Lao People's Democratic Republic

Report to the Government on the

Actuarial Valuation of the Social Security Fund

International Labour Office
Sub-regional Office for East Asia
Bangkok, Thailand

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Foreword

Since its creation in 1919, the International Labour Office (ILO) has assisted member states in improving and expanding social protection to all members in society through the provision of advisory services and technical assistance to its constituents around the world.

The ILO has been a long-standing partner of the government of Lao in establishing and improving social security. In 1995, the organization undertook a comprehensive study of social security within the framework of the technical assistance provided by the United Nations Development Programme (UNDP) on Public Sector Reform. In 1996 and 1997, the ILO implemented a UNDP preparatory technical assistance project on social security. Following this preparatory assistance, in 1999 and 2000, the ILO implemented the project on Development of Social Security in Lao PDR (Phase I, 1999 - 2000), co-funded by UNDP and the government of Belgium, which led to the inauguration of the Lao Social Security Fund in 2001, the first social security scheme for formal economy private-sector workers. Since May 2002, the ILO has been implementing its project on Development of Social Security in Lao PDR (Phase II, 2002 - 2007), funded by the Grand-Duchy of Luxembourg.

At the request of the Lao government, the first actuarial valuation of the Social Security Fund was undertaken by ILO in 2005; the exercise was carried out by Mr. Jean-Claude Hennicot, Consulting Actuary for the ILO, under the technical supervision of Mr. Hiroshi Yamabana, Social Security Specialist of the ILO's Sub-regional Office for East Asia in Bangkok, within the framework of the ongoing ILO project on Development of Social Security in Lao PDR, managed by Ms. Fiona Howell, Chief Technical Advisor.

This report presents a comprehensive review of the current financial status of the scheme and an assessment of its long-term financial sustainability based on the actuarial projection of future income, expenditure and reserves. It is hoped that the findings and recommendations provided on scheme financing and design issues will contribute to a better understanding and enhanced capacities of all stakeholders, particularly the Social Security Organization, the Lao Federation of Trade Unions, and the Lao Chamber of Commerce and Industry, in managing and administering the scheme efficiently, with a view to ensure the fund's long-term sustainability and a swift extension of its coverage to all provinces.

Mr. Jiyuan Wang
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Bangkok / Thailand

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Special thanks are due to Mr. Hiroshi Yamabana, Social Security Specialist, ILO Sub-regional Office for East Asia, Bangkok, for his technical guidance, to Ms. Fiona Howell, Chief Technical Advisor, ILO Social Security Project in Lao PDR, for her support and encouragement, and finally to Ms. Katy Pullen for editing the report. Any errors and omissions that remain are the responsibility of the author.

Executive Summary

This report presents the results of the actuarial valuation of the Social Security Fund (SSF) of the Lao People's Democratic Republic carried out by the International Labour Office (ILO) during 2004 and 2005. The objective of the actuarial valuation was to review the financial situation of the SSF under status quo conditions, in particular to assess the adequacy of present contribution rates and the long-term financial sustainability of the fund.

Current status of the scheme

The SSF provides benefits in case of sickness, maternity, death, old age, invalidity, and employment injury and occupational disease (EIOD). Benefits include medical care and cash benefits. Pension benefits are paid to insured members in case of invalidity and retirement. The scheme also pays survivors' pensions to dependent spouses and children of an insured worker in the event of the insured's death.

Since the launch of the scheme in June 2001, the number of scheme members has been increasing steadily. By the year 2004 an average of 22,215 workers paid monthly contributions to the scheme. For the same year, the total number of workers insured by the scheme was estimated at 27,769.[1]

The SSF is divided into four sub-funds with separate financing; these are the Health Insurance Fund, the Short-term Benefit Fund, the EIOD Fund, and the Long-term Benefit Fund. The SSF is financed by contributions from employers and employees. The overall contribution rate is 9.5 per cent payable on insurable earnings, of which 5 per cent for employers and 4.5 per cent for employees. At the time of writing, insurable earnings are subject to a ceiling of 1.5 million kip and contribution rates are allocated to the sub-funds as follows: 4.4 per cent for health insurance, 2.4 per cent for short-term benefits, 0.5 per cent for EIOD, and 2.2 per cent for long-term benefits.

Since the start of operations in 2001 the SSF has achieved annual surpluses and built up reserves for future benefit payments. In 2004, the total operating income of the SSF amounted to about 15.3 billion kip, of which about 14.1 billion from contributions. Operating expenditure in the same year totalled about 4.6 billion kip, of which about 3.8 billion kip for benefits and about 800 million kip for administration. The annual surplus in 2004 therefore amounted to about 10.7 billion kip. Year-end reserves of the SSF in 2004 totalled 31.5 billion kip, an amount equivalent to about 6.9 times annual operating expenditure.

In 2004, the total pay-as-you-go (PAYG) cost rate of the SSF was 3.1 per cent.[2] Of this, 2.6 per cent was spent on benefit expenditure and 0.5 per cent on administration costs.[3] In the same year, the PAYG cost rate for benefit expenditure consisted of 1.8 per cent for health insurance, 0.7 per cent for short-term benefits, 0.04 per cent for employment injuries and occupational diseases, and 0.03 per cent for long-term benefits.

[1] The number of insured is higher than the number of contributors for various reasons, including intermittent employment, new entrants and dropouts.

[2] The PAYG cost rate of a benefit fund is defined as the cost of the fund in a given year divided by total insurable earnings of all contributors in the same year.

[3] Administration costs here exclude subsidies provided by the state and donor funded technical assistance projects.

The SSF's reserve has been invested in order to yield additional income and protect the value of the fund against inflation. Investments consisted mainly of deposits in savings accounts and fixed-term deposits with state-owned commercial banks and state joint-venture banks. The average rate of return (ROR) achieved on the total reserve from 2001 to 2004 was about 8.3 per cent per annum in nominal terms. Due to the price inflation rate estimated at 11.5 per cent per annum over the same period, the average real ROR achieved from 2001 to 2004 was negative at an estimated -2.8 per cent per annum.

Actuarial analysis

The main purpose of the actuarial valuation is to assess the long-term solvency of the SSF under present legislation and to review the level of contribution rates allocated to the different benefit funds. The assessment is carried out by projecting annual income, expenditure, balance, and year-end reserves into the future. The projection horizon is chosen based on the financing system applied to each benefit fund. For the Health Insurance and Short-term Benefit Funds a PAYG financing system has been assumed, while for the Long-term Benefit Fund a scaled premium financing system has been assumed. Due to the paucity of experience data on EIOD benefits no actuarial projections have been carried out in this assessment for the EIOD Fund.[4]

It should be noted that due to the short history of the SSF and the lack and unreliability of data, particularly regarding the macroeconomic and demographic framework, the projections presented in this report should be considered as rough estimations.

Expenditures of the Health Insurance and Short-term Benefit Funds have been projected over the period 2005 – 2010. The results of the status quo projections are summarized below:

- For the Health Insurance Fund, the average PAYG cost rate for benefits to be provided over the period 2005 – 2010 has been projected at 2.15 per cent of insurable earnings. When compared to the current contribution rate of 4.4 per cent allocated for health insurance, of which 4 per cent is for benefit expenditure, it can be concluded that this fund is presently overfunded.
- For the Short-term Benefit Fund the average PAYG rate cost for all benefits to be provided over the period 2005 – 2010 is estimated at 1.01 per cent of insurable earnings. Given that the current contribution rate is 2.4 per cent, of which about 2.2 per cent is allocated for benefit expenditure, the Short-term Benefit Fund is also overfunded.

Long-term benefits have been projected over the period 2005 – 2099. A longer projection horizon is needed since pension liabilities accumulate over several decades before benefit payments are due. In order to reflect the uncertainty of developments in the future, projections for the Long-term Benefit Fund have been carried out for three different sets of assumptions or scenarios:

- In scenario 1, it is assumed that the share of private sector employment in total employment will increase continuously over the whole projection period, and that the coverage of the scheme will be gradually extended to reach 90 per cent of those employed in the private sector by 2050, to remain at that level until 2099. Under scenario 1, the projected total PAYG cost rate for long-term benefits increases steadily over the whole projection period due to the increasing cost of pension payments

[4] The paucity of experience data is largely due to the short history of the fund and the low benefit incidence rates experienced so far, particularly for permanent disability pensions.

relative to insurable earnings. The total PAYG cost rate is expected to reach about 23 per cent of insurable earnings by the year 2099. At the current contribution rate of 2.2 per cent, the annual balance of the Long-term Benefit Fund is expected to become negative starting from the year 2033, and the fund is expected to become insolvent in 2038 if the contribution rate is not increased or cost-reducing measures (e.g., an increase of the retirement age) are undertaken beforehand.

- In scenario 2, it is assumed that the share of private sector employment in total employment will increase continuously until the year 2050 and that it will stay constant thereafter. It is further assumed that the coverage of the scheme will be gradually extended to reach 75 per cent of private sector workers in 2050, remaining constant thereafter. Under scenario 2, the projected total PAYG cost rate for long-term benefits increases steadily over the whole projection period to reach about 34 per cent of insurable earnings in the year 2099. At the current contribution rate of 2.2 per cent, the Long-term Benefit Fund is expected to incur annual deficits as of the year 2029 and the fund is expected to become insolvent in 2035 if the contribution rate is not increased or cost-reducing measures are undertaken beforehand.
- Under scenario 3, it is assumed that both the share of private sector employment in total employment and the coverage rate of the scheme (percentage of private sector workers who are insured) will stay at the current level over the whole projection period. This scenario is meant to illustrate the case where the scheme fails to extend its coverage and the economy does not develop as expected. Under scenario 3, the projected total PAYG cost rate for long-term benefits is expected to increase over the whole projection period but to level off towards the end at about 35 per cent of insurable earnings. At the current contribution rate of 2.2 per cent the Long-term Benefit Fund is expected to incur annual deficits as of the year 2021 and to become insolvent in 2027 if the contribution rate is not increased beforehand or cost-reducing measures are undertaken.

It can be concluded that the current contribution rate of 2.2 per cent as allocated to the Long-term Benefit Fund is not sufficient to sustain the fund over the long term. However, given the relatively low level of expenditure expected for the coming years, there is no need to increase the contribution rate in the immediate future. Nonetheless, over the medium and long-term the contribution rate must be increased in order to ensure the sustainability of the fund. A proposed schedule of scaled premiums for different minimum reserve ratio conditions is presented in table 4.7 (see section 4.7.4).

No actuarial projections have been carried out for the EIOD Fund. Given the short time span of experience data available and the low incidence rates of EIOD benefits reported to date, it is not possible, at present, to produce a reliable projection for future benefit expenditure of this fund. The annual balance of the EIOD Fund has been positive over the period 2001 – 2004 and is expected to remain positive over the short to medium-term. Reserves accumulated by the end of 2004 totaled about 2.2 billion kip. Since the EIOD Fund comprises long-term benefits (pensions), it is considered appropriate to accumulate reserves for accruing liabilities. At this point in time, it is recommended not to change the present contribution rate of 0.5 per cent allocated to the EIOD Fund. A thorough review of the fund should be undertaken at the next actuarial valuation when more experience data will be available.

Recommendations

Contribution rates

Based on the results of the actuarial projections presented in this report, it is recommended that the:

- Contribution rate of the Health Insurance Fund be reduced. Under status quo conditions, i.e., assuming no change in the benefit package, a contribution rate of 2.6 per cent would be sufficient to ensure the financing of the fund (including administration costs) up to the year 2010. Given that a change in the benefit package for medical care is currently under discussion, the contribution rate of the Health Insurance Fund should be reassessed in the near future if changes to the benefit package were to be adopted.
- Contribution rate allocated to the Short-term Benefit Fund be reduced from 2.8 per cent to 1.2 per cent. This should be sufficient to ensure the financing of short-term benefits and related administra tion costs up to the year 2010.
- Contribution rate of the EIOD Fund be left unchanged at 0.5 per cent, which includes an allocation for administration cost.
- The total contribution rate of the SSF be left unchanged at 9.5 per cent. It is recommended that excess contribution rates from the Health Insurance and Short-term Benefit Funds be reallocated to the Long-term Benefit Fund.

The results of the actuarial valuation show that with the current contribution rate allocated to the Long-term Benefit Fund, the solvency of this fund is ensured until at least the year 2027. However, in order to maintain the Long-term Benefit Fund over the long-term, the contribution rate must be increased in the future. The reallocation of contribution rates as proposed above would enable the Long-term Benefit Fund to accumulate additional reserves needed for future benefits payments. The accumulation of additional reserves is only sensible, however, if investments thereof yield a reasonable income. It is therefore recommended that, in case the ROR earned on invested reserves should not increase in the coming years, a decrease of the contribution rate be considered by the Social Security Organization (SSO) Board of Directors.

Reserves

The reserves of the Health Insurance and Short-term Benefit Funds should in principle not exceed an amount equal to annual expenditure of each fund respectively.[5] As the reserves of these two funds currently exceed the maximum amount of contingency reserve considered appropriate, it is recommended that excess reserves be transferred to the Long-term Benefit Fund.

Investments

The investment of the reserve of the SSF is a matter of concern. It is recommended that efforts be undertaken to increase the ROR on investment achieved on the reserve by exploring alternative opportunities for investment. Possible alternatives to bank deposits in kip are investments in Treasury bills and bonds (if available), investment in foreign currency denominated assets (e.g., bank deposits or treasury bonds in US dollars or Thai baht), and possibly investment in property and/or real estate.

[5] Under PAYG financing a maximum contingency reserve equivalent to annual expenditure is generally considered to be appropriate.

It is also recommended to further diversify investments and to avoid the concentration of funds deposited with a single institution so as to reduce exposure to bankruptcy risk.

In case it should not be possible, over the coming years, to achieve a satisfactory income on SSF investments, it is recommended that a decrease of the SSF contribution rate be considered in order to contain the accumulation of reserves.

Contribution ceiling

Insurable earnings are subject to a ceiling that was fixed at 1 million kip per month at the inception of the scheme. In the year 2004, about 18.4 per cent of insured had monthly earnings at or above that amount. The ceiling on insurable earnings is generally set such that only a small percentage (generally less than 5 per cent or 10 per cent) of contributors have earnings at or above that amount. The ceiling amount was increased in 2005 to 1.5 million kip effective as of 1 January 2006. Despite this increase there are indications that the percentage of workers with earnings above the ceiling is still overly high due to the heavily skewed wage distribution among scheme members. It is therefore recommended that the ceiling amount be reassessed and adjusted if necessary.

The Decree of the Prime Minister on Social Security System for Enterprise Employees, December 1999 (Decree 207/PM) does not include any provision with regard to the periodical adjustment of the ceiling amount. In order to ensure that contribution income and benefit levels increase in line with wages, the contribution ceiling should be adjusted periodically. Failure to do so will lead to a gradual erosion of benefit levels relative to earnings, particularly for high wage earners. It is therefore recommended that a regulation be adopted to ensure the periodical adjustment of the contribution ceiling in line with average insurable earnings. A possibility would be to adjust the ceiling at the time of actuarial valuations based on the prevailing wage distribution. Alternatively, a relative ceiling linked to the average or minimum wage could be considered.[6]

Data management

It is recommended that more attention be given to data management and analysis within the SSO. Both availability and reliability of statistical data regarding the past experience of the scheme are indispensable for actuarial reviews and hence for an overall sound financial governance of the scheme. It is suggested that a staff member with quantitative skills be entrusted with compilation and analysis of data and statistics on the scheme. The periodic publication of basic scheme statistics would help to increase transparency and strengthen the image of the SSO with the public.

Actuarial valuations

Decree 207/PM does not stipulate mandatory actuarial valuations to be carried out on a regular basis. In order to ensure sound financial governance of the scheme, it is recommended that actuarial valuations be carried out on a regular basis (e.g., every 3 to 5 years) and anytime before undertaking reforms that would affect the scheme's financial situation. It is recommended that such a provision be included in the decree when the next amendment is tabled.

[6] See also section 5.3.

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Tables

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Abbreviations

ADB	Asian Development Bank
CPI	consumer price index
EIOD	employment injury and occupational disease
GAP	general average premium
GDP	gross domestic product
ILO	International Labour Office
ILOSSP	ILO Social Security Project in Lao PDR
Lao PDR	Lao People's Democratic Republic
MoF	Ministry of Finance
NSC	National Statistical Centre
PAYG	pay-as-you-go
ROR	rate of return
SOE	state-owned enterprise
SSO	Social Security Organization
SSF	Social Security Fund
UNDP	United Nations Development Programme

1. Introduction

This report presents the findings of the first actuarial valuation of the Lao Social Security Fund (SSF) carried out since the scheme was launched in June 2001. The SSF is administered by the Social Security Organization (SSO) and provides social insurance benefits to private sector and state-owned enterprise (SOE) workers in Lao PDR. This actuarial valuation was undertaken in 2005 under the technical assistance project Development of Social Security in Lao PDR, Phase II (2002 – 2007), which is being implemented by the International Labour Office (ILO) in cooperation with the Lao Ministry of Labour and Social Welfare.[7] Preliminary actuarial modeling and data collection was undertaken by the ILO Sub-regional Office for East Asia in 2003 and 2004.

Prior to the current ILO project, the organization had been providing technical assistance on social security to Lao PDR. In 1995, the ILO carried out a comprehensive assessment on social security in Lao PDR under the Public Sector Reform Project of the United Nations Development Programme (UNDP), and provided technical expertise under the preparatory and first phase UNDP technical assistance projects on social security during 1996 – 2000.[8] Between 1997 and 1998 the ILO undertook an actuarial assessment of the planned scheme for private sector and SOE workers together with an actuarial valuation of the public sector social security scheme. This exercise was carried out by the late Mr. Jan Stoekenbroek, Social Security Actuary from the Netherlands, under the supervision of the Financial, Actuarial and Statistical Branch of the ILO (ILO/SOCFAS). The results of the assessment were published in 1999 in a comprehensive report which included recommendations with regard to the contribution rates to be charged to the different benefit funds under the proposed scheme.[9]

The SSO was established in 2000 and commenced operations in June 2001. At the time of this valuation the scheme had been operating for four calendar years, from 2001 to 2004. Scheme data for that period was provided by the SSO; it included data on contributors, insured earnings, benefit claims and expenditure, investments, and annual financial statements. The objective of the present valuation is to revise the estimations of the preliminary actuarial assessment based on the experience of the scheme, in particular to assess the adequacy of the contribution rates presently allocated to the different benefit funds.

The ILO appointed Mr. Jean-Claude Hennicot, Consulting Actuary, to undertake this actuarial valuation. Technical supervision was provided by Mr. Hiroshi Yamabana, Social Security Specialist, of the ILO's Sub-regional Office for East Asia based in Bangkok, Thailand. Comments were provided by the actuaries and social security specialists of ILO/SOCFAS, Geneva.

The actuarial valuation presented in this report is carried out under status quo conditions; hence it is assumed that the benefit provisions stipulated in the Decree of the Prime Minister on Social Security System for Enterprise Employees (Decree 207/PM, 1999) and its accompanying regulations will remain unchanged. Projections for the Long-term Benefit Fund have been carried out under three alternative sets of assumptions or scenarios in order to reflect the uncertainties with regard to the future development of the Lao economy and of the main variables of the scheme .

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[7] The project is financed by the Grand-Duchy of Luxembourg.

[8] The first phase project Development of Social Security in Lao PDR, 1999 – 2000 was co-financed with the government of Belgium.

[9] International Labour Office: *Lao People's Democratic Republic, Development of Social Security: Report to the Government on the Actuarial Valuation* (Geneva, 1999).

The structure of the report is as follows:

- Chapter 2 provides a brief overview of the demographic and macroeconomic framework and a summary of the developments that led to the establishment of the SSF.
- Chapter 3 provides a description of the main features and current status of the scheme, including benefit provisions, coverage, financial status, reserves, and investments.
- Chapter 4 presents the actuarial valuation, including its objectives, methodology, assumptions, projection results, and recommendations on contribution rates.
- In Chapter 5, conclusions are drawn from the actuarial and financial analysis and various recommendations are provided.

2. The Demographic and Economic Context

2.1 Population

At the time of the 1995 population census the total Lao population was estimated at 4.57 million; 2.26 million males and 2.31 million females.[10] The population is young, with 44 per cent below 15 years of age in 1995. With a high total fertility rate and declining mortality rates, the Lao population is growing rapidly.[11] Between 1985 and 1995, the average population growth rate was an estimated 2.5 per cent per annum.[12] The total fertility rate for 1995 was estimated at 5.6, although it is now decreasing.[13] For the same year, the infant mortality rate for Lao PDR was estimated at 104 deaths per 1,000 live births.[14] As in the majority of least-developed countries, the average life expectancy at birth in Lao PDR is rather low; in 1995 it was estimated at only 52 years for females and 50 years for males. However, life expectancy varies significantly across provinces; in Vientiane Municipality, it was estimated at 59 for females and 57 for males in 1995. This variation can be explained partly by the high infant mortality rates observed in rural areas, and partly by the differences in living standards, income levels, and access to health care facilities between provinces. The main demographic indicators for Lao PDR in 1995 are summarized in table 2.1.

Table 2.1. Lao PDR demographic indicators, 1995

Population	
Male	2,261,000
Female	2,314,000
Total	4,575,000
Age structure (% of total)	
0–14 years	44%
15–64 years	52%
65 years +	4%
Life expectancy at birth (years)	
Male	50
Female	52
Population growth rate[a]	2.5%
Total fertility rate	5.6
Infant mortality rate[b]	104

[a.] In per cent per annum; average over the period 1985 – 1995;
[b.] Deaths per 1,000 live births.

Source: Results of the Population Census 1995, NSC, Lao PDR (Vientiane, 1997).

[10] Results of the Population Census 1995, National Statistical Centre (NSC), Lao PDR (Vientiane, 1997). At the time of writing, the results of the 2005 population census were not yet available; by the time of publication however they had been released, reporting an increase in the total Lao population to 5.62 million in the year 2005. See *Results of the Population Census 2005*, NSC, Lao PDR (Vientiane, 2006).

[11] The total fertility rate is defined as the average number of children that a woman gives birth to in her lifetime, assuming that the prevailing age-specific fertility rates remain unchanged.

[12] ILO estimation based on 1985 population census data.

[13] The 2005 population census report shows an estimated total fertility rate of 4.5.

[14] Infant mortality rate is defined as the average number of newborn infants, per 1,000 live births, who die during their first year of life.

2.2 Macroeconomic context

Over the past three decades, the Lao economy has undergone fundamental changes. Following the proclamation of the Lao PDR in 1975, the communist government put in place a centrally planned economy; all industrial production facilities were nationalized, agriculture was collectivized, and resources were allocated in a planned manner through national and provincial development plans.

During the 1980s, when the shortcomings of central planning became apparent, the government introduced a programme of structural reforms aimed at a more liberal economic approach known as the New Economic Mechanism (NEM). The adoption of the NEM in 1986 marked the beginning of a gradual transition from a centrally planned towards an open market economy. In the years that followed, the Lao economy witnessed the liberalization of prices and the restructuring and/or partial privatization of state-owned enterprises. As a consequence, economic development accelerated and since 1988 the economy has been expanding at a rapid pace.

Today, agriculture remains the predominant sector of the Lao economy, with about half of the gross domestic product (GDP) consisting of agricultural products. Subsistence farming is widespread and many households continue to rely on rice cultivation for their livelihood. Industry accounts for about a quarter of GDP, while services account for the remaining quarter. The development and composition of the GDP over the period 1995 – 2004 is summarized below:

Table 2.2. Lao PDR macroeconomic indicators, 1995–2004

	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004[a]
GDP at current price (in trillion kip)	1,430	1,726	2,201	4,240	10,388	13,669	15,702	18,401	22,511	26,590
GDP composition (% of total)[b]										
Agriculture	54.3	52.2	52.2	51.8	52.2	51.8	50.8	49.9	48.2	46.6
Industry	18.8	20.6	20.8	21.9	22.0	22.6	23.5	24.4	25.7	27.1
Services	24.5	24.8	25.0	25.3	25.2	25.0	25.0	24.9	25.2	25.4
Import duties	2.5	2.4	2.0	1.1	0.6	0	0.8	0.8	0.8	0.9
GDP growth rate (%; in real terms)	7.0	6.9	6.9	4.0	7.3	5.8	5.7	5.9	5.8	6.9
CPI increase (%; year on year)	19.6	15.8	19.5	90.1	128.4	23.1	7.8	10.7	15.5	10.5
Exchange rate kip/US$[c]	819	926	1,260	3,296	7,106	7,847	8,871	10,056	10,569	10,645

a. Estimated;
b. Columns may not add up due to rounding;
c. Annual average.

Source: Statistics Lao PDR, 1975 – 2005, NSC, Lao PDR (Vientiane, July 2005).

Between 1995 and 2004, GDP grew at an average rate of 6.2 per cent per annum. Due to the Asian financial crisis and the ensuing economic downturn in the region, GDP growth slowed to 4 per cent per annum in 1998. The Lao economy was able to recover quickly though, largely due to the resilience of the agricultural sector. However, despite the prompt resumption of growth the crisis had a severe impact on macroeconomic management. Major revenue shortfalls in the public sector combined with large increases in public expenditures, mainly for rural infrastructure, had serious and largely unintended monetary and inflationary consequences. The consumer price index (CPI) rose rapidly during the years 1998 and 1999 due to the devaluation of the Lao kip, which followed the dramatic devaluation of the Thai baht in January 1998. Inflation has since been brought back under control due to a concerted effort by the Bank of Lao to stabilize the currency. Since 2001, the CPI has increased only moderately at an average annual rate of about 11 per cent. Yet, despite the stabilization of the kip, public confidence in the domestic currency has not fully recovered. As a result, the level of dollarisation remains high, limiting the effectiveness of monetary policy as an instrument to be used by the Bank of Lao to influence macroeconomic development.

Financial markets in Lao PDR are at an early stage of development; the level of financial deepening in the country is low, particularly in rural areas, and the legal framework remains incomplete. The financial sector consists of a handful of institutions, most of which are owned or controlled by the state, while a large part of the sector remains informal, particularly in rural areas. The banking sector is dominated by a few state-owned commercial banks that were found technically insolvent in 2002 due to a large volume of non-performing loans on their books.[15] Since then, state-owned commercial banks have been recapitalized and serious efforts have been undertaken to improve the banks' efficiency, in particular their ability to allocate capital efficiently and to manage credit risk. Despite the ongoing restructuring of state-owned commercial banks with international assistance, it may take several more years before they can perform effectively as financial intermediators.[16]

The Lao public debt has so far been financed externally, mostly through bilateral loans and loans from international financial institutions, the latter often provided under concessional terms. Domestic borrowing thus accounts for a negligible part of government debt. There is currently no government bond market in Lao PDR. The Treasury sporadically issues Treasury bills in kip but merely for short-term cash management purposes. Given the absence of government bonds with longer maturities, commercial banks lack benchmarks for setting interest rates on long-term loans and deposits in kip.

All these considerations suggest that the market for loanable funds in Lao kip is limited and highly inefficient. The main problem appears to be the persistent high degree of dollarisation in the Lao economy, which hampers the development of the domestic capital market and limits the effectiveness of monetary policy as an instrument for the government to influence economic development.

Despite these structural issues, economic growth is expected to continue in Lao PDR in the medium-term due to anticipated gains in productivity, a rapidly expanding labour force, and the overall positive economic outlook in the region.

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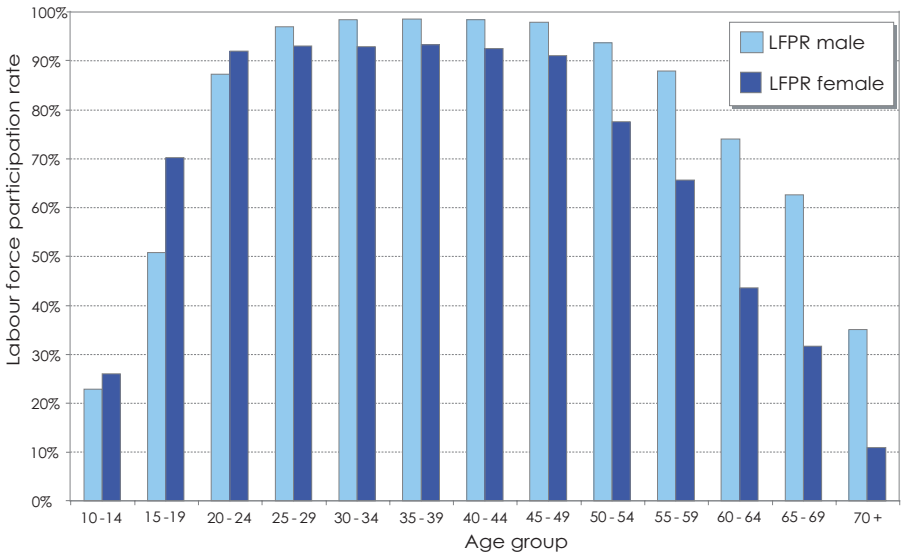
[15] Asian Development Bank/World Bank: *The Banking and Financial Sector of Lao PDR, Financial Sector Note* (Bank of Lao, July 2002).

