement system for the benefit of the subscriber and at an average of two (2%) percent of the monthly salary on the day of transfer for each adopted year.*
3. *(…)*

There are 3 approaches to deal with that issue:

- Approach 1: service of the whole career is used for the calculation of pensions in accordance with Scheme 2. Under this approach, Scheme 2 will support the whole service of persons covered by that scheme.

- Approach 2: separation of service in two parts with calculation of two pensions according to Scheme 2 and the former scheme.

- Approach 3: service of the whole career is used for the calculation of pensions in accordance with Scheme 2, but the cost of pensions is distributed between Scheme 2 and the former scheme, based on the number of service years accomplished under each scheme.

The PPA was applying Approach 1 for some time, and then applied Approach 2 partially (only for civil servants). Now, this issue is under review by the Board of Directors and there is a possibility that the Board adopts Approach 3.

In practice, the PPA has no problem with the years of past service under Scheme 3 since the benefits of security force members are financed completely by the Ministry of Finance. There is no problem also with regard to Scheme 1 because the MoF normally pays contributions or allocates arrears. But the main problem is with Scheme 4, since the PPA never received any contributions for that scheme and there are no allocated arrears as well. Currently, the MoF pays pensions of Scheme 4 beneficiaries according to Approach 3. The MoF should be responsible for a portion of pensions of Scheme 2 beneficiaries who have past service years in Scheme 4. However, the MoF has not accepted that approach until now.

Approach 1 should be the approach to apply. Normally, social security legislations are written to determine the rights of individuals (in terms of pension calculation) independently of the way pensions are financed or the timing of fund transfers. The timing of fund transfers between the government and the PPA should not, in theory, affect the pension rights of the individuals. And it appears that the intention of the law (for Scheme 2) in the long term is to calculate pensions by using the whole service (before and after 2006). Approach 1 is thus applied in this actuarial valuation, assuming that the transfer of funds (from the former schemes to Scheme 2) will eventually take place with due consideration of the interest thereon. It is considered that the requirements of Article 115 of the Pension Law Nº 7 of 2005 will eventually be met. Consequently, the pensions of participants to Scheme 2 who have service prior to September 2006 will be calculated by considering the whole service (before and after 2006) as a single block for the application of the pension formula of Scheme 2.

Retirement "windows" have been opened from time to time

An important number of persons aged 60 and above have retired in block on 1 February 2005 and on 1 August 2005. In addition, there has been a large number of new retirees between 9 February and 1 March 2008 following a Presidential decree that allowed early retirement for members of the security forces in Scheme 2 and Scheme 3 who were aged 45 and over on 1 March 2008 (759 persons in Scheme 2 and 3,674 persons in Scheme 3). In that context, it is difficult to establish a retirement pattern by only considering past experience data.

No new enrolment of private sector workers

Pension law No 7 of 2005 was supposed to integrate employees of both public and private sectors. In that context, some NGOs and private sector enterprises have joined Scheme 2 since 2006. However, the government intends to create a separate pension scheme for the private sector. Consequently, it is assumed in this valuation that no additional private sector enterprises will join the PPA in the future.

2. Financial operations of the PPA for the period 2008-2012

This section includes a review of the PPA financial operations, an analysis of contribution arrears, a discussion of PPA investments and a proposed separation of the PPA reserve fund as of 31 December 2012 between Scheme 1 and Scheme 2.

2.1 Review of financial operations

In the financial statements of the PPA, the total amount of benefits paid covers only Schemes 1 and 2. It appears that for Schemes 3 and 4, PPA's role is limited to transferring to beneficiaries the amounts received from the Ministry of Finance (according to pension calculations performed by the PPA). Hence the financial situation of the PPA is not affected by the operations of Schemes 3 and 4.

As regards contributions, the Ministry of Finance started to apply Law no. 7 of 2005 (Scheme 2) only from September 2007 (9% / 7% for the DB component and 3% / 3% for the DC component). Before that date, contributions were calculated in accordance with the former schemes.

Annex 6 presents a summary of the revenues and expenditures of the PPA for the years 2008 to 2012. The contribution revenue indicated in the financial statements is based on a theoretical calculation based on the legislated contribution rates and insurable earnings. It will be shown in the next section that actual contributions paid are far lower that these theoretical amounts.

As regards expenditures, the amount of benefit expenditures has not increased sharply over the period, going from 195 million NIS in 2008 to 224 million NIS in 2012, an average increase of 3.5 percent per year. Table 2.1 presents the evolution of the number of pensioners and the related pension expenditures of Scheme 2 for the period 2007-2012. Since the scheme covered only persons aged 45 and less at its creation, there is only a small number of old-age pensioners.

Table 2.1 Scheme 2 (Civilians)

Year	Old-age		Invalidity		Survivors	
	Number	Expenditure	Number	Expenditure	Number	Expenditure
2007	0	–	2	13,979	181	170,339
2008	0	–	2	22,335	395	606,506
2009	0	–	15	145,699	726	1,316,115
2010	0	–	53	630,225	1050	2,310,070
2011	2	12,554	99	1,535,505	1358	3,055,757
2012	2	51,666	136	2,527,575	1663	3,991,487

Administrative expenses have been quite volatile over recent years. They were on average 12 million NIS per year during the period 2010 to 2012. This amount represents approximately 1.8 percent of the contribution income of 2012 and 5.4 percent of benefit expenditures.

2.2 Contribution arrears

With regard to contribution and other arrears, the figure calculated by the PPA as of 31 December 2012 is 3,537.2 million NIS (see Table 2.2), which is slightly different from the figure of 3,517.7 appearing in the PPA financial statements as of 31 December 2012. This figure includes amounts that the government borrowed in the past from the General Insurance and Pension Find (GIPF), which is 98 million NIS. In addition, an amount of 736.8 million NIS has been identified in the financial statements as interest lost on contribution arrears and penalties due by the Ministry of Finance. This latter amount has not yet been agreed with the Ministry of Finance and is still under discussion.

It must also be noted that the arrears appearing in Table 2.2 belong to Scheme 1 and Scheme 2 (civil service) only. Given the role of the PPA regarding Schemes 3 and 4 (payer only, with no financial responsibility), no pension debt of the Ministry of Finance towards the PPA has been identified for Schemes 3 and 4.

Given the financial difficulties this causes to the PPA, immediate actions must be taken in order to force the Ministry of Finance to meet its obligations regarding the payment of contributions to the PPA. It must be noted that a joint committee of the Ministry of Finance and the PPA has been established for reaching an agreement on the exact amount due to the PPA by the government. This committee should determine a final figure in the course of 2014.

Table 2.2 Contribution arrears and other amounts due by the government to the PPA, as of 31 December 2012

(million NIS)

	Scheme 1	Scheme 2
Contribution arrears	1,684.7	1,689.8
Arrears on account of Court decision № 98/590	55.3	–
Reconciliations	9.5	–
Amount owed by government to General Insurance and Pension Fund	98.0	–
Total	**1,847.4**	**1,689.8**

Source: PPA calculations

Note: an additional amount of 577.3 million NIS has been identified by the PPA as interest on contributions due by the Ministry of Finance. The amount appearing in the financial statements is 736.8 million NIS.

Table 2.5 presents a more detailed breakdown of contribution and other arrears, according to PPA calculations.

2.3 Investments

This section discusses the investment policy of the PPA, the present asset mix and the rate of return of the fund over recent years.

Investment policy

The PPA Investment Policy Guidelines provide that the portfolio will maintain a predominant weight in fixed-income investments, with a small exposure to equity and other investments. The policy defines a target asset allocation, with minimum and maximum margins, as shown in Table 2.3.

Table 2.3 Target asset allocation

Asset class	Minimum	Target	Maximum
Liquid assets	5%	15%	45%
Fixed income	50%	65%	70%
Equity	5%	20%	25%
Alternative investments	0%	0%	0%
Other (e.g. convertibles, commodities, etc.)	0%	0%	0%

It shows that the intention of the PPA is to keep an important proportion of its portfolio (65 percent) into fixed-income securities. In that context, the expected rate of return of the fund cannot be very high.

Liquid assets are not defined in the investment policy. It is understood that this may include investment funds that can be easily liquidated, or bank deposits. The range (minimum and maximum limits) for this category is very large (from 5 percent to 45 percent of the portfolio).

Asset mix and investment management

Table 2.4 presents the actual investment portfolio as at 30 June 2013. It may be noted that 62.1 percent of portfolio is invested overseas and 32.7 percent is in cash and local bank deposits.

On 1 October 2013, investments in HSBC Bank were composed at 71.5 percent of equities. On 2 December 2013, investments in Arab Bank of Switzerland were composed at 85.7 percent of money market. Investments in USA (through Archstone and Canaan) are equities. Hence the proportion of the portfolio in equities exceeds the maximum of 25 percent specified in the investment policy.

There is a need that PPA gets additional expertise in investment management. In that regard, two steps were undertaken during the last two years: (1) entrusting the custody to the Arab Bank and (2) appointing of a new general investment manager (Bank of Palestine).

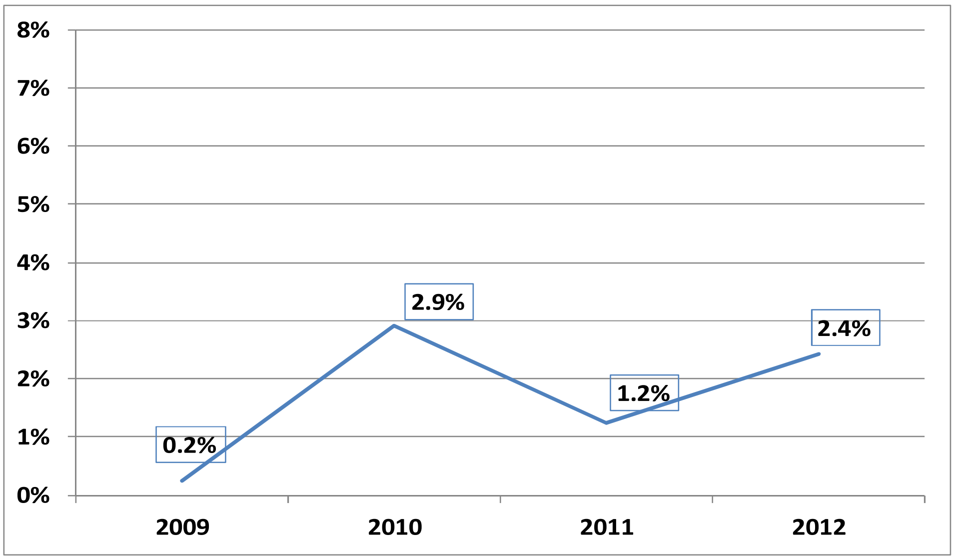
Table 2.4 PPA investment portfolio as at 30 June 2013

	Amount (million USD)	Percentage
Overseas investments		
Investments under HSBC Bank custody	138.8	55.4%
Investments in USA (Archstone and Canaan)	7.5	3.0%
Investments through Arab Bank Switzerland	9.3	3.7%
Sub-total (overseas)	**155.6**	**62.1%**
Local investments		
Cash and local bank deposits	81.8	32.7%
Middle East Pharmaceutical Co.	0.9	0.4%
Vegetable Oil Co. - Nablus	1.8	0.7%
Vegetable Oil Co. - Amman	0.3	0.1%
Ahlia Insurance Group	0.4	0.2%
Palestinian Electric Co.	1.1	0.5%
Palestinian Power Generating Co.	0.1	0.0%
Bank of Palestine	7.1	2.8%
Palestine Islamic Bank	0.6	0.2%
Birzeit Pharmaceutical Co.	0.4	0.2%
Palestine Communication Company	0.3	0.1%
Sub-total (local)	**94.8**	**37.9%**
Total	**250.4**	**100%**

Rate of return

The average rate of return of the fund over the period 2009 to 2012 has been 1.7 percent (see Chart 2.1). This is relatively low, but not unexpected when considering the important proportion of fixed-income securities in the PPA investment policy and the limited investment opportunities in Palestine.

Chart 2.1 Rate of return on PPA investments (2009-2012)



Note: Calculated as (2 X I) / (A + B - I), where I is the annual investment income, A is the fund at beginning of the year and B is the fund at the end of the year

2.4 Distribution of reserves as of 31 December 2012

Financial statements of the PPA are built on the assumption that, for Scheme 3 and Scheme 4, the role of the PPA is limited to the calculation of pensions and the monitoring of payment conditions. Consequently, the assets of the PPA are considered to belong to Scheme 1 and Scheme 2. This section proposes a separation of the assets of the PPA as of 31 December 2012 between Scheme 1 and Scheme 2.

The first item concerns contribution and other arrears. Table 2.5 presents the these arrears separated between Scheme 1 and Scheme 2 according to PPA data. In this table, interest and penalties have been calculated by assuming an interest rate of 4.5 percent on funds in arrear, adjusted to fit with the total figure of the PPA financial statements as of 31 December 2012.

Table 2.5 Pension arrears for Scheme 1 and Scheme 2 (Civilian)

		Scheme 1	Scheme 2 (Civilian)
Contribution arrears	1999	14,000,000	–
	2000	75,011,310	–
	2001	159,079,674	–
	2002	165,022,802	–
	2003	142,501,269	–
	2004	176,525,892	–
	2005	173,450,593	–
	2006	353,840,328	–
	2007	227,816,216	73,094,638
	2008	35,067,570	217,666,228
	2009	38,135,128	202,975,878
	2010	18,123,099	176,864,616
	2011	47,326,012	457,554,895
	2012	58,759,834	561,597,485
Sub-total		**1,684,659,727** (*)	**1,689,753,740** (*)
Other arrears		162,769,519	–
Total arrears		**1,837,230,970** (*)	**1,680,425,872** (*)
Interest and penalties		615,832,653	120,930,895
Grand total		**2,453,063,623**	**1,801,356,767**

(*) Data from financial statements (slightly different from PPA internal calculations).

In addition to contribution and other arrears, the separation of accounts for Schemes 1 and 2 must take into account the net cash flows of each scheme since the creation of Scheme 2. This exercise is performed in Table 2.6. It must be noted that contributions indicated in this table are “theoretical” contributions that should have been paid according to the provisions of the law (as appearing in the financial statements).

Table 2.6 Theoretical contributions and actual benefits paid since 2007 for Scheme 1 and Scheme 2 (Civilian)

	Contributions			Benefits		
	Scheme 1	Scheme 2 (Civilian)		Scheme 1	Scheme 2 (Civilian)	
Year		DB	DC		DB	DC
2007	298,880,049	91,399,088	34,274,673	159,832,276	–	–
2008	97,647,933	287,012,885	105,840,129	192,958,571	2,466,438	–
2009	99,443,728	298,048,441	111,630,174	180,213,402	9,914,400	–
2010	43,931,676	358,964,783	134,613,348	185,702,689	13,209,946	–
2011	54,319,018	388,289,707	145,607,662	197,613,458	12,598,165	–
2012	57,433,601	408,527,435	153,178,136	209,411,467	14,780,587	–
Total	**651,656,005**	**1,832,242,339**	**685,144,122**	**1,125,731,863**	**52,969,536**	–
Accumulated with interest on 31.12.2012	**764,559,172**	**2,002,579,577**	**748,656,658**	**1,253,649,720**	**56,626,511**	

The calculation of the initial reserve by scheme as of 31 December 2012 appears in Table 2.7. Contribution and other arrears come from Table 2.5. Contributions actually received since 2007 are set equal to the "theoretical" contributions of Table 2.6 minus contribution arrears appearing in Table 2.5 for the same period. Benefits paid come from Table 2.6.

The difference between this theoretical calculation and the actual assets appearing in the financial statements as of 31 December 2012 (1,145,383,935 NIS) is deemed attributable to funds accumulated under Scheme 1 before the creation of Scheme 2, and are thus assumed to belong to Scheme 1.

Table 2.7 Calculation of initial reserves of Scheme 1 and Scheme 2 as of 31 December 2012

	Scheme 1	Scheme 2 (Civilian)
Contribution and other arrears (with interest and penalties due)	2,453,063,623	1,801,356,767
Contributions received since 2007 (with interest)	339,331,313	1,061,482,495
Benefits paid since 2007 (with interest)	(1,253,649,720)	(56,626,511)
Net cash flows since 2007	**1,538,745,216**	**2,806,212,751**
Difference attributable to net cash flows before 2007 under Scheme 1	1,145,383,935	–
Initial reserve as of 31 December 2012	**2,684,129,151**	**2,806,212,751**

3. Demographic and financial projections of the PPA schemes

This valuation deals with the ability of the PPA to meet its future obligations at the time they fall due. This is done under an open-group approach. It is assumed that workers will continue to be insured by the scheme indefinitely, thus paying contributions, accruing benefit entitlements and later receiving benefits in accordance with the legal provisions of the system. Projections are performed over a period of 80 years in order to adequately present the long-term cost of the scheme after reaching a certain level of maturity and once the demographic evolution of the insured population has stabilised.

This review deals with the revenue and expenditures of the all types of benefits administered by the PPA. A summary of the provisions of the different schemes appears in Annex 1. The general methodology of the actuarial valuation is described in Annex 2. Future contributions and benefits are calculated according to the demographic and economic framework presented in Annex 3 and on the basis of the database and assumptions presented in Annex 4.

The main purpose of the valuation is to find out whether the financing of the scheme is on course, and not to forecast numerical values exactly. Due to the long-term nature of the assumptions, absolute figures contain a high degree of uncertainty. Therefore, results should be interpreted carefully and future actuarial reviews undertaken on a regular basis will make possible a validation of the assumptions in light of the actual experience.

Regarding Scheme 2, this section considers only the defined-benefit component of the scheme. The defined-contribution component is not yet implemented and will be discussed in Section 5.

3.1 Demographic projections

The future covered population under the different schemes has been determined as described in Section A4.1 of Annex 4.

Tables 3.1 to 3.4 present the demographic projections (contributors and pensioners) for each scheme. It must be recalled that Schemes 1, 3 and 4 are closed to new entrants. Their active insured population will gradually decrease to become zero in 2021.