[16] International assistance includes the ADB loan-funded Banking Sector Reform Project, 2003 – 2006 for state-owned commercial banks, aimed at improving corporate governance, banking supervision, and credit management.

2.3 Labour force and employment

Recent and reliable labour force data is lacking in Lao PDR.[17] The total labour force aged 15 to 64 for the year 2004 has been estimated at about 2.7 million, of which 50.8 per cent female and 49.2 per cent male.[18] The country's labour force is young; in 2004 an estimated 32 per cent were below the age of 25. The 1995 labour force participation rates by age group and sex are shown in figure 2.1.[19]

Figure 2.1. Labour force participation rates (LFPR) by age group and sex, 1995



Source: Results of the Population Census 1995, NSC, Lao PDR (Vientiane, 1997).

The total labour force participation rate in 1995 for those aged 15 to 64 has been estimated at 85.6 per cent for males and 84.3 per cent for females.[20] Total employment for those aged 15 to 64 was estimated at 2.61 million in 2004, assuming an unemployment rate of 3 per cent.[21] As employment in agriculture is highly seasonal, underemployment is endemic. The estimated composition of employment in 2004 is shown in table 2.3 (overleaf).

It can be observed from table 2.3 that in 2004 the estimated share of employed engaged in agriculture was high at about 80 per cent, whereas wage employees represented only around 10 per cent of the workforce in the same year. Table 2.3 also shows that for 2004 the share of private sector and SOE employees was estimated at only about 90,000 or 3.4 per cent of total employed, about half the share of workers employed in the public sector.[22]

[17] The most recent labour force survey carried out in the country dates back to 1994; see NSC, Lao PDR: *Report of the 1994 Urban Labour Force Survey* (Vientiane, 1995).

[18] ILO estimation based on the projected population (see annex D) and 1995 labour force participation rates.

[19] The labour force participation rate for a specific age group is defined as the labour force in that age group divided by the population in the same age group.

[20] Estimation based on the 1995 population census data, *Results of the Population Census 1995*, NSC, Lao PDR (Vientiane, 1997).

[21] There is no recent data available on unemployment in Lao PDR. The Lao Expenditure and Consumption Survey 2002/3 (NSC, March 2004) suggested an estimated 100,000 unemployed workers among the labour force aged 10 years and over. Assuming that 75 per cent of these are aged between 15 and 64, this yields an unemployment rate of 3per cent for the labour force aged 15 to 64.

[22] In the 2005 population census about 141,000 workers were reported as private sector and SOE workers; this figure includes workers employed with non-registered (i.e., informally operating) companies, which may explain the discrepancy in the figures.

Table 2.3. Composition of employment, 2004[a]

	Persons[e]	% of total
Total employed (age 15 to 64)	2,614,875	100%
of which:		
Agricultural	2,083,728	79.7%
Non-agricultural	531,146	20.3%
of which:		
Own-account workers[b]	251,870	9.6%
Employers	6,553	0.3%
Wage workers	272,724	10.4%
of which:		
Private sector and SOE workers[c]	90,037	3.4%
Public sector workers[d]	182,687	7.0%

SOE: state-owned enterprise.

a. ILO estimation based on available information, 2005;
b. Includes self-employed and workers employed with non-registered enterprises;
c. Includes only workers employed with registered enterprises (see also footnote 22); estimated from Enterprise Survey, 2002, NSC;
d. Includes civil servants, armed forces and parastatal establishments;
e. Numbers may not add up due to rounding.

Source: ILO estimation, 2005.

With economic development, a gradual employment shift from agriculture to other sectors of the economy can be expected in the future. The development of employment in the formal economy is more difficult to predict. This will depend not only on the pace and direction of future economic development but also on the effectiveness of government policies to attract foreign investors and promote an environment conducive to business registration and licensing of small and medium enterprises. Given the high proportion of wage workers employed in textile manufacturing plants, future employment in the formal economy could be adversely affected by the expiry of the international textile quota system, which occurred in December 2004, although the repercussions of this still remain unclear.[23]

2.4 Development of social security in the Lao PDR

During the years of central planning, all major production facilities in Lao PDR were owned by the state, which granted SOE workers the same social security benefits as civil servants, the armed forces and the police. Starting in 1986, shortly after the adoption of the NEM, public administration reform was initiated by the Lao government and led to the adoption of new legislation, including Decree 54/CCM on social security for civil servants, employees in the public sector (including SOEs), and the military. Decree 54/CCM was promulgated in December 1986 and stipulated new provisions regarding sickness, convalescence, maternity, old age, and death benefits. The reform also led to the restructuring of SOEs starting from the year 1988, which included the dissolution of non-profitable SOEs and the privatisation of others. During the early 1990s the government embarked on a wide-ranging privatisation programme for the remaining SOEs. During this period, the first private sector enterprises started to emerge, mainly in the textile and service sectors.

[23] The quota system on textile imports from developing nations was adopted in 1974 to protect the textile industry of the USA and Europe. Initially called 'Textile Multi-Fibre Agreements', the quota system was extended several times, for the last time in 1995 under the name 'Agreements on Textile and Clothing' (ATC), which expired on 31 December 2004. The quota system resulted in an increase of textile manufacturing in low-income countries in Asia such as the Lao PDR due mainly to a relocation of excess quota production from other countries (e.g., China). The expiry in December 2004 of the ATC could lead to a gradual reversal of this trend although evidence of this has yet to be seen.

In August 1991, the Lao People's Supreme Assembly adopted the Constitution of the Lao PDR, which enshrined workers' entitlements to social security benefits. The Constitution stipulates:

'*The state takes care of the development of the public health service, and allows private individuals to operate medical services in accordance with state regulations. The state (...) takes care of war veterans, families of those who have sacrificed their lives and who have committed good deeds for the nation, and of state pensioners'.* (Article 20)

'*Working people have the right to rest, to receive medical treatment in time of ailment, to receive assistance in case of [temporary working] incapacity, disability, in old age, and in other cases as determined by law'.* (Article 26)

In November 1993, Decree 171 was promulgated by the Prime Minister; the decree defines the status of civil servants and recognizes the entitlements of civil servants, the military, and police to sickness, maternity, and old age benefits, and to child allowance. Decree 178/PM on the social security scheme for civil servants was adopted shortly afterwards. Its coverage extended to civil servants, the armed forces and the police. From that time, however, SOE workers were excluded from coverage by the public sector scheme.

The Lao Labour Law, adopted in 1994, stipulates workers' rights to social security benefits. It also stipulates that all private sector and SOEs shall establish social security funds (referred to as 'compensation funds'), to be financed by contributions from both employers and employees. Benefits to be provided from these funds include paid sick and maternity leave, maternity grant, retirement pension or lump sum benefit, and workers' compensation in case of employment injury and occupational disease (EIOD).

In the absence of a competitive insurance sector, the new obligation of employers to provide social security benefits created the need for the establishment of a centrally managed scheme since a single scheme ensures a higher degree of risk pooling and economies of scale in administration. The foundation for the creation of a statutory social insurance scheme for private sector and SOE workers was laid in December 1999 with the promulgation of Decree 207/PM on Social Security System for Enterprise Employees.

Decree 207/PM stipulates the institutional setup and benefit provisions of the scheme, which include health care, sickness, maternity, death, EIOD, invalidity, retirement, survivors', and unemployment benefits, as well as child allowance.[24] The adoption of the Decree created the legal framework for the establishment of an autonomous social insurance fund, the SSF, and of the SSO, the institution mandated with the management of the scheme.

[24] According to Decree 207/PM the introduction of unemployment benefits and child allowance is deferred to a future date, which is yet to be determined.

3. Current Status of the Scheme

3.1 Legal framework

The Lao Constitution, adopted in 1991, enshrines the right of workers to receive social security benefits. Article 20 stipulates that "the state takes care of war invalids and (state) pensioners", while Article 26 states that workers are entitled to receive "medical treatment in time of ailment, to receive assistance in case of incapacity and disability, in old age, and in other cases as prescribed by law".

Workers' rights to receive social security benefits are also stipulated in the Lao Labour Law adopted in 1994. The law notably stipulates that all enterprises shall establish social security funds (referred to as 'compensation funds'), to be financed by contributions from both employers and employees. Benefits to be provided from these funds include paid sick and maternity leave, maternity grant, retirement pension or lump sum benefit, and compensation in case of EIOD.

The principal legal provisions governing social security for private sector and SOE workers are stipulated in Decree 207/PM. Promulgated in December 1999, the Decree sought to create a legal basis for the establishment of a contributory national social insurance fund for private sector and SOE employees, the SSF. According to Decree 207/PM, the SSO is mandated to manage the scheme and to extend its coverage across the whole country.

3.2 Benefit provisions

According to Decree 207/PM, the SSF provides the following benefits:

- medical care
- sickness cash benefit
- maternity benefits, including medical care, cash benefit and birth grant
- death benefit (funeral grant)
- EIOD benefits, including medical care, physical and vocational rehabilitation, cash benefit for temporary and permanent disability, caretaker benefit, death grant, and survivors' pensions
- invalidity benefits, including medical care, invalidity persion, caretaker benefit, and physical rehabilitation benefit
- retirement benefit (pension or lump sum benefit)
- survivor benefits (adaption benefit and survivors' pension)
- child allowance
- unemployment benefit

Decree 207/PM stipulates that the implementation of child allowance and unemployment benefit is temporarily deferred. As a date for their introduction has not yet been set, these benefits have been excluded from the analysis presented in this report.

For pensions payable under the Long-term Benefit Fund a minimum qualifying period of five years of contributions (i.e., 60 months) applies; consequently no pension will be disbursed under this fund before June 2006. However, a lump sum benefit is payable to those retiring with less than 60 contributions. Retirement pensions to be provided under the Long-term Benefit Fund are defined benefit pensions, payable at the

normal retirement age of 60 for both men and women.[25] The detailed benefit provisions are presented in annex B.

3.3 Coverage

Decree 207/PM stipulates that the SSF covers on a mandatory basis all employees working for SOEs, joint ventures, and private sector enterprises with 10 or more employees. The decree furthermore stipulates that the following categories are excluded from coverage by the scheme:

- civil servants, the armed forces, and the police
- employees of diplomatic missions and international organizations in Lao PDR
- foreign citizens of multinationals working in Lao for a period not exceeding 12 months
- citizens of Lao PDR employed by multinationals and assigned overseas for 12 months or longer
- students and trainees who do not earn wages from an employer

To date, Decree 207/PM has been implemented in Vientiane Municipality and some parts of Vientiane Province only.[26] Over the coming years it is planned that the coverage of the scheme be gradually extended to all other provinces of the country.

In 2004, the average number of contributors was reported at 22,015, of which 8,645 males and 13,570 females. With an assumed density of contributions of 80 per cent, the average number of insured in 2004 was estimated at 27,769 of which 10,806 males and 16,963 females.[27] The estimated number of insured for the years 2001 to 2004 is shown in table 3.1.

Table 3.1. Estimated number of insured, 2001 – 2004[a]

	2001[b]	2002	2003	2004
Total	12,798	22,029	25,099	27,769
Males	5,472	8,520	9,513	10,806
Females	7,326	13,509	15,587	16,963

a. Yearly average except for 2001; estimate based on an assumed density of contributions of 0.8; columns may not add up due to rounding;
b. June to December.

Source: ILO estimation based on data provided by SSO, 2005.

It can be observed that the estimated number of insured members has increased steadily since the launch of the scheme in 2001. With the planned extension of the scheme's coverage and the projected increase of the labour force, the number of insured can be expected to rise further over the coming years. The estimated distribution of insured by age group is shown in table 3.2.

[25] Early retirement, starting from age 55, is possible under certain conditions. Pensions payable to those retiring early are reduced accordingly (see annex B).

[26] By the time of publication, SSO coverage had been extended to Savannakhet province and SSO operations had started in Khammouane province.

[27] The density factor reflects the average proportion of a year for which contributions were paid by active insured members of the scheme. The density factor is generally less than 100 per cent due to intermittent unemployment, drop-outs, new entrants etc.

Table 3.2. Insured by age group and sex, 2004[a]

Age group	Males		Females		Total	
	Insured	%	Insured	%	Insured	%
15 – 19	278	2.6%	1,837	10.8%	2,115	7.6%
20 - 24	1,706	15.8%	7,789	45.9%	9,495	34.2%
25 - 29	1,931	17.9%	3,463	20.4%	5,394	19.4%
30 - 34	1,576	14.6%	1,595	9.4%	3,171	11.4%
35 - 39	1,428	13.2%	958	5.6%	2,386	8.6%
40 - 44	1,296	12.0%	754	4.4%	2,051	7.4%
45 - 49	1,122	10.4%	360	2.1%	1,482	5.3%
50 - 54	700	6.5%	134	0.8%	834	3.0%
55 - 59	511	4.7%	48	0.3%	559	2.0%
60+	257	2.4%	24	0.1%	281	1.0%
Total	10,806	100%	16,963	100%	27,769	100%

[a] Estimate based on data on contributors for the month of June 2004 provided by the Computer Division, SSO; columns may not add up due to rounding.

Source: ILO estimation based on data provided by Computer Division, SSO, 2005.

From the data presented, the population insured in 2004 was young on average, with about 61 per cent of workers younger than 30 and about 6 per cent of insured older than 50. For female insured about 77 per cent were younger than 30 in 2004, many of them working in the textile manufacturing sector (see table 3.3).

The number of contributing enterprises and workers by economic sector is shown in table 3.3 overleaf for the month of June 2004. It can be observed that the scheme covers enterprises from a range of economic sectors. In June 2004, about 153 enterprises contributed to the scheme; 63 of those in the manufacturing sector, employing about 13,100 contributors or 59 per cent of all contributors.

From the insured earnings reported in June 2004, a high variation can be observed across different economic sectors. Insurable earnings were highest in the financial sector at an average of about 973,400 kip/month, and lowest in the agricultural, forestry and fishing sector, with average insurable wages of only about 374,000 kip/month.

The estimated number of private sector and SOE workers that fall under legal coverage of Decree 207/PM is shown in table 3.4 overleaf. It can be observed that for the year 2004, the number of private sector and SOE workers falling under legal coverage of Decree 207/PM was estimated at about 86,500, of which about 52,800 or 61 per cent live in Vientiane Municipality.[28] The remaining 33,700 workers to be covered by the scheme reside outside Vientiane; they are expected to join the scheme when its coverage is extended to the whole country. The number of workers falling under the legal coverage of the scheme is low due to the fact

[28] Figures based on data from the Enterprise Survey, 2002, NSC, Lao PDR.

Table 3.3. Contributing enterprises and workers by economic sector, June 2004

Economic sector	Number of covered enterprises	Number of contributors			Average insured earnings
		Total	Male	Female	
Agriculture, forestry, and fishing	8	1,368	439	929	374,013
Mining	2	29	17	12	831,431
Manufacturing	63	13,086	3,225	9,861	533,939
Utilities	9	2,533	1,939	594	893,992
Construction	5	129	109	20	541,103
Trade and commerce	18	1,152	433	719	578,899
Hotels and restaurants	7	708	441	267	700,268
Transport and communications	9	835	683	152	777,756
Financial intermediation	3	138	79	59	973,472
Services	20	1,327	1,027	300	685,215
Other sectors	2	306	102	204	665,961
Sector unknown	7	668	389	279	631,329
TOTAL	153	22,279	8,883	13,396	598,318

Source: ILO, 2005, from data provided by Computer Division, SSO.

Table 3.4. Number of private sector and SOE workers, 2002 and 2004[a]

	2002[b]	2004[c]
Whole country	76,550	86,473
Male	44,658	50,447
Female	31,892	36,026
Vientiane Municipality	46,709	52,764
Male	23,657	26,724
Female	23,052	26,040

SOE: state-owned enterprise.

a. Excluding micro enterprises (1-9 workers), which are not covered by Decree 207/PM;
b. Estimated from Enterprise Survey, 2002, NSC;
c. Projected in line with the projected development of the labour force and private sector employment.

Source: Enterprise Survey, 2002, NSC, Lao PDR, and ILO projection, 2005.

that the main share of the labour force is engaged in agriculture or employed on an informal basis (see section 2.3). Moreover, Decree 207/PM does not cover micro-enterprises, i.e., those employing less than 10 workers. Coverage and compliance rates estimated for the year 2004 are shown in table 3.5.[29]

[29] The coverage rate is defined as the ratio of insured to the legally covered population, whereas the compliance rate is defined as the ratio of actual contributors to potential contributors.

Table 3.5. Estimated coverage and compliance rates, 2004

Coverage rate[a]	32.1%
Males	21.4%
Females	47.1%
Compliance rate[b]	42.1%
Males	32.3%
Females	52.1%
Covered workers in per cent of total employed[c]	1.1%

a. Insured in per cent of legally covered workers in Lao PDR;
b. Contributors in per cent of legally covered workers in Vientiane Municipality;
c. Insured in per cent of total employed, age 15 – 64, all economic sectors.

Source: ILO estimation, 2005.

From the data presented, the overall coverage rate of the scheme in the year 2004 was estimated at 32.1 per cent, 21.4 per cent for males and 47.1 per cent for females. The low coverage rate of the scheme can be explained by the fact that the scheme has not yet been implemented in the whole country and by the low compliance rate observed in Vientiane Municipality.

The compliance rate in Vientiane Municipality was estimated at only 42.1 per cent, 32.4 per cent for males and 52.1 per cent for females in 2004. Compliance was low due to the reluctance of some enterprises to join the scheme. This may be attributed to the fact that some of these enterprises continue to run their own schemes, which had been set up prior to the launch of the SSF in 2001. Another significant factor is the lack of legal provisions at the disposal of SSO to enforce participation in the scheme.[30] The difference in compliance observed for males and females can be explained by variations in the compliance rates observed across economic sectors. In male predominant sectors, such as construction and mining, compliance is low whereas in female-dominated sectors compliance rates are substantially higher.

Apart from insured workers, dependent spouses and children of insured are also covered under the Health Insurance Fund. Spouses of insured are considered dependent if they are not in formal employment and therefore not insured themselves under either the SSF or the Public Sector Social Security Scheme. Children are considered dependent if under the age of 18 years or under the age of 25 years and in full-time education. The number of dependents insured under the Health Insurance Fund and registered with a provider hospital is shown in table 3.14 (see page 22).

According to Decree 207/PM the Health Insurance Fund also covers SSF pensioners and their dependents. Due to the qualifying conditions applicable for the Long-term Benefit Fund, no pensions were paid under this fund in the year 2004. Under the EIOD Fund, 10 pensions were in payment in 2004, including one for permanent disablement, three widows' pensions and six orphans' pensions.

[30] Decree 207/PM stipulates mandatory participation in the scheme for all private sector and SOEs; however, the decree lacks any provisions regarding the enforcement of compliance upon non-compliant enterprises.

3.4 Financial status

3.4.1 Financing arrangements

Decree 207/PM stipulates that the SSF is financed by contributions from employers and employees with employers contributing at least 50 per cent. Monthly insurable earnings were initially subject to a ceiling of 1 million kip per month.[31] As there is no floor on insurable earnings, the minimum insurable wage for full-time employed is given by the official minimum wage.[32] According to Decree 207/PM the SSF is divided into four benefit funds, with separated accounts and financing. These are the:

1. Health Insurance Fund
2. Short-term Benefit Fund
3. EIOD Fund
4. Long-term Benefit Fund

The total contribution rate of the SSF amounts to 9.5 per cent payable monthly on insurable earnings; employees pay 4.5 per cent and employers pay 5 per cent. Table 3.6 shows the contribution rates allocated to the four benefit funds.

Table 3.6. Contribution rates by benefit branch, 2001 – 2005[a]

	Employee	Employer	Total
Health Insurance Fund	2.2%	2.2%	4.4%
Short-term Benefit Fund	1.2%	1.2%	2.4%
Sickness cash benefit	0.5%	0.5%	1.0%
Maternity cash benefit	0.3%	0.3%	0.6%
Birth grant	0.2%	0.2%	0.4%
Death grant	0.2%	0.2%	0.4%
EIOD Fund	-	0.5%	0.5%
Long-term Benefit Fund	1.1%	1.1%	2.2%
Total	4.5%	5.0%	9.5%

[a] Charged on insurable earnings, i.e., on gross monthly earnings up to the prevailing contribution ceiling; includes an allocation for administration cost at 10 per cent of each respective rate.

Source: SSO, as per decision of the Board of Directors taken on 18 September 2000.

The contribution rates presented above were adopted by the SSO Board of Directors prior to the launch of the scheme based on actuarial estimations carried out by the ILO.[33]

According to Decree 207/PM pensioners pay contributions to the Health Insurance Fund only, the contribution rate being fixed at the same rate as for insured, with contributions deducted by the SSO from pension benefits before their disbursement.

[31] During 2005, the SSO Board of Directors decided to increase the ceiling on monthly insurable earnings to 1,500,000 kip, effective 1 January 2006.

[32] The official minimum wage amounted to 93,600 kip per month during the period 2001-2004; it was raised to 290,000 kip per month in April 2005.

[33] Second meeting of the SSO Board of Directors, 18 September 2000.

3.4.2 Insurable earnings

For the year 2004, the average insured earnings of all contributors was estimated at 598,769 kip per month. For males, the average insured earnings in the same year was estimated at 697,900 kip per month, whereas for females it was estimated at 533,204 kip per month. The estimated distribution of earnings insured in the year 2004 is shown in table 3.7.

Table 3.7. Distribution of insured earnings and average, 2004[a]

Insured earnings (kip/month)	Males	Females	Total
0 - 99,999	0.3%	0.7%	0.5%
100,000 – 199,999	4.7%	5.4%	5.1%
200,000 – 299,999	5.0%	9.0%	7.5%
300,000 – 399,999	10.1%	17.3%	14.4%
400,000 – 499,999	9.5%	19.0%	15.2%
500,000 – 599,999	9.5%	15.3%	13.0%
600,000 – 699,999	8.7%	9.6%	9.3%
700,000 – 799,999	6.4%	6.9%	6.7%
800,000 – 899,999	6.7%	4.4%	5.3%
900,000 – 999,999	6.2%	3.1%	4.3%
1,000,000	32.9%	9.2%	18.6%
Average insured earnings (kip/month)	697,900	533,204	598,769

[a] Estimate based on wages insured in June 2004.

Source: ILO, from data provided by Computer Division, SSO, 2005.

It can be observed that in 2004 the percentage of workers with earnings at or above the ceiling was high at about 32.9 per cent for male insured, 9.2 per cent for female insured, and 18.6 per cent for all insured workers (see recommendations, chapter 5).

3.4.3 Financial operations

The financial operations of the four benefit funds of the SSF during 2001 – 2004 are presented in table 3.8 below:

Table 3.8. Financial operations by benefit fund, 2001 – 2004[a]

	2001[b]	2002	2003	2004
Health Insurance Fund				
Operating income	1,394.86	4,809.74	6,192.87	6,951.72
Contributions	1,381.45	4,557.88	5,699.98	6,543.82
Interest income	13.41	251.86	492.89	407.91
Operating expenditure	544.97	2,079.83	2,487.04	3,224.75
Benefits	499.29	1,824.37	2,042.34	2,663.74
Administration	45.67	255.46	444.70	561.00
Balance	849.90	2,729.91	3,705.82	3,726.97
Cash flow	836.49	2,478.05	3,212.93	3,319.07
RESERVE (end-of-year)	**849.90**	**3,579.8**1	**7,285.64**	**11,012.61**
Short-term Benefit Fund				
Operating income	765.53	2,708.24	3,507.63	3,879.05
Contributions	753.52	2,486.12	3,109.08	3,569.35
Interest income	12.01	222.13	398.55	309.69
Operating expenditure	4.51	323.55	1,013.24	1,266.75
Benefits	4.13	283.81	832.06	1,046.37
Administration	0.38	39.74	181.18	220.37
Balance	761.02	2,384.70	2,494.39	2,612.30
Cash flow	749.01	2,162.57	2,095.84	2,302.61
RESERVE (end-of-year)	**761.02**	**3,145.72**	**5,640.11**	**8,252.41**
EIOD Fund				
Operating income	159.49	567.24	744.53	824.08
Contributions	156.98	517.94	647.72	743.62
Interest income	2.51	49.30	96.81	80.47
Operating expenditure	0.48	18.22	26.50	66.47
Benefits	0.44	15.98	21.76	54.90
Administration	0.04	2.24	4.74	11.56
Balance	159.02	549.02	718.04	757.62
Cash flow	156.51	499.72	621.23	677.15
RESERVE (end-of-year)	**159.02**	**708.04**	**1,426.08**	**2,183.69**
Long-term Benefit Fund				
Operating income	701.80	2,500.94	3,289.80	3,641.53
Contributions	690.73	2,278.94	2,849.99	3,271.91
Interest income	11.07	222.00	439.81	369.62
Operating expenditure	0	0	0	45.91
Benefits	0	0	0	37.92
Administration	0	0	0	7.99
Balance	701.80	2,500.94	3,289.80	3,595.62
Cash flow	690.73	2,278.94	2,849.99	3,226.00
RESERVE (end-of-year)	**701.80**	**3,202.74**	**6,492.54**	**10,088.16**

a. All figures given in million kip; columns may not add up due to rounding;
b. June to December;

Note: Figures calculated from SSO financial statements 2001 – 2004 based on the following conventions: i) Operating income excludes subsidies from state budget and technical assistance projects; ii) Administration costs exclude items covered from state budget and other subsidies; iii) Administrative costs are allocated to the different funds on a pro rata basis according to each fund's share of total benefit expenditure; iv) Investment income is calculated separately for each fund based on the rate of return on investment achieved in each year, the reserve of the fund at the beginning of the year, and the cash flow of the fund during the year (see also footnote 43); v) The year-end reserve of each fund is calculated by adding up the annual balance of the fund and the fund's reserve at the beginning of the same year.

Source: ILO calculation, 2005, based on SSO financial statements 2001 – 2004.

It can be observed that over the period 2001 – 2004 annual operating income exceeded operating expenditure for each of the four benefit funds. Given the annual surpluses achieved, reserves have been accumulated in the four benefit funds.

The financial operations of the SSF aggregated over the four benefit funds are shown in table 3.9 for the period 2001 – 2004.

Table 3.9. Financial operations of the Social Security Fund, 2001 – 2004 (aggregated)[a]

	2001[e]	2002	2003	2004
Operating income[b]	3,021.69	10,586.16	13,734.83	15,296.38
Contributions	2,982.68	9,840.87	12,306.77	14,128.70
Interest income	39.00	745.29	1,428.07	1,167.69
Operating expenditure	549.95	2,421.59	3,526.78	4,603.87
Benefit expenditure	503.86	2,124.15	2,896.16	3,802.94
Administration costs[c]	46.09	297.44	630.62	800.93
(% of operating income)	*(1.5%)*	*(3.0%)*	*(5.1%)*	*(5.7%)*
Balance	2,471.74	8,164.57	10,208.05	10,692.52
Cash flow	*2,432.73*	*7,419.28*	*8,779.99*	*9,524.83*
RESERVE (end-of-year)	**2,471.74**	**10,636.31**	**20,844.37**	**31,536.88**
Reserve ratio	*4.5*	*4.4*	*5.9*	*6.9*
Subsidies[d]	495.90	379.21	615.45	1,547.28

a. All figures given in million kip; columns may not add up due to rounding; calculations based on SSO financial statements 2001 – 2004 and conventions listed in table 2.7, *notes*;
b. Excluding subsidies from state budget and technical assistance projects;
c. Excluding administrative expenditures covered by subsidies;
d. Subsidies from state budget and technical assistance projects earmarked for administrative expenditures.
e. June to December.