For Scheme 2, as mentioned before, it is assumed that there will be no new enrolment of private sector workers in the future. The growth of the population of contributors in Scheme 2 is thus the result of the normal increase of the population of Civilian employees and Security forces in the future. Table 3.2 shows that the ratio of contributors to pensioners, which stands at 22.8 in 2013, will rapidly decrease to 6.2 in 2025 and will be around 1.0 at the end of the projection period (2090). It shows that in the long term there will be only one contributor to support each pensioner. This table also reveals the large number of survivor beneficiaries as a proportion of total pensioners, which is linked to the generous provisions regarding the eligibility of survivors.

Table 3.1 SCHEME 1 – Projected number of contributors and pensioners (2013-2090)

Year	Number of contributors	Number of pensioners					Ratio of contributors to pensioners
		Old-age	Invalidity	Widows(ers)	Children	Total	
2013	6,445	5,126	369	2,509	4,010	12,014	0.54
2014	5,811	5,479	375	2,634	3,892	12,381	0.47
2015	5,015	6,010	378	2,759	3,945	13,092	0.38
2016	4,174	6,580	379	2,882	4,038	13,880	0.30
2017	3,321	7,155	377	3,006	4,159	14,696	0.23
2018	2,391	7,799	373	3,128	4,294	15,594	0.15
2019	1,497	8,403	364	3,248	4,439	16,454	0.09
2020	422	9,181	352	3,367	4,591	17,491	0.02
2025	-	8,005	256	3,909	5,402	17,571	-
2030	-	6,206	167	4,287	6,211	16,870	-
2035	-	4,313	93	4,352	6,746	15,504	-
2040	-	2,549	42	3,918	6,956	13,464	-
2045	-	1,188	14	2,936	6,865	11,004	-
2050	-	394	4	1,706	6,505	8,610	-
2060	-	1	0	217	5,115	5,333	-
2070	-	-	0	8	3,017	3,025	-
2080	-	-	-	0	1,038	1,039	-
2090	-	-	-	-	160	160	-

Table 3.2 SCHEME 2 – Projected number of contributors and pensioners (2013-2090)

Year	Number of contributors	Number of pensioners					Ratio of contributors to pensioners
		Old-age	Invalidity	Widows(ers)	Children	Total	
2013	142,458	760	276	838	4,372	6,247	22.81
2014	146,580	755	397	1,106	4,961	7,219	20.30
2015	151,406	750	528	1,394	5,522	8,194	18.48
2016	158,251	744	670	1,704	6,064	9,182	17.24
2017	165,331	737	825	2,038	6,588	10,188	16.23
2018	172,573	730	993	2,400	7,110	11,234	15.36
2019	179,883	723	1,178	2,791	7,633	12,325	14.60
2020	187,556	715	1,380	3,214	8,167	13,475	13.92
2025	216,702	15,134	2,577	5,897	11,539	35,148	6.17
2030	249,503	33,674	3,878	9,818	17,709	65,078	3.83
2035	283,371	56,321	5,190	15,404	27,425	104,340	2.72
2040	316,478	80,200	6,372	23,070	39,518	149,159	2.12
2045	348,164	96,337	7,346	32,941	53,707	190,331	1.83
2050	380,261	104,966	8,336	43,936	69,269	226,508	1.68
2060	444,114	134,327	10,927	61,994	102,050	309,296	1.44
2070	498,864	180,728	14,113	72,289	136,570	403,700	1.24
2080	547,375	235,227	17,075	85,495	169,217	507,012	1.08
2090	579,688	274,313	19,409	105,078	196,958	595,758	0.97

Table 3.3 SCHEME 3 – Projected number of contributors and pensioners (2013-2090)

Year	Number of contributors	Number of pensioners					Ratio of contributors to pensioners
		Old-age	Invalidity	Widows(ers)	Children	Total	
2013	1,141	5,632	4	1,008	2,101	8,746	0.13
2014	1,048	5,565	9	1,124	2,155	8,852	0.12
2015	952	5,494	13	1,243	2,222	8,972	0.11
2016	834	5,439	16	1,364	2,300	9,119	0.09
2017	687	5,406	20	1,485	2,381	9,293	0.07
2018	508	5,398	23	1,607	2,468	9,495	0.05
2019	305	5,410	25	1,728	2,556	9,719	0.03
2020	59	5,460	26	1,848	2,627	9,962	0.01
2025	-	4,474	22	2,395	3,006	9,897	-
2030	-	3,362	16	2,751	3,431	9,559	-
2035	-	2,277	9	2,807	3,748	8,841	-
2040	-	1,328	4	2,534	3,869	7,735	-
2045	-	616	1	1,951	3,815	6,383	-
2050	-	203	0	1,195	3,608	5,006	-
2060	-	0	0	187	2,799	2,987	-
2070	-	-	-	16	1,587	1,603	-
2080	-	-	-	2	496	498	-
2090	-	-	-	0	53	53	-

Table 3.4 SCHEME 4 – Projected number of contributors and pensioners (2013-2090)

Year	Number of contributors	Number of pensioners					Ratio of contributors to pensioners
		Old-age	Invalidity	Widows(ers)	Children	Total	
2013	4,626	9,634	386	1,713	1,811	13,544	0.34
2014	4,162	9,726	387	1,937	2,053	14,104	0.30
2015	3,660	9,846	387	2,157	2,321	14,710	0.25
2016	3,160	9,955	385	2,372	2,598	15,311	0.21
2017	2,467	10,248	383	2,582	2,878	16,091	0.15
2018	1,738	10,570	378	2,787	3,157	16,891	0.10
2019	963	10,933	370	2,984	3,436	17,723	0.05
2020	95	11,384	358	3,174	3,711	18,627	0.01
2025	-	9,304	269	3,967	4,993	18,533	-
2030	-	7,007	182	4,389	5,994	17,573	-
2035	-	4,758	106	4,328	6,637	15,829	-
2040	-	2,787	48	3,756	6,917	13,508	-
2045	-	1,317	15	2,748	6,869	10,950	-
2050	-	457	3	1,573	6,531	8,564	-
2060	-	7	0	188	5,135	5,330	-
2070	-	1	0	6	3,038	3,045	-
2080	-	-	-	1	1,096	1,097	-
2090	-	-	-	0	198	198	-

3.2 Financial projections

Apart from being driven by the evolution of the number of beneficiaries, the cost of the proposed scheme will also be affected by the average amount of benefits paid to these persons. One indicator of the evolution of pension amounts is the pensions' replacement ratio (the ratio of the average pension to the average wage of active contributors). Table 3.5 presents replacement ratios of new pensioners for Scheme 2 in selected years and for each type of pension.

It must be noted that Table 3.5 represents combined projections for Civilians and Security forces together (for example, 85.8 percent replacement ratio for new old-age pensioners in 2090). It may be mentioned that in the long term, specific old-age replacement ratios are projected to be around 67 percent for Civilians and 122 percent for Security forces, being the result of a steeper salary scale for the Security forces (and benefit formula linked to final earnings).

Table 3.5 SCHEME 2 – Projected replacement ratios of NEW pensioners (2020-2090)

Year	Old-age	Disability	Widows / widowers	Children
2020	67.8	61.7	25.8	8.7
2030	89.5	71.0	32.1	13.0
2040	102.2	68.4	37.3	17.2
2050	85.5	62.8	38.0	18.3
2060	85.9	64.7	36.8	18.2
2070	91.3	66.4	35.1	18.4
2080	92.4	65.2	36.8	19.9
2090	85.8	63.8	37.2	20.9

The initial reserve of 5,490 million NIS as of 31 December 2012 is separated between the different schemes as shown in Table 3.6. These initial reserves consider the amount of contribution arrears and other amounts due by the government to the PPA. Section 2.4 was describing the methodology used for the separation of PPA assets as of 31 December 2012 between Scheme 1 and Scheme 2.

Table 3.6 Initial reserve as of 31 December 2012 for each scheme

	Initial reserve (million NIS)
Scheme 1	2,684
Scheme 2	2,806
Scheme 3	0
Scheme 4	0
Total	**5,490**

Tables 3.7 to 3.10 present financial projections for the different schemes. It must be remembered that:

- The PPA assumes full financial responsibility regarding Scheme 1 and Scheme 2. However, for Security forces, the MOF presently transfers each month to the PPA the funds necessary to pay current benefits. It is supposed in the projections that this practice will no longer be applied from the valuation date and that as long as contributions and investment income are sufficient to support scheme's expenditures, no funds will be transferred from the MoF to the PPA for the payment of current benefits of Security forces members. So for both Civilians and Security forces, the MoF would intervene only from the moment contributions and investment income are no longer sufficient to support scheme's expenditures (to avoid negative reserves).
- The Ministry of Finance is presently held responsible for all expenses related to Scheme 3 and Scheme 4. The MoF transfers monthly to the PPA the funds necessary to pay current benefits. For projection purposes, it is supposed that, in the future, the MoF will only finance the portion of expenditures that cannot be supported by contributions.

Since Schemes 1, 3 and 4 are closed to new entrants, the projections of Scheme 2 are the most interesting and relevant.

The cost of a scheme, on a going-concern basis, may be measured by the general average premium (GAP).[2] The GAP represents the constant contribution rate necessary to finance all benefits over a period of 80 years. The GAP is estimated at 39.0 percent of insurable earnings for Scheme 2 (which may be further disaggregated into 33.3 percent for Civilians and 45.6 for Security forces). This GAP may be compared to the total contribution rate of 16.0 percent jointly paid by employees and employers.

Tables 3.7 to 3.10 also present the pay-as-you-go (PAYG) cost of the schemes. It represents the contribution rate that would be necessary to finance the current annual expenditures in the absence of reserve funds. The PAYG of Scheme 2 is below 2.0 percent until 2020, but it increases very rapidly thereafter to reach 34.7 percent in 2050 and 58.1 in 2090 (see Table 3.8).

[2] There are two approaches for the calculation of the general average premium. A first approach uses the reserve at the valuation date (and the investment income thereon) so that the application of the GAP during the whole projection period would lead to a zero reserve at the end of 80 years. In that case, the value of the initial reserve, plus the present value of contribution revenue (at the GAP rate) and investment income over the next 80 years is put equal the present value of benefit and administrative expenditures over the same period. Under the second approach, the initial reserve (and the investment income thereon) is not used in the calculation, so that the GAP represents the actual constant contribution rate that would balance the future contribution income and the future expenditure (and investment income on both). The second approach is used in this section.

Table 3.7 SCHEME 1 – Projected revenue, expenditure and reserve, 2013-2090 (million NIS)

		REVENUE				EXPENDITURE			RESERVE		PAYG (%)
Year	Contribution rate	Contribution income	Transfer from MoF	Investment income	Total income	Benefits	Administrative expenses	Total expenditure	Amount (year-end)	Ratio of annual expenditure	
2013	22.5	65	-	105	171	211	2	212	2,643	12.7	73.0
2014	22.5	61	-	103	164	234	2	235	2,571	11.2	87.1
2015	22.5	54	-	100	154	254	2	256	2,469	10.0	106.0
2016	22.5	47	-	95	142	283	2	285	2,325	8.7	137.0
2017	22.5	39	-	88	127	313	2	315	2,137	7.4	183.6
2018	22.5	29	-	80	108	347	2	350	1,896	6.1	273.6
2019	22.5	19	-	69	88	382	2	385	1,599	4.9	459.1
2020	22.5	6	-	56	62	425	3	428	1,233	3.7	1 701.9
2025	22.5	-	479	-	479	476	3	479	-	-	n. a.
2030	22.5	-	501	-	501	498	3	501	-	-	n. a.
2035	22.5	-	497	-	497	494	3	497	-	-	n. a.
2040	22.5	-	461	-	461	458	3	461	-	-	n. a.
2045	22.5	-	400	-	400	397	2	400	-	-	n. a.
2050	22.5	-	332	-	332	330	2	332	-	-	n. a.
2060	22.5	-	257	-	257	256	2	257	-	-	n. a.
2070	22.5	-	218	-	218	217	1	218	-	-	n. a.
2080	22.5	-	124	-	124	123	1	124	-	-	n. a.
2090	22.5	-	35	-	35	35	0	35	-	-	n. a.

Table 3.8 SCHEME 2 – Projected revenue, expenditure and reserve, 2013-2090 (million NIS)

Year	Contribution rate	REVENUE				EXPENDITURE			RESERVE		PAYG (%)
		Contribution income	Transfer from MoF	Investment income	Total income	Benefits	Administrative expenses	Total expenditure	Amount (year-end)	Ratio of annual expenditure	
2013	16.0	830	-	128	959	61	6	67	3,698	41.8	1.3
2014	16.0	902	-	165	1,068	70	7	77	4,689	48.2	1.4
2015	16.0	983	-	207	1,189	80	7	87	5,791	53.6	1.4
2016	16.0	1,078	-	253	1,331	92	8	100	7,022	58.0	1.5
2017	16.0	1,181	-	304	1,486	105	9	114	8,394	61.8	1.5
2018	16.0	1,293	-	361	1,655	120	10	130	9,919	64.8	1.6
2019	16.0	1,414	-	425	1,839	137	11	148	11,610	67.1	1.7
2020	16.0	1,546	-	495	2,041	157	12	169	13,482	68.8	1.7
2025	16.0	2,193	-	895	3,089	1,001	21	1,023	23,701	21.2	7.5
2030	16.0	3,045	-	1,272	4,317	2,681	38	2,719	32,995	11.5	14.3
2035	16.0	4,119	-	1,433	5,551	5,745	64	5,808	36,126	6.3	22.6
2040	16.0	5,494	-	1,050	6,544	10,390	102	10,492	24,576	2.7	30.6
2045	16.0	7,401	8 578	-	15,979	15,831	149	15,979	-	-	34.5
2050	16.0	10,110	11 824	-	21,934	21,730	204	21,934	-	-	34.7
2060	16.0	18,063	24 253	-	42,316	41,933	383	42,316	-	-	37.5
2070	16.0	30,184	53 329	-	83,512	82,794	718	83,512	-	-	44.3
2080	16.0	48,487	113 254	-	161,741	160,419	1,321	161,741	-	-	53.4
2090	16.0	77,673	204 462	-	282,135	279,878	2,257	282,135	-	-	58.1

Table 3.9 SCHEME 3 – Projected revenue, expenditure and reserve, 2013-2090 (million NIS)

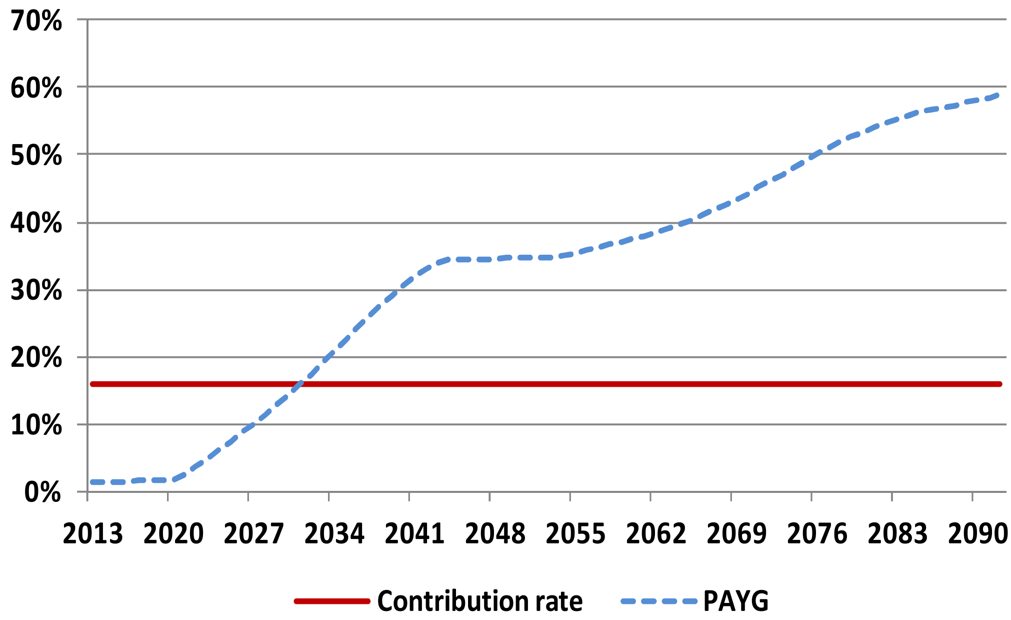
		REVENUE				EXPENDITURE			RESERVE		PAYG (%)
Year	Contribution rate	Contribution income	Transfer from MoF	Investment income	Total income	Benefits	Administrative expenses	Total expenditure	Amount (year-end)	Ratio of annual expenditure	
2013	22.5	15	375	-	391	388	2	391	-	-	567.9
2014	22.5	15	390	-	405	402	3	405	-	-	620.2
2015	22.5	14	407	-	420	418	3	420	-	-	687.6
2016	22.5	12	424	-	437	434	3	437	-	-	791.7
2017	22.5	10	444	-	454	452	3	454	-	-	978.4
2018	22.5	8	465	-	473	470	3	473	-	-	1,331.5
2019	22.5	5	488	-	493	490	3	493	-	-	2,290.8
2020	22.5	1	514	-	515	512	3	515	-	-	11,621.7
2025	22.5	-	565	-	565	562	3	565	-	-	n. a.
2030	22.5	-	590	-	590	586	4	590	-	-	n. a.
2035	22.5	-	582	-	582	579	4	582	-	-	n. a.
2040	22.5	-	538	-	538	535	3	538	-	-	n. a.
2045	22.5	-	467	-	467	464	3	467	-	-	n. a.
2050	22.5	-	387	-	387	385	2	387	-	-	n. a.
2060	22.5	-	287	-	287	285	2	287	-	-	n. a.
2070	22.5	-	219	-	219	217	1	219	-	-	n. a.
2080	22.5	-	101	-	101	101	1	101	-	-	n. a.
2090	22.5	-	18	-	18	17	0	18	-	-	n. a.

Table 3.10 SCHEME 4 – Projected revenue, expenditure and reserve, 2013-2090 (million NIS)

		REVENUE				EXPENDITURE			RESERVE		
Year	Contribution rate	Contribution income	Transfer from MoF	Investment income	Total income	Benefits	Administrative expenses	Total expenditure	Amount (year-end)	Ratio of annual expenditure	PAYG (%)
2013	2.0	4	354	-	358	355	2	358	-	-	165.5
2014	2.0	4	377	-	381	379	3	381	-	-	189.7
2015	2.0	4	404	-	407	405	3	407	-	-	222.1
2016	2.0	3	432	-	435	432	3	435	-	-	266.1
2017	2.0	3	468	-	471	468	3	471	-	-	357.9
2018	2.0	2	507	-	509	506	3	509	-	-	527.8
2019	2.0	1	551	-	552	549	3	552	-	-	1,014.3
2020	2.0	0	600	-	600	597	4	600	-	-	10,810.6
2025	2.0	-	657	-	657	653	4	657	-	-	n. a.
2030	2.0	-	682	-	682	677	4	682	-	-	n. a.
2035	2.0	-	668	-	668	664	4	668	-	-	n. a.
2040	2.0	-	613	-	613	610	4	613	-	-	n. a.
2045	2.0	-	530	-	530	527	3	530	-	-	n. a.
2050	2.0	-	444	-	444	441	3	444	-	-	n. a.
2060	2.0	-	354	-	354	352	2	354	-	-	n. a.
2070	2.0	-	308	-	308	306	2	308	-	-	n. a.
2080	2.0	-	182	-	182	181	1	182	-	-	n. a.
2090	2.0	-	57	-	57	57	0	57	-	-	n. a.

Chart 3.1 illustrates the difference between the contribution rate of the scheme (at 16 percent of insurable earnings) and the PAYG cost. It reveals that the investment income generated by the excess of the contribution rate over the PAYG cost during the next 20 years or so will allow the accumulation of a substantial reserve (36,384 million NIS in 2034). However, the PAYG cost continues to increase thereafter and this clearly reveals that the present contribution rate of 16 percent is not sufficient to ensure the long term financial sustainability of the scheme.

Chart 3.1 SCHEME 2 – Comparison of PAYG and contribution rate (2013-2093)



As it appears in Chart 3.2, the reserve of Scheme 2 is projected to increase until 2034 and then to rapidly decrease and become zero in 2044.

Chart 3.2 SCHEME 2 – Projection of reserve

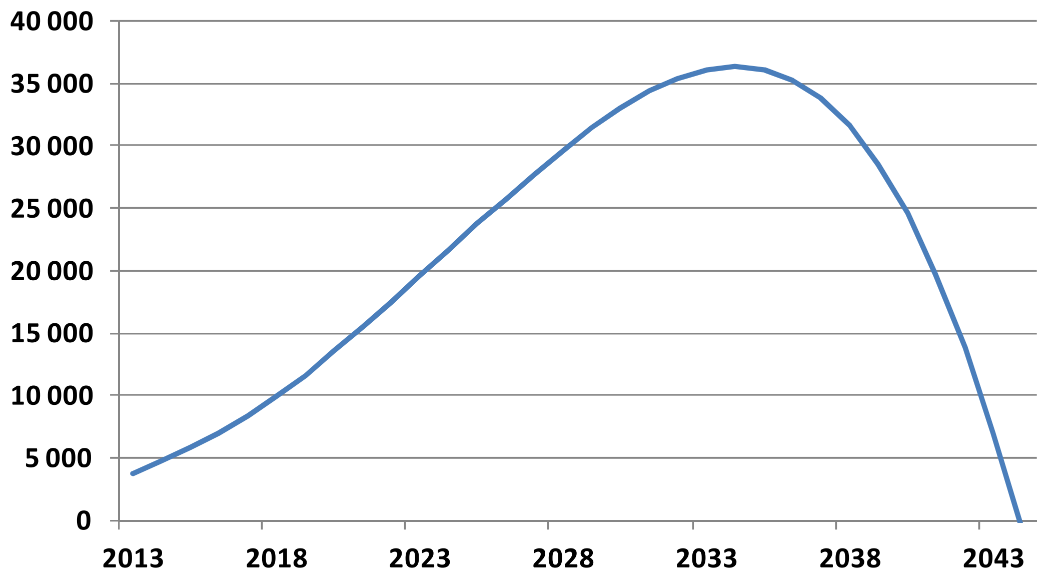


Table 3.11 presents the total expenditures of all four schemes administered by the PPA as a percentage of GDP. It shows that total pension expenditures of the PPA now represent 2.3% of GDP. This ratio is stable until 2022, but then starts to increase until 2045 where it will represent 4.0 percent of GDP.

It also presents the accumulated reserves for all schemes combined, as a percentage of GDP. It must be noted that under status quo projections, deficits will eventually emerge and they will have to be financed by the Ministry of Finance. Reserves disappear after 2040.

Table 3.11 Total expenditures and accumulated reserves of Schemes 1, 2, 3 and 4, as percentage of GDP

Year	Total expenditures	Accumulated reserves
2015	2.3%	16.3%
2016	2.3%	17.0%
2017	2.3%	17.7%
2018	2.3%	18.3%
2019	2.3%	18.9%
2020	2.3%	19.5%
2025	2.5%	21.5%
2030	2.8%	20.8%
2035	3.3%	16.0%
2040	3.8%	7.8%
2045	4.0%	–
2050	3.9%	–

3.3 Actuarial liabilities

This section presents the actuarial liabilities of the schemes administered by the PPA on a closed-group basis. Normally, this type of results is not included in actuarial reviews performed by the ILO because it is considered that social security schemes are universal, that they are long-term in nature and that they are not expected to wind up at any point in time. Hence, social security schemes can continually count on the inflow of new contributors to support scheme's expenditures over time. However, in the context of the PPA:

- the law requires that PPA maintains separate accounts for each scheme it administers; estimates of the actuarial liabilities on a closed-group basis represents a useful tool to determine the value of the accumulated rights accrued under each scheme at a given date and can serve for readjusting the value of these separate accounts at a given date;

- considering the debt owed by the Ministry of Finance to the PPA (mainly attributable to contribution arrears), the actuarial balance sheet on a closed-group basis represents an appropriate tool to measure, for each scheme, the real liability of the government towards the pensions of its employees;

- even if Section 2.4 proposes reserve values for Schemes 1 and 2 (Civilian) as at 31 December 2012, these reserve values consider only past accumulated contributions (paid and due) to each scheme and does not consider that benefits under Scheme 2 should be calculated by considering the whole career of the participants (under the former scheme for service before 2006 and under Scheme 2 for service from 2006), and that the schemes' accounts should eventually be adjusted to reflect that reality.

In this section, the actuarial liability refers to the present value, as of the valuation date, of future payments related to pensions in payment and to the accrued rights of the present insured persons. Calculations were performed on the following basis:

- Service considered for benefit calculations is limited to the period before the valuation date;
- For eligibility purposes, service after the valuation date is considered until benefit becomes payable;
- Future salary increases (after the valuation date) are considered;
- Minimum pensions are prorated to reflect the period accomplished before the valuation date.

Table 3.12 presents the actuarial liabilities separately for each scheme, and separately for pensions in payment and for active insured persons. It must be remembered that Scheme 2 covers persons who were younger than age 45 in 2006 and thus includes very few pensioners. For scheme 2, it must also be considered that, even if it was introduced in 2006, the accumulated service of the participants includes their whole career, and liabilities presented in Table 3.12 were calculated on that basis. It is thus assumed here that the value of their rights accumulated under former Schemes 1, 3 or 4 is now part of Scheme 2.

Table 3.12 Actuarial liabilities and unfunded liabilities of the schemes administered by the PPA as at 31 December 2012 (million NIS)

	Scheme 1	Scheme 2	Scheme 3	Scheme 4
Actuarial liabilities				
– Related to pensions in payment	4,009	1,771	9,695	7,786
– Related to active insured persons	4,191	59,600	1,190	4,235
Total actuarial liabilities	8,201	61,371	10,885	12,021
Estimated reserves	2,684	2,806	–	–
Unfunded liabilities	5,517	58,565	10,885	12,021

Table 3.12 also presents the unfunded liabilities (or deficit) for each scheme which is calculated as the total actuarial liabilities minus the estimated reserve of each scheme (which was appearing in Table 3.6). The unfunded liabilities can be interpreted as the single sum that should be paid as at 31 December 2012, to complement the existing reserves, in order to finance all the accrued rights of the current insured persons in the unlikely scenario that the schemes would be wound-up at the valuation date.

The actuarial liabilities may be considered as the theoretical accumulation of contributions that should have been paid in the past to fund the benefit rights that have accumulated as at 31 December 2012. Unfunded liabilities would then be interpreted as the size of the funds that should be transferred to the PPA for each scheme to reach a funding ratio of 100% for all four schemes. In the case of public schemes, this objective is rarely pursued and lower funding ratios may be appropriate. However, the accrued liabilities give an indication of the relative importance of the different schemes' accounts that should be maintained by the PPA.

3.4 Sensitivity tests

Projections include an extensive set of demographic, economic and scheme-specific assumptions. Actual experience will inevitably differ from projections. This section analyses alternative assumptions regarding (1) the rate of return on PPA investments and (2) the salary growth rate. The sensitivity tests have been performed on Scheme 2 projections only since this is the only scheme that is open to new entrants and that will be fully operational for several decades in the future. The financial impacts of the sensitivity tests are presented on the GAP and on the PAYG cost in 2090.

Sensitivity test on investment return

The base scenario assumes that the rate of return of the PPA funds will be 4 percent in the future. The sensitivity test uses an alternative rate of 6 percent per year. This higher rate of return would have an important impact on the fund accumulation of Scheme 2 and would reduce the GAP from 39.0 percent to 32.0 percent. There is no impact on the PAYG cost since this cost measure is independent of the value of reserve funds.

Table 3.13 Sensitivity test on investment return (% of insurable earnings)

Scenario	GAP	PAYG in 2090
Base scenario (4%)	39.0%	58.1%
Sensitivity test (6%)	32.0%	58.1%

Sensitivity test on salary growth

The base scenario assumes that salaries will increase by 4 percent per year from 2016 onwards. A sensitivity test has been performed with a higher salary increase of 5 percent per year. The higher salary increase assumption has the effect of increasing contribution income, but at the same time it accelerates the progression of the salary during the career of an individual and increases the average final salary on which pensions will be calculated. The present shape of the salary scale, which is particularly steep for the Security forces, exacerbates this sensitivity to the salary growth assumption. Under the sensitivity test, the GAP would increase from 39.0 percent to 41.0 percent. The PAYG cost in 2090 is almost unaffected.

Table 3.14 Sensitivity test on salary growth (% of insurable earnings)

Scenario	GAP	PAYG in 2090
Base scenario (4%)	39.0%	58.1%
Sensitivity test (5%)	41.0%	56.8%

4. Proposed modifications to PPA schemes

Results presented in Section 3 showed that Scheme 2 would have to face very important contribution rate increases in the future in order to keep the present provisions unchanged. This section presents a series of measures that are aimed at improving the financial condition of Scheme 2. It is considered that the other schemes administered by the PPA being closed to new entrants, it would be difficult to introduce major changes without raising the issue of altering past accrued rights of the members.

All proposed measures are first described with the rationale leading to each specific recommendation.

4.1 Gradual increase of the retirement age

Presently, life expectancy at the age of 60 (the normal retirement age under PPA schemes) is 18.3 years for men and 20.6 years for women. Considering that the period of contribution of certain public sector employees may be as short as 20 years when they become eligible to retirement, this explains the size of the burden that will fall on the shoulders of the financiers of the system.

Between 2013 and 2050, it is projected that the global life expectancy in Palestine will increase by approximately 5 years. So this could justify to gradually increase the normal retirement age of Scheme 2, for example from age 60 now to age 65 in 2050. The PPA legislation could already provide for such an increase, so that people would be aware of the future gradual increase and could plan their retirement accordingly.

This modification would decrease the GAP of Scheme 2 from 39.0 percent to 33.9 percent. The PAYG cost in 2090 would decrease from 58.1 percent to 51.9 percent.

4.2 Less attractive early retirement conditions

According to experience data, over recent years, very few persons retired before the normal retirement age of 60, except during limited periods (e.g. 2008) where the government allowed early retirement under special conditions. However, certain early retirement conditions provided by the law appear generous: reduction factor of only 4 percent per year, possibility to cancel the pension reduction for early retirement following a decision of the Council of Ministers, specific conditions for what is called "alternative" retirement, etc. This could eventually encourage people to retire before age 60.

It is thus recommended to remove these attractive early retirement conditions from Scheme 2 in order to avoid a possible increase in scheme's cost in the future. For example, the pension reduction could be increase from 4 percent to 5 percent per year and it could be applied in case of both "alternative" and "early" retirements.

The less attractive early retirement conditions have no impact on costs since the base scenario of the actuarial valuation supposes that everybody retires at age 60 (in line with experience data).

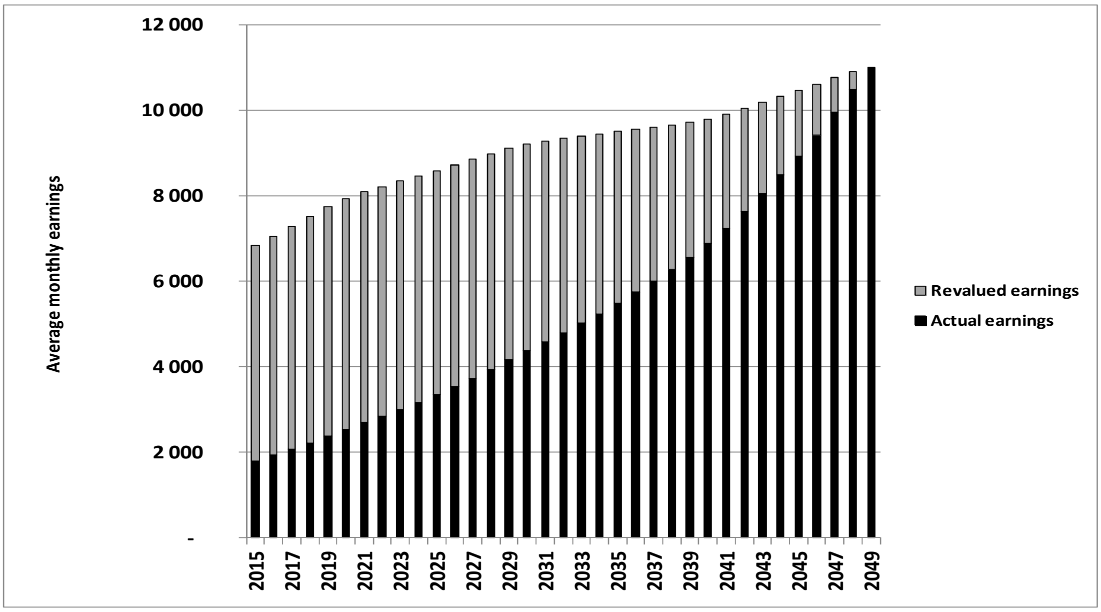
4.3 Pensions based on career average earnings instead of final earnings

For the calculation of pensions, it is recommended to use average earnings over the whole career of the individual. The suggested method is commonly referred to as the career average re-valued earnings formula whereby equal weight is given to wages in each year, with older wages re-valued or indexed to give them a current value. This method of calculating social security pensions is used in almost all OECD[3] countries. The proposed formula would ensure equity in the following manner:

- Participants with important wage increases towards the end of their career would not receive undue advantage (significantly higher pensions) just because their final earnings are high.
- Participants with earnings that decline towards the end of their career could be disadvantaged if the formula would use only the earnings over a short period preceding retirement.
- Each year’s contribution is given an equal weight.

The first step consists in adjusting the past insurable earnings of the person. Chart 4.1 illustrates how past earnings would be adjusted in order to give them an updated value. To operate this revaluation, all the earnings during the career of the individual would be multiplied by a cumulative wage index for the period between the year these earnings were recorded and the year the pension becomes payable.

Chart 4.1 Revaluation of past earnings



This modification would decrease the GAP of Scheme 2 from 39.0 percent to 30.1 percent. The PAYG cost in 2090 would decrease from 58.1 percent to 44.1 percent.

[3] Organisation for Economic Co-operation and Development.

The effect of the proposed modification is more important for the Security forces because their salary scale is steeper than the one of the Civilian employees.

4.4 Indexing of pensions based on CPI instead of wages

Pensions are presently indexed at an annual rate equivalent to the inflation rate plus 1.25 percent, in line with the annual increase of salaries in the public sector. It is recommended to change this adjustment so that pension would be indexed annually in line with CPI increase only.

This modification would decrease the GAP of Scheme 2 from 39.0 percent to 34.4 percent. The PAYG cost in 2090 would decrease from 58.1 percent to 50.1 percent.

4.5 Reduction of the pension accrual rate

The accrual rate of pensions should be reduced from 2.0 percent to 1.5 percent per year of service. However, the lower accrual rate (1.5 percent) would be applied only to future service after the reform date.

This measure would reduce the GAP of the scheme from 39.0 percent to 30.6 percent. Under that scenario, the PAYG rate in 2090 (which is 58.1 percent under status quo) would be reduced to 44.0 percent.

4.6 Summary of financial impact of the proposed measures

With the introduction of the measures recommended in previous Sections 4.1 to 4.5, the cost of Scheme 2 would decrease significantly, as shown in Table 4.1. For all measures combined, the GAP of Scheme 2 would decrease from 39.0 percent to 18.1 percent and the PAYG cost in 2090 would decrease from 58.1 percent to 25.7 percent (last line of Table 4.1).

Table 4.1 Impact of proposed modifications to Scheme 2 (as % of insurable earnings)

	GAP	PAYG in 2090
Base scenario	39.0%	58.1%
Reform measures taken individually		
– Increase of the retirement age	33.9%	51.9%
– Indexing of pensions based on CPI	34.4%	50.1%
– Career earnings formula	30.1%	44.1%
– Reduction of the pension accrual rate (1.5%)	30.6%	44.0%
All measures combined	**18.1%**	**25.7%**

4.7 Increase of the contribution rate

An automatic mechanism (or rule) should be adopted and included in the law for the determination of future contribution rates, on the basis of periodic actuarial valuations. In the future, the contribution rate could be established at a level equal to the larger of:

i) the contribution rate in application at the moment of the valuation, and

ii) the general average premium (GAP)[4] calculated over the period of 50 years following the valuation date, rounded to the lowest 1.0 percent.

Such a rule would ensure the financial sustainability of the scheme and at the same time allow a gradual increase of the contribution rate towards its long-term level.

The application of this rule to the benefits and insurable earnings projected for Scheme 2 would result in the application of the contribution rates appearing in Table 4.2.