Source: ILO calculation, 2005, based on SSO financial statements 2001 – 2004.

It can be observed that total annual operating income of the SSF increased from about 3 billion kip in 2001 to about 15.3 billion kip in 2004. Contributions from employers and employees accounted for the main part of operating income. In 2004 contribution income totaled 14.1 billion kip, accounting for 92 per cent of total income, while the remaining 8 per cent came from the investment of reserves. Based on the amount of contributions collected in 2004, the contribution collection rate for that year was estimated at 97.1 per cent.[34]

Total operating expenditure increased over the period 2001 – 2004 from about 550 million kip in the year 2001 to about 4.6 billion kip in 2004. As total annual income exceeded total annual expenditure over the whole period, the annual balance of the SSF has been positive. In 2004 the surplus achieved amounted to about 10.7 billion kip, whereas the cash flow in the same year amounted to about 9.5 billion kip.[35] Due to the annual surpluses achieved, year-end reserves increased steadily to reach about 31.5 billion kip in 2004, an amount equivalent to about 6.9 times total annual expenditure.

[34] The contribution collection rate is defined as the ratio of the actual amount of contributions collected to the theoretical amount of contributions that would result if all contributions due were paid on time.

[35] Cash flow or primary balance is given by the difference between operating income (excluding investments) and operating expenditure; it represents the working capital of the scheme.

Administration costs (excluding items covered by earmarked subsidies) amounted to 801 million kip in 2004, representing about 17 per cent of total operating expenditure and about 5.2 per cent of total operating income.[36] However, during the observed period, administration costs were partly paid for by subsidies provided by the state and the technical assistance project of the Belgian Technical Cooperation.[37] Total subsidies in the year 2004 amounted to about 1.5 billion kip, or about 10 per cent of total operating income. As subsidies are likely to be phased out in the near future, scheme outlays for administration are expected to increase substantially as a result, given the expenditures necessary for the planned extension of the scheme's coverage.

The PAYG cost rates of the four benefit funds are shown in table 3.10 below for the period 2001 – 2004.

Table 3.10. PAYG cost rates by benefit fund and total, 2001 – 2004[a]

	2001	2002	2003	2004
Health Insurance Fund	1.74%	2.01%	1.92%	2.17%
Short-term Benefit Fund	0.01%	0.31%	0.78%	0.85%
EIOD Fund	0%	0.02%	0.02%	0.04%
Long-term Benefit Fund	0%	0%	0%	0.03%
TOTAL	**1.75%**	**2.34%**	**2.72%**	**3.10%**
Contribution rate	*9.50%*	*9.50%*	*9.50%*	*9.50%*

[a] Annual operating expenditure in per cent of total insured earnings; expenditure excludes administrative costs covered by earmarked subsidies. Columns may not add up due to rounding.

Source: ILO calculation, 2005, based on SSO financial statements 2001 – 2004.

It can be observed from table 3.10 that in the year 2004, the total PAYG cost ratio of the SSF amounted to 3.1 per cent of insurable earnings, consisting of about 2.2 per cent for the Health Insurance Fund, 0.85 per cent for the Short-term Benefit Fund, 0.04 per cent for the EIOD Fund, and 0.03 per cent for the Long-term Benefit Fund.[38] Since 2001, the total PAYG cost ratio has been much lower than the allocated contribution rate for each of the funds. As a consequence, a substantial amount of reserves has been accumulated in each of the four benefit funds.

3.4.4 Reserves

Total reserves of the SSF have been increasing steadily over the period 2001 – 2004, reaching about 31.5 billion kip as at 31 December 2004. The reserve ratio of the SSF also increased from 2.4 in 2001 to 6.9 in 2004. End-of-year reserves and reserve ratios of the four benefit funds are shown in table 3.11.[39]

From the data presented, at the end of 2004 the Health Insurance Fund had accumulated reserves amounting to about 11 billion kip, the Long-term Benefit Fund about 10 billion kip, the Short-term Benefit Fund about 8.3 billion kip and the EIOD Fund about 2.2 billion kip. The reserve ratio was highest for the Long-term Benefit Fund at about 220 and lowest for the Health Insurance Fund at 3.4 times annual expenditure.

[36] According to Decree 207/PM administrative expenditures shall not exceed 10 per cent of total scheme income.

[37] Subsidies, as provided from the state budget and Belgian Technical Cooperation technical assistance project, were earmarked for administrative expenditures, mainly for capital expenditures and staff salaries.

[38] Cost ratios are inclusive of administrative expenditures for each of the funds, excluding those covered by subsidies.

[39] The reserve or funding ratio is defined as the amount of reserves at the end of a year divided by the expenditure during the same year.

Table 3.11. End-of-year reserve and reserve ratio by benefit fund, 2004

	Reserve[a]	Reserve ratio[b]
Health Insurance Fund	11,013	3.4
Short-term Benefit Fund	8,252	6.5
EIOD Fund	2,184	32.9
Long-term Benefit Fund	10,088	219.8
TOTAL	31,537	6.9

a. In million kip;
b. End-of-year reserve divided by annual operating expenditure.

Source: ILO calculation, 2005, based on SSO financial statements 2001 – 2004.

3.4.5 Investments

With annual surpluses achieved since the launch of the scheme, the SSF has built up substantial reserves. At the end of 2004, the cumulated reserves of the four benefit funds amounted to about 31.5 billion kip. The investment of these funds in interest bearing assets is important in order to protect the fund's value against inflation, the gradual erosion of its real value over time.[40] This is particularly relevant in Lao PDR, where inflation rates are generally high.[41]

Since 2001, reserve monies of the SSF have been invested mainly in kip-denominated savings accounts and fixed term deposits with state-owned and state joint venture commercial banks. These include the Banque pour le Commerce Exterieur Lao (BCEL), the Lao-Viet Bank, and the Lao Development Bank. In 2001 and 2002, part of the reserve was invested in Treasury bills as issued sporadically by the Treasury Department, MoF.[42]

Table 3.12. Investments of the Social Security Fund as at 31 December 2004

Type of investment	Amount invested[a]	Interest rate[b]	Term
Savings accounts	7,348		
Lao - Viet Bank	2,735	6.0%	n.a.
BCEL Bank	2,577	5.0%	n.a.
Lao Development Bank	2,036	2.5%	n.a.
Fixed-term deposits	20,213		
Lao - Viet Bank	19,000	4.0%	12 months
Lao Development Bank	1,213	4.0%	12 months
Treasury bills/bonds	0		
Other investments	0		
TOTAL	27,561		

a. In million kip; numbers may not add up due to rounding;
b. Annual, in nominal terms.

Source: Finance Division, SSO, 2005.

[40] Inflation here refers to price inflation as measured by the increase of the CPI.

[41] From 2000 - 2004 the rate of price inflation in Lao PDR averaged 13.5 per cent per annum according to official figures, see NSC, Lao PDR: *Statistics Lao PDR, 1975 – 2005* (Vientiane, July 2005).

[42] Although these bills were issued with a three months maturity only, they were rolled over several times upon maturity.

It can be observed from table 3.12 that invested reserves as at the end of 2004 totaled about 27.6 billion kip. Since the total reserve at that time amounted to 31.5 billion kip, only about 87 per cent of these funds were invested. It can also be observed that total deposits with Lao-Viet Bank amounted to 21.7 billion kip or 69 per cent of total reserves, compared to deposits with BCEL and Lao Development Bank totaling 2.6 and 3.2 billion kip, representing 8 per cent and 10 per cent of total reserves respectively. Holdings in cash and current accounts at the time amounted to about 4 billion kip, representing around 13 per cent of the total reserve.

The ROR achieved on the fund's total reserve is shown in table 3.13. It can be observed that in 2004, the ROR achieved on the total reserve amounted to 4.6 per cent in nominal terms.[43] Given the high rate of price inflation estimated at 10.5 per cent per annum in 2004, the estimated ROR was negative in real terms at about -5.4 per cent per annum. The time-weighted average ROR in real terms as calculated over the whole period (i.e., from 1 June 2001 to 31 December 2004) was also negative at -2.8 per cent per annum.

Table 3.13. Rate of return on total reserve, 2001 – 2004[a]

	2001[b]	2002	2003	2004	Average ROR[c]
Rate of return (nominal)[d]	6.5%	12.1%	9.5%	4.6%	8.3%
Rate of price inflation[e]	7.8%	10.7%	15.5%	10.5%	11.5%
Rate of return (real)	-1.2%	1.2%	-5.2%	-5.4%	-2.8%

a. In per cent per annum;
b. From 1 June to 31 December;
c. Time-weighted average annual rate of return;
d. Calculated from SSO financial statements, 2001 – 2004;
e. Annual rate of increase of the CPI as reported by NSC, see *Statistics Lao PDR, 1975 - 2005, NSC, Lao PDR (Vientiane, July 2005)*.

Source: ILO calculation based on data from SSO and NSC, 2005.

The investment situation of the SSF is a matter of concern given that investments undertaken from 2001 to 2004 did not yield sufficient return to protect the fund's value against inflation and to generate additional income. This was mainly due to the low returns offered by the Lao banks on SSO deposits in Lao kip and more generally due to the lack of alternative opportunities for investments in kip. The low returns offered by domestic banks can partly be explained by the ongoing banking sector restructuring process, which may have led to a credit crunch and, consequently, a reduced need for deposits. A further explanation is that domestic banks still consider the SSO as a state institution and are therefore reluctant to grant the organization the same conditions as those offered to private investors.[44]

With total reserves expected to increase substantially in the future this problem is likely to worsen and the scheme may not be able to protect the monies of the SSF against inflation, particularly in the short-term. In light of the ongoing banking restructuring process it remains to be seen whether Lao banks will be able to absorb the fund's reserves in the future and offer adequate returns when the restructuring process is completed. Given the existing plans of the government to liberalise the banking sector, the situation should improve in the coming years, particularly with the planned establishment of foreign commercial banks in Lao PDR.

[43] The ROR has been calculated using the formula: i(t) = 2 * I(t) / [A(t) + B(t) – I(t)] where A(t) is the reserve at the beginning of the year, B(t) is the reserve at the end of the year, I(t) is the investment income during the year, and i(t) is the average ROR during the year.

[44] During a workshop on SSF investments in February 2006, it was reported that interest rates offered by state-owned commercial banks are set by the Bank of Lao, and that the interest rate set for kip deposits of SOEs and state agencies is substantially lower than the interest rate paid by state-owned commercial banks on deposits of private investors (ILOSSP workshop on SSF investments held in Vientiane on 6 February 2006).

A further issue is diversification. As investments currently consist exclusively of bank deposits, the degree of diversification of investments is low. This is mainly due to the lack of viable alternatives for the investment of loanable funds in Lao kip. Furthermore, SSF investments in 2004 were concentrated in only three banks with about 69 per cent of the total SSF reserve deposited with a single bank, the Lao-Viet Bank. To carry such a risk exposure is imprudent, as the bankruptcy of this institution could put at risk a major part of the fund's reserve.

Yet, there are signs of improvement. In 2005, the SSO negotiated a two year fixed-term deposit worth 10 billion kip at 13 per cent per annum with the Lao Development Bank. In the same year, the SSO secured the purchase of Treasury bills worth 20 billion kip at a coupon rate of 12 per cent per annum. However, since the Treasury issues these bills merely for purposes of short-term cash management, it is unclear whether the outstanding bills will be rolled over upon maturity or repurchased by the Treasury.

There are other indications that the investment situation should improve in the coming years. In 2005, the Party Congress took a decision to further the development of financial markets in Lao PDR. According to the MoF, efforts will be directed initially towards the development of the bond market, with other markets to be developed at a later stage. It has also been reported that the MoF plans to finance larger investment projects through borrowing in the domestic market by issuing Treasury bonds in Lao kip with maturities of up to 5 years.[45] Other plans mentioned by MoF include the development of the corporate bond market and the possible issuance of Treasury bonds in other currencies.[46] The issuance of Treasury bonds with longer maturities would be a positive step, enabling the SSO to invest funds over longer horizons and to provide benchmarks important for the future development of the domestic money market in Lao kip.

3.5 Benefit history

The benefit history of the SSF over the period 2001 – 2004 is presented hereunder for the four benefit funds.

3.5.1 Health Insurance Fund

Health care benefits are provided to insured workers who qualify, to pensioners, and to dependent spouses and children.[47] Benefits provided include both preventive and curative health care services, diagnostic and laboratory tests, prescription drugs, and hospitalisation costs (for the list of medical benefits provided, see annex B). Medical benefits provided also include pre and post-natal care in case of childbirth and medical care in case of EIOD.[48]

The payment of health care providers is done through a capitation system. The scheme pays a fixed capitation amount to contracted providers based on the number of persons registered with the provider and based on an agreed capitation fee per person.[49] The capitation fee is determined periodically through negotiation between the Medical Committee of the SSO and the contracted service providers. At the inception of the

[45] Information provided by Mr. Bouleua, Deputy Director, Department of Fiscal Policy, MoF, March 2006.

[46] Ibid.

[47] Insured members and their dependents qualify for medical benefits after having paid contributions for three consecutive months.

[48] As these benefits relate to different contingencies, their cost should normally be allocated to the maternity and work injury benefit branches. However, this is not possible at present due to the absence of data on unit cost and utilization rates for these benefits.

[49] Prior to May 2004, the capitation fee was paid for insured workers only and not for their dependents.

scheme, the capitation fee was fixed at 85,000 kip per contributor per year. This was raised to 100,000 kip per contributor per year in January 2002. In February 2004, SSO agreed with providers to switch from a contribution fee per contributor to a capitation fee per beneficiary (i.e., registered person) set at 60,000 kip per person as of March 2004; the amount was later raised to 65,000 kip per person starting from March 2005. Eligibility was initially restricted to insured workers only. It was subsequently extended to cover dependent spouses, and later children; first those under age six, then age ten, and as of January 2005 all dependent children under the age of eighteen.

The capitation fee is supposed to cover the cost of diagnostics, inpatient and outpatient care, prescription drugs, and hospitalization, with the exception of certain items (see annex B) and a list of specific treatments referred to as high-cost cases.[50] The latter are paid for separately on a case-by-case basis through the reimbursement of costs, up to a certain limit.[51]

The number of persons registered with the four hospitals contracted in 2004 is shown in table 3.14.

Table 3.14. Contracted health care service providers and registered persons, 2004

Health care service provider	Province	Persons registered[a]		
		Workers	Dependents	Total
Mahosot Hospital	Vientiane Municipality	13,163	11,157	24,320
Mittaphab Hospital	Vientiane Municipality	7,520	7,259	14,779
Settathirat Hospital	Vientiane Municipality	2,717	2,295	5,012
Maria Theresa Hospital	Vientiane Province	301	579	880
TOTAL		23,701	21,290	44,991

a. Average over the year 2004.

Source: Health Insurance Division, SSO, 2005.

From the data presented, the total number of workers registered in 2004 was 23,701. This was less than the estimated 27,769 number of workers insured in 2004, which can be explained by the three month qualifying period applicable to new scheme members for health insurance benefits. In 2004, the dependency ratio (i.e., the ratio of dependents to insured workers) was about 0.9, of which 0.38 spouses per insured and 0.52 children per insured. The dependency ratio for the year 2005 was 0.40 for spouses and 0.59 for children.[52]

Hospitals contracted by the scheme have to keep records on service utilisation for inpatient, outpatient, and emergency care.[53] Average annual service utilisation rates for inpatient and outpatient care as reported by the contracted hospitals over the period 2001 – 2004 are shown in table 3.15.[54]

[50] Services classified as high-cost include treatment of epidural and extradural hematoma, hip replacement, internal spinal fixation, and CT scan diagnostics.

[51] The amount paid for high-cost cases is subject to a maximum of 1,500,000 kip per case. CT scan diagnostics are financed on a 50/50 cost-share basis with providers.

[52] The increase of the dependency ratio for children as observed in 2005 can be explained by the increase of the maximum age of eligibility for children in January 2005 (from aged under 10 to aged under 18).

[53] As no data is available on unit cost for emergency care these cases have been aggregated with outpatient services.

[54] The utilization rate is defined as the number of hospital visits/admissions per registered person per year.

Table 3.15. Annual hospital utilization rates by type of care, 2001 – 2004[a]

	2001	2002	2003	2004
Outpatient care[b]	0.34	0.62	0.82	0.92
Inpatient care	0.008	0.020	0.027	0.031

a. Figures given in average number of cases per person per year;
b. Includes accident/emergency cases.

Source: ILO calculation based on figures provided by the Health Insurance Division, SSO, 2005.

It can be observed from table 3.15 that utilization rates have increased steadily since the launch of the scheme. For outpatient and emergency care, the utilization rate increased from 0.34 visits per person per year in 2001 to 0.92 visits per person per year in 2004. For inpatient care, the utilization rate increased from 0.008 admissions per person per year in 2001 to 0.031 admissions per person per year in the year 2004.

In 2004, the Health Insurance Division of the SSO carried out a hospital costing exercise with contracted providers aimed at estimating unit medical cost and annual per capita cost, in an effort to improve the factual basis for setting the capitation fee. The findings of this exercise are presented in table 3.16.[55]

Table 3.16. Average unit cost, utilization rate, and annual per capita cost by service provider, 2004

Service provider	Unit cost[a]		Utilization rate[b]		Annual per capita cost[c]		
	OPD	IPD	OPD	IPD	OPD	IPD	TOTAL
Mahosot Hospital[d]	60,075	410,605	0.94	0.03	56,471	12,318	68,789
Mittaphab Hospital	29,588	475,591	0.87	0.05	25,742	23,780	49,521
Settathirat Hospital	35,695	342,375	0.72	0.02	25,700	6,163	31,863
Maria-Theresia Hospital	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Savannakhet Hospital	52,671	273,060	0.46	0.06	24,229	16,384	40,612

OPD: outpatient care; IPD: inpatient care.

a. Figures in kip per visit/admission;
b. Figures in cases/person/year;
c. Average, in kip;
d. Unit cost figures for Mahosot include expenditures of the international clinic, which does not provide medical services to SSO members.

Source: Health Insurance Division, SSO, 2005.

From table 3.16, it can be observed that for unit cost, utilization rates, and per capita cost a high degree of variation exists between hospitals. It should be noted, however, that figures for Mahosot include expenditures of the international clinic, which provides medical care of a higher standard and cost but does not provide services to SSO members. Consequently, the true cost incurred by Mahosot for treatments administered to SSO members is lower than the figures presented in table 3.16 suggest.[56]

Average unit cost across providers has been estimated by taking the weighted average of the unit costs displayed in table 3.16 based on the number of persons registered with each provider, excluding

[55] Presentation by Dr. Vanchai, Project Manager, ILOSSP, during the workshop on health insurance organized by ILOSSP in October 2005.

[56] It is noted, however, that among all hospitals the utilization rate for outpatient care was highest for Mahosot at 0.94 visits per person per year in 2004.

Mahosot.[57] Average per capita cost across providers has been estimated for both outpatient and inpatient care by multiplying the respective average unit cost across providers by the respective average utilization rate displayed in table 3.15. Adding up the numbers obtained yields the estimated average total medical cost per capita per annum. This methodology results in average per capita cost of 43,119 kip per person per year in 2004.

3.5.2 Short-term Benefit Fund

Benefits provided under this fund include sickness cash benefit, cash benefit for partial work resumption, maternity cash benefit, birth grant, and death grant. The benefit history of the short-term benefit branch over the period 2001 – 2004 is shown in table 3.17.

Table 3.17. Benefit history, Short-term Benefit Fund, 2001 – 2004

	Expenditure[a]				Number of cases[b]			
	2001[c]	2002	2003	2004	2001	2002	2003	2004
Sickness cash benefit	4.1	65.4	102.6	145.6	12	126	241	310
Cash benefit for partial work resumption	0	0	0	0	0	0	0	0
Maternity cash benefit	0	164.1	562.9	733.0	0	148	372	488
Maternity (birth) grant	0	5.8	24.9	35.0	0	104	443	602
Funeral (death) grant	0	48.5	141.6	149.7	0	16	50	43
TOTAL	4.1	283.8	832	1,063.3	12	394	1,106	1,443

[a.] In million kip; figures for 2004 based on a cash accounting; columns may not add up due to rounding;
[b.] Number of approved claims;
[c.] From June to December.

Source: Claims Division, SSO, 2005.

Sickness cash benefit is payable to insured workers who are unable to work due to non-work related sickness or accident.[58] It can be observed from table 3.17 that between 2001 and 2004, a sickness cash benefit was granted for 689 cases in total. For the year 2004, the incidence rate for sickness benefit was estimated at 0.011 cases per insured. For 2004, the average benefit amount per case was about 470,000 kip or about 82 per cent of the average insured wage.

Cash benefit for partial work resumption is payable to insured workers who, after a period of sickness, are unable to resume work on a full time basis. It can be observed from table 3.17 that this benefit was not claimed at all during the period 2001-2004.

Maternity cash benefit is payable to eligible female workers in case of pregnancy and child adoption.[59] The benefit amount is equal to 70 per cent of the insured wage and is payable for a period of three months. From table 3.17 it can be observed that between 2001 and 2004 the maternity cash benefit was disbursed for a total of 1008 cases. In 2004, the average monthly benefit amount was about 576,000 kip. The benefit incidence rate in the same year was 0.031 cases per eligible female worker per year.

[57] Mahosot has been excluded for the estimation of average unit costs across providers in order to avoid overestimation due to its international clinic.

[58] Sickness benefit is payable to eligible workers after they have used up their legal entitlement to paid sick leave of 30 days per year; see annex B. The SSO currently applies a waiting period of 7 days for the first claim submitted by an insured in each quarter.

[59] The qualifying period for maternity cash benefit is 9 months of contributions paid in the 12 months preceding delivery; see annex B.

Birth grant is payable in case of childbirth or adoption of a child under one year of age, irrespective of whether the insured is the mother or the father. The birth grant amount is presently fixed at 60 per cent of the minimum wage. With the official minimum wage set at only 93,600 kip per month between 2001 and 2004, the benefit amount was low at 56,160 kip; corresponding to about 9.4 per cent of the average insurable wage for the year 2004.[60] The incidence rate for this benefit in 2004 was 0.014 cases per male insured and 0.030 cases per female insured.

Death or funeral grant is payable in case of death of an insured worker, his/her spouse, or his/her child. The benefit amount payable is equal to six, three, or two months of insured earnings respectively. It can be observed from table 3.17 that a total of 109 funeral benefits were granted between 2001 and 2004. The benefit incidence rate in 2004 was 0.0012, 0.00074, and 0.00046 cases per insured per year for death of insured, spouse, and child respectively.

3.5.3 EIOD Fund

Benefits provided under the EIOD Fund include both short-term and long-term benefits. Short-term benefits consist of medical care, physical and vocational rehabilitation, cash benefit for partial work resumption, and funeral grant, whereas long-term benefits consist of permanent disability pensions, caretaker benefit, and survivors' pensions. The benefit history of the EIOD Fund is shown in table 3.18.

Table 3.18. Benefit history, Employment Injury and Occupational Disease Fund, 2001 – 2004

	Expenditure[a]				Number of cases[b]			
	2001[c]	2002	2003	2004	2001	2002	2003	2004
Short-term benefits								
Cash benefit for temporary disability	0.44	9.28	10.76	27.10	1	14	17	14
Cash benefit for partial work resumption	0	0	0	0	0	0	0	0
Funeral grant	0	7.42	0	1.75	0	3	0	1
Rehabilitation and occupational training	0	0	0	0	0	0	0	0
Long-term benefits								
Permanent disability pensions	0	0.56	1.05	0.19	0	2	2	1
Caretaker benefit	0	0	0	0	0	0	0	0
Widow/er pensions	0	1.47	6.85	6.85	0	1	3	3
Orphans' pensions	0	1.62	3.10	3.10	0	2	6	6
Pensions for surviving parents	0	0	0	0	0	0	0	0
TOTAL	0.44	20.34	21.76	39.00				

a. In million kip, figures from cash accounting; columns may not add up due to rounding;
b. Number of approved claims, refers to pensions in payment for long-term benefits;
c. From June to December.

Source: Claims Division, SSO, 2005.

[60] The official minimum wage amounted to 93,600 kip per month during the period 2001-2004. It was subsequently raised to 290,000 kip per month effective as of April 2005, resulting in an increased benefit amount of 174,000 kip.

It can be observed that for the period 2001 – 2004, no benefits were awarded for partial work resumption, caretakers, and rehabilitation services. Cash benefit for temporary disability was paid in 46 cases, and death grant in 4 cases. For long-term benefits, 10 pensions were in payment in 2004, of which 1 pension for permanent disability, 3 widows' pensions and 6 orphans' pensions.

For the year 2004, the total expenditure for EIOD benefits was reported at 39 million kip based on cash accounting and excluding medical benefits; these are financed together with other medical benefits through the capitation system operating under the Health Insurance Fund.[61] As benefits payable in case of EIOD are regarded as employer liabilities, the EIOD Fund is financed solely by employer contributions, set at 0.5 per cent of insurable earnings.[62]

3.5.4 Long-term Benefit Fund

The benefits payable under the Long-term Benefit Fund include retirement benefits, invalidity benefits, and survivor benefits for widow/ers and orphans (see annex B for detailed benefit provisions). For all pension benefits payable under this fund a qualifying period of five years of contributions applies, hence no pensions have been disbursed over the period 2001 – 2004 since the scheme started operations only in June 2001. Lump sum retirement benefits were provided as of the year 2004 to those retiring with less than 5 years of contributions. The total amount of lump sum benefits disbursed in 2004 to 31 retirees amounted to 37.9 million kip.

[61] This is done for practical reasons. To date, no transfers have been paid between the two benefit funds.

[62] The financial liability of employers in case of EIOD is enshrined in the Labour Law, Lao PDR, 1994.

4. Actuarial Analysis

4.1 Concept and methodology

4.1.1 Concept

In order to ensure the financial sustainability of a social security scheme over the long term, it is relevant that its financial situation be reviewed periodically through actuarial valuations. The main purpose of an actuarial valuation is to assess the solvency of a scheme in the present and future by way of projecting future income, expenditure, and reserves. Where scheme reforms are being considered, an actuarial valuation is useful to assess alternative reform options in light of their financial implications. This is relevant in order to provide policymakers with vital information about the reforms under consideration. An actuarial valuation thereby creates a rational basis for decision making, enabling policymakers to ensure sound financial governance of the scheme.

The financial situation of a social security scheme depends on several variables, the future evolution of which is uncertain. It is therefore important to make use of a quantitative model that takes into account these variables and their interdependencies. Once a quantitative model has been created it is possible to assess the financial situation of the scheme under different sets of parametric assumptions. Variables of relevance are: population, labour force, and employment, the future states of the economy, the level of prices and wages, and also scheme-specific variables such as future coverage, benefit levels, contribution rates, and compliance.

The future value of most parameters, particularly those relating to the future state of the economy (GDP growth, wages, prices, investment returns, etc.), cannot be predicted with accuracy due to their inherent uncertainty. The objective of an actuarial valuation is therefore to produce a best estimate of future scheme finances based on trends observed in the past and on realistic assumptions pertaining to the future. Nevertheless, it should always be remembered that the future experience of the scheme may deviate from the one projected. It is relevant to point out here that due to the short history of the SSF, the paucity and unreliability of some data, and the general uncertainties attached to long-term projections, the projection results presented in this report should be considered as rough estimations.

Actuarial projections should be updated periodically so as to take into account recent developments and changes in the general outlook on the future. It is common that periodical actuarial valuations are mandated by law, generally to be undertaken at least every five years. It is noted here that Decree 207/PM, which governs the SSF, does not contain such a provision.

4.1.2 Methodology

In order to assess the future financial situation of a social security scheme annual income and expenditure must be projected over the whole projection period. Based on the resulting annual balances and assumed future interest rates, it is possible to assess the future evolution of the reserve and thus the future solvency of the scheme. The projection of expenditure and insurable earnings is of particular relevance since it enables the calculation of the future PAYG cost rate of the different benefit funds and in aggregate.[63]

[63] The PAYG cost ratio for a given year represents the contribution rate that has to be charged during that year to cover the expenditure of the fund or benefit branch, assuming no investment or other income.

Scheme income generally consists of contribution income, investment income, and other income such as subsidies and fines. Contribution income is projected by multiplying projected total insurable earnings by the assumed future contribution rate and the assumed contribution collection rate. Investment income for a given year is estimated based on the projected reserve at the beginning of a year, the projected cash flow during that year, and the assumed future ROR on reserve funds.

Total expenditure is projected by projecting benefit expenditure, administrative expenditure, and other expenditure separately. Administrative and other costs are generally projected based on their assumed level relative to contribution income and/or benefit expenditure.[64] Benefit expenditure is projected separately here for each type of benefit according to the methodology explained below.

(1) Health care benefits

Expenditure for health care benefits consists of payments for capitation fees plus other payments (e.g., payments for high-cost treatments).[65] The projection of future capitation fees is based on the projected total per capita cost for all types of medical treatments provided.[66] The average per capita cost per type of treatment is projected by multiplying projected average unit cost by the projected average benefit utilization rate for each type of treatment respectively (see section 4.5).[67] Other costs are projected as a percentage of the projected capitation fee.

(2) Short-term cash benefits

For short-term benefits, annual benefit expenditure is projected separately for all the contingencies covered. The following generic formula has been applied: [68]

$$Exp_{i,t} = n_{i,t} \cdot f_{i,t} \cdot b_{i,t}$$

where: $Exp_{i,t}$ = *benefit expenditure for benefit i in year t*

$n_{i,t}$ = *number of persons eligible for benefit i in year t*

$f_{i,t}$ = *benefit incidence rate (or frequency) of benefit i in year t*

$b_{i,t}$ = *average benefit amount per case for benefit i in year t*

For the projection of future incidence rates and average benefit amounts, assumptions are necessary; these have been chosen based on the trends observed during the past experience of the scheme and on other factors that affect their future development (see section 4.6).

(3) Long-term benefits

For long-term benefits, projections have been generated using the generic ILO pension model, adapted to the Lao framework and benefit provisions of the SSF.[69] The ILO pension model is a deterministic projection model; its structure is presented in annex I. The approach of the ILO pension model is to place a pension

[64] In the model employed for this valuation, administrative and other costs have been projected as a percentage of benefit expenditure.

[65] The capitation fee is a monthly flat rate fee paid for every covered person to the provider with which the insured has enrolled.

[66] It is assumed here that the future capitation fee can be estimated from the projected average per capita cost of medical care per person insured.

[67] The benefit utilization rate is defined as the average number of treatments per person per year.

[68] A simple formula has been used given the absence of experience data on the empirical density function of benefit amounts and frequency, and given the absence of benefit amounts and incidence rates by age.

[69] International Labour Office: *The ILO Pension Model, A Technical Guide,* Financial, Actuarial and Statistical Services Branch, 2nd ed. (Geneva, 1997).

scheme in the context of a country's demographic and economic development. This approach makes it possible to take into account future changes in the economic and demographic environment and their impact on the financial status of the scheme. The model consists of the following modules:

a) A demographic module for the projection of the country's future population and labour supply by age and sex cohort
b) A macroeconomic module for the projection of economic variables such as GDP, price and wage levels, labour productivity, and labour demand
c) A pension module for the projection of the insured population, total insurable earnings, number of beneficiaries, average pension benefit amounts, and annual benefit expenditure for the different types of long-term benefits.

The future labour force by age and sex cohort is obtained by equating labour demand as projected using the macroeconomic model with the labour supply as given by the demographic model. By assuming the future unemployment rate, the projected labour force yields future employment by age and sex cohort. The number of insured by age and sex cohort is then derived from the projected number of employed, using additional assumptions based on the development of private sector employment, scheme coverage, and compliance. In order to reflect the uncertainty regarding the future development of these parameters, actuarial projections have been carried out under three different sets of assumptions, referred to as scenarios.

Based on the projected number of insured by age and sex, the pension module yields annual contribution income, number of pensioners, annual benefit expenditure, and cash flow of the Long-term Benefit Fund. Assumptions on the future ROR on the reserve then allow for the calculation of annual balances and end-of-year reserves for each scenario.

4.2 Database

4.2.1 Scheme data

Data on the past experience of the scheme was provided by the SSO, notably by the heads of the Health Insurance, Finance, Claim, and Computer Divisions. The data provided is of reasonable quality given the low number of staff and personal computers available, although there exists room for improvement. Data is stored by each division separately in a decentralized and inconsistent manner. Backups are done only occasionally with the result that some historical data has already been lost. With no data management policy in place, insufficient attention is paid to the management of quantitative data. It should also be noted that virtually no data analysis is carried out in-house. The compilation, analysis, and publication of statistical data on the scheme (such as number of beneficiaries, benefit incidence rates, average benefit amounts, compliance, etc.) should be considered, as it would ensure easy access to data for external stakeholders, increase transparency, and strengthen the overall image of the SSO with the public.

4.2.2 Base year and projection period

In the actuarial valuation presented in this report, the calendar year 2004 has been chosen as the base year since this was the most recent year for which a full set of data was available at the time of writing. The valuation date is therefore taken as 31 December 2004. In the following analysis, all figures relating to later dates therefore represent projections unless stated otherwise.

With the scheme only launched in 2001, it will take several decades to reach maturity, a state where the main parameters of the scheme become more or less stable.[70] For short-term benefits this generally occurs after a few years whereas for long-term benefits, it often takes several decades.[71] Long-term benefits have therefore been projected up to the year 2099. A long projection period is relevant here in order to ensure that projections extend beyond the maturity stage.

As short-term benefits are financed on a PAYG basis, no long-term projections are required. For the actuarial projections presented hereunder, short-term benefits have therefore only been projected up to the year 2010.

4.3 Assumptions

In order to reflect the uncertainty of the years ahead, in particular the future demographic and economic development in Lao PDR, the cost projections for the Long-term Benefit Fund have been carried out under three different sets of assumptions referred to as 'scenarios'. Each scenario consists of a consistent set of assumptions and is meant to represent a particular outlook on the future. All three scenarios are based on the same population projection (see section 4.3.1).

Under scenario 1, it is assumed that the economy will continue to grow over the long term at a relatively strong pace, and that employment will shift gradually from the agricultural sector to other sectors of the economy. It is assumed that this shift in the labour force will continue steadily over the whole projection period. It is further assumed that scheme coverage and compliance will increase up to the year 2050 and stay constant thereafter. As a result of these assumptions the number of salaried workers and scheme members increases continuously over the whole projection period. Scenario 1 reflects a positive outlook on the future with regard to both scheme coverage and long-term demographic and economic development in Lao PDR.

For scenario 2, it is also assumed that the economy will continue to grow over the long term at a relatively strong pace, and that employment will initially shift from the agricultural sector to other sectors of the economy. However, it is assumed that this shift of the labour force will come to an end in 2050, and that the relative share of the labour force engaged in agriculture will remain constant thereafter. It is further assumed that scheme coverage and compliance will increase up to the year 2050 and stay constant thereafter. Based on these assumptions the projected number of salaried workers and scheme members will not substantially increase after the year 2050.

Under scenario 3, it is assumed that the partial shift of the labour force from agriculture towards other sectors of the economy, as assumed under scenarios 1 and 2, will not materialize. It is also assumed that the share of wage workers in the labour force and scheme coverage and compliance rates will remain constant. Furthermore, it is assumed that labour productivity and GDP will grow at a slower pace than under scenarios 1 and 2. Scenario 3 therefore represents a pessimistic outlook on the future; its purpose is to illustrate the development of the scheme in the event scheme coverage is not extended, compliance is not increased, and the structure of the economy does not change.

[70] This refers in particular to the demographic ratio, i.e., the ratio of pensioners to active insured.

[71] In a stable economic and demographic environment, and in the absence of transitional measures, a pension scheme generally reaches maturity when the first generation of pensioners has died. Usually this takes between 60 and 80 years from the date of implementation.

It is assumed for the three scenarios, except where stated otherwise (e.g., in sections 4.7.5 and 4.7.6) that status quo conditions will prevail, i.e., that the benefit provisions of the scheme (benefit formula, qualifying conditions, etc.) will remain unchanged over the entire projection period.

4.3.1 Demographic assumptions

Population

The population projection provides the framework for the projection of the labour force and insured population. For the purposes of this report, a population projection has been generated using the ILO population projection model.[72] This projection serves as the basis for the demographic framework in each of the three scenarios. The base year for the population projection is 1995; this being the year when the last population census was carried out in Lao PDR, at the time of writing.

It has been assumed that the total fertility rate will gradually decrease from 5.6, as observed in 1995, to 2.1 in 2025, and that it will remain constant thereafter.[73] It has further been assumed that life expectancy at birth will increase gradually from the 50 years for men and 52 years for women observed in 1995 to 76.4 years for men and 79.8 years for women in 2099. The mortality rates used for each year of the projection period are taken from the UN Model Life Tables, South Asian pattern,[74] based on the projected annual values of life expectancy at birth.[75] Due to lack of reliable data, international migration has been assumed as nil for the entire projection period.

The results of the population projection are shown in table A.5 (see annex D). According to the projection, the total Lao population will increase gradually from 4.6 million in 1995 to 10.5 million in 2086, when it will reach its peak. It is expected to remain at about the same level until 2099. A gradual ageing of the population will take place as a result of the increasing life expectancy and the lower fertility rates projected for the future. The percentage of the population aged 65 and over is expected to rise from 3.7 per cent in 1995 to 19.9 per cent in 2099.

Labour force and employed population

The labour force aged 15 to 64 for the year 2004 was estimated at about 2.7 million persons.[76] The labour force projection for later years has been derived in the same manner. Under all three scenarios it has been assumed that labour force participation rates for both men and women will be constant over the whole projection period at the levels observed in 1995 (see figure 2.1). Based on this assumption, in all three scenarios the projected total labour force aged 15 to 64 increases gradually to about 5.5 million in 2055 and decreases slightly thereafter to reach about 5.3 million in 2099.

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[72] International Labour Office: *ILO Population Projection Model: A Technical Guide (Version 1.1. 8/2002),* Financial, Actuarial and Statistical Services Branch (Geneva, 2001).

[73] *Results of the Population Census 1995*, NSC, Lao PDR (Vientiane, 1997).

[74] Department of International Economic and Social Affairs, UN Secretariat: *Model Life Tables for Developing Countries* (New York, 1982).

[75] For the mortality assumptions used by the United Nations, see Department of Economic and Social Affairs, United Nations Population Division: *World Population Prospects: 1988,* Population Studies No. 106 (New York, 1989).

[76] ILO estimation based on projected population and assumed labour force participation rates by age group and sex.

Total employment for the year 2004 was estimated at about 2.6 million people, assuming an unemployment rate of 3 per cent of the labour force (see section 2.3). Assuming that the unemployment rate will remain constant at the same level over the whole projection period, projected employment, as derived from the projected labour force, increases gradually to about 5.3 million in 2055 and decreases thereafter to about 5.1 million in 2099.

Composition of employment and covered population

Legal coverage of the scheme presently extends to workers of private sector and state owned enterprises (SOEs) with ten or more employees. The total number of salaried workers employed in SOEs and registered private sector enterprises in 2004 is estimated at about 97,000, i.e., about 3.4 per cent of the employed population.

In scenario 1, it is assumed that the percentage of employed engaged in agriculture will decrease from an estimated 80 per cent in 2003 to 50 per cent in 2099, based on the declining importance of the agricultural sector observed in recent years. It is further assumed that the share of salaried workers in the non-agricultural sector will remain constant.[77] Based on these assumptions, the percentage of private sector and SOE workers to total employed will increase from 3.4 per cent as estimated for 2004 to 18.7 per cent in 2099. The percentage of civil servants to total employed is assumed constant over the whole projection period. It is assumed that, in line with existing plans to extend the scheme's coverage to all provinces in the coming years, the coverage rate will increase from the 21 per cent for males and 46 per cent for females observed in 2004 to 90 per cent for both males and females in 2050, and to stay at that level thereafter. As a result of these assumptions, and with the projected development of the labour force, the projected number of insured increases gradually to 495,485 in the year 2050, and further to 819,666 by the year 2099.

In scenario 2, it is assumed the percentage of employed engaged in agriculture will decrease from the estimated 80 per cent in 2003 to 65 per cent in 2050, remaining at this level thereafter. Assuming a constant share of salaried workers in the non-agricultural sector, the percentage of private sector and SOE workers to total employed will therefore increase from 3.4 per cent in 2004 to 11 per cent in 2050, remaining at that level thereafter. It is also assumed that the coverage rate of the scheme will increase from the 21 per cent for males and 46 per cent for females observed in 2004 to 75 per cent for both males and females in 2050, remaining at that level thereafter. As a result of these assumptions, and with the projected development of the labour force, the projected number of insured increases gradually to 419,025 in the year 2050 and decreases slightly thereafter to reach 401,526 by the year 2099.

In scenario 3, it is assumed that the percentage of salaried workers employed with private and SOEs will remain constant at 3.4 per cent of total employment over the whole projection period. It is further assumed that the coverage rate of the scheme will remain constant at about 21 per cent for males and 46 per cent for females. Based on these assumptions and with the projected development of the labour force, the projected number of insured increases gradually to 56,240 in the year 2050 and decreases slightly thereafter to reach 53,891 by the year 2099. Scenario 3 may not be entirely realistic but it is useful to illustrate the case where the scheme does not extend its coverage in the future.

[77] Excludes civil servants. The percentage of civil servants to the total labour force is expected to remain constant at 6.8 per cent over the whole projection period.

4.3.2 Economic assumptions

The future financial situation of the scheme will vary depending on the macroeconomic framework in which it will operate. Future income and expenditure will depend upon several economic parameters, these being mainly price inflation, wage growth, and interest rates. The assumed future macroeconomic framework should be both consistent and unbiased, i.e., neither too optimistic or too pessimistic.

GDP growth

Over the past decade, GDP for Lao PDR has grown consistently at around 6 per cent per year (1994 – 2003). Given the buoyant outlook for economies in the region, this positive trend can be expected to continue in the short to medium term. In the years 2005 and 2006, the Lao economy is expected to grow by 7.3 per cent and 7 per cent per annum respectively.[78] However, over the long term, GDP growth rates are expected to decline and to converge gradually towards more moderate levels, mainly due to an expected decrease in the growth rate of the domestic labour supply.

In scenarios 1 and 2 it is assumed that the GDP growth rate will decrease gradually from the 7 per cent per annum expected for 2006 to 4.5 per cent in 2020, then to 3 per cent in 2050, and to 2 per cent per annum in 2099.

In scenario 3, it is assumed that the GDP growth rate will decrease gradually from the 7 per cent per annum expected for 2006 to 4 per cent in 2020, then to 2 per cent in 2050, and to remain constant thereafter at 2 per cent per annum until the year 2099.

Labour productivity and wage growth

The estimated labour productivity in Lao PDR has increased consistently at about 2.8 per cent per annum on average over the period 2000 – 2004, with a 3.6 per cent increase observed in the year 2004.[79] This rapid increase in labour productivity can be explained partly by an increase in production in the agricultural sector due to new irrigation schemes and the growing use of fertilizers and machinery, and partly by the gradual shift of the workforce from the agricultural sector towards the more capital-intensive and productive manufacturing sector. This trend is expected to continue over the short to medium term.

In scenarios 1 and 2, the projected rate of labour productivity growth is high for the immediate future at annual rates varying between 2.5 per cent and 4 per cent due to high projected GDP growth rates.[80] For the year 2020 labour productivity growth is projected at about 2.5 per cent per annum, decreasing gradually to about 2 per cent per annum in 2099.

In scenario 3, labour productivity growth is projected to decrease gradually from the 4 per cent per annum projected for 2005 to around 2 per cent per annum in 2020, remaining at this level until 2099.

In all three scenarios, it is assumed that wages will grow in line with labour productivity over the whole projection period.

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[78] International Monetary Fund: *World Economic Outlook*, September 2005 (Washington DC, 2005).

[79] Labour productivity is defined here as output per person employed.

[80] In the model framework used for this valuation, labour productivity is an endogenous variable determined by the exogenous GDP growth assumption and the rate of employment growth resulting from projected employment.

Inflation

Between the years 2000 – 2004, the CPI increased by an average of around 13.5 per cent per annum. For 2005 and 2006, the CPI was expected to increase more moderately at 5.9 per cent and 5 per cent per annum respectively.[81] In both scenarios, it has been assumed that as of the year 2007 the CPI will increase by 5 per cent per annum over the whole projection period.

Investment return

The assumed future ROR on invested reserves is a key assumption for the actuarial projection of a funded pension scheme. A high return on investment ensures a high investment income from the reserve. The higher the assumed ROR, the lower the amount of contributions needed to ensure the financial equilibrium of the scheme over the long term. It can be shown that the remaining lifetime of the reserve varies considerably with the assumed real rate of interest earned on the reserve. A decrease in the real ROR by a single per cent can shorten the expected lifetime of the fund by several years depending on the degree of funding. The higher the level of funding, the greater the effect of a change in the ROR assumption on the remaining lifetime of the fund.

The ROR as achieved on the reserve between 2001 and 2004 was low (see table 3.13, section 3.4.5). In 2004, the ROR in real terms was negative at -5.4 per cent per annum. However, with the expected decrease of inflation rates and the ongoing restructuring of the banking sector, ROR in real terms is expected to improve over the coming years, becoming positive by the year 2010 at the latest. As the investment situation is expected to improve substantially over the medium term, real ROR can be expected to increase further after 2010.

In scenarios 1 and 2, the real ROR is therefore expected to increase to 3.5 per cent per annum in 2020 and to stay constant at that level until 2099. For scenario 3, the real ROR is expected to increase to 3 per cent per annum in 2020 and to stay constant at that level until 2099.

The main economic assumptions for the three scenarios are summarized in table 4.1 overleaf.

4.3.3 System specific assumptions

Density of contributions

The density factor, expressed in per cent, reflects the average time period of a year for which contributions are being paid by active insured.[82] The density factor is generally less than 100 per cent due to reasons such as intermittent unemployment, dropouts, and new entrants.

Experience data on the density factor of the SSF is presently unavailable. Since there are indications that employment turnover is high among the covered population, particularly in the garment sector, a conservative approach has been adopted; it is thus assumed that the density factor is low at 80 per cent, constant over the whole projection period.

[81] International Monetary Fund: *World Economic Outlook*, September 2005 (Washington DC, 2005).

[82] Active insured in a particular year being defined as those insured persons who paid at least one contribution in that year.

Table 4.1. Macroeconomic assumptions, scenarios 1 – 3

	Base year	*Projection*								
	2004	2010	2020	2030	2040	2050	2060	2070	2080	2090
SCENARIOS 1 & 2										
GDP growth[a]	6.9%	6.3%	4.5%	4.0%	3.5%	3.0%	2.8%	2.6%	2.4%	2.2%
Labour productivity growth[a]	3.6%	3.7%	2.5%	2.6%	2.8%	2.9%	2.8%	2.8%	2.4%	2.2%
Wage growth[b]	14.4%	8.8%	7.6%	7.7%	7.9%	8.0%	8.0%	8.0%	7.6%	7.4%
Inflation (CPI increase)	10.5%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%
Investment return[a]	-5.4%	0.0%	3.5%	3.5%	3.5%	3.5%	3.5%	3.5%	3.5%	3.5%
SCENARIO 3										
GDP growth[a]	6.9%	6.1%	4.0%	3.3%	2.7%	2.0%	2.0%	2.0%	2.0%	2.0%
Labour productivity growth[a]	3.6%	3.5%	2.0%	1.9%	2.0%	1.9%	2.0%	2.2%	2.0%	2.0%
Wage growth[b]	14.4%	8.7%	7.1%	7.0%	7.1%	7.0%	7.1%	7.3%	7.1%	7.2%
Inflation (CPI increase)	10.5%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%
Investment return[a]	-5.4%	0.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%

[a.] In real terms;
[b.] In nominal terms.

Source: ILO, 2005.

Contribution collection rate

It is assumed that the contribution collection rate will remain constant over the whole projection period at the same rate estimated for the year 2004, i.e., at 97.1 per cent.

Wage distribution of insured

Insurable earnings of insured members differ substantially across the insured population (see table 3.7, section 3.4.2). For this valuation, male and female insured members of each age cohort have been divided into three separate groups with insurable earnings categorised as low, medium or high. The wage average of each group has been projected based on the assumption that the average wage of each group will increase in line with the assumed rate of wage inflation.

Indexation of benefits and contribution ceiling

It is assumed that all pension benefits are adjusted annually in line with average insurable earnings, as stipulated in Decree 207/PM. Insurable earnings were initially subject to a ceiling of 1 million kip per month. This ceiling was increased to 1.5 million kip effective of January 2006. It is assumed that in future years the ceiling will be adjusted annually in line with projected wage inflation.

Administration cost

According to Decree 207/PM administrative expenditure is limited to 10 per cent of total scheme income. In 2004, total administrative costs represented about 14 per cent of scheme income, with 9 per cent covered by earmarked subsidies and about 5.2 per cent covered from scheme income. Administrative costs expected to be incurred in the short term are high due to the capital expenditure required to carry out the planned

extension of coverage. Given that subsidies received by the scheme are expected to be phased out in the near future, administration costs paid for from scheme income in the years 2005 – 2020 have been assumed at 10 per cent of contribution income. In the medium to long-term though, administration costs are expected to decrease due to economies of scale and decreasing outlays for capital expenditures. Accordingly, it has been assumed that expenditures for administration will decrease gradually to 5 per cent of contribution income in 2050, and to remain constant thereafter.

Transition probabilities

To simulate the movement of persons between different subgroups of insured (active and inactive insured, invalidity and retirement pensioners, etc.) and dropouts due to death, the ILO pension model makes use of transition probabilities, given by age and sex cohort. In light of the short history of the scheme and the absence of invalidity and age pensioners, transition probabilities have, in part, been assumed or estimated from international experience. For pensioners, transition probabilities have been assumed as follows:

- retirement rates for the age cohorts aged 55 and above are assumed at 10 per cent per year for both male and female. It is further assumed that starting from the year 2025 all insured will retire by the age of 60 at the latest.
- incidence rates for permanent invalidity have been assumed equal to those experienced by the Social Security Scheme (SOCSO) of Malaysia in 2002 (see table A.11, annex G).

The transition probabilities between active and inactive insured are determined endogenously by the model based on the assumed number of insured, new entrants, and dropouts.

Mortality rates for insured have been taken from the UN Model Life Tables, South Asian pattern, based on the projected values for life expectancy at birth in Vientiane Municipality.[83] Life expectancy at birth for Vientiane Municipality is expected to increase gradually from the 57 years for men and 59 years for women as observed in 1995 to 76.7 years for men and 80.9 years for women in 2099.[84] The resulting life tables projected for the years 2004, 2050, and 2099 are provided in annex H.

4.4 Financing systems

Decree 207/PM does not contain provisions regarding financing systems to be applied to the different benefit funds, nor does it stipulate minimum funding levels. In the absence of legal provisions, financing systems applied in this valuation have been assumed based on what is considered adequate and realistically feasible in the context of Lao PDR. The assumptions on scheme financing that have been adopted are explained in the following sections.

4.4.1 Financing of short-term benefits

The benefits provided under the Health Insurance and Short-term Benefit Funds are short-term in nature.[85] Short-term benefits are generally financed through a PAYG financing system. Under this system, the contribution rate of a particular branch is determined such that the contribution income over a given year is

[83] It is considered appropriate to use life expectancy at birth values of Vientiane Municipality for the insured population given the concentration of scheme members in and around the capital city and their higher living standards compared to the overall population.

[84] *Results of the Population Census 1995*, NSC, Lao PDR (Vientiane, 1997).

[85] Benefits are generally considered as short-term benefits if the duration of payments relating to a specific claim does not exceed 12 months.

sufficient to meet the total expenditure of the branch in the same year, and to build up and maintain an appropriate amount of contingency reserve.[86] A contingency reserve equal to total annual benefit expenditure is generally considered more than sufficient. Reserves exceeding this amount are therefore considered excessive under PAYG financing.

In this valuation, it is assumed that the Health Insurance and Short-term Benefit Funds are financed through the PAYG financing system.

4.4.2 Financing of long-term benefits

Long-term benefits consist mostly of pensions payable for life.[87] Due to the accumulation effect with pensions, expenditure for pension benefits is generally low during the initial years of a scheme despite the build up of liabilities. Benefit expenditure then rises gradually with the increasing maturity of the scheme. In the absence of transitional measures it normally takes at least 60 years before a pension scheme has fully matured.

In order to prepare for the expected increase in benefit expenditure and to make provisions for the increasing pension liabilities, it is usually considered appropriate to build up reserves to be used later when benefit payments are due; this also to even out the burden of pension liabilities between subsequent generations. In case no technical reserve is being built up, the PAYG financing system applies.[88]

Apart from PAYG, two alternative financing systems are commonly applied for the financing of defined-benefit pension schemes.[89] These are the:

- general average premium or level premium financing system
- scaled premium financing system.

Under the level premium financing system, a constant contribution rate is determined such that scheme income is sufficient to meet expenditure over an extended time period (up to 100 years), with no reserves remaining at the end of the period. The appropriate level premium (contribution rate) is called general average premium (GAP) and can be understood as the long-term average PAYG premium.[90]

The scaled premium financing system is considered an intermediate approach between the PAYG system and the level premium system. Under a scaled premium financing system the contribution rate is fixed over successive periods of time of equal length (up to 20 years) such that over each time period the income of the scheme is sufficient to meet total expenditure. As a consequence, the reserve of the fund is non-decreasing and can be invested over the long-term. A minimum reserve condition, expressed in terms of a minimum reserve ratio, is often given. The scaled premium financing system assures the stability of the contribution rate over an extended period of time and ensures control over the accumulation of reserves. The latter is especially important in developing countries such as the Lao PDR, where the capacity of the economy to absorb savings is often limited.

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[86] The purpose of a contingency reserve is to ensure liquidity in case of unexpected and adverse fluctuations of income or expenditure.

[87] This is not the case for orphans' pensions that are terminated at age 18 (or aged 25 if in full-time education), and widows' pensions that are terminated upon remarriage.

[88] *Technical reserve* generally refers to the funds set aside for expected future pension liabilities.

[89] A defined benefit pension scheme is a scheme where the amount of pension benefits is linked to contribution history and wage level of insured rather than to the value of invested savings.

[90] The GAP is calculated by equating the present value of expected future benefit payments with the present value of expected future income minus the present value of existing reserves at valuation date.

In the following, it is assumed that the Long-term Benefit Fund is financed through a scaled premium financing system.

4.4.3 Financing of EIOD benefits

According to Decree 207/PM, employers are solely responsible for the financing of the EIOD Fund. This is common since the cost of compensating workers and their families for death or injuries sustained at the workplace is generally considered an employer liability, a principle enshrined in the Lao Labour Law, 1994.[91]

Decree 207/PM does not specify a financing system for the EIOD Fund. Since the benefits granted under the EIOD Fund comprises both short-term and long-term benefits, it is sensible to build up reserves in the fund. This enables provisions to be made for the liabilities accruing with the award of new pensions (to disabled and survivors in this case) and to even out contribution rates over time, thereby ensuring that the burden is shared equitably between successive generations of employers.

Since the valuation of EIOD benefits has been deferred to the next actuarial valuation due to insufficient experience data, it is not necessary at present to specify the financing system to be adopted in the future. Nevertheless, a certain degree of funding is assumed, be it partial or full funding (see section 4.8).

4.5 Actuarial valuation of the Health Insurance Fund

In order to project the future benefit expenditure of the Health Insurance Fund, the future capitation fee must be projected. It is therefore appropriate to compare the capitation fee to the average estimated health care cost per person. Average medical per capita costs for the year 2004 were estimated at 43,111 kip based on average unit cost estimated across providers and average utilization rates observed for both inpatient and outpatient care respectively (see section 3.5).

Average per capita costs for future years have been projected based on the estimated value for the year 2004 and the respective assumptions on future cost increases. The main cost-driving factors are the rate of increase in utilization rates together with the medical cost inflation rate, i.e., the annual increase in unit cost per treatment. To reflect the uncertainties regarding the future development of utilization rates and unit costs, a lower and upper bound has been used for the assumed annual rate of cost increase. The assumptions relating to the development of the two cost-driving factors are summarized below.