[4] The GAP utilized here is calculated by considering the initial reserve at time of determination.

Table 4.2 Possible future contribution rate schedule (in combination with reform measures)

Year	Contribution rate (% of insurable earnings)
2013-2036	16.0%
2037-2042	17.0%
2043 +	18.0%

Table 4.3 presents financial projections that take into account the reform measures and the increase of the contribution rate. It shows that the application of the reform measures in addition to the gradual increase of the contribution rate would ensure the financial sustainability of the scheme, the reserve remaining positive until 2090.

Table 4.3 SCHEME 2 – Projected revenue, expenditure and reserve under reform, 2013-2090 (million NIS)

Year	Contribution rate	REVENUE: Contribution income	REVENUE: Investment income	REVENUE: Total income	EXPENDITURE: Benefits	EXPENDITURE: Administrative expenses	EXPENDITURE: Total expenditure	RESERVE: Amount (year-end)	RESERVE: Ratio of annual expenditure	PAYG (%)
2013	16.0	830	128	959	60	6	66	3 699	42.5	1.3
2014	16.0	902	166	1 068	67	7	74	4 693	50.3	1.3
2015	16.0	983	207	1 190	75	7	82	5 801	57.2	1.3
2016	16.0	1 078	253	1 331	84	8	92	7 040	63.3	1.4
2017	16.0	1 181	305	1 487	93	9	102	8 425	68.8	1.4
2018	16.0	1 294	363	1 657	105	10	114	9 967	73.6	1.4
2019	16.0	1 414	427	1 841	118	11	128	11 680	77.7	1.5
2020	16.0	1 546	499	2 044	132	12	144	13 580	81.2	1.5
2025	16.0	2 193	921	3 115	774	20	794	24 490	27.9	5.8
2030	16.0	3 087	1 408	4 496	1 695	32	1 727	37 041	19.8	9.0
2035	16.0	4 254	1 954	6 208	3 182	49	3 231	50 946	14.8	12.2
2040	17.0	6 114	2 538	8 652	5 364	73	5 437	65 855	11.5	15.1
2045	18.0	8 670	3 143	11 812	8 195	104	8 299	81 311	9.4	17.2
2050	18.0	11 741	3 844	15 586	11 124	141	11 265	99 478	8.4	17.3
2060	18.0	21 150	6 136	27 285	19 926	253	20 179	158 875	7.5	17.2
2070	18.0	35 672	8 886	44 558	38 363	456	38 819	227 794	5.7	19.6
2080	18.0	57 643	9 151	66 794	73 043	804	73 847	228 037	3.2	23.1
2090	18.0	90 768	919	91 687	128 332	1 348	129 680	4 068	0.3	25.7

5. Other issues

This section discusses various additional topics related to the schemes administered by the PPA.

5.1 The defined-contribution component of Scheme 2

The defined-contribution (DC) component of Scheme 2 has not been really implemented. Contributions are not actually collected regarding that component, so that participants' individual accounts have not yet been created. Theoretical accounts can be considered to exist for Civilian employees only.

For Security forces, there is no registered DC contributions because PPA does not have complete data. Actually, PPA started to receive the data of the theoretical amount of monthly contributions only in July 2010. In order to calculate the correct theoretical accumulated DC account for each individual, the PPA would need historical data starting from September 2007.

Pension Law N° 7 of 2005

Article 18

The compulsory contribution by the Government to the Defined Contribution System shall be three (3%) percent and the compulsory contribution by the subscriber shall be three (3%) percent of the salary. The subscriber shall be entitled to contribute any other additional percentages, provided that no such contributions will incur any additional financial obligations on the part of the Government.

Article 26

The Defined Contribution System:

1. *The subscriber, as he reaches the age of compulsory retirement, shall be entitled to the whole sum accumulated in his name in the special account set forth under paragraph 5 of Article 12, including the share of the employee, the share of the Government, and the pension returns. He shall have the right to choose between one of the following options:*
   a) *The whole sum as one payment upon retirement.*
   b) *A monthly sum throughout his lifetime or as per a timetable to be agreed upon.*
   c) *A combination of the options set forth under (a) and (b) above.*
2. *In the event of disability, the subscriber shall be able to withdraw the whole sum as one payment.*
3. *If the subscriber dies, the beneficiaries or entitled persons shall receive the whole sum as one payment, which shall be paid in accordance with the Table 1 in Article 34 less the total amount of payments, if any, already paid to the subscriber in his lifetime.*

In theory, people who resign, die or become disabled have the right to receive back their DC account. This is not applied presently because the MoF does not pay the contributions and the arrears. In addition, NGOs, municipalities and private sector organisations do not pay the DC part (they pay only the DB part). Hence no DC accounts were created for them. Currently, the PPA pays the DC account only in cases of resignation.

Given the problems of application of the DC component of the law, the incapacity of the MoF to pay contribution arrears and the difficulty to invest those funds in the current financial environment, it should be envisaged to review this part of the law. One possibility would be to reorient this contribution income into the DB component of Scheme 2 in order to reinforce its financial status of the DB component and thus delay some of the contribution rate increases proposed in this report.

5.2 Future actuarial valuations

Regular actuarial valuations should take place every three years in order to assess the financial sustainability of the schemes and allow for regular adjustments as necessary.

If, as recommended in Section 4.5, an automatic mechanism is included in the law for the determination of future contribution rates, periodic actuarial valuations will represent the tool to establish these contribution rates.

Conclusion

This report has stressed the important problem of contribution arrears due by the Ministry of Finance to the PPA. It has showed that the present generosity of the schemes, combined with a relatively low contribution rate, makes impossible to reach a financial equilibrium in the medium and long term.

The report proposes a series of modifications aimed at reducing the cost of Scheme 2, accompanied by a reasonable contribution rate schedule, that would allow to maintain the scheme in place and ensure its sustainability.

Annex 1 Summary of the provisions of the schemes administered by the PPA

This annex presents a summary of the provisions of the four schemes administered by the PPA.

GENERAL PROVISIONS

	Scheme I Law No. 8 of 1964 (the 10% system)	**Scheme II** Pension law n° 7 of 2005	**Scheme III** Law of Insurance and Salaries of the Palestinian Security Forces No. 16 of 2004	**Scheme IV** Law of Civil Retirement No. 34 of 1959 (the 2% system)
Persons covered	– All Gaza civil servants and some of the West Bank civil servants who were more than 45 years old on 1/9/2006 and who are paid from the Palestine National Authority (PNA) general budget; – Palestine Liberation Organization civilian employees who were more than 45 years old on 1/9/2006, working outside the country and who are paid from the PNA general budget, unless they are participant in an other governmental pension scheme; – Gaza employees of local authorities and public institutions (municipalities) who were more than 45 years old on 1/9/2006.	– Civil servants and security forces who were less than 45 years old on 1/9/2006 and those hired after that date regardless their age and who are paid from the Palestine National Authority (PNA) general budget; – Palestine Liberation Organization employees who were less than 45 years old on 1/9/2006, working outside the country and who are paid from the PNA general budget, unless they are participant in an other governmental pension scheme; – Gaza employees of local authorities and public institutions (municipalities) who were less than 45 years old on 1/9/2006. And West Bank employees of local authorities and public institutions (municipalities) who joined the scheme according to the presidential decree N° 5 of 2007 (regardless of their age); – NGOs and private sector employees (partially implemented).	– Security forces who were more than 45 years old on 1/9/2006 and who are paid from the Palestine National Authority (PNA) general budget; – Palestine Liberation Organization security forces who were more than 45 years old on 1/9/2006, working outside the country and who are paid from the PNA general budget, unless they are participant in an other governmental pension scheme.	– West Bank civil servants who were more than 45 years old on 1/9/2006 (excluding those covered by Scheme I) and who are paid from the Palestine National Authority (PNA) general budget; – Palestine Liberation Organization employees from West Bank who were more than 45 years old on 1/9/2006, working outside the country and who are paid from the PNA general budget, unless they are participant in an other governmental pension scheme.
Earnings covered	Basic salary, fixed increments (linked to the nature of work), periodic increments and increment for cost of living.	Basic salary, fixed increments (linked to the nature of work), periodic increments and increment for cost of living.	Basic salary, fixed increments (linked to the nature of work), periodic increments and increment for cost of living.	Basic salary, fixed increments (linked to the nature of work), periodic increments and increment for cost of living.
Ceiling on earnings	No ceiling on covered earnings	No ceiling on covered earnings	No ceiling on covered earnings	No ceiling on covered earnings

	Scheme I Law No. 8 of 1964 (the 10% system)	**Scheme II** Pension law n° 7 of 2005	**Scheme III** Law of Insurance and Salaries of the Palestinian Security Forces No. 16 of 2004	**Scheme IV** Law of Civil Retirement No. 34 of 1959 (the 2% system)
Financing	DB system: – Employer: 12.5% – Employee: 10%	DB system: – Employer: 9% – Employee: 7% DC system: – Employer: 3% – Employee: 3%	DB system: – Employer: 12.5% – Employee: 10%	DB system: – Employee: 2%
Automatic pension indexing	Increment based on wage increase of active contributors, connected to CPI or salary scale changes, applied automatically to pensions	Increment based on wage increase of active contributors, connected to CPI or salary scale changes, applied automatically to pensions	Increment based on wage increase of active contributors, connected to CPI or salary scale changes, applied automatically to pensions	Increment based on wage increase of active contributors, connected to CPI or salary scale changes, applied automatically to pensions

OLD-AGE BENEFITS

<table>
<tr><th></th><th>Scheme I
Law No. 8 of 1964
(the 10% system)</th><th>Scheme II
Pension law n° 7 of 2005</th><th>Scheme III
Law of Insurance and Salaries of the Palestinian Security Forces
No. 16 of 2004</th><th>Scheme IV
Law of Civil Retirement
No. 34 of 1959
(the 2% system)</th></tr>
<tr><td>Eligibility conditions</td><td>Mandatory retirement:
– Age 60 with at least 15 years of service (or more than 9 years of service plus purchased years up to 15)

Alternatives:
– Age 58 with at least 20 years of service
– Higher Judicial Council: between 60 and 70 with at least 15 years of service

Early retirement:
– At least 20 years of service regardless the age

In case of service termination, the employee with at least 15 years of service is eligible for the pension. No reduction applied.</td><td>Mandatory retirement:
– Age 60 with at least 15 years of service (or more than 9 years of service plus purchased years up to 15)
Alternatives:
– Civil servants: age 55 with at least 20 years of service for males and 15 years of service for females. Or, age 50 with at least 25 years of service for males and 20 years of service for females
– Security forces, laboratories, marine, employees serving in oil and gas exploration: age 50 with at least 20 years of service
– Academic staff: between 60-65 with at least 15 years of service
– Higher Judicial Council: between 60 and 70 with at least 15 years of service
Early retirement:
– Civil servants: age 55 with at least 15 years of service

In case of service termination, the employee with at least 15 years of service is eligible for the pension. No reduction applied.

Note: A presidential decree of 2008 concerning Security forces of Schemes II and III gave the right to optional early retirement with 100% of salary for those aged 45 and over with 15 years or service on 1/3/2008 (805 persons concerned in Scheme II).</td><td>Mandatory retirement:
– Age 60 with at least 15 years of service (or more than 9 years of service plus purchased years up to 15)

Early retirement:
– From age 40 to age 55 (depending on the military rank) with at least 20 years of service. The early retirement is based on the Chief Commander’s decision.

Note: A presidential decree of 2008 concerning Security forces of Schemes II and III gave the right to optional early retirement with 100% of salary for those aged 45 and over with 15 years of service on 1/3/2008 (3920 persons concerned in Scheme III).</td><td>Mandatory retirement:
– Age 60 with at least 15 years of service (or more than 9 years of service plus purchased years up to 15)
– 40 years of service

Alternative:
– 30 years of service regardless of age

Early retirement:
– At least 15 years of service regardless of age, conditional to decision of the Council of Ministers. No reduction applied.</td></tr>
</table>

	Scheme I Law No. 8 of 1964 (the 10% system)	**Scheme II** Pension law n° 7 of 2005	**Scheme III** Law of Insurance and Salaries of the Palestinian Security Forces No. 16 of 2004	**Scheme IV** Law of Civil Retirement No. 34 of 1959 (the 2% system)
Amount of benefits	– 2.5% per year of service, multiplied by average salary of the last 3 years (maximum 70%) – Early retirement: - 20% reduction if retire before age 48 - 15% reduction if retire between 48 and 51 - 10% reduction if retire between 51 and 56 - 5% reduction if retire between 56 and 58 *Reduction may be cancelled following decision of Council of Ministers.* *– Pension supplement of 300 NIS per month, according to Presidential Resolution No. 5 of 2007.* *– Dependents' supplement of 60 NIS for wife (paid to male pensioners) and 20 NIS per child (paid to male pensioners or to female pensioners if she is the only breadwinner).* – If not eligible to pension at age 60, retirement grant equal 15% of the last annual salary for each service year	DB system: – 2% per year of service, multiplied by average salary of the last 3 years – Early retirement: 5% reduction per year before age 60. *Reduction may be cancelled following decision of Council of Ministers.* *– Pension supplement of 300 NIS per month, according to Presidential Resolution No. 5 of 2007.* *– Dependents' supplement of 60 NIS for wife (paid to male pensioners) and 20 NIS per child (paid to male pensioners or to female pensioners if she is the only breadwinner).* – If not eligible to pension at age 60, retirement grant equal to employee's contributions plus interest. DC system: – Based on the amount accumulated with interest. – May be paid as a lump sum, life annuity or scheduled payments.	– 2.5% per year of service, multiplied by average salary of the last 3 years (maximum 70%) – Early retirement: - 20% reduction if retire before age 48. - 15% reduction if retire between 48 and 51 - 10% reduction if retire between 51 and 56 - 5% reduction if retire between 56 and 58 *Reduction may be cancelled following decision of Council of Ministers.* *– Pension supplement of 300 NIS per month, according to Presidential Resolution No. 5 of 2007.* *– Dependents' supplement of 60 NIS for wife (paid to male pensioners) and 20 NIS per child (paid to male pensioners or to female pensioners if she is the only breadwinner).* – If not eligible to pension at age 60, retirement grant equal 15% of the last annual salary for each service year	– 2.67% per year of service, multiplied by average salary of the last 3 years (maximum 75%) *– Pension supplement of 300 NIS per month, according to Presidential Resolution No. 5 of 2007.* *– Dependents' supplement of 60 NIS for wife (paid to male pensioners) and 20 NIS per child (paid to male pensioners or to female pensioners if she is the only breadwinner).* – If not eligible to pension at age 60, retirement grant equal monthly salary for each service year (if contributions were paid for these years) and 50% of monthly salary for each service year (if contributions were not paid for these years).

INVALIDITY BENEFITS

	Scheme I Law No. 8 of 1964 (the 10% system)	**Scheme II** Pension law n° 7 of 2005	**Scheme III** Law of Insurance and Salaries of the Palestinian Security Forces No. 16 of 2004	**Scheme IV** Law of Civil Retirement No. 34 of 1959 (the 2% system)
Eligibility conditions	Below age 60	Below age 60	Below age 60	Below age 60 with at least 10 years of service
Amount of benefits	2.5% per year of service, multiplied by average salary of the last 3 years (minimum 40%, maximum 70%). – *Pension supplement of 300 NIS per month, according to Presidential Resolution No. 5 of 2007.* – *Dependents' supplement of 60 NIS for wife (paid to male pensioners) and 20 NIS per child (paid to male pensioners or to female pensioners if she is the only breadwinner).*	DB system: 2% per year of service, multiplied by average salary of the last 3 years (maximum 70%). Years of service include half of years from invalidity to age 60. – *Pension supplement of 300 NIS per month, according to Presidential Resolution No. 5 of 2007.* – *Dependents' supplement of 60 NIS for wife (paid to male pensioners) and 20 NIS per child (paid to male pensioners or to female pensioners if she is the only breadwinner).* DC system: may receive the accumulated amount as a lump sum (not implemented).	2.5% per year of service, multiplied by average salary of the last 3 years (minimum 40%, maximum 70%). – *Pension supplement of 300 NIS per month, according to Presidential Resolution No. 5 of 2007.* – *Dependents' supplement of 60 NIS for wife (paid to male pensioners) and 20 NIS per child (paid to male pensioners or to female pensioners if she is the only breadwinner).*	2.67% per year of service, multiplied by average salary of the last 3 years (maximum 75%). If not eligible to invalidity pension (less than 10 years of service), grant equal to monthly salary for each service year (if contributions were paid for these years) and 50% of monthly salary for each service year (if contributions were not paid for these years). – *Pension supplement of 300 NIS per month, according to Presidential Resolution No. 5 of 2007.* – *Dependents' supplement of 60 NIS for wife (paid to male pensioners) and 20 NIS per child (paid to male pensioners or to female pensioners if she is the only breadwinner).* –

SURVIVORS' BENEFITS

	Scheme I Law No. 8 of 1964 (the 10% system)	**Scheme II** Pension law n° 7 of 2005	**Scheme III** Law of Insurance and Salaries of the Palestinian Security Forces No. 16 of 2004	**Scheme IV** Law of Civil Retirement No. 34 of 1959 (the 2% system)
Eligibility conditions	The deceased was receiving a retirement pension or was active contributor at the time of death	The deceased was receiving a retirement pension or was active contributor at the time of death	The deceased was receiving a retirement pension or was active contributor at the time of death	The deceased was receiving a retirement pension at the time of death or was eligible to receive a retirement pension according to the law (at least 10 years of service)
Eligible survivors	– Widow or widows of the participant. – Male children and brothers younger than twenty-one (21) years of age supported by the participant prior to his death. – Male children and brothers younger than twenty-six (26) years of age if pursuing their higher education, supported by the participant prior to his death. – Male children and brothers supported by the participant prior to his death and who are unable to earn a living by virtue of physical reasons. – Unmarried, divorced or widowed female daughters and sisters. – Parents of the participant. – Husband of the female participant, if he was at the time of her death unable to earn a living in physical terms or unable to support himself.	– Widow or widows of the participant. – Male children and brothers younger than twenty-one (21) years of age supported by the participant prior to his death. – Male children and brothers younger than twenty-six (26) years of age if pursuing their higher education, supported by the participant prior to his death. – Male children and brothers supported by the participant prior to his death and who are unable to earn a living by virtue of physical reasons. – Unmarried, divorced or widowed female daughters and sisters. – Parents of the participant. – Husband of the female participant, if he was at the time of her death unable to earn a living in physical terms or unable to support himself.	– Widow or widows of the participant. – Male children and brothers younger than twenty-one (21) years of age supported by the participant prior to his death. – Male children and brothers younger than twenty-six (26) years of age if pursuing their higher education, supported by the participant prior to his death. – Male children and brothers supported by the participant prior to his death and who are unable to earn a living by virtue of physical reasons. – Unmarried, divorced or widowed female daughters and sisters. – Parents of the participant. – Husband of the female participant, if he was at the time of her death unable to earn a living in physical terms or unable to support himself.	– Widow or widows of the participant – Male children younger than eighteen (18) years of age supported by the participant prior to his death. – Male children younger than twenty-five (25) years of age if pursuing their higher education, supported by the participant prior to his death. – Male children supported by the participant prior to his death and who are unable to earn a living by virtue of physical reasons. – Unmarried, divorced or widowed female daughters. – Parents of the participant.

	Scheme I Law No. 8 of 1964 (the 10% system)	**Scheme II** Pension law n° 7 of 2005	**Scheme III** Law of Insurance and Salaries of the Palestinian Security Forces No. 16 of 2004	**Scheme IV** Law of Civil Retirement No. 34 of 1959 (the 2% system)
Amount of benefits	2.5% per year of service, multiplied by average salary of the last 3 years (minimum 40%, maximum 70%) multiplied by: – Widow: 50% – Children: one-third for one child, 50% for 2 children or more – *Pension supplement of 300 NIS per month, according to Presidential Resolution No. 5 of 2007(shared among survivors).* – *Dependents' supplement of 20 NIS added to the orphan's pension.*	DB system: 2% per year of service, multiplied by average salary of the last 3 years (maximum 70%), multiplied by: – Widow: 50% – Children: one-third for one child, 50% for 2 children or more – Others' shares are illustrated in the table of survivors' shares (see Table 2, Article 34 of Law Nº 7 of 2005 hereunder) Years of service include half of years from death to age 60. *Pension supplement of 300 NIS per month, according to Presidential Resolution No. 5 of 2007 (shared among survivors).* DC system: may receive the accumulated amount as a lump sum (not implemented).	2.5% per year of service, multiplied by average salary of the last 3 years (minimum 40%, maximum 70%) multiplied by: – Widow: 50% – Children: one-third for one child, 50% for 2 children or more *Pension supplement of 300 NIS per month, according to Presidential Resolution No. 5 of 2007 (shared among survivors).*	2.67% per year of service, multiplied by average salary of the last 3 years (maximum 75%) divided equally between eligible survivors *Pension supplement of 300 NIS per month, according to Presidential Resolution No. 5 of 2007 (shared among survivors).*
Duration	Children and siblings younger than twenty-one (21) years of age or younger than twenty-six (26) years of age if pursuing higher education.	Children and siblings younger than twenty-one (21) years of age or younger than twenty-six (26) years of age if pursuing higher education.	Children and siblings younger than twenty-one (21) years of age or younger than twenty-six (26) years of age if pursuing higher education.	Children younger than eighteen (18) years of age or younger than twenty-five (25) years of age if pursuing higher education.
Suspension of benefit	Pension to the widows and unmarried, divorced or widowed female daughters and sisters ceases upon marriage or work.	Pension to the widows and unmarried, divorced or widowed female daughters and sisters ceases upon marriage or work.	Pension to the widows and unmarried, divorced or widowed female daughters and sisters ceases upon marriage or work.	Pension to the widows and unmarried, divorced or widowed female daughters ceases upon marriage or work.

Law Nº 7 of 2005, Article 34, Table 2

The total pension amount for survivors is allocated according to the following table:

Case	Persons entitled	Widows	Children	Parents	Dependent brothers and sisters
1	Widow, widows or entitled husband and more than one child	one-half	one-half	–	–
2	Widow or widows or entitled husband and one child and two parents	one-half	one-third	one-sixth for one or both	–
3	Widow or widows or entitled husband and one child	one-half	one-third	–	–
4	Widow or widows or entitled husband and more than one child and entitled parents	one-third	one-half	one-sixth for one or both	–
5	Widow or widows or entitled husband and parents, without children	one-half	–	one-sixth each	–
6	More than one child and parents without a widow or entitled husband	–	three-fourths	one-sixth for one or both	–
7	One child and parents without a widow or entitled husband	–	one-half	one-sixth for one or both	–
8	Parents, without widow or entitled husband and without children	–	–	one-third for one or both	–
9	One brother or sister without a widow or entitled husband and without children or parents	–	–	–	one-sixth
10	More than one brother or sister without widow or entitled husband and without children and parents	–	–	–	one-third equally

Annex 2 Methodology of the actuarial valuation

This actuarial review makes use of the comprehensive methodology developed at the ILO Financial and Actuarial Service for reviewing the long-term actuarial and financial status of national pension schemes. These modelling tools include a population model, an economic model, a labour force model, a wage model and a pension model.

The actuarial valuation starts with a projection of the future demographic and economic environment of Palestine. Next, projection factors specifically related to the scheme under study are determined and used in combination with the demographic and economic framework.

A2.1 Modelling the demographic and economic environment

The use of the ILO actuarial projection model requires the development of demographic and economic assumptions related to the general population, the economic growth, the labour market and the increase and distribution of wages. Other economic assumptions relate to the future rate of return on investments, the indexation of benefits and the adjustment of parameters like the maximum insurable earnings.

The selection of projection assumptions takes into account recent experience to the extent this information is available. The assumptions are selected to reflect long-term trends rather than giving undue weight to recent experience.

General population

General population is projected starting with most current data on the general population (obtained from PCBS), and applying appropriate mortality, fertility and migration assumptions.

Economic growth

Increase of the productivity of labour, wage share of GDP and inflation rates are exogenous inputs to the economic model. Real GDP growth is the result of assumptions on the future evolution of the labour force, the employment rate in the labour force and the productivity of labour.

Labour force, employment and insured population

The projection of the labour force, i.e. the number of persons available for work, is obtained by applying assumed labour force participation rates to the projected number of persons in the general population. Age-specific employment rates are assumed constant in the future. The number of unemployed persons is then calculated as the difference between labour force and the number of employed persons.

The model assumes (implicit) movement of participants between the groups of active and inactive insured persons.

Wages

Based on an allocation of total GDP to capital income and to labour income, a starting average wage is calculated by dividing total wages in the GDP by the total number of employed persons.

In the short-term, it is assumed that the government will continue to apply for some time its current practice of granting wage increases equal to the inflation rate plus 1.25 percent. In the medium term, real wage development is checked against the labour productivity growth. In specific labour market situations, wages might grow at a pace faster or slower than productivity. However, due to the long-term perspective of the present review, the real wage increase is assumed to converge with real labour productivity. It is expected that wages will adjust to efficiency levels over time.

Wage distribution assumptions are also needed to simulate the possible impact of the social protection system on the distribution of income, for example through minimum and maximum pension provisions. Assumptions on the differentiation of wages by age and gender are established, as well as assumptions on the dispersion of wages between income groups.

A2.2 Modelling the financial development of the scheme

The present actuarial review addresses all revenue and expenditure components of the pension scheme.

Purpose of pension projections

The purpose of the pension model is twofold. First, it is used to assess the financial viability of the pension scheme. This refers to the measure of the long-term balance between income and expenditure of the scheme. In case of imbalance, a revision of the contribution rate or the benefit structure is recommended. Second, the model may be used to examine the financial impact of different reform options, thus assisting policy-makers in the design of benefit and financing provisions. More specifically, the pension model is used to develop long-term projections of expenditures and insurable earnings under the scheme, for the purpose of:

- assessing the options to build up a contingency or a technical reserve;
- proposing a contribution rate consistent with the funding objective;
- testing how the system reacts to changing economic and demographic conditions.

Pension data and assumptions

Pension projections require the demographic and macro-economic frame already described and, in addition, a set of assumptions specific to the scheme.

The database as of the valuation date includes the insured population, the distribution of insurable wages of insured persons and the distribution of past credited service. Data are disaggregated by age and gender.

Scheme-specific assumptions such as the disability incidence rates and the incidence of retirement by age are determined with reference to the scheme provisions and views about the future evolution of retirement behaviour.

The projection of the annual investment income requires information on the existing assets on the valuation date. A rate of return assumption is formulated on the basis of the nature of the scheme's assets, the past performance of the fund, the scheme's investment policy and assumptions on future economic growth and wage development.

Pension projection approach

Pension projections are performed following a year-by-year cohort methodology. The existing population is aged and gradually replaced by the successive cohorts of participants on an annual basis according to the demographic and coverage assumptions. The projection of insurable earnings and benefit expenditures are then performed according to the economic assumptions and the scheme's provisions.

Pensions are long-term benefits. Hence the financial obligations that a society accepts when adopting financing provisions and benefit provisions for them are also of a long-term nature. Participation in a pension scheme extends over the whole adult life, either as contributor or beneficiary, i.e. up to 70 years for someone entering the scheme at the age of 16, retiring at the age of 65 and dying some 20 or so years later. During their working years, contributors gradually build entitlement to pensions that will be paid even after their death, to their survivors. The objective of pension projections is not to forecast the exact development of income and expenditures of the scheme, but to check its financial viability. This entails evaluating the scheme with regard to the relative balance between future revenue and expenditure.

Annex 3 Projected demographic and macroeconomic environment of Palestine

Future income and expenditure of the proposed scheme are closely linked to changes in the size and age structure of the population of the country, employment levels, economic and wage growth, inflation, and rates of return on investments. Therefore, in order to estimate the future financial developments of the scheme, a projection of Palestine's total population and economic activity is required. Demographic projections provide estimates of the size and composition of the labour force, while projections of the gross domestic product (GDP) and the growth of labour productivity are necessary to project the number of workers and their earnings.

Demographic and macroeconomic variables were projected following an analysis of past trends and an estimate of plausible future experience. Population and economic projections are an intermediary step to derive projections specific to the proposed scheme.

A3.1 Population projection

The determinants of future population changes are fertility, mortality and net migration. Fertility rates determine the number of births, while mortality rates determine how many and at what ages people are expected to die. Net migration represents the difference between the number of people who permanently enter and leave Palestine.

The last official population census has been conducted in 2007. For the period after 2007, the Palestinian Central Bureau of Statistics (PCBS) has published population estimates based on the 2007 figures. For this valuation, the starting 2011 population distribution by age and gender is based on the PCBS projection. According to that projection, the 2011 population is 2,580,168 in the West Bank and 1,588,692 in the Gaza Strip, for a total Palestinian population of 4,168,860 persons.

Fertility

The total fertility rate (TFR) represents the average number of children each woman of childbearing age would have if she had all her children in a particular year. If there is no migration, a TFR of 2.1 is required for each generation to replace itself. According to PCBS data, the present fertility rate in Palestine is 4.0 children per women of childbearing age (3.6 in the West Bank and 4.7 in the Gaza Strip). For this valuation, it is assumed that the fertility rate will gradually decrease from its current level to 2.1 in 2075 and will stay constant thereafter. In addition, it is assumed that the ratio of male to female births will be constant at 1.04.

Mortality

Current data on life expectancy are based on information obtained from the PCBS and improvements in mortality are assumed to occur in accordance with United Nations (UN) estimates. Life expectancy at birth in 2011 for Palestine is estimated at 71.0 for males and 73.9 for females. Future improvements in life expectancy are projected using the slow pace of UN improvement factors that lead to life expectancies at birth of 77.7 for males and 81.1 for females in 2060.

According to this life table, life expectancy at age 65 in 2011 is 14.6 and 16.7 years respectively for males and females and will increase to 17.4 and 19.6 years respectively for males and females in 2060.

Migration

Net migration is assumed to be zero for the whole projection period.

Total population

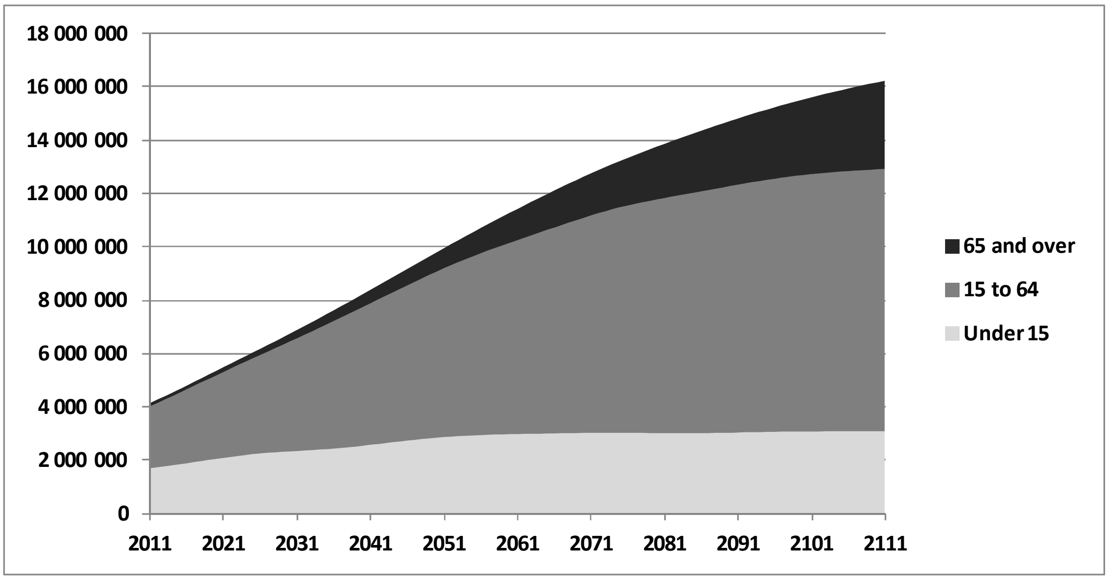
The population of Palestine is very young. The population below the age of 15 was representing 40.8 percent of the total population in 2011. Over the next 30 years (2011 to 2040), on the basis of the assumptions described above, the total population of Palestine is projected to double (from 4.2 million to 8.3 million). The rate of growth of the population is projected to slow down thereafter on the basis of the projected decrease of fertility rates. The phenomenon of population aging is illustrated by the continuous decline of the ratio of persons aged 15 to 64 to persons aged 65 and over (last column of Table A3.1). This ratio decreases from 19.1 in 2011 to 3.4 in 2100.

Table A3.1 Projected population of Palestine, by age groups (2011-2110)

Year	Total	Age			Ratio of persons 15-64 to 65 and over
		0-14	15-64	65 and over	
2011	4,168,860	1,702,900	2,343,211	122,749	19.1
2020	5,366,392	2,053,869	3,148,687	163,836	19.2
2030	6,758,753	2,324,412	4,141,016	293,325	14.1
2040	8,250,093	2,539,314	5,231,471	479,308	10.9
2050	9,816,821	2,840,288	6,256,386	720,146	8.7
2060	11,298,931	2,970,689	7,205,789	1,122,454	6.4
2070	12,647,342	3,017,055	8,086,036	1,544,250	5.2
2080	13,777,146	3,013,514	8,780,674	1,982,958	4.4
2090	14,740,705	3,026,576	9,268,901	2,445,228	3.8
2100	15,550,086	3,071,551	9,641,646	2,836,890	3.4
2110	16,188,676	3,077,377	9,843,248	3,268,050	3.0

The population below age 15 will be stable from 2070. On the other hand, the population aged 65 and over will increase from 122,749 in 2011 to 720,146 in 2050 and 3,268,050 in 2110. The population aged 15 to 64, that part of the population feeding the labour force and financing social security, will grow at a continuous declining rate over the projection period.

Chart A3.1 Projected population of Palestine, by age groups (2011-2101)

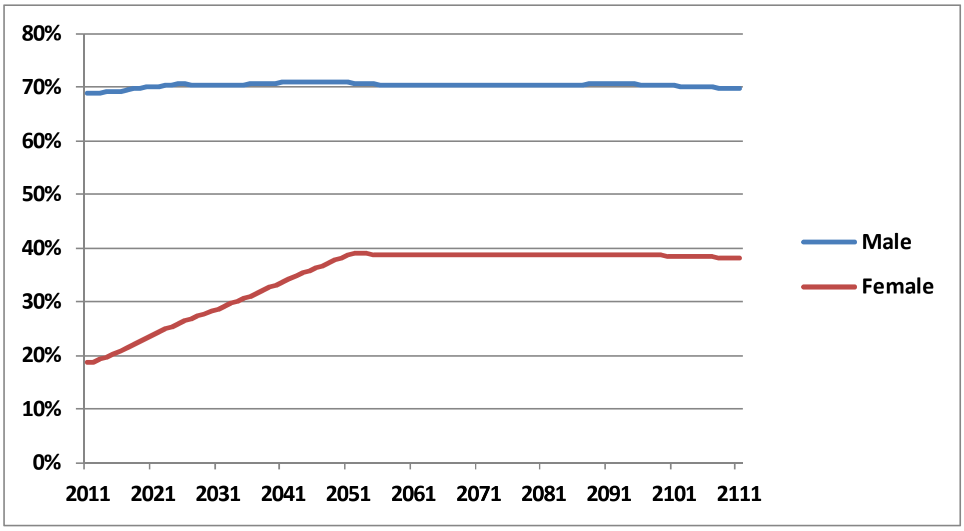


A3.2 Macroeconomic framework

Labour force

Labour force participation rates are presently 68.7 percent for males and 18.6 percent for females. It is assumed that age-specific participation rates for males will be constant in the future. For females, the labour force framework assumes that age-specific participation rates will double over the next 40 years. Consequently, the total female participation rate will increase from 18.6 percent in 2011 to 38.7 percent in 2060. This evolution of total participation rates by gender is presented in Chart A3.2. Detailed labour force projections appear in Table A3.2.