Utilization-related cost increase

The annual rate of cost increase from increased service utilization was estimated at 10.5 per cent in 2005 based on the utilization rates observed in the years 2004 and 2005. It is assumed that over the projection period, the annual rate of cost increase from increased service utilization will be at least 8.5 per cent and at most 12.5 per cent.

Medical cost inflation rate

There is no historical data available in Lao PDR on the medical inflation rate. It is assumed here that the medical inflation rate will not exceed the projected wage inflation rate by more than 1 per cent. Furthermore

[91] See Article 52 and 53, Chapter XI, Labour Law, Lao PDR, 1994.

it is assumed that the medical inflation rate will not be lower than the projected rate of price inflation.[92] It is also assumed that the benefit package will remain unchanged over the projection period, i.e., that status quo conditions prevail. Unit costs projected for future years thus relate to the same list of medical benefits as provided in 2004 (see annex B).

The annual rate of cost increase is given by the sum of the assumed medical inflation rate and the rate of assumed utilization-related cost increase. Average medical per capita cost, projected according to the above assumptions, are shown in table 4.2 for the period 2005 – 2010 together with the actual capitation fee applied during 2004 – 2006.

Table 4.2. Capitation fee and projected average medical cost per capita, 2005 – 2010

	Base year 2004	*Projection* 2005	2006	2007	2008	2009	2010
Average medical cost per capita[a]							
Low-end estimate		50,181	56,955	64,644	73,371	83,276	94,518
Mid-range estimate[b]	43,119	51,309	60,605	71,665	84,844	100,579	119,364
High-end estimate		52,438	64,254	78,686	96,318	117,882	144,209
Capitation fee[c]	*60,000*	*65,000*	*65,000*				
ASSUMPTIONS							
Medical inflation rate[d]							
Low-end estimate[e]		5.9%	5.0%	5.0%	5.0%	5.0%	5.0%
High-end estimate[f]		11.1%	10.0%	10.0%	9.9%	9.9%	9.8%
Utilization-related cost increase[g]							
Low-end estimate[h]		10.5%	8.5%	8.5%	8.5%	8.5%	8.55
High-end estimate[i]		10.5%	12.5%	12.5%	12.5%	12.5%	12.5%
Annual increase of per capita cost[j]							
Low-end estimate		16.4%	13.5%	13.5%	13.5%	13.5%	13.5%
High-end estimate		21.6%	22.5%	22.5%	22.4%	22.4%	22.3%

a. Figures in kip/person/year;
b. Average of low-end and high-end estimates, actual for 2004;
c. Actual;
d. Increase of unit medical cost from previous year;
e. Assumed equal to the projected rate of price inflation;
f. Assumed equal to projected rate of wage inflation plus 1 per cent;
g. Increase of per capita cost from previous year due to increased utilization, i.e., assuming constant unit cost; actual for the year 2005;
h. Assumed equal to the rate observed in 2005 minus 2 per cent;
i. Assumed equal to the rate observed in 2005 plus 2 per cent;
j. Aggregate rate of cost increase from previous year due to increased unit cost and increased utilization.

Source: ILO projection, 2005.

[92] Wage inflation in real terms is assumed equal to labour productivity growth (see section 4.3.2). It is noted that the projected rate of labour productivity growth is positive over the whole projection period (see economic assumptions, section 4.3.2); nominal wage inflation thus exceeds price inflation in each year of the projection period. It should be noted that unit costs are exclusive of labour cost since salaries of hospital staff are paid from the state budget, hence there is no obvious link here between medical cost increase and wage inflation in the economy. The latter is used here nevertheless, since it is a standard benchmark against which medical inflation is commonly gauged.

It can be observed from table 4.2 that in the years 2004 – 2006, the capitation fee exceeded the estimated annual average cost per capita. In the year 2006, the capitation fee exceeded the mid-range estimate of per capita cost by 7 per cent.[93]

For the cost projection presented in the following, it is assumed that the capitation fee in future years will be set equal to average per capita cost (mid-range estimate) plus 7 per cent. Based on the projected capitation fee and number of insured, the total capitation amount to be paid by the scheme can be calculated for each year of the projection period. For the projection of the future cost of the Health Insurance Fund, the number of insured has been projected according to scenario 1 (see section 4.3). Other costs of the fund (see section 3.5.1) have been assumed at 1 per cent of the total capitation amount. The projected capitation amount and annual cost of the Health Insurance Fund are shown in table 4.3 together with the resulting PAYG cost rates.

Table 4.3. Projected expenditure of the Health Insurance Fund, 2005 – 2010[a]

	Base year	*Projection*					
	2004	2005	2006	2007	2008	2009	2010
Active insured[b]	27,769	31,928	36,455	41,370	46,676	52,363	58,451
Pensioners[c]	0	0	0	9	69	224	475
Number of beneficiaries[d]	44,991	55,526	65,162	75,960	88,047	101,527	116,500
Insurable earnings and benefits[e]	148,723	193,218	242,518	301,920	373,194	458,364	559,661
Annual per capita cost[f]	43,119	51,309	60,605	71,665	84,844	100,579	119,364
Capitation fee[g]	60,000	65,000	65,000	76,863	90,998	107,874	128,021
Capitation amount[e]	2,659	3,609	4,236	5,839	8,012	10,952	14,914
Other expenditure[h]	5	36	42	58	80	110	149
Total expenditure[e]	2,664	3,645	4,278	5,897	8,092	11,062	15,064
PAYG cost rate[i]	1.79%	1.89%	1.76%	1.95%	2.17%	2.41%	2.69%

a. Figures exclude administration cost;
b. As projected under scenario 1 (see section 4.3);
c. Including retirement, invalidity and survivors' pensioners, as projected under scenario 1;
d. Projected number of persons eligible to benefits, including pensioners and dependents; actual number for 2004;
e. Annual; in million kip;
f. Projected, see mid-range estimate, table 4.2;
g. In kip, actual for the years 2004 – 2006; assumed equal to average annual per capita cost plus 7 per cent for the years 2007 – 2010;
h. Assumed at 1 per cent of capitation amount;
i. In per cent of total insurable earnings.

Source: ILO projection, 2005.

It can be observed that the projected PAYG cost rate of the Health Insurance Fund increases gradually to reach 2.69 per cent of total insurable earnings in the year 2010. The average projected PAYG cost rate over the period 2005 - 2010 amounts to about 2.15 per cent of insurable earnings.

It is noted that the projected capitation fee increases rapidly as of the year 2007. This is due to an assumed rapid increase in future utilization rates and unit costs. The capitation rate should only be increased in line with the projected figures if the assumed rates of cost increase materialize in the future.

[93] Reasons warranting a capitation fee higher than average per capita cost include administration cost (not included in unit cost) and cost differentials across service providers.

It should also be noted that the actuarial projections presented above relate to status quo conditions, i.e., assuming no change in medical benefit provisions during the given projection period. As options to enhance the benefit package for medical care are currently under consideration, the projection presented in table 4.3 should be revised once new benefit provisions are adopted.[94]

4.6 Actuarial valuation of the Short-term Benefit Fund

Benefits provided under the Short-term Benefit Fund include sickness cash benefit, cash benefit for partial work resumption, maternity cash benefit, birth grant, and death grant. The projection of short-term benefit expenditure as presented hereunder is based on the cost formula explained in section 4.1.2. The number of persons eligible to the different benefits has been estimated based on the number of insured projected under scenario 1 (see section 4.3), and taking into account the qualifying periods applicable to the different benefits.

Benefit incidence rates for short-term benefits have shown an increasing trend since the launch of the scheme in 2001. A probable explanation for this is that employers and scheme members were initially not fully aware of their entitlements and may not have claimed benefits due.[95] Taking this behavioral factor into account, it is assumed that incidence rates for all short-term benefits will gradually increase by 50 per cent over the projection period 2005 – 2010.

For sickness cash benefit, the benefit amount is based on insured earnings averaged out over the six months preceding the onset of sickness. For the projection of this benefit it is therefore assumed that the average benefit amount per claim will remain at the same level relative to the average insurable wage as observed in the year 2004, i.e., at 82 per cent. It is further assumed that the incidence rate for sickness benefit will increase gradually from 0.0112 cases per insured per year as observed in 2004 to 0.0167 cases per insured per year in 2010.

For the cash benefit for partial work resumption, no benefit was claimed between 2001 and 2004. Given that this benefit has not been claimed to date, it is assumed that no claims will arise over the projection period, 2005 – 2010.

Maternity cash benefit is payable for 3 months at the rate of 70 per cent of the insured monthly wage, averaged out over the six months preceding the onset of benefit payments. Since the benefit amount is linked to the insured wage of the beneficiary, it is assumed that the average benefit amount will increase in line with the projected average wage. It is further assumed that the incidence rate will gradually increase from 0.0306 cases per insured female as observed in the year 2004 to 0.0459 cases per insured female per year by 2010.[96]

For the birth grant, the benefit amount is set at 60 per cent of the minimum wage. It is assumed that the minimum wage will increase in line with the average wage from the level observed in 2005.[97] It is further

[94] A change in benefit provisions was discussed at a workshop on health insurance organized by ILOSSP in February 2006. It was suggested by several participants that an extension of the benefit package be considered, e.g., to include medical care for victims of motor-vehicle accidents and to increase the current ceiling on reimbursements for high-cost cases.

[95] It should be noted here that the concept of social insurance is still relatively new for the majority of the Lao population.

[96] An increase is assumed based on the increasing trend observed in the past.

[97] The minimum wage was increased from 93,600 kip to 290,000 kip per month in April 2005.

assumed that the incidence rate for males will gradually increase from 0.014 as observed in 2004 to 0.021 in 2010, and that the incidence rate for females will gradually increase from 0.030 as observed in 2004 to 0.045 in 2010.

For death grants the benefit amount is given as a multiple of insured earnings of the deceased, averaged out over the six months preceding death. It is therefore assumed that the average benefit amount will increase in line with the average insured wage. It is further assumed that benefit incidence rates will gradually increase from the level observed in 2003 (i.e., 0.0016 for the death of the insured, 0.00255 for the death of a spouse, and 0.00087 for the death of a child), to 0.0024, 0.0038, and 0.0013 annual cases per insured by 2010 respectively.[98] The benefit incidence rates assumed for the year 2010 are based on the projected mortality rates for that year (see section 4.3.3).

Projected expenditure and PAYG cost rates for the Short-term Benefit Fund are presented in table 4.4.

Table 4.4. Projected expenditure and PAYG cost rate for short-term benefits, 2005 – 2010

	Base year	*Projection*					
	2004	2005	2006	2007	2008	2009	2010
EXPENDITURE[a]							
Sickness cash benefit	145.6	195.0	260.7	345.5	453.9	591.3	764.3
Maternity cash benefit	842.8	1,100.4	1,433.8	1,850.3	2,367.5	3,006.0	3,788.0
Birth grant	35.0	103.6	166.1	218.7	285.1	368.4	471.8
Death grant	149.7	309.5	416.7	555.6	734.2	962.0	1,249.8
Total[c]	**1,173.0**	**1,708.5**	**2,277.3**	**2,970.0**	**3,840.6**	**4,927.7**	**6,274.0**
PAYG COST RATE[b]							
Sickness cash benefit	0.10%	0.10%	0.11%	0.11%	0.12%	0.13%	0.14%
Maternity cash benefit	0.57%	0.57%	0.59%	0.61%	0.63%	0.66%	0.68%
Birth grant	0.02%	0.05%	0.07%	0.07%	0.08%	0.08%	0.08%
Death grant	0.10%	0.16%	0.17%	0.18%	0.20%	0.21%	0.22%
Total[c]	**0.79%**	**0.88%**	**0.94%**	**0.98%**	**1.03%**	**1.08%**	**1.12%**

a. In million kip;
b. In per cent of total insurable earnings;
c. Columns may not add up due to rounding.

Source: ILO projection, 2005.

It can be observed from table 4.4 that due to the assumed increase in benefit incidence rates, the total PAYG cost rate is expected to increase gradually from 0.79 per cent in 2004 to 1.12 per cent in 2010. For birth grants, the sudden increase of the PAYG cost rate in 2005 can be explained by the drastic increase of the official minimum wage in April 2005. For death grants, the increase in the PAYG cost rate in 2005 is explained by the assumed increase in incidence rates in 2005 (see footnote 98).

[98] The projected incidence rates are based on those observed in the year 2003 given that the incidence rates reported for the year 2004 are inexplicably low in comparison to previous years.

The average projected PAYG cost rates for short-term benefits over the period 2005 – 2010 are presented in table 4.5 below.

Table 4.5. Average projected PAYG cost rates, short-term benefits, 2005 – 2010[a]

Sickness cash benefits	0.12%
Maternity cash benefits	0.62%
Maternity (birth) grants	0.07%
Funeral (death) grants	0.19%
Total[b]	1.01%

a. Arithmetic average of annual rates;
b. Column may not add up due to rounding.

Source: ILO projection, 2005.

It can be observed from table 4.5 that the average PAYG cost ratio for short-term benefits as projected over the period 2005 – 2010 amounts to 1.01 per cent of insurable earnings; this being far less than the allocated contribution rate of 2.40 per cent. Year-end reserves of the Short-term Benefit Fund were estimated at 8.2 billion kip in 2004, with the reserve ratio estimated at five times annual benefit expenditure in the same year. As the projected cost of short-term benefits is significantly lower that the contribution income projected over the period 2005 – 2010, a further build up of reserves can be expected. Since the reserve ratio should generally not exceed 1 under PAYG financing it can be concluded that the Short-term Benefit Fund is currently overfunded (see recommendations, section 5.1).

4.7 Actuarial valuation of the Long-term Benefit Fund

Benefits provided under the Long-term Benefit Fund include retirement benefits, invalidity benefits, and survivor benefits for widow/ers and orphans. Pension benefits payable under this fund are defined benefit pensions. For retirement pensions the benefit amount is based on age at retirement and pension points acquired, the latter reflecting the contribution history of the retiring worker. The normal retirement age is 60 for both men and women although early retirement is possible, under certain conditions, starting from age 55. Benefit formulas and qualifying conditions for long-term benefits are summarized in annex B. For all pension benefits payable under this fund a qualifying period of five years of contributions applies, consequently no pensions will be disbursed under this fund before June 2006.

According to Decree 207/PM all pension benefits paid under the SSF will be adjusted annually based on the observed annual increase in average insurable earnings.

4.7.1 Cost projections for long-term benefits

Since the SSF has only been established recently, the cost of benefits payable under the Long-term Benefit Fund is currently low; it will increase inevitably in the future with entitlements of insured to accrue over time. Given the young age structure of insured (see section 3.3), the cost of pension benefits will increase only moderately over the coming two decades but more rapidly thereafter when the younger generations of current contributors will start to retire.

The remaining life expectancy of insured at the normal retirement age of 60 is estimated at 16 years for male insured and 17.1 years for female insured in the year 2004; it is expected to increase steadily over the whole projection period to reach an estimated 21.1 and 24.5 years for males and females respectively in the year 2099 (see annex H). The gradual increase of the remaining life expectancy at retirement age will lead to increasing pension cost over time if the retirement age is not increased accordingly.

Future pension costs relative to contributory earnings will depend mainly on the development of the contribution base, in particular the future number of contributing workers able to support those already retired. In order to reflect the uncertainties of the future, in particular the future development of the Lao economy, private sector employment, and coverage of the scheme, actuarial projections for the Long-term Benefit Fund have been carried out under three alternative scenarios, each one reflecting a different outlook on the future (see section 4.3).

The results of the projections carried out for these three scenarios include the expected future number of contributors and pensioners, projected total insurable earnings, projected benefit expenditure, and average benefit amounts paid for the different benefits. The detailed results are provided in tables A.7, A.8, and A.9 (see annex F) accompanied by the following financial indicators:

- the *demographic ratio,* defined as the number of pensioners in a given year divided by the insured population in the same year.
- the *system replacement ratio,* defined as the average pension paid in a year divided by the average insurable earnings in that year.
- the *financial ratio* or *PAYG cost ratio,* defined as total benefit expenditure in a given year divided by total insurable earnings in the same year.[99]

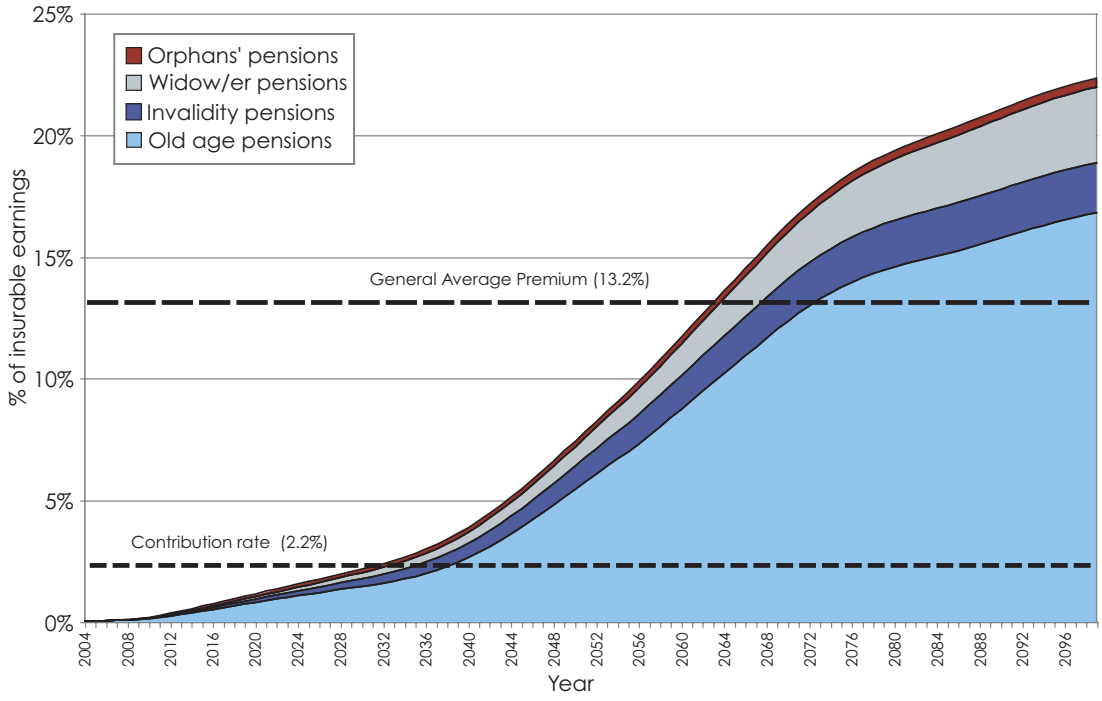
The financial ratio is particularly important as it reflects the annual contribution rate necessary to cover the cost of benefits in payment within a given year, assuming no accumulation of reserves. Projection results are discussed below for each of the three scenarios considered.

Scenario 1 (optimistic)

Under scenario 1, it is assumed that the number of private sector workers and insured will increase at a fast pace over the whole projection period (see assumptions, section 4.3). The PAYG cost ratios for long-term benefits as projected under this scenario are shown in figure 4.1.

[99] It can be shown that the PAYG cost rate is equal to the product of the demographic ratio and the system replacement ratio.

Figure 4.1. Projected PAYG cost ratios for long-term benefits, scenario 1 (status quo)



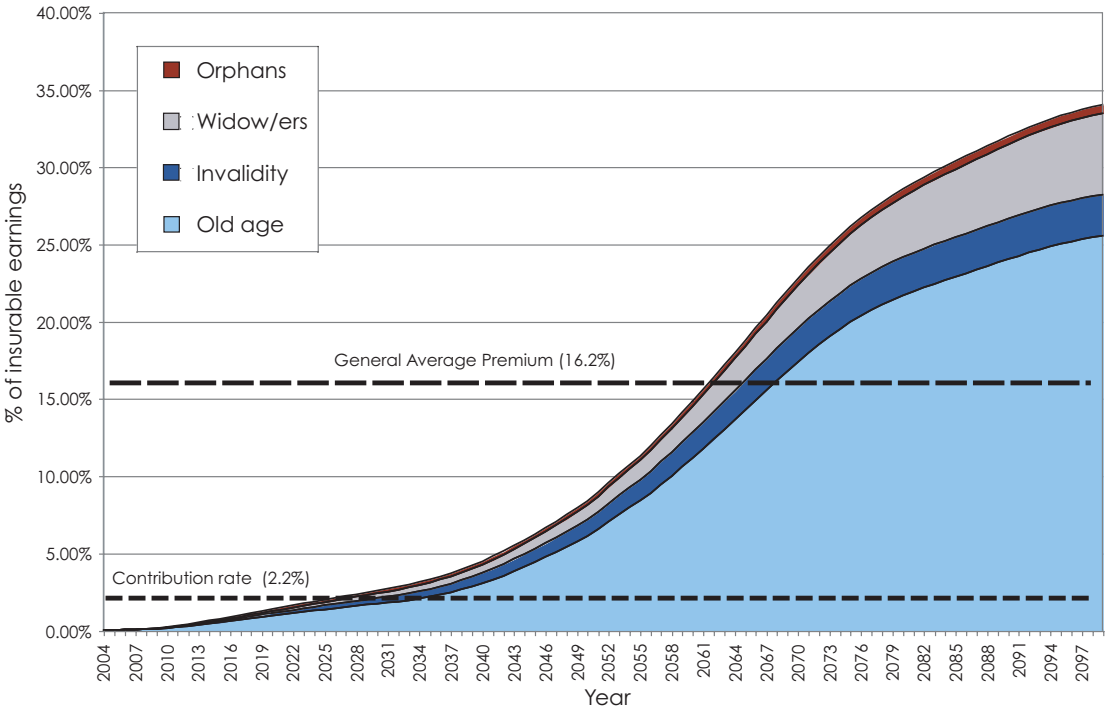
It can be observed from figure 4.1 that under scenario 1 the projected total PAYG cost rate for long-term benefits increases gradually over the projection period to reach about 23 per cent of total insurable earnings in 2099. As the population currently insured is young on average, few will retire in the coming 30 years and hence the PAYG cost rate rises slowly at first. As of the year 2035, when the younger cohorts of the first generation of insured will retire, the PAYG cost rate will rise more steeply. With an increasing number of pensioners, the PAYG cost rate will continue to rise, reaching about 20 per cent in 2080. Towards the end of the projection period, the ratio of pensioners to insured continues to increase but at a more moderate pace; as a result, the total PAYG cost curve also continues to rise at a reduced rate. Given the assumed extension of coverage of the scheme together with the assumed increase of the private sector workforce, the number of insured increases steadily over the whole projection period. Due to the large number of new entrants to the scheme, the demographic ratio (i.e., the ratio of pensioners to insured) increases relatively slowly and does not level off during the projection period. The scheme therefore does not reach maturity during the projection period under scenario 1; the total PAYG cost rate is therefore expected to increase further after the year 2099.

In figure 4.1, the vertical distance between the projected PAYG cost curve and the horizontal line representing the current contribution rate of 2.2 per cent, represents the projected difference between annual benefit expenditure and contribution income expressed as a percentage of total insurable earnings. It can be observed that, at the current contribution rate of 2.2 per cent, the annual cost of long-term benefits will exceed contribution income of the fund starting from the year 2031.

Scenario 2

Under scenario 2, it is assumed that the number of private sector workers and insured will rise continuously and at a steady pace until the year 2050, but will stay more or less constant thereafter (see assumptions, section 4.3). The PAYG cost rates as projected for scenario 2 are shown in figure 4.2.

Figure 4.2. Projected PAYG cost ratios for long-term benefits, scenario 2 (status quo)

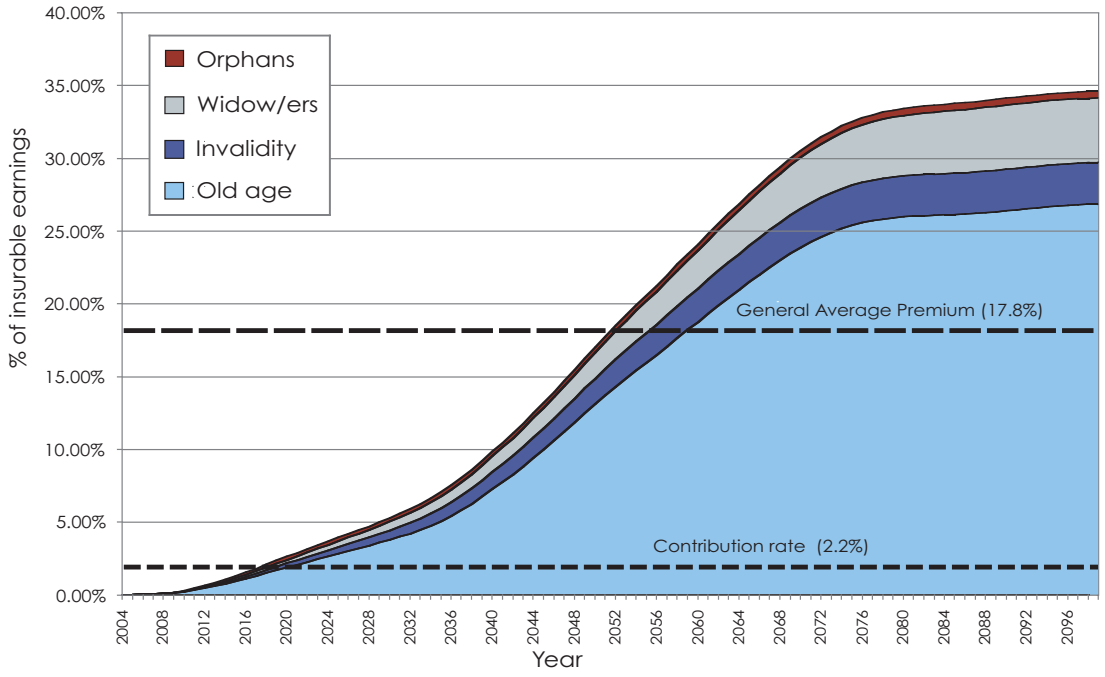


It can be observed from figure 4.2 that under scenario 2 the projected total PAYG cost rate for long-term benefits increases over the whole projection period to reach about 35 per cent of total insurable earnings in 2099. As in the case of scenario 1, the PAYG cost rate rises slowly over the first 30 years and then more sharply as of the year 2045 to reach about 30 per cent in 2080. Towards the end of the projection period the total PAYG cost curve continues to increase but at a slowing pace. The demographic ratio virtually levels off as the scheme approaches maturity towards the end of the projection period. It can further be observed that, at the current contribution rate of 2.2 per cent, the annual cost of benefits will exceed annual contribution income starting from the year 2027.

Scenario 3 (pessimistic)

Under scenario 3, it is assumed that the share of private sector workers and insured in total employed will remain constant over the whole projection period. Scenario 3 reflects a pessimistic view of the future and is meant to illustrate the development of the scheme in the event the Lao economy does not develop and the scheme does not extend its coverage. The PAYG cost ratios for long-term benefits as projected under scenario 3 are shown in figure 4.3.

Figure 4.3. Projected PAYG cost ratios for long-term benefits, scenario 3 (status quo)



It can be observed from figure 4.3 that the total PAYG cost rate will increase steadily until about 2080 due to the increasing number of pensioners compared to contributors. The projected increase in costs over the first 30 years of the projection period is steeper than under scenarios 1 and 2 due to the fact that the contribution base is assumed not to expand under scenario 3. The PAYG cost rises rapidly as of the year 2035 to reach about 33 per cent in 2080. The projected total PAYG cost rate levels off after 2080 at around 35 per cent of insurable earnings as the scheme reaches maturity and the ratio of pensioners to contributors becomes stable. As a result of an assumed increase in life expectancy and an assumed constant retirement age, the demographic ratio continues to increase marginally after 2080. It can further be observed that the total annual cost of long-term benefits will exceed annual contribution income of the fund starting from the year 2019.

4.7.2 Financial projections of the Long-term Benefit Fund

The financial projections for the Long-term Benefit Fund are presented below for each of the three scenarios considered. Status quo conditions (i.e., a constant contribution rate of 2.2 per cent) have been assumed over the whole projection period.

Scenario 1 (optimistic)

Under scenario 1 the projected PAYG cost rate for long-term benefits is expected to remain below the contribution rate of 2.2 per cent until 2030. The annual cash flow is expected to become negative as of the year 2028, although the balance initially remains positive due to the investment income earned on the reserve.[100] Projected reserves in the year 2028 are estimated at about 0.3 per cent of GDP. Due to income earned on the investment of the reserve, the annual balance of the fund will remain positive until the year 2032. However, as of the year 2033, reserves will need to be liquidated to pay for pensions. By 2038, the

[100] The annual cash flow is defined as annual contribution income minus total annual expenditure (including administration cost).

reserve will be depleted and the fund will become insolvent if the contribution rate is not increased beforehand or cost-reducing measures are taken.