Chart A3.2 Projected participation rate, by gender (2011-2011)



High and persistent unemployment can be attributed to:

- *Restrictions on imports and exports. This is particularly, but not exclusively, an impediment for job creation in Gaza, where there have been tight restrictions, including a virtual export ban and severe restrictions on imports of building materials.*
- *Continued restrictions on labor mobility and on the reallocation of productive capital between the Gaza Strip and the West Bank.*
- *Low levels of private sector investment, other than for construction.*
- *High reservation wage of some job seekers. Some job seekers may opt for temporary unemployment or underemployment hoping for a job in either public sector or in Israel or settlements where wages exceed those paid by the private sector in WBG.*
- *The small size of most enterprises. Most enterprises in the WBG employ less than 20 employees. They tend to be more flexible than large enterprises and may make a significant contribution to employment at a relatively low capital cost. However, they face obstacles to their development and ability to create jobs, including the absence of a legal framework for their operations, lack of access to markets and technology, and relatively limited financing opportunities.*[5]

For the purpose of the valuation, age-specific employment rates are supposed constant for the projection period. Because of the evolution of the age structure of the labour force over time, the total unemployment rate decreases from 23.6 percent in 2011 to 21.1 percent in 2060.

[5] International Monetary Fund, *West Bank and Gaza: Labor Market Trends, Growth and Unemployment*, December 2012.

Table A3.2 Labour market balance (2011-2060) for Palestine, in thousand

	2011	2020	2030	2040	2050	2060
Total population	**4,169**	**5,366**	**6,759**	**8,250**	**9,817**	**11,299**
Male	2,117	2,728	3,433	4,183	4,966	5,701
Female	2,052	2,638	3,325	4,067	4,851	5,597
Population 15-69	**2,388**	**3,216**	**4,268**	**5,414**	**6,515**	**7,617**
Male	1,215	1,638	2,171	2,754	3,304	3,854
Female	1,173	1,577	2,097	2,660	3,211	3,762
Labour force	**1,053**	**1,511**	**2,119**	**2,830**	**3,564**	**4,165**
Male	835	1,146	1,528	1,948	2,340	2,710
Female	218	365	591	882	1,224	1,455
Total participation rate	**44.1%**	**47.0%**	**49.7%**	**52.3%**	**54.7%**	**54.7%**
Male	68.7%	69.9%	70.4%	70.7%	70.8%	70.3%
Female	18.6%	23.2%	28.2%	33.1%	38.1%	38.7%
Total employed	**804**	**1,158**	**1,642**	**2,200**	**2,793**	**3,287**
Male	658	911	1,227	1,571	1,903	2,212
Female	146	247	414	629	891	1,075
Unemployed	**249**	**353**	**477**	**629**	**771**	**878**
Male	177	235	301	376	438	498
Female	72	118	177	253	333	379
Unemployment rate	**23.6%**	**23.4%**	**22.5%**	**22.2%**	**21.6%**	**21.1%**
Male	21.2%	20.5%	19.7%	19.3%	18.7%	18.4%
Female	33.1%	32.4%	29.9%	28.7%	27.2%	26.1%

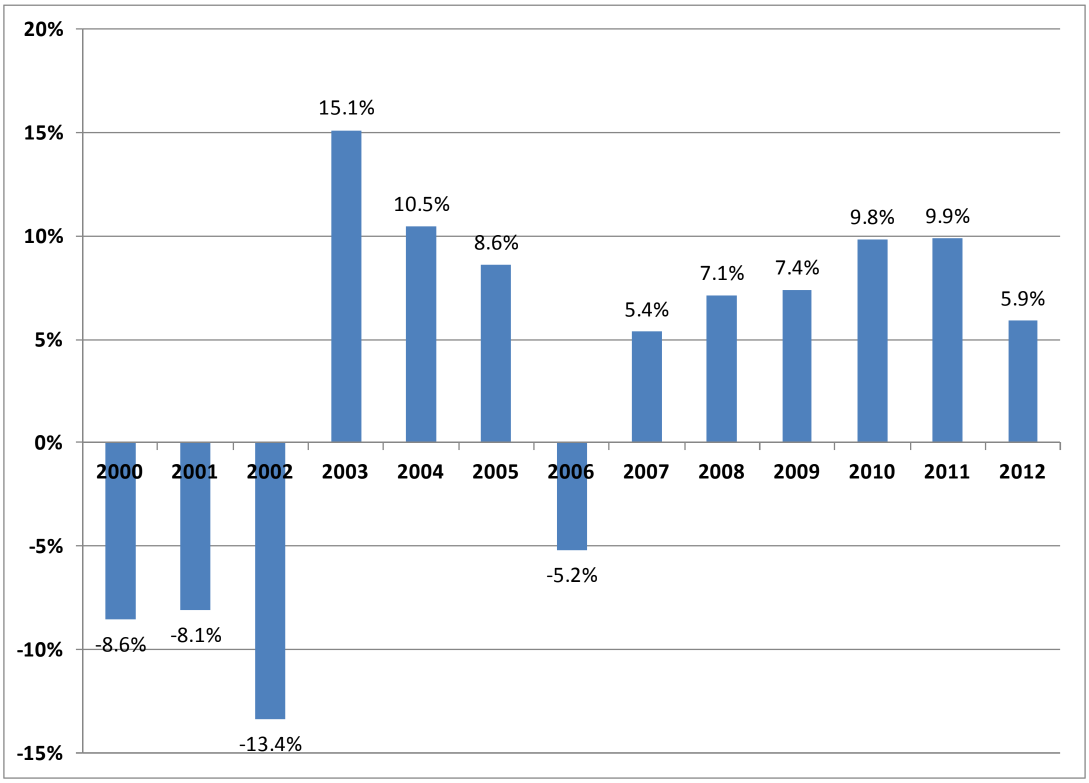
Productivity of labour

In this valuation, productivity of labour is an exogenous assumption. Considering recent data and long-term perspectives of the Palestinian economy, it is assumed that productivity of labour will increase by 1.0 percent per year from 2015.

GDP growth

Chart A3.3 shows that economic growth has been quite volatile over the past decade. However, the economy recovered from 2007, with an average real GDP growth rate of 7.6 percent over the period 2007-2012.

Chart A3.3 Growth rate of real GDP in Palestine (2000-2012)



Source: Palestinian Central Bureau of Statistics and Palestinian Monetary Authority.

Short-term forecasts on economic growth entail a high degree of uncertainty.

The West Bank (which comprises some 70% of the combined GDP of the Palestinian Territories) has seen a limited recovery since mid-2007, following an easing in some Israeli restrictions, a pick-up in donor aid flows, and some private-sector investment from Gulf companies in construction and services. However, no major easing of internal and external closure mechanisms in the West Bank is expected in 2013-14 (over 500 Israeli obstacles to internal movement remain in place), crimping the economy's growth potential, and we expect real GDP per head to remain just below its level preceding the 2000 intifada (uprising). The completion of the Israeli separation barrier will have a lasting impact on the economic landscape in the West Bank, making it much harder for Palestinians to work in Israel (their major source of income before the intifada), cutting Palestinian communities off from one another and from their agricultural land and restricting mobility and economic activity.

The Palestinian economy grew by 5.9% in real terms in 2012, according to the latest data from the Palestinian Central Bureau of Statistics, boosted by a significant expansion in the construction sector and the base-effect recovery in Gaza. The pace of expansion slowed in the second half of the year, reflecting the PA's intensifying fiscal crisis and problems in the agricultural sector (owing to unfavourable weather conditions). The economy slowed further in the first quarter of 2013, growing by just 2.7% year on year, a per capita contraction. We expect growth to remain sluggish in 2013, at around 3.5%, as higher fuel prices (owing to lower subsidies, even though the fuel price rise was partly reversed) have a negative impact on consumer spending. More positively, however, assuming more *favourable weather conditions, the agricultural sector should recover from mid-2013 after a difficult 2012. In 2014 the pace of expansion is expected to pick up … helped by a steady acceleration in the Israeli economy.*[6]

In this valuation, real GDP growth is the product of the rate of increase of total employment by the increase of the productivity of labour. Consequently, it is projected that real GDP growth will average 3.6 percent over the period 2013-2015 and will then gradually decrease to 2.4 percent in 2060 and 1.9 percent in 2080, driven down by the decrease of the rate of growth of the employed population (see Table A3.3).

Table A3.3 Projected GDP growth, productivity and total employment (2013-2080)

Year	Real GDP growth (%)	Increase of the productivity per worker (%)	Increase of the number of workers (%)
2013	1.9	- 2.4	4.4
2014	3.5	-0.8	4.3
2015	5.3	1.0	4.3
2020	5.0	1.0	3.9
2030	4.3	1.0	3.3
2040	3.7	1.0	2.7
2050	3.2	1.0	2.2
2060	2.4	1.0	1.4
2070	2.1	1.0	1.1
2080	1.9	1.0	0.9

Inflation

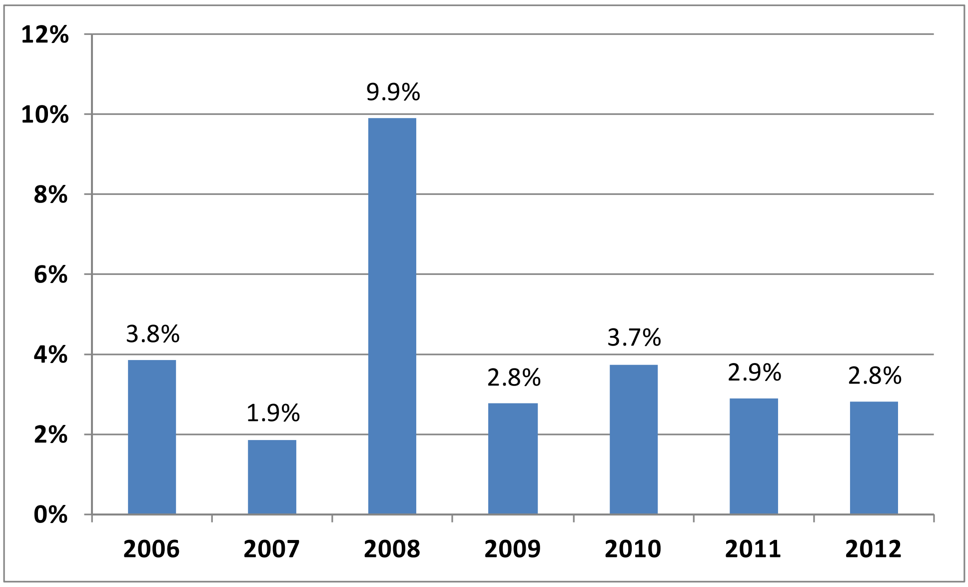
Inflation has averaged 3.0 percent during the period 2009-2012, as shown in Chart A3.4.

The slowdown in global economic performance was accompanied by a rise in inflation rates … due to the increase seen by oil prices (31.6 percent) and world food prices (19.4 percent). The Palestinian Territory had been affected by this increase in global prices, especially that the main influence to consumer prices in the Palestinian Territory are costs of imports and world food prices, plus some domestic factors such as freight costs and fluctuation in supply (seasonal changes to agricultural goods in particular) and others. PCBS data indicate an increase in Consumer Price Index (CPI) during 2011 by 2.9 percent compared to 2010.[7]

[6] Economist Intelligence Unit, *Country Report – Palestinian Territories*, January 2014.

[7] Palestine Monetary Authority, *Financial Stability Report 2011*, July 2012.

Chart A3.4 CPI increases (2006-2011)



Source: Palestinian Central Bureau of Statistics

It is projected that inflation will be constant at 3.0 percent for the whole projection period. Projected inflation rates appear in Table A3.4.

Wage increase

Real wage growth has been almost suppressed over recent years. According to PCBS data, the average daily wage in the Palestinian Territory has increased by 4.9 percent in 2009, 0.4 percent in 2010 and 0.0 percent in 2011.

> *Real private sector wages have declined in the West Bank, despite strong economic growth, by 8 percent in 2008-11. In Gaza real private sector wages have dropped 4 percent since 2008 and are now significantly lower than in 1999, before the start of the second Intifada. Wages in Israel and the settlements far exceed public and private sector wages in WBG, although there too real wage growth has been stagnant. In 2012, the average daily wage of a West Bank worker in the private sector was about half of the average wage for Palestinians employed in Israel and settlements. Public sector wages declined sharply by 9 percent in real terms in 2008 and recovered somewhat thereafter. In the West Bank they are now roughly back at their 2006 level while in Gaza real public sector wages are about 20 percent lower than in 2006. Public sector wages exceed private sector wages (in the West Bank since 2006) which is the result of downward pressures on wages in the private labor market owing to economic constraints related to restrictions on movement and access. These restrictions result in lower investment, lower growth and hence less private sector job creation, and thus excess labor supply. All of those factors put downward pressure on private sector wages.*[8]

It must be noted that the present practice of the government is to grant each year, to the employees of the public sector, a salary increase equal to the increase of the

[8] International Monetary Fund, *West Bank and Gaza: Labor Market Trends, Growth and Unemployment*, December 2012.

CPI plus 1.25 percent. It is projected that the present policy will continue to apply until 2015, but that the adjustment of wages in the public sector will gradually converge towards the general growth of productivity per worker assumed under the macroeconomic framework established for this valuation, as it is expected that wages will adjust to efficiency levels over time. On that basis, the nominal wage increase in the public sector is projected at 4.25 percent from 2013 to 2015 and 4.0 percent from 2016 onwards (see Table A3.4).

Rate of return of the fund

For the period 2009-2012, the global rate of return of the PPA fund varied between 0.2 percent and 2.9 percent, with an average of 1.7 percent. This results from the high concentration of assets in short-term investments. In the future, it is assumed that the investment policy will be adjusted towards longer term investments and that the real rate of return of the fund will follow the productivity growth rate. The projected nominal rate of return of the fund is projected to be constant at 4.0 percent.

Table A3.4 Projected inflation rate, wage increase and rate of return of the fund (2013-2080)

Year	Inflation rate (%)	Annual nominal wage increase in the economy (%)	Annual nominal wage increase in the public sector (%)	Rate of return of the fund (%)
2013	3.0	0.5	4.25	4.0
2014	3.0	2.2	4.25	4.0
2015	3.0	4.0	4.25	4.0
2020	3.0	4.0	4.0	4.0
2030	3.0	4.0	4.0	4.0
2040	3.0	4.0	4.0	4.0
2050	3.0	4.0	4.0	4.0
2060	3.0	4.0	4.0	4.0
2070	3.0	4.0	4.0	4.0
2080	3.0	4.0	4.0	4.0

Annex 4 Actuarial bases and assumptions specific to the schemes

In addition to the demographic and economic assumptions presented in Annex 3, the projection of the future financial development of the PPA requires actuarial assumptions specific to the schemes under study.

A4.1 Assumptions regarding the insured population

Initial insured population

Tables A4.1 to A4.4 present the number and average earnings of the active insured persons in 2012.

Table A4.1 Scheme 1 – Insured population and average salary, by age and gender (2012)

	Male		Female	
Age	Number	Average monthly salary (NIS)	Number	Average monthly salary (NIS)
15-19	-	-	-	-
20-24	-	-	-	-
25-29	-	-	-	-
30-34	-	-	-	-
35-39	-	-	-	-
40-44	-	-	-	-
45-49	-	-	-	-
50-54	2,121	3,589	762	3,177
55-59	2,952	3,726	862	3,366
60-64	379	3,879	90	3,840
65-69	31	14,084	-	-
Total	**5,483**	**3,742**	**1,714**	**3,307**

Table A4.2 Scheme 2 – Insured population and average salary, by age, gender and type of employment (2012)

	Civilians				Security forces			
	Male		Female		Male		Female	
Age	Number	Average monthly salary (NIS)	Number	Average monthly salary (NIS)	Number	Average monthly salary (NIS)	Number	Average monthly salary (NIS)
15-19	-	-	1	1,965	71	1,301	1	942
20-24	568	2,088	357	2,266	5,203	1,811	36	1,604
25-29	4,269	2,393	3,831	2,460	9,441	2,142	177	2,211
30-34	7,460	2,642	7,476	2,666	16,042	2,470	249	2,623
35-39	8,541	2,971	7,833	2,862	14,829	2,930	406	3,132
40-44	8,946	3,161	6,256	2,894	10,369	3,547	324	3,444
45-49	8,632	3,223	4,948	2,978	5,878	4,076	182	3,629
50-54	3,234	3,365	1,577	3,109	738	4,358	19	3,166
55-59	144	2,788	38	2,278	-	-	-	-
60-64	13	2,387	1	1,562	-	-	-	-
65-69	-	-	-	-	-	-	-	-
Total	**41,807**	**2,964**	**32,318**	**2,802**	**62,571**	**2,825**	**1,394**	**3,021**

Table A4.3 Scheme 3 – Insured population and average salary, by age and gender (2012)

	Male		Female	
Age	Number	Average monthly salary (NIS)	Number	Average monthly salary (NIS)
15-19	-	-	-	-
20-24	-	-	-	-
25-29	-	-	-	-
30-34	-	-	-	-
35-39	-	-	-	-
40-44	-	-	-	-
45-49	-	-	-	-
50-54	661	4,610	31	3,396
55-59	488	5,265	24	4,133
60-64	76	6,094	3	4,978
65-69	15	6,218	1	5,936
Total	**1,240**	**4,978**	**59**	**3,819**

Table A4.4 Scheme 4 – Insured population and average salary, by age and gender (2012)

	Male		Female	
Age	Number	Average monthly salary (NIS)	Number	Average monthly salary (NIS)
15-19	-	-	-	-
20-24	-	-	-	-
25-29	-	-	-	-
30-34	-	-	-	-
35-39	-	-	-	-
40-44	-	-	-	-
45-49	-	-	-	-
50-54	1,747	3,760	863	3,341
55-59	1,715	3,975	635	3,588
60-64	199	4,108	63	3,451
65-69	2	16,274	-	-
Total	**3,663**	**3,886**	**1,561**	**3,446**

New entrants

The General Personnel Council (GPC) provided forecasts on the number of new entrants to the civil service for the period 2013 to 2015. Data appear in Table A4.5.

Table A4.5 GPC projected number of new entrants to civil service (2013-2015)

Year	Number
2013	2,027
2014	1,859
2015	2,578

Source: General Personnel Council.

For years 2013 to 2015, the number of new entrants has been determined in line with GPC forecasts. From 2016, the total number of new entrants for each projection year is the residual element of comparison between the number of projected covered persons in a given year and the number of covered persons the year before (see methodology under "Projection of the insured population" hereunder). Once the total number of new entrants is determined for each sex and each employment category (Civilians and Security forces), it is distributed by age according to an assumed distribution established from the experience under the Scheme 2 (the only scheme that counts new entrants).

It is assumed in this valuation that there will be no new enrolment of private sector workers in Scheme 2 in the future. Pension law No 7 of 2005 was supposed to integrate employees of both public and private sectors. In that context, some NGOs and private sector enterprises have joined Scheme 2 since 2006. However, the government intends to create a separate social security pension scheme for the private sector. Consequently, it is assumed in this valuation that no additional private sector enterprises will join the PPA in the future.

Charts A4.1 and A4.2 present the assumed age distribution of new entrants to Scheme 2 for Civilians and Security forces respectively, and for both genders.

Chart A4.1 Age distribution of new entrants (Scheme 2 - Civilians)

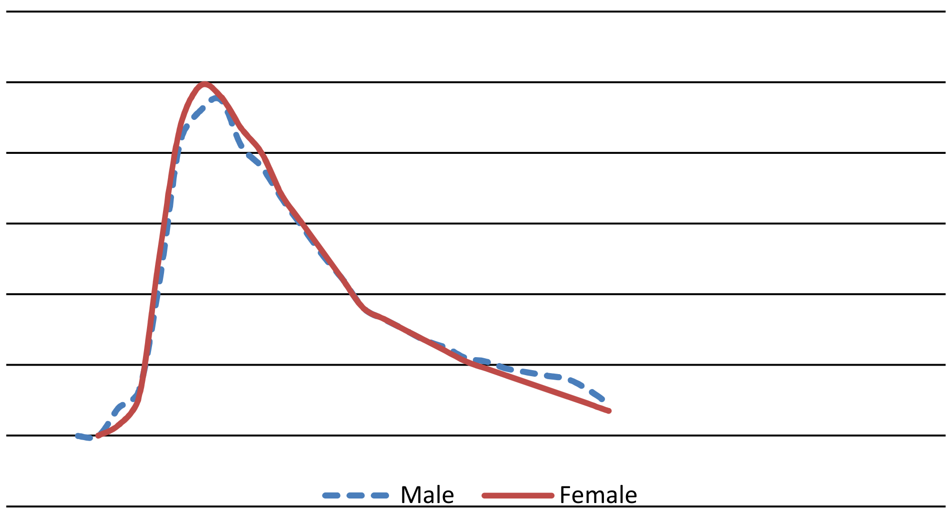
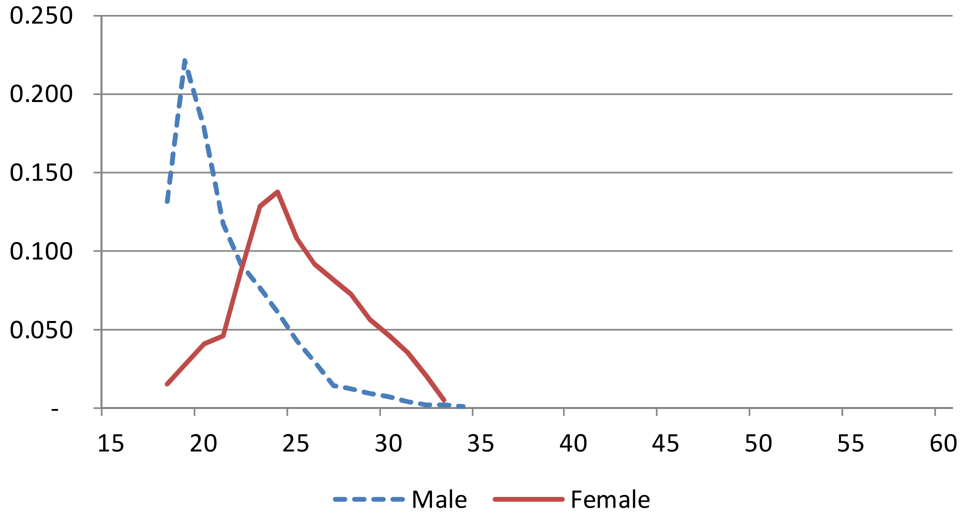


Chart A4.2 Age distribution of new entrants (Scheme 2 – Security forces)



Projection of the insured population

The future covered population under the different schemes has been determined as follows:

- From the total population of active insured persons in December 2012, the rate of increase of the Civilian workforce for years 2013 to 2015 was established in line with the forecasts of the General Personnel Council (GPC).

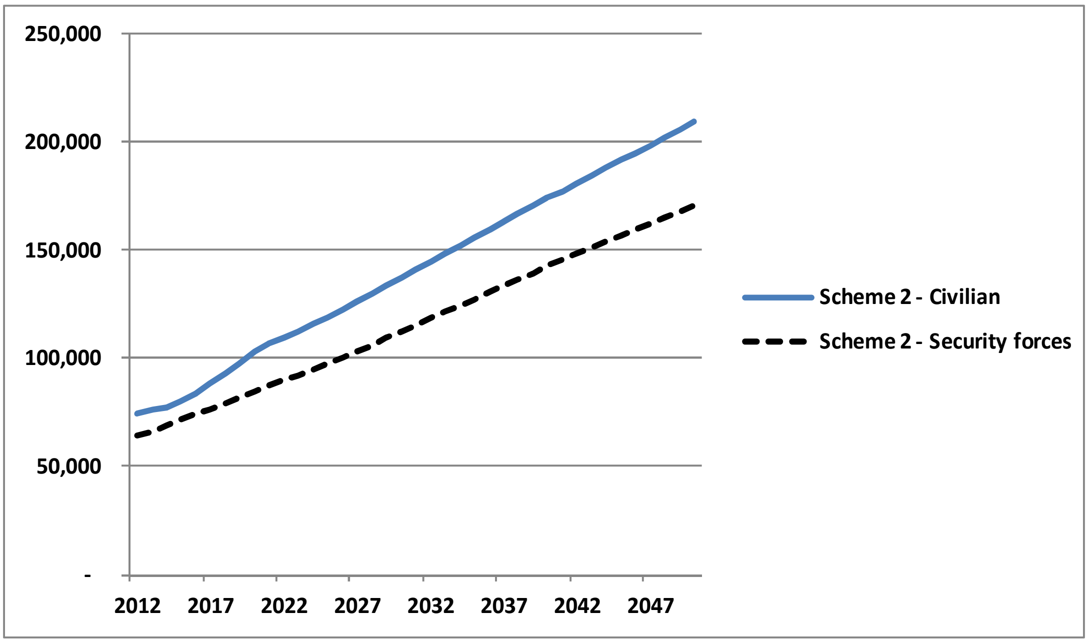
- From year 2013 in the case of Security forces and from year 2016 in the case of Civilian employees, it was assumed that the population of insured persons would increase at the same rate as the general population.

– The population insured under Schemes 1, 3 and 4 (the closed groups) has been projected separately by assuming no new entrants in the future and, consequently, that there will be no active contributors from year 2021.

– By difference, the future covered population under Scheme 2 has been determined.

According to these assumptions, the number of Civilian insured persons under Scheme 2 will increase from 74,125 in 2012 to 209,285 in 2050, and the number of Security forces participants under Scheme 2 will increase from 63,965 in 2012 to 170,975 in 2050, as shown in Chart A4.1.

Chart A4.3 Projected number of insured persons under Scheme 2



Salary scales

Table A4.6 presents the salary scales used in the valuation for each gender. These scales were derived from the 2012 data on active insured persons.

Table A4.6 Salary scales, by gender

	Civilians		Security forces	
Age	**Male**	**Female**	**Male**	**Female**
19	1.247	1.102	1.125	1.537
20	1.306	1.127	1.161	1.711
21	1.364	1.151	1.199	1.880
22	1.420	1.175	1.239	2.046
23	1.476	1.199	1.281	2.207
24	1.530	1.222	1.325	2.363
25	1.583	1.246	1.371	2.515
26	1.635	1.268	1.419	2.663
27	1.686	1.291	1.469	2.806
28	1.736	1.313	1.521	2.945
29	1.785	1.335	1.575	3.079
30	1.832	1.356	1.631	3.209
31	1.878	1.378	1.688	3.335
32	1.923	1.398	1.748	3.456
33	1.967	1.419	1.810	3.572
34	2.010	1.439	1.873	3.685
35	2.052	1.459	1.939	3.792
36	2.092	1.479	2.007	3.896
37	2.132	1.498	2.076	3.995
38	2.170	1.517	2.148	4.089
39	2.207	1.536	2.221	4.179
40	2.243	1.554	2.297	4.265
41	2.278	1.572	2.374	4.346
42	2.312	1.590	2.453	4.423
43	2.344	1.607	2.535	4.496
44	2.376	1.624	2.618	4.564
45	2.406	1.641	2.703	4.627
46	2.435	1.658	2.791	4.686
47	2.463	1.674	2.880	4.741
48	2.490	1.689	2.971	4.791
49	2.515	1.705	3.064	4.837
50	2.540	1.720	3.159	4.879
51	2.563	1.735	3.257	4.916
52	2.585	1.749	3.356	4.948
53	2.606	1.764	3.457	4.977
54	2.626	1.778	3.560	5.000
55	2.645	1.791	3.665	5.020
56	2.662	1.804	3.772	5.035
57	2.679	1.817	3.880	5.045
58	2.694	1.830	3.991	5.051
59	2.708	1.842	4.104	5.053
60	2.721	1.854	4.219	5.050

Table A4.7 presents the coefficient of variation of salaries (ratio of standard deviation to the average) used for this valuation. This gives an indication of the dispersion of salaries around the average. The coefficients were calculated directly from PPA individual data on active insured persons for the year 2012.

Table A4.7 Coefficient of variation of salaries, by age and gender

	Civilians		Security forces	
Age	**Male**	**Female**	**Male**	**Female**
17	0.115	0.115	0.130	0.199
22	0.166	0.115	0.149	0.218
27	0.209	0.151	0.173	0.236
32	0.303	0.190	0.204	0.253
37	0.362	0.232	0.240	0.268
42	0.397	0.268	0.283	0.283
47	0.418	0.285	0.331	0.297
52	0.438	0.302	0.386	0.310
57	0.438	0.310	0.446	0.322
62	0.438	0.317	0.513	0.333
67	0.438	0.317	0.585	0.343

Finally, the actuarial model separates the insured population into three subgroups of earnings: the lowest 30 per cent, a medium range of 40 per cent and the highest 30 per cent, in order to adequately reflect the impact of minimum and flat-rate benefits.

Density of contributions

Density of contributions represents the average proportion of the year during which contributions are paid under the scheme. Since the average density of contributions under a social security scheme is normally lower than 100 percent, it means that the number of persons who contribute to the scheme during a given year is larger than the number of actual contributors observed during any month of that year.

Based on recent data, and considering the specific nature of the public sector employment, it is assumed that the density of contributions is 100 percent for both sexes and for all projection years.

Past service

The average accumulated past service of insured persons as of the valuation date appears in Table A4.8.

Table A4.8 Accumulated past service of active insured pensions as of 31 December 2012, by age, gender and scheme

	Scheme 1		Scheme 2				Scheme 3		Scheme 4	
			Civilians		Security forces					
Age	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
17	-	-	-	-	-	-	-	-	-	-
22	-	-	1.6	1.0	2.6	1.8	-	-	-	-
27	-	-	2.7	2.8	6.7	4.7	-	-	-	-
32	-	-	6.3	6.6	10.6	8.7	-	-	-	-
37	-	-	10.0	10.6	14.1	13.3	-	-	-	-
42	-	-	12.3	12.2	16.8	15.6	-	-	-	-
47	-	-	14.5	15.0	18.5	16.2	-	-	-	-
52	15.4	15.8	3.8	4.2	-	-	19.7	13.7	22.0	22.3
57	16.1	18.5	3.4	3.4	-	-	23.9	15.4	23.4	24.7
62	13.5	35.0	-	-	-	-	14.0	-	26.5	-

A4.2 Demographic assumptions related to the scheme

Mortality of insured persons

Mortality rates for the insured population were assumed to be equal to the mortality rates of the general population (sample mortality rates are presented in Table A4.9). Mortality rates were projected to decline continuously during the projection period in line with the assumed increase of the average life expectancy. This mortality pattern is also used to project survivors' benefits payable after the death of insured persons and pensioners. For disability pensioners, it is assumed that mortality rates are equal to five times those of the general population at age 20, decreasing gradually to two times at age 60.

Table A4.9 Sample mortality rates, by age and gender

Age	Male			Female		
	2015	2050	2100	2015	2050	2100
0	0.02880	0.00482	0.00435	0.02901	0.00601	0.00301
5	0.00058	0.00026	0.00008	0.00059	0.00031	0.00006
10	0.00033	0.00004	0.00005	0.00028	0.00010	0.00003
15	0.00046	0.00033	0.00012	0.00030	0.00024	0.00008
20	0.00070	0.00076	0.00036	0.00045	0.00034	0.00019
25	0.00088	0.00100	0.00053	0.00061	0.00041	0.00029
30	0.00108	0.00094	0.00054	0.00078	0.00049	0.00033
35	0.00143	0.00100	0.00057	0.00106	0.00068	0.00040
40	0.00210	0.00149	0.00088	0.00154	0.00103	0.00062
45	0.00326	0.00226	0.00159	0.00238	0.00162	0.00090
50	0.00521	0.00413	0.00278	0.00379	0.00257	0.00169
55	0.00842	0.00614	0.00433	0.00615	0.00383	0.00223
60	0.01365	0.00955	0.00657	0.01003	0.00598	0.00332
65	0.02210	0.01513	0.01005	0.01636	0.00944	0.00480
70	0.03562	0.02396	0.01604	0.02660	0.01633	0.00785
75	0.05696	0.04290	0.02849	0.04301	0.03017	0.01617
80	0.08987	0.07478	0.05140	0.06882	0.05733	0.03560
85	0.13902	0.12311	0.08773	0.10838	0.10157	0.07256
90	0.20889	0.19211	0.14842	0.16662	0.16895	0.13511
95	0.30158	0.28071	0.23637	0.24747	0.25801	0.22402
100	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000

Invalidity incidence rates (natural cause)

After a review of the PPA experience on new invalidity cases over the period 2010-2012 for Scheme 1 and Scheme 2 (Civilians), gross invalidity incidence rates were calculated from the PPA experience and they were compared with the rates used for the projection of new invalidity cases under the Canada Pension Plan (CPP) applicable for years 2015 and after. It appears that PPA gross invalidity rates represent approximately one-third of the CPP rates. However, in order to take into account (1) the possible volatility of the invalidity experience under a small scheme like the PPA, (2) the fact that the definition of invalidity of the CPP is relatively strict and (3) the possibility that the administrative treatment of invalidity cases by the PPA may evolve over the period of several decades covered by this actuarial valuation, the invalidity incidence rates are assumed equal to 50 percent of the CPP rates for the whole projection period. A sample of these invalidity incidence rates appear in Table A4.10.

Table A4.10 Invalidity incidence rates, by age and gender (per 1,000)

Age	Male	Female
25	0.3	0.2
30	0.4	0.5
35	0.6	0.8
40	0.8	1.2
45	1.3	1.7
50	2.0	2.5
55	3.6	3.9
60	5.9	5.5

Retirement behaviour

The General Personnel Council (GPC) provided retirement forecasts in the civil service for the period 2014 to 2024. Data appear in Table A4.11. It must be noted that this concerns only Scheme 1, Scheme 2 (Civilians) and Scheme 4.

Table A4.11 GPC projected number of civilian retirees (2014-2024)

Year	Male	Female	Total
2014	913	237	1,150
2015	887	304	1,191
2016	982	318	1,300
2017	961	374	1,335
2018	1,286	439	1,725
2019	1,176	499	1,675
2020	1,453	588	2,041
2021	1,380	617	1,997
2022	1,755	826	2,581
2023	1,845	939	2,784
2024	1,901	915	2,816

Source: General Personnel Council.

The actuarial model used for the actuarial valuation considers retirement as the residual element of a series of factors. The macro-economic valuation framework provides the number of people employed each year, for each age and gender. For a given age (at which retirement is possible under the scheme), the difference between the number of insured persons in two consecutive years (for two consecutive ages) is considered to represent new retirements at that age.

In this valuation, it is assumed that retirements will occur at age 60 in the future. This assumption is based on recent experience, where we have isolated the effect of specific “retirement windows” that were opened at certain points in time (namely in 2008). However, for persons with less than 15 years of service at the age of 60, it is assumed that these persons will continue working until they reach 15 years of service and that they will retire at that time. The same approach has been used for males and females, for civilian employees and security forces, and for all schemes.

For civilian employees, an exercise of calibration of the actuarial model has been performed over the first 10 years of projection in order to match, as much as possible, the GPC retirement forecasts.

Family structure

Information on the family structure of the insured population is necessary for the projection of survivors' benefits. Assumptions have been established on the probability of being married at death, the average age differential between spouses, the average number of children and the average age of the orphans. Since the total pension associated with children is shared among them, it is also necessary to establish an assumption on the probability of having at least one child and the average number of children in cases where there is at least one child. The applicable family statistics appear in Table A4.12, separately for each gender. These assumptions have been established based on a treatment of the PPA database on survivors' pensions.

In addition to these assumptions, the probability of survival of children has been set equal to 1.0 from age 0 to age 21 and 0.5 from age 22 to age 25. For ages 25 and higher, the probability of survival of children and parent beneficiaries has been set equal to the female mortality rates.