Scenario 2

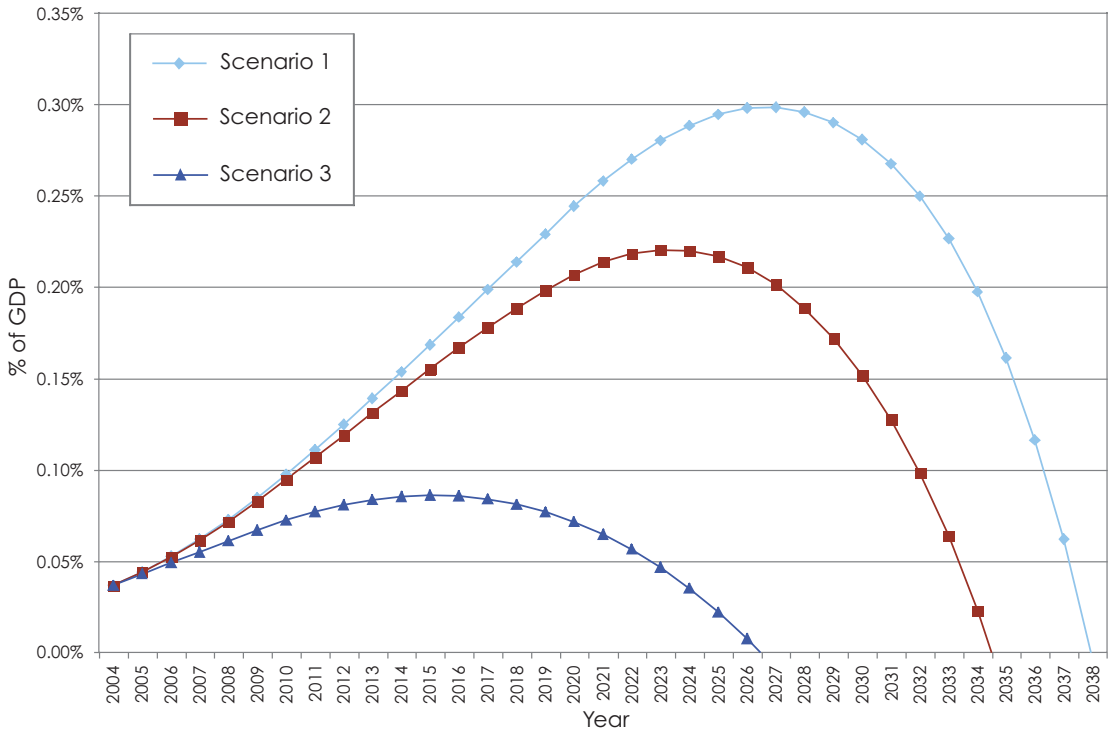
Under scenario 2, the annual cash flow of the fund is expected to become negative as of the year 2025 due to increasing benefit expenditure. The technical reserve accumulated by this date is estimated to reach an amount equivalent to about 0.22 per cent of GDP. From the year 2025 to 2028, the cash flow of the fund will be negative but the annual balance will remain positive due to investment income on the reserve. As of the year 2029, however, the fund will experience annual deficits and will need to liquidate reserves to cover the shortfall. The fund is expected to become insolvent by 2035 if the contribution rate is not increased or cost-reducing measures are introduced beforehand.

Scenario 3 (pessimistic)

Under scenario 3, the annual cash flow of the fund is expected to become negative as of the year 2018. The technical reserve accumulated by then is estimated to reach an amount equivalent to about 0.08 per cent of GDP. From 2018 to 2020, the projected annual cash flow of the fund is negative but the annual balance remains positive due to investment income. Starting from the year 2021, the fund will experience annual deficits and will need to liquidate reserves to cover the shortfall. The fund will become insolvent in the year 2027 if the contribution rate is not increased or cost-reducing measures are taken beforehand.

The projected evolution of the reserve of the Long-term Benefit Fund, expressed as a percentage of GDP, is shown in figure 4.4 below for the three scenarios:

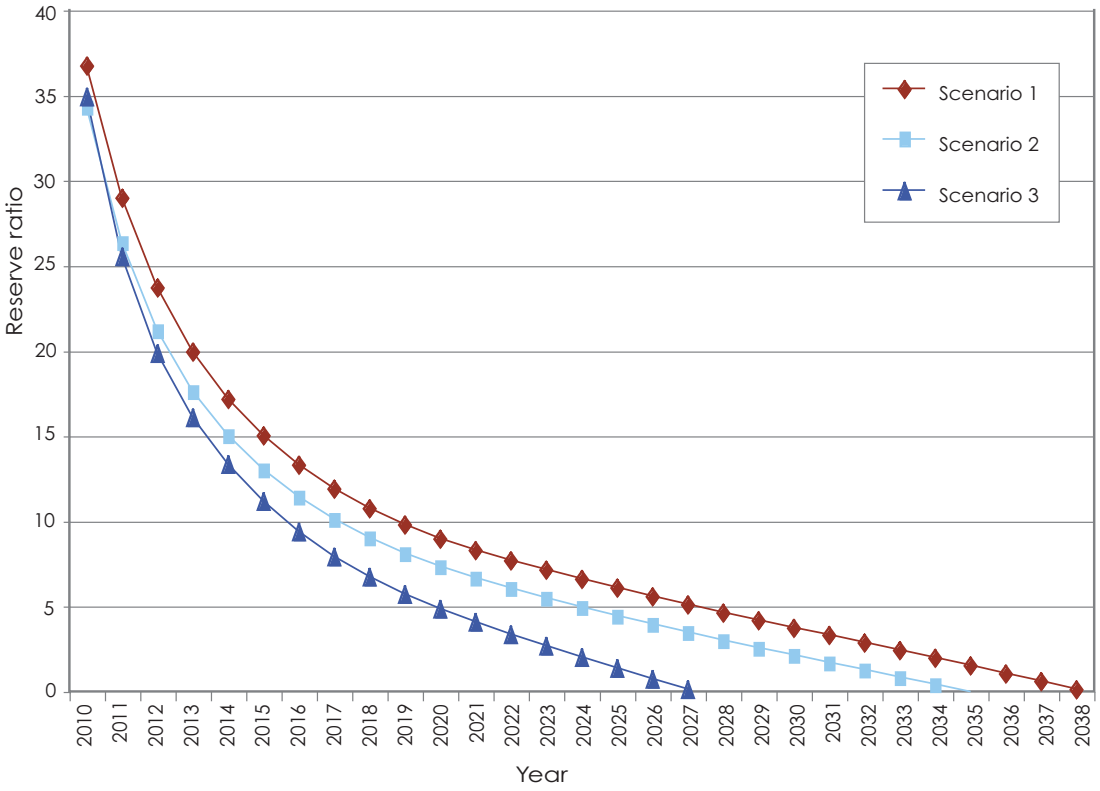
Figure 4.4. Projected reserve of the Long-term Benefit Fund, per cent of GDP, scenarios 1 – 3



It can be observed that projected reserves are expected to reach about 0.3 and 0.22 per cent of GDP under scenario 1 and 2 respectively whereas under scenario 3 projected reserves will not exceed 0.09 per cent of GDP over the whole projection period.

The projected reserve ratio for each of the scenarios is shown in figure 4.5.

Figure 4.5. Projected reserve ratio of the Long-term Benefit Fund, 2010 – 2038, scenarios 1 – 3



It can be observed from figure 4.5 that the reserve ratio decreases under all three scenarios over the period 2010 - 2038. It is noted that, among the three scenarios considered, the reserve ratio decreases fastest under scenario 3 and slowest under scenario 1.[101]

4.7.3 The general average premium (GAP)

The GAP for the benefits provided under the Long-term Benefit Fund, as calculated over the period 2005 – 2099, is shown in table 4.6 for each of the three scenarios.

[101] During the first years of the projection period (2004 – 2009), the reserve ratio is very high due to the low benefit expenditure, with few pension benefits to be disbursed in those years.

Table 4.6. GAP for long-term benefits, 2005 - 2099

	Scenario 1	Scenario 2	Scenario 3
Retirement benefits	9.8%	12.2%	13.7%
Invalidity benefits	1.4%	1.6%	1.6%
Widow/er pensions	1.7%	2.1%	2.1%
Orphans' pensions	0.3%	0.4%	0.4%
TOTAL	13.2%	16.2%	17.8%

[a.] Columns may not add up due to rounding.

Source: ILO projection, 2005.

It can be observed that the projected total GAP for all benefits provided by the fund amounts to 13.2 per cent, 16.2 per cent, and 17.8 per cent under scenario 1, 2, and 3 respectively.

4.7.4 Scaled premiums

Scaled premium financing systems are commonly adopted for the financing of defined benefit pension funds. It is assumed here that the Long-term Benefit Fund will be financed through such a system (see section 4.4.2).

The scaled premiums for minimum reserve ratios of 1, 3, and 5 are displayed in table 4.7 for the three scenarios. It has been assumed that the contribution rate will be adjusted first in 2020, then every ten years, such that over each of the intervals the reserve ratio will be at or above the respective minimum.[102]

Table 4.7. Scaled premiums for alternative minimum reserve ratio conditions, 2004 – 2099[a]

	Scenario 1			Scenario 2			Scenario 3		
Min. reserve ratio	1	3	5	1	3	5	1	3	5
Period[b]									
2004 – 2019	2.2%	2.2%	2.2%	2.2%	2.2%	2.2%	2.2%	2.2%	2.2%
2020 – 2029	2.2%	2.2%	2.5%	2.2%	2.2%	2.8%	3.5%	4.6%	5.7%
2030 – 2039	2.8%	3.7%	4.3%	3.2%	4.1%	4.7%	7.8%	8.7%	9.5%
2040 – 2049	6.1%	7.0%	7.8%	6.5%	7.4%	8.3%	14.0%	15.3%	16.5%
2050 – 2059	10.2%	11.2%	12.2%	11.4%	12.5%	13.6%	21.4%	22.4%	23.5%
2060 – 2069	14.9%	15.9%	16.9%	18.8%	20.1%	21.4%	28.4%	29.2%	29.9%
2070 – 2079	18.9%	19.6%	20.3%	26.3%	27.1%	27.9%	33.2%	33.3%	33.3%
2080 – 2089	21.0%	21.2%	21.5%	30.8%	30.9%	30.9%	34.6%	34.1%	33.6%
2090 – 2099	22.6%	22.6%	22.7%	33.9%	33.5%	33.1%	35.3%	34.7%	34.1%

[a.] The scaled premiums have been determined such that the projected reserve ratio over a given period is at all times equal to or higher than the respective minimum reserve ratio;
[b.] It is assumed that the contribution rate will be increased in 2020 at the earliest, if necessary.

Source: ILO calculation, 2005.

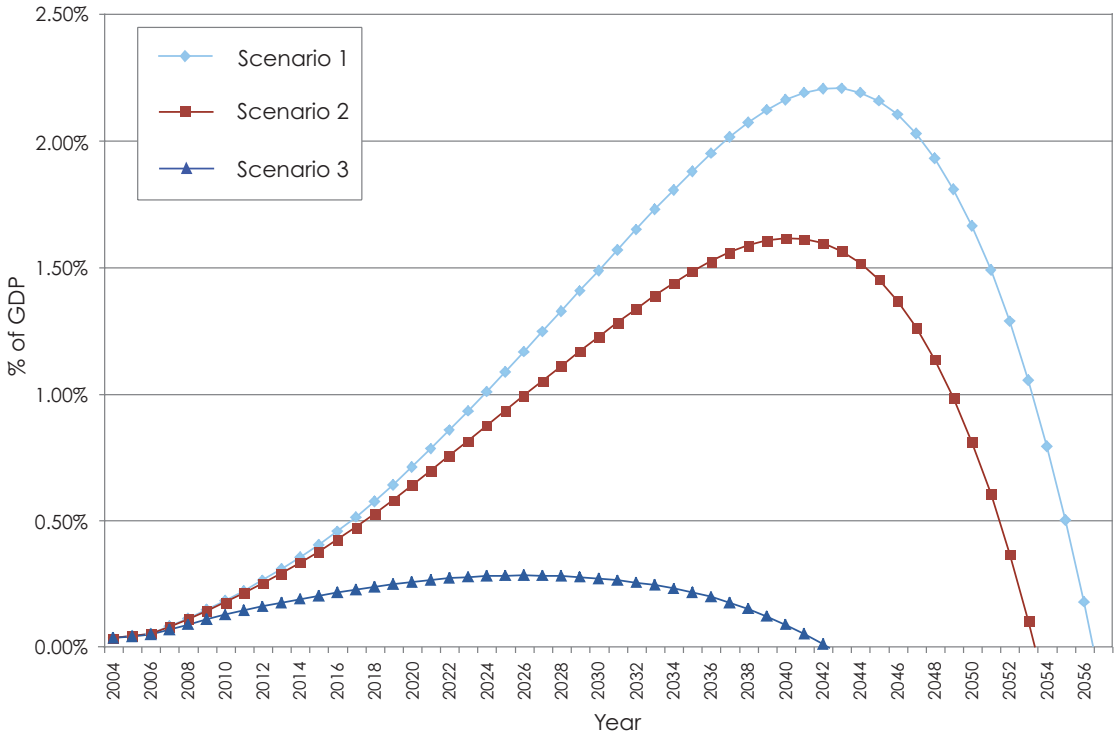
[102] An increase of the contribution rate before the year 2020 is not deemed necessary. It is noted that the scaled premiums presented here have been determined under status quo conditions; hence they do not take into account the reallocation of the contribution rate recommended in section 4.9.

The scaled premiums shown in table 4.7 can be understood as the minimum contribution rates necessary to pay benefits and administrative expenditure over the respective periods whilst at the same time keeping the amount of reserves at the desired level, i.e., at or above 1, 3, or 5 times annual expenditure of the fund in the respective year.

4.7.5 Financial projections with reallocated contribution rate

In this section it is assumed that the contribution rate of the Long-term Benefit Fund will be increased to 5.2 per cent starting from the year 2007. This assumption reflects the proposed reallocation of the total contribution rate based on the projected cost of the different benefit funds (see section 4.9). All other assumptions pertaining to the Long-term Benefit Fund remain unchanged. The projected evolution of the reserve of the Long-term Benefit Fund under these assumptions is shown in figure 4.6 for all three scenarios.

Figure 4.6. Projected reserve, per cent of GDP, contribution rate increased to 5.2 per cent



It can be observed from figure 4.6 that under scenario 1 the projected reserve is expected to reach its maximum level relative to GDP in 2043 at about 2.2 per cent. However, as of the year 2045 the projected reserve decreases rapidly and the fund becomes insolvent by 2056 if the contribution rate is not increased or cost-reducing measures are introduced beforehand.

Under scenario 2 the reserve will reach its maximum level relative to GDP in 2039 at about 1.5 per cent. The fund is expected to become insolvent by 2053 if the contribution rate is not increased or cost-reducing measures are introduced beforehand.

Under scenario 3 the reserve will reach its maximum relative level in 2025 at about 0.27 per cent of GDP. The fund is expected to become insolvent in 2042 if the contribution rate is not increased or cost-reducing measures are undertaken beforehand.

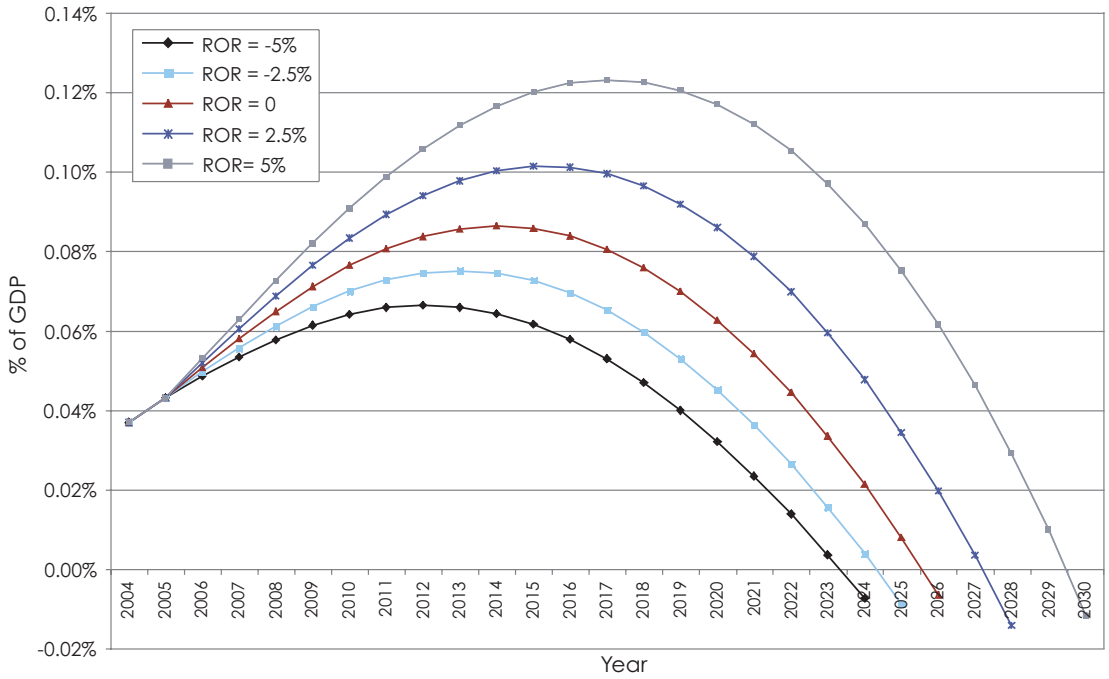
In comparison with the status quo projections presented in section 4.7.2, it can be observed that the proposed reallocation of the excess contribution rate from the Short-term Benefit and Health Insurance Funds to the Long-term Benefit Fund will extend the lifetime of the latter by about 18 years under scenarios 1 and 2, and by about 15 years under scenario 3.[103]

4.7.6 Sensitivity analysis on the rate of return assumption

The assumed ROR is one of the key variables for the actuarial valuation of a funded pension scheme (see *Investment return*, section 4.3.2).[104] The future investment return will determine the extent to which income from investment of the reserve will supplement contribution income of the scheme. The financial projections presented in section 4.7.2 are particularly sensitive to a change in the ROR assumption. Given that the future return on investment is difficult to predict, particularly over an extended period of time, it is relevant that the sensitivity of projection results with regard to the ROR assumption be assessed.

The projected evolution of the reserve of the Long-term Benefit Fund under scenario 3 and status quo conditions is shown in figure 4.7 for different ROR assumptions ranging from -5 per cent per annum to +5 per cent per annum in real terms.

Figure 4.7 Projected reserve under different rate of return (ROR) assumptions, scenario 3 (status quo)



[103] It is noted here that the projection is based on the assumption that the contribution rate of the Long-term Benefit Fund will remain constant at 5.2 per cent over the whole projection period, regardless of the future PAYG cost rate of the Health Insurance and Short-term Benefit Funds, which are likely to increase after the year 2010.

[104] For the projections presented, the ROR as of the year 2020 has been assumed constant at 3.5 per cent in real terms for scenarios 1 and 2, and constant at 3 per cent for scenario 3 (see section 4.3.2).

It can be observed from figure 4.7 that the projected amount of reserves varies substantially with the assumed future return on investment. The total GAP for long-term benefits under different ROR assumptions is shown in table 4.8 for all three scenarios:

Table 4.8. GAP of the Long-term Benefit Fund for different rate of return assumptions, 2005- 2099[a]

Assumed ROR[b]	- 5%	- 2.5%	0%	2.5%	5%
Scenario 1	21.0%	19.9%	17.9%	14.7%	10.7%
Scenario 2	30.7%	28.5%	24.4%	18.7%	12.6%
Scenario 3	33.5%	31.3%	26.5%	19.1%	11.8%

a. Total cost of the fund, including administration;
b. ROR in real terms, assumed constant through 2005 – 2099.

Source: ILO calculation, 2005.

From the data presented in table 4.8 it can be observed that the higher the ROR the lower the GAP, which represents the level premium necessary to ensure the long term financial viability of the fund.

4.8 The EIOD Fund

The financial operations of the EIOD Fund are shown in table 3.8 for the period 2001 – 2004. From the data presented, total expenditure of the fund in 2004 amounted to about 180 million kip with total income amounting to about 902 million kip. As income of the fund has exceeded expenditure since the launch of the scheme, substantial reserves have been accumulated. By 2004 year-end reserves of the EIOD Fund amounted to about 2.2 billion kip with a reserve ratio of 11.8. However, since pension benefits are payable under this fund, the accumulation of reserves is necessary as a provision for future pension payments. Considering the amount of reserves accumulated to date, there is no need to increase the contribution rate in the short term (see recommendations, section 5.1).

Given the short history of the EIOD Fund and the low benefit incidence rates observed to date (particularly for permanent disability pensions), the available data is insufficient to produce a reliable estimate for future expenditure of the fund. A thorough review of the EIOD Fund should be undertaken at the next actuarial valuation when more data on the benefit experience will be available (see recommendations, section 5.1).

4.9 Contribution rates

Based on the projection results presented in section 4.2, the appropriate level of the contribution rate can be assessed for the different funds. Contribution rates should be allocated to the different funds based on the projected future cost, and taking into account the financing system adopted. As PAYG financing applies for the Health Insurance and Short-term Benefit Funds (see section 4.4), the contribution rate should be set accordingly, i.e., at about the same level as the projected total PAYG cost ratio of these funds.

The projected average PAYG cost rates of the different funds are summarized in table 4.9 for status quo conditions, together with the appropriate contribution rates. Administration costs have been assumed at 10 per cent of contribution income for the period 2005 - 2010 (see assumptions, section 4.3). For each of the

four funds, the contribution rate allocated for administration costs has therefore been set at 10 per cent of the proposed total contribution rate. For the Health Insurance and Short-term Benefit Funds the contribution rate allocated for benefits is set slightly above projected costs; a small margin is provided to absorb unexpected cost increases. The contribution rate of the EIOD Fund is left unchanged at 0.5 per cent including administration. Assuming that the total contribution rate of the SSF will stay at the current level of 9.5 per cent, this means that the remaining share of the total contribution rate, i.e., 5.2 per cent, should be allocated to the Long-term Benefit Fund.

Table 4.9. Projected PAYG cost rates and status quo contribution rates, 2005 – 2010[a]

Benefit fund	Contribution rate (current)	Projected PAYG cost rate[b]	Proposed contribution rates (status quo)[c]		
			Allocation for benefits[d]	Allocation for administration[e]	Total
Health Insurance Fund	4.4%	2.15%	2.34%	0.26%	2.6%
Short-term Benefit Fund	2.4%	1.01%	1.08%	0.12%	1.2%
EIOD Fund[f]	0.5%	n.a.	0.45%	0.05%	0.5%
Long-term Benefit Fund	2.2%	0.10% - 0.13%	4.68%	0.52%	5.2%
TOTAL	9.5%	n.a.	8.55%	0.95%	9.5%

a. In per cent of total insurable earnings;
b. Average of PAYG cost rates, excluding administration cost, projeted over the period 2005 – 2010;
c. Applies only if benefit provisions remain unchanged over the period 2005 – 2010;
d. Set slightly above the projected average PAYG cost rate to allow for a safety margin; includes an allocation to build up the technical reserve for long-term benefits;
e. Set at 10 per cent of the total contribution rate for each fund;
f. It is proposed to keep the current contribution rate of the EIOD Fund unchanged and to assess the actuarial liabilities of this branch during the next valuation, when more experience data will be available.

Source: ILO, 2005.

For status quo conditions, it is thus proposed to decrease the contribution rate of the Health Insurance Fund from the current 4.4 per cent to 2.6 per cent, and to decrease the contribution rate of the Short-term Benefit Fund from the current 2.4 per cent to 1.2 per cent. The contribution rate allocated to the EIOD Fund would remain unchanged. Assuming the total contribution rate of the SSF remains unchanged at 9.5 per cent, this entails an increase of the contribution rate allocated to the Long-term Benefit Fund from 2.2 per cent to 5.2 per cent. Given that the Long-term Benefit Fund is underfunded over the longer term, the proposed changes will allow additional reserves to be built up in the pension fund to pay for pension benefits in the future.

The contribution rates proposed in table 4.9 for the different funds would be shared equally between employers and employees, except for the EIOD Fund, which would be financed solely by employers. The total contribution rate for employers and employees would therefore remain unchanged at 5 per cent and 4.5 per cent respectively.

It should be stressed that the contribution rates proposed above apply only under status quo conditions, i.e., assuming that current benefit provisions will remain unchanged over the whole projection period, 2005 – 2010. As an increase in the benefit package for health insurance is currently being discussed (see section 4.5), the contribution rate of the Health Insurance Fund should be reassessed if and when a new benefit package has been adopted.

5. Conclusions and Recommendations

5.1 Financial situation and contribution rates

Based on the results of the actuarial valuation presented in chapter 4, it can be concluded that the financial viability of the SSF is ensured over the short to medium-term. Under status quo conditions the scheme can be expected to achieve annual surpluses until at least the year 2020. It is noted, however, that in order to sustain the Long-term Benefit Fund in the long run the contribution rate must be increased in the future. The projection results and recommended contribution rates for the four benefit funds are summarized below.

The Health Insurance Fund

The average PAYG cost rate for health care benefits as projected over the period 2005 – 2010 is estimated at 2.15 per cent (excluding administration costs). As the contribution rate currently allocated to the Health Insurance Fund is 4.4 per cent, it is concluded that this fund is currently overfunded. Under status quo conditions, it is proposed that the contribution rate of the Health Insurance Fund be decreased to 2.6 per cent. The recommended rate of 2.6 per cent includes an allocation of 0.26 per cent of insurable earnings to cover administration costs of the branch. In case the benefit provisions for medical benefits should be modified in the near future, the contribution rate should be reassessed based on the new benefit provisions. It is also recommended that excess reserves of the Health Insurance Fund be transferred to the Long-term Benefit Fund. Since PAYG funding is assumed for the Health Insurance Fund, total reserves should in principle not exceed an amount equivalent to the annual expenditure of the fund.

The Short-term Benefit Fund

The projected average PAYG cost rate for short-term benefits over the period 2005 – 2010 is about 1.01 per cent of insurable earnings (excluding administration cost). Given a current contribution rate of 2.4 per cent, it is concluded that the Short-term Benefit Fund is also overfunded. Under status quo conditions, the contribution rate considered appropriate for short-term benefits is 1.2 per cent, including an allocation of 0.12 per cent for administration costs. As no change in benefit provisions is being considered for this branch, it is recommended that the contribution rate of the Short-term Benefit Fund be decreased accordingly and the excess contribution rate be reallocated to the Long-term Benefit Fund.

It is also recommended that excess reserves of the Short-term Benefit Fund be transferred to the Long-term Benefit Fund. As PAYG funding is assumed for the Short-term Benefit Fund, reserves should in principle not exceed an amount equivalent to the annual expenditure of the fund.

The Long-term Benefit Fund

The actuarial projections presented in chapter 3 show that the current contribution rate of the Long-term Benefit Fund, at 2.2 per cent, is not sufficient to sustain the fund over the long term. Under status quo conditions the Long-term Benefit Fund could become insolvent by 2027 at the earliest (pessimistic scenario). If the contribution rate of the Long-term Benefit Fund were to be increased to 5.2 per cent in 2007 (see section 4.9), the fund could be sustained until at least 2035, assuming that status quo conditions would prevail until then. It is therefore necessary that the contribution rate of the Long-term Benefit Fund be increased substantially in the future to ensure the solvency of the fund over the longer term.

It is recommended that the future contribution rate of the fund be increased gradually and at regular intervals, as appropriate under a scaled premium financing system. Scaled premiums have been estimated for scenarios 1-3, as an illustration, based on 10 year contribution periods and different minimum reserve ratio conditions (see table 4.7). The first increase of the contribution rate is foreseen for the year 2020, if necessary by then.