Table A4.12 Family statistics

MALES

Age	Probability of having an eligible spouse	Average age of spouse	Average number of children	Average age of children	Proportion with at least one child	Average number of children (if at least one child)
17	0.01	15.9	0.0	1.3	0.01	1.0
22	0.25	19.7	0.1	4.7	0.13	1.0
27	0.67	23.2	1.3	8.0	0.57	2.3
32	0.88	27.9	3.1	11.3	0.81	3.9
37	0.97	32.9	4.0	14.7	0.86	4.6
42	0.98	37.9	4.1	18.0	0.88	4.7
47	0.96	42.9	3.7	21.3	0.86	4.3
52	0.94	47.9	3.2	24.7	0.83	3.8
57	0.94	52.9	2.5	28.0	0.77	3.2
62	0.96	57.9	1.8	31.3	0.69	2.7
67	0.99	62.4	1.3	34.7	0.60	2.2
72	1.00	66.9	0.8	38.0	0.45	1.9
77	0.98	71.3	0.5	41.3	0.31	1.6
82	0.84	76.3	0.3	44.7	0.22	1.4
87	0.53	81.3	0.2	48.0	0.15	1.2
92	0.06	86.3	0.1	51.3	0.10	1.0

FEMALES

Age	Probability of having an eligible spouse	Average age of spouse	Average number of children	Average age of children	Proportion with at least one child	Average number of children (if at least one child)
17	0.15	18.1	0.0	0.5	0.01	1.0
22	0.58	24.3	0.1	1.5	0.13	1.0
27	0.80	30.9	1.0	3.9	0.57	1.8
32	0.86	36.1	2.7	6.9	0.81	3.4
37	0.87	41.1	3.5	10.6	0.86	4.0
42	0.86	46.1	3.6	14.8	0.88	4.1
47	0.83	51.1	3.2	18.2	0.86	3.7
52	0.79	56.1	2.6	20.3	0.83	3.1
57	0.50	61.1	1.9	22.8	0.77	2.5
62	0.50	66.1	1.3	25.3	0.69	1.8
67	0.50	71.6	0.8	27.8	0.60	1.3
72	0.50	77.1	0.5	30.3	0.45	1.0
77	0.50	82.7	0.3	32.8	0.31	1.0
82	0.50	87.7	0.2	35.3	0.22	1.0
87	0.50	92.7	0.1	37.8	0.15	1.0
92	0.50	97.7	0.1	40.3	0.10	1.0

A4.3 Other assumptions

Indexing of pensions in payment

PPA pensions are normally adjusted annually in line with the wage increase of active civil servants. The general wage adjustment of active civil servants is equal to 1.25% plus a cost of living adjustment. However, in the long term, the application of such a rule leads to pension increases that would be higher than salary adjustments. It is thus assumed that PPA pensions will be indexed in the future at a rate equal to the assumed wage increase in the public sector (4.25 percent from 2013 to 2015 and 4.0 percent thereafter).

It must be mentioned, however, that no indexation is assumed for the pension supplement of 300 NIS and for the dependents' supplements of 60 NIS and 20 NIS paid to the wife and children.

Administrative expenses

For the purpose of actuarial projections, the average PPA administrative expenditures observed during the 3-year period from 2010 to 2012 (12 million NIS) were assumed to be divided equally between the operations related to (a) contribution collection and (b) benefit allocation and payment. According to that distribution, administrative expenditures are assumed to represent 0.1 percent of total insurable earnings plus 0.6 percent of total benefit expenditures. These ratios are assumed constant for the whole projection period and are used for all four schemes. Such a formula used for projections allows to take into account the fact that the three schemes that are closed to new entrants will eventually have to incur administrative expenses related exclusively to benefit payment.

A4.4 Pensions in payment in December 2012

Table A4.13 Old-age pensions

Scheme 1

Age	Male		Female	
	Number	Average monthly pension	Number	Average monthly pension
< 50	-	-	1	1,417
50-54	18	1,883	6	2,334
55-59	64	2,464	39	2,340
60-64	1,613	2,267	435	2,385
65-69	973	2,800	250	2,602
70-74	538	3,114	69	2,659
75-79	411	2,523	13	2,147
80-84	130	2,111	6	1,895
85-89	57	2,168	2	2,582
90-94	9	1,533	-	-
95-99	1	2,253	-	-
Total	**3,814**	**2,543**	**821**	**2,464**

Scheme 2

Age	Civilians				Security forces			
	Male		Female		Male		Female	
	Number	Average monthly pension	Number	Average monthly pension	Number	Average monthly pension	Number	Average monthly pension
< 50	-	-	-	-	6	3,316	-	-
50-54	1	3,146	-	-	754	3,722	3	3,327
55-59	-	-	-	-	-	-	-	-
60-64	1	1,396	-	-	-	-	-	-
65-69	-	-	-	-	-	-	-	-
70-74	-	-	-	-	-	-	-	-
75-79	-	-	-	-	-	-	-	-
80-84	-	-	-	-	-	-	-	-
85-89	-	-	-	-	-	-	-	-
90-94	-	-	-	-	-	-	-	-
95-99	-	-	-	-	-	-	-	-
Total	**2**	**2,271**	**-**	**-**	**760**	**3,718**	**3**	**3,327**

Scheme 3

Age	Male		Female	
	Number	Average monthly pension	Number	Average monthly pension
< 50	-	-	-	-
50-54	1,122	4,069	4	4,118
55-59	1,224	4,794	7	4,597
60-64	1,221	5,636	6	3,146
65-69	1,095	5,994	3	3,023
70-74	591	5,411	2	1,214
75-79	281	5,089	-	-
80-84	59	4,965	-	-
85-89	15	3,465	-	-
90-94	2	3,538	-	-
95-99	1	5,502	-	-
Total	**5,611**	**5,144**	**22**	**3,592**

Scheme 4

Age	Male		Female	
	Number	Average monthly pension	Number	Average monthly pension
< 50	24	1,404	24	1,561
50-54	410	2,631	225	2,427
55-59	797	2,819	447	2,738
60-64	1,829	2,741	871	2,799
65-69	1,531	2,971	700	2,739
70-74	1,019	2,401	331	2,069
75-79	606	1,941	124	1,618
80-84	258	1,666	51	1,444
85-89	104	1,631	25	1,225
90-94	20	1,423	3	1,119
95-99	2	2,035	-	-
Total	**6,600**	**2,602**	**2,801**	**2,555**

Table A4.14 Invalidity pensions

Scheme 1

Age	Male		Female	
	Number	Average monthly pension	Number	Average monthly pension
20-24	-	-	-	-
25-29	-	-	-	-
30-34	-	-	-	-
35-39	2	1,090	1	1,266
40-44	3	1,154	-	-
45-49	9	1,177	4	1,224
50-54	34	1,349	8	1,353
55-59	46	1,466	16	1,401
60-64	62	1,704	20	1,748
65-69	53	2,204	28	1,872
70-74	33	2,065	3	1,750
75-79	14	1,785	5	1,216
80-84	14	1,543	5	1,353
85-89	3	1,626	-	-
90-94	-	-	-	-
95-99	-	-	-	-
Total	**273**	**1,727**	**90**	**1,610**

Scheme 2

Age	Civilians				Security forces			
	Male		Female		Male		Female	
	Number	Average monthly pension	Number	Average monthly pension	Number	Average monthly pension	Number	Average monthly pension
20-24	-	-	-	-	-	-	-	-
25-29	-	-	1	1,330	-	-	-	-
30-34	1	1,391	1	1,655	2	1,322	-	-
35-39	3	1,383	8	1,475	3	1,639	-	-
40-44	12	1,390	16	1,545	2	2,224	-	-
45-49	39	1,558	29	1,845	1	2,779	-	-
50-54	25	2,062	17	1,588	-	-	-	-
55-59	-	-	-	-	-	-	-	-
60-64	-	-	-	-	-	-	-	-
65-69	-	-	-	-	-	-	-	-
70-74	-	-	-	-	-	-	-	-
75-79	-	-	-	-	-	-	-	-
80-84	-	-	-	-	-	-	-	-
85-89	-	-	-	-	-	-	-	-
90-94	-	-	-	-	-	-	-	-
95-99	-	-	-	-	-	-	-	-
Total	**80**	**1,682**	**72**	**1,667**	**8**	**1,848**	**-**	**-**

Scheme 3

Age	Male		Female	
	Number	Average monthly pension	Number	Average monthly pension
20-24	-	-	-	-
25-29	-	-	-	-
30-34	-	-	-	-
35-39	-	-	-	-
40-44	-	-	-	-
45-49	-	-	-	-
50-54	-	-	-	-
55-59	-	-	-	-
60-64	-	-	-	-
65-69	-	-	-	-
70-74	-	-	-	-
75-79	-	-	-	-
80-84	-	-	-	-
85-89	-	-	-	-
90-94	-	-	-	-
95-99	-	-	-	-
Total	**-**	**-**	**-**	**-**

Scheme 4

Age	Male		Female	
	Number	Average monthly pension	Number	Average monthly pension
20-24	-	-	-	-
25-29	-	-	-	-
30-34	-	-	-	-
35-39	-	-	-	-
40-44	1	1,413	1	943
45-49	7	1,202	10	1,262
50-54	60	1,643	25	1,496
55-59	53	2,031	33	1,960
60-64	68	2,483	13	1,694
65-69	46	2,709	8	1,793
70-74	21	1,822	11	1,600
75-79	18	1,653	2	1,795
80-84	5	1,522	1	1,119
85-89	1	1,119	-	-
90-94	2	1,500	1	1,542
95-99	1	1,424	-	-
Total	**283**	**2,087**	**105**	**1,675**

Table A4.15 Widows and widowers' pensions

Scheme 1

Age	Widows		Widowers	
	Number	Average monthly pension	Number	Average monthly pension
20-24	-	-	-	-
25-29	2	538	-	-
30-34	14	634	-	-
35-39	32	670	-	-
40-44	76	699	-	-
45-49	118	870	-	-
50-54	188	800	-	-
55-59	243	958	-	-
60-64	336	986	-	-
65-69	450	1,010	-	-
70-74	391	951	-	-
75-79	296	843	-	-
80-84	162	808	-	-
85-89	55	699	-	-
90-94	15	700	-	-
95-99	2	867	-	-
Total	**2,380**	**907**	**-**	**-**

Scheme 2

Age	Civilians				Security forces			
	Widows		Widowers		Widows		Widowers	
	Number	Average monthly pension	Number	Average monthly pension	Number	Average monthly pension	Number	Average monthly pension
20-24	1	321	-	-	13	681	-	-
25-29	22	457	-	-	50	785	-	-
30-34	38	557	-	-	89	700	-	-
35-39	55	542	-	-	101	822	-	-
40-44	55	499	-	-	59	776	-	-
45-49	32	530	-	-	33	931	-	-
50-54	17	463	-	-	8	975	-	-
55-59	2	416	-	-	3	599	-	-
60-64	1	197	-	-	-	-	-	-
65-69	-	-	-	-	-	-	-	-
70-74	-	-	-	-	-	-	-	-
75-79	-	-	-	-	-	-	-	-
80-84	-	-	-	-	-	-	-	-
85-89	-	-	-	-	-	-	-	-
90-94	-	-	-	-	-	-	-	-
95-99	-	-	-	-	-	-	-	-
Total	**224**	**513**	**-**	**-**	**356**	**785**	**-**	**-**

Scheme 3

Age	Widows		Widowers	
	Number	Average monthly pension	Number	Average monthly pension
20-24	1	1,702	-	-
25-29	13	764	-	-
30-34	27	896	-	-
35-39	38	937	-	-
40-44	43	1,411	-	-
45-49	119	1,643	-	-
50-54	126	1,707	-	-
55-59	140	1,881	-	-
60-64	151	2,129	-	-
65-69	108	2,095	-	-
70-74	79	2,002	-	-
75-79	31	2,167	-	-
80-84	12	1,572	-	-
85-89	3	2,095	-	-
90-94	-	-	-	-
95-99	-	-	-	-
Total	**891**	**1,801**	**-**	**-**

Scheme 4

Age	Widows		Widowers	
	Number	Average monthly pension	Number	Average monthly pension
20-24	2	620	-	-
25-29	1	740	-	-
30-34	-	-	-	-
35-39	1	301	-	-
40-44	32	761	-	-
45-49	58	833	-	-
50-54	137	989	-	-
55-59	186	1,270	6	1,325
60-64	221	1,434	2	423
65-69	354	1,441	6	1,255
70-74	183	1,369	2	1,246
75-79	165	1,254	2	1,319
80-84	77	1,128	1	1,677
85-89	36	1,192	-	-
90-94	10	1,241	-	-
95-99	-	-	-	-
Total	**1,464**	**1,280**	**19**	**1,217**

Table A4.16 Children and parents pensions

Scheme 1

Age	Number	Average monthly pension
0-4	3	220
5-9	145	291
10-14	444	240
15-19	822	233
20-24	1,237	293
25-29	386	326
30-34	186	407
35-39	136	493
40-44	143	561
45-49	124	559
50-54	140	575
55-59	95	519
60-64	102	484
65-69	80	409
70-74	71	268
75-79	102	300
80-84	80	287
85-89	45	332
90-94	31	347
95-99	10	261
Total	**4,382**	**327**

Scheme 2

	Civilians		Security forces	
Age	Number	Average monthly pension	Number	Average monthly pension
0-4	89	201	98	279
5-9	322	211	589	320
10-14	302	179	489	231
15-19	274	138	319	213
20-24	151	157	90	204
25-29	6	139	7	164
30-34	-	-	1	214
35-39	-	-	-	-
40-44	-	-	2	520
45-49	5	209	37	478
50-54	10	176	105	584
55-59	41	153	131	383
60-64	59	141	146	381
65-69	44	173	118	388
70-74	50	179	74	331
75-79	43	187	59	306
80-84	24	166	21	310
85-89	14	203	5	347
90-94	4	247	2	283
95-99	1	58	-	-
Total	**1,439**	**175**	**2,293**	**305**

Scheme 3

Age	Number	Average monthly pension
0-4	21	500
5-9	227	441
10-14	376	437
15-19	471	460
20-24	317	589
25-29	129	734
30-34	73	919
35-39	39	906
40-44	28	778
45-49	42	1,110
50-54	67	825
55-59	64	519
60-64	56	487
65-69	60	475
70-74	31	457
75-79	40	395
80-84	40	425
85-89	14	521
90-94	12	674
95-99	6	566
Total	**2,113**	**546**

Scheme 4

Age	Number	Average monthly pension
0-4	2	726
5-9	40	436
10-14	121	495
15-19	279	537
20-24	325	646
25-29	265	740
30-34	110	736
35-39	86	798
40-44	89	807
45-49	86	799
50-54	64	736
55-59	47	738
60-64	43	956
65-69	17	900
70-74	5	822
75-79	12	1,017
80-84	21	1,456
85-89	13	989
90-94	3	1,315
95-99	4	762
Total	**1,632**	**692**

Annex 5 Balance sheets of the PPA (2008-2012)

(Amounts in NIS)

	2008	2009	2010	2011	2012
ASSETS					
Fixed assets					
Property, plant and equipment	10	10 624 649	19 213 335	40 502 018	40 924 649
Investments available for sale (equity)	597 196 267	676 727 008	658 328 286	715 884 598	601 572 029
Account receivable - Ministry of Finance	–	–	99 820 000	106 612 800	104 440 000
Total fixed assets	**597 196 277**	**687 351 657**	**777 361 621**	**862 999 416**	**746 936 678**
Current assets					
Interest due for delays and fines			498 893 053	596 645 802	736 763 548
Contributions due (by MoF)	2 305 219 539	2 607 653 871	2 403 297 823	2 892 143 063	3 517 656 842
Net loans to employees	1 967 376	17 260 889	65 805 614	70 915 973	97 398 744
Other current assets	6 483 142	7 581 832	11 903 928	8 776 900	15 087 765
Cash and cash equivalents	92 765 815	180 296 213	401 815 665	345 265 717	376 498 325
Accounts receivable	111 769 292	112 709 966	–	–	–
Total current assets	**2 518 205 164**	**2 925 502 771**	**3 381 716 083**	**3 913 747 455**	**4 743 405 224**
Total assets	**3 115 401 441**	**3 612 854 428**	**4 159 077 704**	**4 776 746 871**	**5 490 341 902**
RIGHTS OF MEMBERS AND LIABILITIES					
Rights of members					
Net rights of members	2 731 796 005	3 124 573 399	3 981 661 475	4 579 413 133	5 172 816 285
Cumulative change in value	(10 301 823)	81 580 644	97 098 256	95 349 455	145 564 877
Surplus of the year	381 758 990	406 393 770	–	–	–
Total equity of members	**3 103 253 172**	**3 612 547 813**	**4 078 759 731**	**4 674 762 588**	**5 318 381 162**
Liabilities					
Current liabilities					
Accounts payable	–	–	7 770 000	–	–
Due to retirement fund of security forces	–	–	71 925 874	101 460 652	156 025 234
Other current liabilities	12 148 269	306 615	622 099	523 631	15 935 506
Total current liabilities	**12 148 269**	**306 615**	**80 317 973**	**101 984 283**	**171 960 740**
Total liabilities	**12 148 269**	**306 615**	**80 317 973**	**101 984 283**	**171 960 740**
Total rights of members and liabilities	**3 115 401 441**	**3 612 854 428**	**4 159 077 704**	**4 776 746 871**	**5 490 341 902**

Annex 6 Revenues and expenditures of the PPA (2008-2012)

(Amounts in NIS)

	2008	2009	2010	2011	2012
REVENUES					
Contributions	517 582 157	535 043 206	564 511 815	618 247 582	667 049 937
Interest for delays and fines	83 921 990	65 753 403	116 884 989	100 927 740	140 145 958
Interest from banks	–	–	1 072 781	6 125 567	5 438 303
Interest from loans	–	–	4 688 252	4 124 329	6 616 680
Investment income	1 040 948	1 539 529	19 199 999	8 492 137	15 819 615
Other revenues	6 043 428	6 056 567	6 481 589	8 404 082	10 140 883
Currency differences			(48 044 521)	55 741 075	(18 985 155)
Total revenues	**608 588 523**	**608 392 705**	**664 794 904**	**802 062 512**	**826 226 221**
EXPENDITURES					
Benefits paid	195 425 009	190 127 802	198 912 635	210 211 623	224 192 054
Salaries and wages	–	–	5 208 741	5 945 776	5 984 674
General and administrative expenses	3 758 409	4 973 575	9 420 611	5 564 425	1 718 435
Depreciation	–	591 710	558 611	880 676	927 906
Other expenses	27 646 115	6 305 848	–	–	–
Total expenditures	**226 829 533**	**201 998 935**	**214 100 598**	**222 602 500**	**232 823 069**
Surplus for the year	**381 758 990**	**406 393 770**	**450 694 306**	**579 460 012**	**593 403 152**

Notes: It must be noted that “Contributions” and “Benefits paid” appearing in this table concern Scheme 1 and Scheme 2 (Civilians) only.

Contributions represent theoretical contributions calculated at the rates of (12.5% / 10.0%) for Scheme 1, (9% / 7%) for the DB component of Scheme 2 and (3% / 3%) for the DC component of Scheme 2.