The EIOD Fund

No actuarial projections have been carried out for the EIOD Fund. Given the short period of experience data available and the few benefits claimed from the EIOD Fund, it is not possible at present to produce a reliable estimate for the future costs of this fund.[105] The annual balance of the EIOD Fund has been positive over the period 2001 – 2004 and a substantial amount of reserves have been accumulated; these totaled about 2.2 billion kip at the end of the year 2004. A surplus is expected to persist over the short to medium-term, hence total reserves of the fund are expected to increase further. However, since the EIOD Fund comprises long-term benefits, it is considered appropriate to accumulate reserves as a provision for accruing liabilities. Given that no financing system has yet been adopted for this fund, the desired level of reserves remains to be determined. It is recommended at this point not to change the present contribution rate of 0.5 per cent as allocated to the EIOD Fund. A thorough review of the fund should be undertaken at the next actuarial valuation when more experience data will be available.

5.2 Investments

The investment of SSF reserve funds is a matter of concern. Since capital markets are underdeveloped and inefficient in Lao PDR the investment situation is characterized by a lack of suitable opportunities for the investment of SSF reserve funds in Lao kip.

Over the period 2001 – 2004 the average real ROR achieved on the total reserve of the SSF was negative at -2.8 per cent per annum. With negative returns, the real value of the fund's reserve depreciates over time. The return on investment achieved was low due to the fact that the interest rate offered by domestic banks on SSF deposits was lower than the rate of inflation. This can be attributed to the fact that domestic banks, most of which are owned and controlled by the state, are in the process of restructuring. There are also indications that domestic banks consider the SSO as a state agency and are therefore reluctant to grant it the same interest rates as those offered to private investors. It is recommended that further investigation and negotiation with domestic banks be undertaken so that this issue can be resolved.

Diversification of investments is an additional concern. In 2004, reserves were invested exclusively in bank deposits with about 69 per cent of total reserves being deposited in a single bank. Given the lack of diversification across asset classes and the concentration of deposits with a few institutions, the reserve of the SSF is exposed to a relatively high degree of risk. It is noted, however, that the main reason for insufficient diversification is the lack of suitable alternatives for investment of monies in kip, rather than poor management of investments by the SSO.

[105] The lack of experience data applies particularly to permanent disability pensions, with only one such pension claimed during the period 2001 – 2004.

In spite of the dismal performance of investments over the period 2001 – 2004, there are indications that the situation is improving. The restructuring and liberalisation of the banking sector is progressing and the Lao government is planning to further the development of capital markets, starting with the establishment of a domestic bond market. In the meantime, the Treasury Department, MoF, has issued Treasury bills in kip and bonds in Thai baht to raise funds for the Nam Theun 2 dam project. In 2005 the SSO invested a significant part of the reserve in Treasury bills, issued by the Treasury to the SSO at an annual coupon rate of 12 per cent.

In light of the above, it is recommended that a thorough assessment of the situation be undertaken and alternative investment opportunities be explored. Possible investment alternatives that could be considered include investment in foreign currency denominated assets (such as bank deposits or bonds in US dollars or Thai baht), and investment in property and real estate.

In case it should not be possible, in the coming years, to protect SSF reserve funds against inflation and ensure a decent income from investments, it is recommended that a decrease of the SSF contribution rate be considered in order to contain the accumulation of reserves.

5.3 Contribution ceiling

Insurable earnings are subject to a ceiling that was initially fixed at 1 million kip per month. In 2004, the percentage of insured with earnings at or above the ceiling amount was about 33 per cent for males, 9 per cent for females, and about 18.4 per cent in total, which is considered too high. The ceiling should normally be set such that only a small percentage (e.g., less than 5 or 10 per cent) of contributors have earnings at or above the contribution ceiling (see also section 3.4.2). In 2005, the ceiling amount was increased to 1.5 million kip effective from 1 January 2006. Despite this increase there are indications that the percentage of workers with earnings above the ceiling is still too high due to the skewed wage distribution. It is therefore recommended that the adequacy of the ceiling amount be reassessed, and the ceiling be adjusted if necessary.

Decree 207/PM does not include any provision with regard to the periodical adjustment of the contribution ceiling. The ceiling should be adjusted regularly so as to ensure that contribution income increases in line with wages. Failure to adjust the ceiling on insurable earnings regularly in line with wages will lead to a gradual erosion of benefit levels relative to total wages given that most benefit amounts are linked to insured earnings. In order to prevent delays with future ad-hoc adjustments of the ceiling amount, it is recommended that a rule be adopted to ensure the periodical adjustment of the ceiling in line with average insurable earnings. A possibility would be to adjust the ceiling at the time of actuarial valuations based on the prevailing wage distribution. Alternatively, the ceiling could be linked explicitly to the average insured wage or to the official minimum wage.[106]

5.4 Data management

It is recommended that greater attention be given to data management and analysis. The availability and reliability of statistical data on the past experience of a scheme are prerequisites for a sound actuarial analysis of the scheme. It is recommended that a SSO member of staff with quantitative abilities be entrusted with the compilation and analysis of basic statistical data such as number of insured and average

[106] In a number of schemes the ceiling on insurable earnings is defined in terms of the average or minimum wage; this provides a mechanism to trigger adjustments of the ceiling automatically.

insured earnings by age and sex, benefit incidence rates, distribution of benefit amounts, etc. The publication of basic statistics on the benefit history of the scheme would ensure easy access to data for external stakeholders, increase transparency, and improve the overall image of the SSO with the public.

5.5 Actuarial valuations

Decree 207/PM does not contain provisions stipulating mandatory actuarial valuations to be carried out on a regular basis. In order to ensure sound financial governance of the scheme it is recommended that actuarial valuations be carried out periodically, at least every 5 years, and at such times when reforms affecting scheme finances are under consideration. It is recommended that such a provision be included in the decree when the next amendment is due.

Annex A

A.1 Alternative scenario for the delivery of medical benefits

In the following, an alternative scenario is presented for the delivery of medical benefits. It is assumed in this scenario that medical services will be delivered primarily at district hospitals and that a referral system will be put in place. In cases where the required care is not available at the district level, patients would be referred to a provincial or central level hospital. It has been assumed that the referral system will be introduced in 2007 and that the benefit list (see annex B) would remain unchanged.

In the analysis presented below, annual medical cost per capita and capitation fee are projected over the period 2005 – 2010 under this alternative scenario. Based on the projected capitation fee, benefit expenditure and PAYG cost ratio of the Health Insurance Fund have been projected.

To determine the adequate capitation fee for the alternative scenario, it is necessary to estimate average annual cost of medical care per person. In the first instance, average cost per capita is calculated for the base year (2004) based on i) utilization rates as observed in 2004, ii) estimated unit medical cost at district, provincial, and central level hospitals, and iii) assumptions on the percentage of referrals. The average medical cost per capita is then projected over the period 2005 - 2010, based on the same cost increase factors as those used for the status quo projection presented earlier (see section 4.5).

Average unit medical costs under the alternative scenario are shown in table A.1. For outpatient care, referrals are assumed at 20 per cent. For inpatient care, it is assumed that all cases will be referred to provincial or central level hospitals.[107] The unit medical cost for district hospitals has been based on figures from the hospital costing exercise carried out by the ILOSSP in 2003.[108] Unit medical costs for provincial and central level hospitals are based on the results of the costing exercise carried out by the SSO in 2004 (see section 3.5.1).

Table A.1. Unit medical cost, alternative scenario, year 2004

	Unit cost[a]	Usage[b]
Outpatient care		
District hospital[c]	8,427	80%
Provincial/Central hospital[d]	34,148	20%
Weighted average cost	13,571	
Inpatient care		
District hospital[c]	98,631	0%
Provincial/Central hospital[d]	376,112	100%
Weighted average cost	376,112	

a. Cost per visit/admission, in kip;
b. Assumption;
c. Extrapolated from ILOSSP costing data (2003), see footnote 108;
d. Figures from medical costing exercise carried out by the SSO in 2004.

Source: ILO calculation, 2005

[107] Since the percentage of referrals is difficult to predict, a conservative approach has been adopted here.

[108] Mission Report (ILOSSP), Dr. Viroj Tangcharoensathien, December 2003. Unit costs for the year 2004 were obtained by applying a medical inflation rate of 12.5 per cent (being the mid-range estimate) as assumed for the year 2003.

It can be observed that the average unit cost for outpatient care in 2004 is estimated at 13,571 kip per visit under the alternative scenario, whereas the average unit cost for inpatient care was estimated at 376,112 kip per admission in the same year.

Multiplying unit costs with the utilization rates observed for the year 2004 yields annual per capita costs for outpatient and inpatient care. Adding these two numbers yields the annual medical cost per capita, as shown in table A.2.

Table A.2. Annual medical cost per capita, alternative scenario, 2004

Outpatient care	
Average unit cost[a]	13,571
Utilization rate[b]	0.92
Annual cost per capita	12,472
Inpatient care	
Average unit cost[a]	376,112
Utilization rate[b]	0.031
Annual cost per capita	11,737
Total annual medical cost per capita	24,209

[a.] Weighted average unit medical cost, see table A.1;
[b.] Actual, see table 3.15.

Source: ILO calculation, 2005.

It can be observed that, for the alternative scenario, the annual cost per capita for the year 2004 is estimated at about 12,470 kip for outpatient care and about 11,740 kip for inpatient care. The total annual cost per capita for medical care is estimated at about 24,200 kip for the same year.

Based on the cost increase factors applied in section 4.5, annual medical cost per capita has been projected over the period 2005 – 2010 as shown in table A.3. It can be observed that the projected average medical cost per capita amounts to 40,236 kip (mid-range cost increase assumption) in the year 2007; the assumed year of implementation of the referral system. Assuming that the capitation fee is set equal to the annual per capita cost plus 7 per cent (see status quo projection, section 4.5), this yields an annual capitation fee of about 43,000 kip for 2007. Annual capitation fee and total annual expenditure of the Health Insurance Fund as projected under the alternative scenario are shown in table A.4 for the period 2005 - 2010. It is assumed that the referral system will be implemented in January 2007. Figures on per capita cost for the years 2004 – 2006 and projected number of beneficiaries are taken from the status quo projection (see section 4.5). It can be observed that under the alternative scenario, the PAYG cost rate for medical benefits for the year 2007 is estimated at 1.10 per cent, a decrease from the 1.76 per cent projected for the year 2006 under status quo conditions. Under the alternative scenario the projected PAYG cost rate increases during 2007 - 2010, reaching about 1.52 per cent in the year 2010. The average projected PAYG cost rate for medical benefits over the period 2005 – 2010 is estimated at 1.48 per cent of insurable earnings.

Table A.3. Projected average medical cost per capita, alternative scenario, 2005 – 2010

	Base year	*Projection*					
	2004	2005	2006	2007	2008	2009	2010
Average medical cost per capita[a]							
Low-end estimate		28,174	31,977	36,294	41,194	46,755	53,067
Mid-range estimate[b]	24,209	28,807	34,026	40,236	47,635	56,470	67,016
High-end estimate		29,441	36,075	44,178	54,077	66,185	80,965
ASSUMPTIONS							
Medical inflation rate[c]							
Low-end estimate[d]		5.9%	5.0%	5.0%	5.0%	5.0%	5.0%
High-end estimate[e]		11.1%	10.0%	10.0%	9.9%	9.9%	9.8%
Utilization-related cost increase[f]							
Low-end estimate[g]		10.5%	8.5%	8.5%	8.5%	8.5%	8.5%
High-end estimate[h]		10.5%	12.5%	12.5%	12.5%	12.5%	12.5%
Annual increase of per capita cost[i]							
Low-end estimate		16.4%	13.5%	13.5%	13.5%	13.5%	13.5%
High-end estimate		21.6%	22.5%	22.5%	22.4%	22.4%	22.3%

a. Figures in kip/person/year;
b. Average of low-end and high-end estimates, actual for 2004;
c. Increase of unit medical cost from previous year;
d. Assumed equal to the projected rate of price inflation (i.e., CPI increase);
e. Assumed equal to projected rate of wage inflation plus 1 per cent;
f. Increase of per capita cost from previous year due to increased utilization, i.e., assuming constant unit cost; actual for the year 2005;
g. Assumed equal to the rate observed in 2005 minus 2 per cent;
h. Assumed equal to the rate observed in 2005 plus 2 per cent;
i. Aggregate rate of cost increase from previous year due to increased unit cost and increased utilization.

Source: ILO projection, 2005.

Table A.4: Projected expenditure of the Health Insurance Fund, alternative scenario, 2005 – 2010[a]

	Base year	*Projection*		*Reform implemented (alternative scenario)*			
	2004	2005	2006	2007	2008	2009	2010
Active insured[b]	27,769	31,928	36,455	41,370	46,676	52,363	58,451
Pensioners[c]	0	0	0	9	69	224	475
Number of beneficiaries[d]	44,991	55,526	65,162	75,960	88,047	101,527	116,500
Insurable earnings and benefits[e]	148,723	193,218	242,518	301,920	373,194	458,364	559,661
Annual per capita cost[f]	43,119	51,309	60,605	40,236	47,635	56,470	67,016
Capitation fee[g]	60,000	65,000	65,000	43,053	50,970	60,423	71,707
Capitation amount[e]	2,659	3,609	4,236	3,270	4,488	6,135	8,354
Other expenditure[h]	5	36	42	58	80	109	148
Total expenditure[e]	2,664	3,645	4,278	3,329	4,568	6,244	8,502
PAYG cost rate[i]	1.79%	1.89%	1.76%	1.10%	1.22%	1.36%	1.52%

a. It is assumed that the referral system as planned under the alternative scenario will be implemented as of January 2007; figures for the years 2005 and 2006 are from the status quo projection, see tables 4.2 and 4.3;
b. As projected under scenario 1 (see section 4.3);
c. Including retirement, invalidity and survivors' pensioners, as projected under scenario 1;
d. Estimated number of persons eligible to benefits, including pensioners and dependents; actual number for 2004;
e. In million kip;
f. Projected, see mid-range estimates in tables 4.2 and A.3;
g. In kip, actual for the years 2004 – 2006; assumed equal to average annual cost plus 7 per cent for the years 2007 – 2010;
h. Assumed at 1 per cent of capitation amount;
i. In per cent of total insurable earnings.

Source: ILO projection, 2005.

Annex B

Benefit provisions of the Social Security Fund

a. Medical benefits

Beneficiaries

- Insured workers
- Persons in receipt of an SSO pension[109]
- Spouses of insured and of pensioners
- Children of insured workers and of pensioners if under the age of 18, or under the age of 25 and in full-time education. Children who are disabled to the point that they are unable to move and sustain their livelihood are covered for life.

Qualifying condition

Insured persons are eligible to receive health care benefits if contributions have been paid for at least three months within the last twelve months.

Benefits provided

The Health Insurance Fund covers the costs for all medical diagnostics, drugs as prescribed by a certified doctor, hospital admission, outpatient and inpatient medical care with the exception of the following items:

- Cosmetic surgery
- Sex change operations
- Organ transplant
- Vasectomy and sterilization
- Treatment for Thalassemia
- Hemodialysis
- Open heart surgery
- Anti-retroviral drugs for the treatment of HIV/AIDS
- Brain surgery
- Chemotherapy or radiotherapy for the treatment of malignant tumors
- Artificial insemination in case of infertility
- Dental care (except for extraction and painkillers)
- Spectacles and contact lenses except for cases of impaired vision resulting from employment injury or occupational disease
- Treatment of injuries resulting from motor vehicle accidents if not work-related
- Prophylaxis or treatment for diseases that are the object of public health programmes undertaken by the government such as treatment of leprosy and tuberculosis, and national immunization campaigns.
- Inpatient care after 90 days of duration per admission

[109] Including retirement, invalidity, and survivors' pension; this also includes survivors in receipt of adaptation benefit.

b. Sickness cash benefit

Beneficiaries

- Insured workers who have to interrupt their work due to illness or accident. The benefit is payable after exhaustion of sick leave entitlement.[110] If the illness or accident allows for partial work resumption, the insured person is entitled to a partial cash benefit in proportion to the reduction of the level of activity.
- Female insured workers who are unable to resume work due to medical reasons following confinement. The sickness cash benefit is payable after exhaustion of maternity cash benefit.

Qualifying condition

At least three months contributions paid within the previous twelve months.

Benefit rate

The benefit rate is equal to 60 per cent of the average monthly insured earnings over the six month period prior to the commencement of the sickness period.

Duration of benefit

Sickness cash benefit is payable for a period of up to one year. If upon expiration of this period the employee's condition is expected to normalize the sickness benefit can be continued for another six months. If the employee's condition is not expected to improve s/he is eligible to receive invalidity benefits.

c. Maternity cash benefit

Beneficiaries

- Female or male insured workers after the birth of their child . Under certain conditions the benefit is also paid in case of miscarriage or upon adoption of a child.

Qualifying condition

At least nine months contributions paid within the twelve months preceding the commencement of maternity leave.

Benefit rate

The benefit rate is equal to 70 per cent of insured's average monthly insurable earnings over the six months period prior to the beginning of maternity leave.

Duration of benefit

The maternity cash benefit is payable for three months. In case of inability to resume work after maternity leave due to medical reasons, a sickness cash benefit is payable.

d. Birth grant

Beneficiaries

- Male or female insured persons after the birth of their child. The benefit is also paid in case of the adoption of a child not older than twelve months, provided that no birth grant has previously been paid by the SSO for the same child.

[110] According to the Lao Labour Law, 1994, all employees are entitled to 30 days of sick leave at full pay per year.

Qualifying condition
At least twelve months of contributions paid within the eighteen months preceding birth.

Benefit amount
The benefit amount is paid as a lump sum amount equivalent to 60 per cent of the official monthly minimum wage per child.

e. Funeral grant

Payable in case of death of an insured worker, his/her spouse, or child (if aged under 18 or under 25 and in full-time education).

Beneficiaries
- The relative of the deceased or other person who takes charge of funeral expenses.

Qualifying condition
At least twelve months of contributions paid within eighteen months preceding death.

Benefit amount
The benefit amount is paid as a lump sum amount equal to:
i. six months of insured earnings in case of death of the insured
ii. three months of insured earnings in case of death of the insured's spouse
iii. two months of insured earnings in case of death of the insured's child.

f. Employment injury and occupational disease (EIOD) benefits

Benefits are payable in the event an employee sustains a work injury, occupational disease, or work-related death. EIOD benefits include the following:

i. *Health care and rehabilitation benefit*
An employee sustaining an EIOD is entitled to medical care as provided under section B.1.a above (health care benefits). In case a temporary or permanent loss of working capacity is sustained, the injured worker is eligible to physical and vocational rehabilitation benefits.

ii. *Cash benefit for temporary loss of working capacity*
If the injured worker is unable to return to work due to medical reasons, a cash benefit for temporary loss of working capacity is payable by the SSO, provided that sick leave entitlement has been expended. The cash benefit is payable for a period not exceeding six months, at the rate of 100 per cent of the reference wage, which is given by average monthly insured earnings over the six months preceding the injury. If the injured worker is still unable to return to work after six months, the benefit is reduced to 60 per cent of the reference wage for an additional period not exceeding eighteen months. A benefit for permanent loss of working capacity is payable thereafter if necessary.

iii. *Cash benefit for partial work resumption*
If, after receiving sickness benefit, the injured worker returns to work on a partial basis, the worker is entitled to a cash benefit for partial work resumption. The benefit is calculated at the same rate as set out in point ii above, with the benefit reduced according to the level of work resumption.

iv. *Cash benefit for permanent loss of working capacity (pension)*
An employee unable to resume work on a permanent basis due to an EIOD may apply for permanent

loss of working capacity benefit after the exhaustion of the cash benefit for temporary loss of working capacity. The monthly benefit (pension) amount is calculated as the percentage of lost working capacity, times 67.5 per cent, times the average monthly insured earnings over the twelve months preceding the injury or disease. The benefit is paid on a monthly basis unless the percentage of working capacity lost is less than 25 per cent, in which case an application may be made to the SSO for disbursement of a lump sum benefit.

v. *Caretaker benefit*

A caretaker benefit is payable in case the injured worker needs attendance on a regular basis. The benefit amount is determined according to the time in hours spent by the caretaker looking after the injured person and the official minimum wage.

vi. *Funeral grant*

In case of death of a person due to an EIOD, a funeral grant is payable; the benefit amount is equal to the last six months of insured earnings of the deceased.

vii. *Survivors' pensions.*

In case of death due to an EIOD, the dependents of the deceased are entitled to receive survivor benefits as follows:

- A surviving spouse whose marriage was lawfully registered will receive a widow/ers' pension equal to 50 per cent of the reference wage if eligible for survivor benefits (see section B.i), regardless of the number of contributions paid by the deceased before death occurred.
- A surviving child, stepchild, or adopted child will receive an orphans' benefit if aged under 18, or if aged under 25 and studying on a full-time basis, or if permanently disabled. The benefit rate is 15 per cent of the reference wage per child. In case there are no surviving parents, the benefit rate is 20 per cent of the reference wage per child, not to exceed 60 per cent of the reference wage in total.
- In case there is no surviving spouse, the surviving parent(s) will receive a survivor benefit, provided that they were cared for by the deceased before death occurred. The benefit amount for one or both surviving parents is equal to 50 per cent of the reference wage.

The reference wage used for the calculation of survivors' pensions is given by the average monthly insurable wage over the twelve months preceding the death of the insured. The total amount of all survivors' pensions payable for one death should not exceed the benefit payable for permanent and total loss of working capacity.

g. Retirement benefits

Beneficiaries

- Insured persons who have reached the normal retirement age of 60
- Insured persons aged 55 or older may be entitled to receive retirement benefits if unable to work.[111]

Qualifying condition

Insured persons are entitled to receive a retirement pension on the condition that at least sixty monthly contributions have been paid to the Long-term Benefit Fund upon retirement. If less than sixty contributions have been paid upon retirement, the insured person qualifies for a lump sum benefit.

[111] Detailed provisions on early retirement such as qualifying conditions have yet to be worked out by SSO.

Insured persons can contribute to the Long-term Benefit Fund after the normal retirement age of 60, if still in employment, until they reach age 65, by which date retirement benefits must be claimed.

Benefit rate

i. *Pension benefit*

Benefit amounts for pensions are based on so-called *pension points*, which reflect the level of insured earnings of individual contributors relative to the average insured earnings of all contributors.[112] The benefit rate of the retirement pension is calculated as the total number of pension points earned before retirement, times 1.5 per cent, times average insured earnings (of all contributors).

Special pension points are granted to insured persons, who at the inception of the scheme (i.e., in June 2001) were aged 31 or above.[113] Special pension points are calculated as follows: persons aged 45 or above at the inception of the scheme receive 12 special pension points; for those below the age of 45 at the inception of the scheme, special pension points are calculated by deducting 30 from the person's age at the inception of the scheme, and multiplying the result by 0.8.

If a person retires before the age of 60, the pension benefit will be reduced by 0.5 per cent per month of early retirement.

In case a worker retires after the age of 60, the pension benefit will be increased by 0.5 per cent per monthly contribution paid after the age of 60.

ii. *Lump sum benefit*

The lump sum benefit is calculated as the number of monthly contributions paid until retirement, divided by twelve, and the result multiplied by 0.7.[114]

h. Invalidity benefits

Beneficiaries

- Insured persons who are unable to perform their work due to disability.

Qualifying condition

Insured persons are entitled to receive invalidity benefits on the condition that at least sixty monthly contributions have been paid to the Long-term Benefit Fund upon the onset of disability.

Benefit rate

i. *Cash benefit (Invalidity pension)*

The amount of invalidity pension is calculated in a similar way to retirement pensions. The invalidity pension amount is given by the amount of the prospective retirement pension, assuming retirement at age 60, and taking into account the years remaining until age 60 for the calculation of pension points. The number of annual pension points granted for the period between the onset of

[112] The number of pension points earned in a year by an insured member is obtained from his/her total contribution in that year divided by the average annual contribution of all insured persons.

[113] The date of assessment of the age to be used for the calculation of special pension points is not specified in Decree 207/PM. It is assumed here that the age is assessed on the date of implementation of the scheme i.e., on 1 June 2001.

[114] The benefit amount of the lump sum benefit is not specified in Decree 207/PM; the benefit formula presented here was adopted temporarily by the SSO Board of Directors on 2 March 2004.

disability and age 60 shall be set equal to the number of annual pension points gained on average during the contributing years prior to the onset of disability.

ii. *Caretaker benefit*
In case an invalidity pensioner requires regular attendance, a caretaker benefit shall be payable based on the hours worked and the official minimum wage.

iii. *Medical care*
In the event medical treatment may help to improve the health status of an invalidity pensioner, the SSO shall cover the cost of such medical treatment.

iv. *Rehabilitation benefits*
Invalidity pensioners are required to undergo physical rehabilitation, the cost of which is covered by the SSO.

i. Survivors' benefits

Beneficiaries

- Surviving spouse and children of a deceased worker (if insured), retirement pensioner, or invalidity pensioner.

Benefits

Survivor benefits include the following:

a) Adaptation benefit,
b) Widow/ers' pension,
c) Orphans' pension.

Qualifying conditions

Survivors of insured persons are entitled to receive survivors' benefits on the condition that the deceased had paid at least sixty monthly contributions to the Long-term Benefit Fund before death.

All surviving spouses or children aged under age 18, or under age 25 if in full-time education, are entitled to an adaptation benefit.

A surviving wife is entitled to a widows' pension when she reaches age 44, or is without working capacity, or if she cares for a child age under 18.

A surviving husband is entitled to a widowers' pension only if he is disabled or unable to work.

A surviving child is entitled to an orphans' pension if under the age of 18, or under the age of 25 and in full-time education, or if disabled.

Benefit rate

i *Adaptation benefit*
The amount of adaptation benefit is equal to 80 per cent of the insured person's average monthly insured earnings over the twelve months preceding death. A single adaptation benefit is payable to a surviving family for a duration of 12 months. Once the adaptation benefit has been expended, a widow/ers' pension and/or orphans' pensions are payable to survivors if they qualify.

ii *Widow/ers' pension*

The widow/er pension is payable on a monthly basis; the benefit amount is equal to 60 per cent of the reference amount given by the monthly pension benefit in the case of death of an age pensioner and by the prospective monthly retirement benefit in the case of death of an insured worker.

iii *Orphans' pension*

The orphans' pension amount is payable on a monthly basis; the benefit amount is equal to 20 per cent of the reference amount given by the monthly pension benefit in case of death of an age pensioner and by the prospective monthly retirement pension benefit in case of death of an insured person. If several orphans qualify for a pension following one death, the total benefit amount shall not exceed 60 per cent of the monthly pension amount, or prospective monthly retirement pension amount, of the deceased person.

The total of widow/ers' and orphans' pensions shall not exceed 80 per cent of the monthly retirement pension or 100 per cent of the assumed invalidity pension of the deceased. In case total survivors' benefits exceed the amounts prescribed, the amount of benefits is reduced on a pro rata basis.

j. General provisions

Ceiling on insurable earnings

The ceiling amount on insurable earnings shall be adjusted periodically upon decision by the Board of Directors of the SSO.

Adjustment of benefits

All benefits payable for more than one year, including pensions, shall be adjusted annually based on the increase of the average insured wage of all contributors.

Annex C

Financial statements of the Social Security Fund, 2001 – 2004

Income Statement, SSF, 2001 – 2004[a]

	2001	*2002*	*2003*	*2004*
INCOME				
Contributions	2,982.68	9,840.87	12,306.77	14,128.70
Investment	39.00	745.29	1,428.07	1,167.69
Subsidy from BTC[b]	0.00	0.00	446.97	306.56
Subsidy from government	495.90	379.21	168.48	95.55
Other	0.00	0.00	0.00	1,145.17
Total income	**3,517.59**	**10,965.38**	**14,350.29**	**16,843.66**
EXPENDITURE				
Health insurance benefits	499.29	1,824.37	2,042.34	2,663.74
Short-term benefits	4.13	283.81	832.06	1,046.37
Work injury (EIOD) benefits	0.44	15.98	21.76	54.90
Long-term benefits	0.00	0.00	0.00	37.92
Administration cost	464.93	530.26	1,108.39	2,081.91
Depreciation expense	77.06	146.39	137.69	266.29
Total expenditure	**1,045.85**	**2,800.80**	**4,142.23**	**6,151.15**
BALANCE	**2,471.74**	**8,164.57**	**10,208.05**	**10,692.52**
RESERVE (year-end)	**2,471.74**	**10,636.31**	**20,844.37**	**31,536.88**

[a] All figures in million kip.
[b] BTC: Belgian Technical Cooperation

Source: SSO, 2005.

Balance Sheet, SSF, 2001 – 2004[a]

	2001	*2002*	*2003*	*2004*
I. ASSETS				
1. Current assets				
Cash and current accounts	543.59	1,656.38	7,521.78	1,216.63
Fixed-term bank deposits (term ≤12 mths)	1,045.83	6,833.94	11,357.35	27,561.26
Accrued contributions	657.90	1,182.29	1,334.08	1,148.70
Deferred interests	11.52	286.47	460.83	452.40
Other current assets	533.20	645.00	62.68	25.17
Total current assets	**2,792.04**	**10,604.08**	**20,736.72**	**30,404.15**
2. Fixed assets				
Fixed-term bank deposits (term >12 mths)	400.00	560.00	200.00	0.00
Tangible fixed assets in use	492.20	704.33	727.87	1,786.07
Total fixed assets	**892.20**	**1,264.33**	**927.87**	**1,786.07**
TOTAL ASSETS	**3,684.24**	**11,868.41**	**21,664.60**	**32,190.22**
II. LIABILITIES AND NET WORTH				
1. Current liabilities				
Unpaid capitation fees and benefits	207.50	166.54	372.79	243.08
Other current liabilities	1,005.00	1,065.55	447.44	410.26
Total liabilities	**1,212.50**	**1,232.09**	**820.23**	**653.34**
2. Net worth of SSF				
Health Insurance Fund	768.70	3,320.83	6,940.42	10,622.69
Short-term Benefit Fund	678.47	2,805.62	5,098.53	7,513.23
EIOD Benefit Fund	159.06	711.44	1,436.80	2,206.87
Long-term Benefit Fund	638.00	2,917.88	5,918.19	9,192.98
Administration Fund	227.51	880.54	1,450.43	2,001.10
Total net worth of SSF	**2,471.74**	**10,636.31**	**20,844.37**	**31,536.88**
TOTAL LIABILITIES AND NET WORTH	**3,684.24**	**11,868.41**	**21,664.60**	**32,190.22**

[a] All figures in million kip.

Source: SSO, 2005.

Annex D

Population projection

Table A.5. Results of the population projection, 1995 – 2099

	Actual[a]	*Projection*[b]									
	1995	**2000**	**2010**	**2020**	**2030**	**2040**	**2050**	**2060**	**2070**	**2080**	**2090**	**2099**
		Key assumptions										
Total fertility rate	5.60	4.69	3.13	2.22	2.10	2.10	2.10	2.10	2.10	2.10	2.10	2.10
Life expectancy at birth (in years)												
Male	50.0	52.0	56.0	60.0	64.0	67.5	69.5	71.3	72.9	73.9	74.9	75.6
Female	52.0	54.0	58.0	62.0	66.0	69.5	72.2	74.4	76.2	77.8	78.8	79.7
		Main results of the projection										
Total population (thousands)	4,612	5,186	6,365	7,367	8,261	9,082	9,709	10,177	10,421	10,507	10,517	10,518
Males	2,279	2,567	3,158	3,660	4,109	4,519	4,829	5,051	5,155	5,185	5,185	5,190
Females	2,332	2,619	3,207	3,706	4,152	4,563	4,881	5,126	5,266	5,322	5,332	5,328
Population growth rate (% p.a.)	2.5%	2.3%	1.8%	1.2%	1.1%	0.8%	0.6%	0.4%	0.1%	0.0%	0.0%	0.0%
Age structure (%)[c]												
0–14	44.2%	41.6%	36.2%	29.8%	24.7%	22.8%	20.5%	19.6%	19.0%	18.8%	18.9%	18.8%
15–64	52.0%	54.9%	60.3%	66.3%	69.8%	70.0%	68.8%	65.9%	63.3%	61.7%	61.6%	61.3%
65 +	3.7%	3.5%	3.5%	4.0%	5.5%	7.3%	10.6%	14.5%	17.6%	19.5%	19.5%	19.9%

a. Actual figures, see *Results of the Population Census 1995*, NSC (Vientiane, 1997);
b. Generated with the ILO population projection model, version 1.0 (9/2001);
c. Columns may not add up due to rounding.

Source: NSC (base year data) and ILO (projection, 2005).

Annex E

Short-term benefit projections

Table A.6. Projection results for short-term benefits, 2005 – 2010[a]

	Base year	*Projection*					
	2004[b]	***2005***	***2006***	***2007***	***2008***	***2009***	***2010***
Active insured[c]	27,769	31,928	36,455	41,370	46,676	52,363	58,451
Males	10,806	13,084	15,606	18,384	21,424	24,725	28,299
Females	16,963	18,844	20,850	22,986	25,252	27,638	30,153
Insurable earnings (million kip)	148,723	193,218	242,518	301,911	373,102	458,023	558,852
Density of contributions	80%	80%	80%	80%	80%	80%	80%
Contribution collection rate	97.1%	97.1%	97.1%	97.1%	97.1%	97.1%	97.1%
Sickness cash benefit							
Number of qualifying persons[d]	27,769	31,928	36,455	41,370	46,676	52,363	58,451
Number of cases	310	386	475	577	695	828	979
Benefit utilization rate	0.011	0.012	0.013	0.014	0.015	0.016	0.017
Average amount per case	469,622	504,953	549,024	598,403	653,252	713,997	780,901
Expenditure (in million kip)	145.6	195.0	260.7	345.5	453.9	591.3	764.3
PAYG cost rate	0.10%	0.10%	0.11%	0.11%	0.12%	0.13%	0.14%
Maternity cash benefit							
Number of qualifying persons[d]	15,930	17,433	19,345	21,384	23,553	25,849	28,267
Number of cases	488	579	691	819	962	1,122	1,299
Benefit incidence rate	0.031	0.033	0.036	0.038	0.041	0.043	0.046
Average amount per case (kip)	1,727,008	1,902,049	2,073,864	2,259,712	2,460,983	2,679,746	2,916,442
Expenditure (in million kip)	843	1,100	1,434	1,850	2,367	3,006	3,788
PAYG cost rate	0.57%	0.57%	0.59%	0.61%	0.63%	0.66%	0.68%
Birth grant							
Number of qualifying persons[d]	25,099	27,769	31,928	36,455	41,370	46,676	52,363
Males	9,513	10,806	13,084	15,606	18,384	21,424	24,725
Females	15,586	16,963	18,844	20,850	22,986	25,252	27,638
Total number of cases	602	717	875	1,058	1,266	1,503	1,769
Males	135	166	217	277	348	431	526
Females	467	551	659	781	918	1,072	1,242
Benefit amount	56,160	144,540	189,718	206,719	225,131	245,144	266,797
Minimum wage[e]	93,600	240,900	316,196	344,532	375,219	408,573	444,662
Incidence rate males (cases/pers./year)	0.014	0.015	0.017	0.018	0.019	0.020	0.021
Incidence rate females (cases/pers./year)	0.030	0.032	0.035	0.037	0.040	0.042	0.045
Expenditure (in million kip)	35.0	103.6	166.1	218.7	285.1	368.4	471.8
PAYG cost rate	0.024%	0.054%	0.068%	0.072%	0.076%	0.080%	0.084%
Death grant							
Number of qualifying persons[d]	47,645	55,261	63,537	72,546	82,327	92,886	104,203
Workers	25,099	27,769	31,928	36,455	41,370	46,676	52,363
Spouses	9,506	11,108	12,771	14,582	16,548	18,671	20,945
Children	13,040	16,384	18,838	21,509	24,408	27,539	30,894
Number of cases	43	94	116	142	172	206	245
Workers	30	48	59	72	88	105	125
Spouses	7	31	38	47	56	68	80
Children	6	15	19	23	28	34	40
Incidence rates (cases/person/year)[f]							
Workers	0.0012	0.0017	0.0019	0.0020	0.0021	0.0023	0.0024
Spouses	0.0007	0.0028	0.0030	0.0032	0.0034	0.0036	0.0038
Children	0.0005	0.0009	0.0010	0.0011	0.0012	0.0012	0.0013
Average wage of beneficiaries (in kip)[g]	702,651	755,514	821,453	895,335	977,399	1,068,287	1,168,389
Expenditure (in million kip)	150	310	417	556	734	962	1,250
PAYG cost rate	0.10%	0.16%	0.17%	0.18%	0.20%	0.21%	0.22%
Total benefit expenditure (million kip)	**1,173**	**1,709**	**2,277**	**2,970**	**3,841**	**4,928**	**6,274**
PAYG cost rate (total)	**0.79%**	**0.88%**	**0.94%**	**0.98%**	**1.03%**	**1.08%**	**1.12%**

a. Excludes administration cost; for assumptions and methodology see sections 4.1, 4.3, and 4.6;
b. Actual figures as observed or estimated for the year 2004;
c. As projected under scenario 1 (see section 4.3);
d. Estimate, taking into account the minimum qualifying period;
e. The official minimum wage was increased to 290,000 kip/month as of April 2005;
f. Projected incidence rates are based on those observed in 2003 and ultimate levels assumed for 2010; the latter are based on the mortality rates projected for the year 2010 (see annex H);
g. Actual for the year 2004 at 122 per cent of average monthly insurable wage of all contributors; assumed at the same relative level thereafter.

Source: ILO projection, 2005.

Annex F

Long-term benefit projections

Table A.7.a. Results of status quo projections for long-term benefits, 2004 – 2099, scenario 1

	Base year	Projection												
	2004	***2005***	***2006***	***2007***	***2008***	***2009***	***2010***	***2011***	***2012***	***2013***	***2014***	***2015***	***2020***	***2025***
DEMOGRAPHIC PROJECTION														
Insured workers	**27,769**	**31,928**	**36,455**	**41,370**	**46,676**	**52,363**	**58,451**	**65,125**	**72,258**	**79,851**	**87,890**	**96,394**	**146,239**	**204,935**
Number of beneficiaries														
Old age pension	0	0	0	2	22	81	179	314	484	690	933	1,216	3,391	7,244
Old age lump sum	25	59	110	143	147	147	151	161	177	195	216	235	342	455
Invalidity pension	0	0	0	1	6	17	36	61	93	130	174	226	610	1,271
Widow/er pension	0	0	0	0	5	20	45	79	122	174	236	308	857	1,830
Orphan's pension	0	0	0	6	36	106	215	355	519	700	893	1,095	2,215	3,501
Demographic ratios														
Old age pension	0%	0%	0%	0.00%	0.06%	0.19%	0.38%	0.60%	0.84%	1.08%	1.33%	1.58%	2.90%	4.42%
Invalidity pension	0%	0%	0%	0.00%	0.01%	0.04%	0.08%	0.12%	0.16%	0.20%	0.25%	0.29%	0.52%	0.78%
Widow/er pension	0%	0%	0%	0%	0.01%	0.05%	0.10%	0.15%	0.21%	0.27%	0.34%	0.40%	0.73%	1.12%
Orphan's pension	0%	0%	0%	0.02%	0.10%	0.25%	0.46%	0.68%	0.90%	1.10%	1.27%	1.42%	1.89%	2.14%
FINANCIAL PROJECTION														
Total insurable earnings (trillion kip)	**0.15**	**0.19**	**0.24**	**0.30**	**0.37**	**0.46**	**0.56**	**0.68**	**0.82**	**0.98**	**1.17**	**1.40**	**3.11**	**6.33**
Benefit expenditure (billion kip)	**0.04**	**0.05**	**0.13**	**0.24**	**0.35**	**0.62**	**1.10**	**1.87**	**2.96**	**4.44**	**6.42**	**9.01**	**35.92**	**105.01**
Old age pension	0	0	0	0.00	0.05	0.21	0.51	0.98	1.66	2.59	3.86	5.53	23.46	69.28
Old age lump sum	0.04	0.05	0.13	0.23	0.26	0.27	0.30	0.33	0.39	0.47	0.56	0.66	1.44	2.81
Invalidity pension	0	0	0	0.00	0.01	0.04	0.10	0.18	0.30	0.46	0.68	0.97	4.18	13.59
Widow/er pension	0	0	0	0	0.01	0.03	0.06	0.13	0.22	0.34	0.51	0.74	3.30	10.84
Orphan's pension	0	0	0	0.00	0.02	0.06	0.14	0.25	0.39	0.58	0.82	1.10	3.55	8.50
PAYG cost rate	**0.02%**	**0.02%**	**0.05%**	**0.08%**	**0.09%**	**0.13%**	**0.20%**	**0.28%**	**0.36%**	**0.45%**	**0.55%**	**0.64%**	**1.15%**	**1.66%**
Old age pension	0.00%	0.00%	0.00%	0.00%	0.01%	0.05%	0.09%	0.14%	0.20%	0.26%	0.33%	0.40%	0.75%	1.09%
Old age lump sum	0.02%	0.02%	0.05%	0.08%	0.07%	0.06%	0.05%	0.05%	0.05%	0.05%	0.05%	0.05%	0.05%	0.04%
Invalidity pension	0.00%	0.00%	0.00%	0.00%	0.00%	0.01%	0.02%	0.03%	0.04%	0.05%	0.06%	0.07%	0.13%	0.21%
Widow/er pension	0.00%	0.00%	0.00%	0.00%	0.00%	0.01%	0.01%	0.02%	0.03%	0.03%	0.04%	0.05%	0.11%	0.17%
Orphan's pension	0.00%	0.00%	0.00%	0.00%	0.01%	0.01%	0.02%	0.04%	0.05%	0.06%	0.07%	0.08%	0.11%	0.13%
AVERAGE AMOUNTS (monthly)														
Insurable earnings (million kip)	**0.58**	**0.63**	**0.69**	**0.76**	**0.83**	**0.91**	**1.00**	**1.08**	**1.18**	**1.28**	**1.39**	**1.51**	**2.22**	**3.22**
Average pension amount (million kip)														
Old age pension	n.a.	n.a.	n.a.	0.17	0.20	0.22	0.24	0.26	0.29	0.31	0.34	0.38	0.58	0.80
Invalidity pension	n.a.	n.a.	n.a.	0.20	0.20	0.21	0.22	0.25	0.27	0.30	0.33	0.36	0.57	0.89
Widow/er pension	n.a.	n.a.	n.a.	n.a.	0.09	0.11	0.12	0.13	0.15	0.16	0.18	0.20	0.32	0.49
Orphan's pension	n.a.	n.a.	n.a.	0.05	0.05	0.05	0.05	0.06	0.06	0.07	0.08	0.08	0.13	0.20
System replacement rate														
Old age pension	n.a.	n.a.	n.a.	23%	24%	24%	24%	24%	24%	24%	25%	25%	26%	25%
Invalidity pension	n.a.	n.a.	n.a.	26%	24%	23%	23%	23%	23%	23%	23%	24%	26%	28%
Widow/er pension	n.a.	n.a.	n.a.	n.a.	11%	12%	12%	12%	12%	13%	13%	13%	14%	15%
Orphan's pension	n.a.	n.a.	n.a.	7%	6%	6%	5%	5%	5%	5%	5%	6%	6%	6%

Table A.7.b. Results of status quo projections for long-term benefits, 2004 – 2099, scenario 1 *(continued)*

	2030	2035	2040	2045	2050	2055	2060	2065	2070	2075	2080	2085	2090	2095
DEMOGRAPHIC PROJECTION														
Insured workers	**267,907**	**332,925**	**393,912**	**449,214**	**495,485**	**533,251**	**568,779**	**599,489**	**628,722**	**658,617**	**691,379**	**726,158**	**760,439**	**793,221**
Number of beneficiaries														
Old age pension	13,432	22,074	34,796	55,102	80,994	106,579	134,711	163,703	193,216	218,933	239,054	257,106	277,831	300,394
Old age lump sum	512	554	874	1,321	971	803	930	932	888	700	553	480	417	273
Invalidity pension	2,281	3,709	5,671	8,067	10,733	13,638	16,623	19,446	21,929	24,055	25,975	27,825	29,605	31,275
Widow/er pension	3,373	5,664	8,891	13,217	18,781	25,690	33,841	43,034	52,680	62,099	70,785	78,660	85,676	91,817
Orphan's pension	4,993	6,817	9,041	11,510	14,062	16,716	19,175	21,511	23,588	25,421	27,122	28,781	30,275	31,705
Demographic ratios														
Old age pension	6.3%	8.3%	11.0%	15.3%	20.4%	25.0%	29.6%	34.1%	38.4%	41.6%	43.2%	44.3%	45.7%	47.3%
Invalidity pension	1.1%	1.4%	1.8%	2.2%	2.7%	3.2%	3.7%	4.1%	4.4%	4.6%	4.7%	4.8%	4.9%	4.9%
Widow/er pension	1.6%	2.1%	2.8%	3.7%	4.7%	6.0%	7.4%	9.0%	10.5%	11.8%	12.8%	13.5%	14.1%	14.5%
Orphan's pension	2.3%	2.6%	2.9%	3.2%	3.5%	3.9%	4.2%	4.5%	4.7%	4.8%	4.9%	5.0%	5.0%	5.0%
FINANCIAL PROJECTION														
Total insurable earnings (trillion kip)	**12.14**	**22.16**	**38.56**	**64.63**	**104.90**	**166.20**	**260.82**	**405.37**	**624.49**	**954.88**	**1,449.52**	**2,183.31**	**3,263.27**	**4,843.22**
Benefit expenditure (billion kip)	**263.96**	**623.6**	**1,494.3**	**3,533.3**	**7,772.0**	**15,707**	**30,527**	**56,970**	**102,100**	**173,540**	**280,677**	**441,231**	**687,377**	**1,059,218**
Old age pension	173.45	408.3	1,003.9	2,479.3	5,649.7	11,591	22,758	42,772	77,117	131,229	211,326	330,531	514,583	794,908
Old age lump sum	4.12	6.5	15.2	34.6	43.1	35	56	85	118	110	127	163	215	237
Invalidity pension	38.15	96.9	228.1	495.7	1,006.8	1,946	3,591	6,353	10,746	17,486	27,635	42,835	65,430	98,590
Widow/er pension	30.11	75.2	175.4	389.2	829.0	1,704	3,381	6,513	12,069	21,433	36,456	59,803	95,198	147,623
Orphan's pension	18.12	36.8	71.7	134.6	243.4	431	739	1,247	2,050	3,281	5,133	7,899	11,951	17,860
PAYG cost rate	**2.17%**	**2.81%**	**3.88%**	**5.47%**	**7.41%**	**9.45%**	**11.70%**	**14.05%**	**16.35%**	**18.17%**	**19.36%**	**20.21%**	**21.06%**	**21.87%**
Old age pension	1.43%	1.84%	2.60%	3.84%	5.39%	6.97%	8.73%	10.55%	12.35%	13.74%	14.58%	15.14%	15.77%	16.41%
Old age lump sum	0.03%	0.03%	0.04%	0.05%	0.04%	0.02%	0.02%	0.02%	0.02%	0.01%	0.01%	0.01%	0.01%	0.00%
Invalidity pension	0.31%	0.44%	0.59%	0.77%	0.96%	1.17%	1.38%	1.57%	1.72%	1.83%	1.91%	1.96%	2.01%	2.04%
Widow/er pension	0.25%	0.34%	0.45%	0.60%	0.79%	1.03%	1.30%	1.61%	1.93%	2.24%	2.52%	2.74%	2.92%	3.05%
Orphan's pension	0.15%	0.17%	0.19%	0.21%	0.23%	0.26%	0.28%	0.31%	0.33%	0.34%	0.35%	0.36%	0.37%	0.37%
AVERAGE AMOUNTS (monthly)														
Insurable earnings (million kip)	**4.72**	**6.93**	**10.20**	**14.99**	**22.05**	**32.47**	**47.77**	**70.44**	**103.46**	**151.02**	**218.39**	**313.19**	**447.01**	**636.02**
Average pension amount (million kip)														
Old age pension	1.08	1.54	2.40	3.75	5.81	9.06	14.08	21.77	33.26	49.95	73.67	107.13	154.35	220.52
Invalidity pension	1.39	2.18	3.35	5.12	7.82	11.89	18.00	27.22	40.83	60.58	88.66	128.28	184.17	262.70
Widow/er pension	0.74	1.11	1.64	2.45	3.68	5.53	8.33	12.61	19.09	28.76	42.92	63.36	92.59	133.98
Orphan's pension	0.30	0.45	0.66	0.97	1.44	2.15	3.21	4.83	7.24	10.76	15.77	22.87	32.90	46.94
System replacement rate														
Old age pension	23%	22%	24%	25%	26%	28%	29%	31%	32%	33%	34%	34%	35%	35%
Invalidity pension	30%	31%	33%	34%	35%	37%	38%	39%	39%	40%	41%	41%	41%	41%
Widow/er pension	16%	16%	16%	16%	17%	17%	17%	18%	18%	19%	20%	20%	21%	21%
Orphan's pension	6%	6%	6%	7%	7%	7%	7%	7%	7%	7%	7%	7%	7%	7%

Table A.8.a. Results of status quo projections for long-term benefits, 2004 – 2099, scenario 2

	Base year	Projection												
	2004	***2005***	***2006***	***2007***	***2008***	***2009***	***2010***	***2011***	***2012***	***2013***	***2014***	***2015***	***2020***	***2025***
DEMOGRAPHIC PROJECTION														
Insured workers	**27,769**	**31,607**	**35,765**	**40,259**	**45,092**	**50,251**	**55,754**	**61,777**	**68,195**	**75,008**	**82,201**	**89,791**	**130,971**	**179,143**
Number of beneficiaries														
Old age pension	0	0	0	2	21	77	170	299	460	656	886	1,154	3,193	6,719
Old age lump sum	25	52	96	127	130	129	132	141	154	171	190	209	297	413
Invalidity pension	0	0	0	1	6	17	36	61	91	128	170	219	579	1,179
Widow/er pension	0	0	0	0	5	20	46	80	123	174	234	304	824	1,715
Orphan's pension	0	0	0	6	36	107	216	355	517	694	880	1,072	2,110	3,234
Demographic ratios														
Old age pension	0%	0%	0%	0.0%	0.1%	0.2%	0.4%	0.6%	0.8%	1.1%	1.3%	1.6%	3.0%	4.7%
Invalidity pension	0%	0%	0%	0.0%	0.0%	0.0%	0.1%	0.1%	0.2%	0.2%	0.3%	0.3%	0.6%	0.8%
Widow/er pension	0%	0%	0%	0%	0.0%	0.1%	0.1%	0.2%	0.2%	0.3%	0.4%	0.4%	0.8%	1.2%
Orphan's pension	0%	0%	0%	0.0%	0.1%	0.3%	0.5%	0.7%	0.9%	1.2%	1.3%	1.5%	2.0%	2.3%
FINANCIAL PROJECTION														
Total insurable earnings (trillion kip)	**0.15**	**0.19**	**0.24**	**0.29**	**0.36**	**0.44**	**0.53**	**0.64**	**0.77**	**0.92**	**1.10**	**1.30**	**2.78**	**5.52**
Benefit expenditure (billion kip)	**0.04**	**0.04**	**0.12**	**0.21**	**0.33**	**0.63**	**1.19**	**2.05**	**3.27**	**4.92**	**7.10**	**9.92**	**38.62**	**110.26**
Old age pension	0	0	0	0.00	0.06	0.24	0.59	1.14	1.91	2.97	4.38	6.23	25.57	73.40
Old age lump sum	0.04	0.04	0.12	0.20	0.23	0.24	0.26	0.29	0.34	0.40	0.48	0.58	1.24	2.45
Invalidity pension	0	0	0	0.00	0.01	0.05	0.11	0.20	0.33	0.51	0.74	1.05	4.36	13.79
Widow/er pension	0	0	0	0	0.01	0.03	0.08	0.15	0.26	0.41	0.61	0.87	3.74	11.89
Orphan's pension	0	0	0	0.00	0.02	0.07	0.15	0.27	0.43	0.63	0.89	1.19	3.73	8.71
PAYG cost rate	**0.02%**	**0.02%**	**0.05%**	**0.07%**	**0.09%**	**0.14%**	**0.22%**	**0.32%**	**0.42%**	**0.53%**	**0.65%**	**0.76%**	**1.39%**	**2.00%**
Old age pension	0%	0%	0%	0.00%	0.02%	0.06%	0.11%	0.18%	0.25%	0.32%	0.40%	0.48%	0.92%	1.33%
Old age lump sum	0.02%	0.02%	0.05%	0.07%	0.06%	0.06%	0.05%	0.05%	0.04%	0.04%	0.04%	0.04%	0.04%	0.04%
Invalidity pension	0%	0%	0%	0.00%	0.00%	0.01%	0.02%	0.03%	0.04%	0.05%	0.07%	0.08%	0.16%	0.25%
Widow/er pension	0%	0%	0%	0%	0.00%	0.01%	0.01%	0.02%	0.03%	0.04%	0.06%	0.07%	0.13%	0.22%
Orphan's pension	0%	0%	0%	0.00%	0.01%	0.02%	0.03%	0.04%	0.06%	0.07%	0.08%	0.09%	0.13%	0.16%
AVERAGE AMOUNTS (monthly)														
Insurable earnings (million kip)	**0.58**	**0.63**	**0.69**	**0.76**	**0.83**	**0.91**	**1.00**	**1.08**	**1.18**	**1.28**	**1.39**	**1.51**	**2.21**	**3.21**
Average pension amount (million kip)														
Old age pension	n.a.	n.a.	n.a.	0.17	0.23	0.26	0.29	0.32	0.35	0.38	0.41	0.45	0.67	0.91
Invalidity pension	n.a.	n.a.	n.a.	0.20	0.21	0.23	0.25	0.27	0.30	0.33	0.36	0.40	0.63	0.97
Widow/er pension	n.a.	n.a.	n.a.	n.a.	0.12	0.13	0.14	0.16	0.18	0.20	0.22	0.24	0.38	0.58
Orphan's pension	n.a.	n.a.	n.a.	0.05	0.05	0.05	0.06	0.06	0.07	0.08	0.08	0.09	0.15	0.22
System replacement rate														
Old age pension	n.a.	n.a.	n.a.	23%	28%	29%	29%	29%	29%	29%	30%	30%	30%	28%
Invalidity pension	n.a.	n.a.	n.a.	26%	25%	25%	25%	25%	25%	26%	26%	26%	28%	30%
Widow/er pension	n.a.	n.a.	n.a.	n.a.	14%	14%	15%	15%	15%	15%	16%	16%	17%	18%
Orphan's pension	n.a.	n.a.	n.a.	7%	6%	6%	6%	6%	6%	6%	6%	6%	7%	7%

Table A.8.b. Results of status quo projections for long-term benefits, 2004 – 2099, scenario 2 *(continued)*

	2030	2035	2040	2045	2050	2055	2060	2065	2070	2075	2080	2085	2090	2095
DEMOGRAPHIC PROJECTION														
Insured workers	**230,462**	**283,714**	**334,287**	**379,914**	**419,025**	**419,844**	**418,911**	**414,756**	**410,113**	**406,381**	**404,710**	**404,325**	**403,712**	**402,392**
Number of beneficiaries														
Old age pension	12,127	19,569	30,336	47,395	69,161	90,800	116,541	142,857	169,019	189,615	203,026	212,134	220,607	227,774
Old age lump sum	465	535	897	1,386	1,172	343	92	324	207	212	89	81	63	85
Invalidity pension	2,072	3,309	4,976	6,990	9,232	11,394	13,617	15,541	16,989	17,950	18,572	18,977	19,217	19,320
Widow/er pension	3,086	5,075	7,816	11,436	16,067	21,637	28,326	35,897	43,877	51,644	58,624	64,479	68,929	71,855
Orphan's pension	4,463	5,944	7,729	9,726	11,833	13,535	15,616	17,458	18,889	19,963	20,797	21,400	21,750	21,941
Demographic ratios														
Old age pension	6.6%	8.6%	11.3%	15.6%	20.6%	27.0%	34.8%	43.1%	51.5%	58.3%	62.7%	65.6%	68.3%	70.8%
Invalidity pension	1.1%	1.5%	1.9%	2.3%	2.8%	3.4%	4.1%	4.7%	5.2%	5.5%	5.7%	5.9%	6.0%	6.0%
Widow/er pension	1.7%	2.2%	2.9%	3.8%	4.8%	6.4%	8.5%	10.8%	13.4%	15.9%	18.1%	19.9%	21.3%	22.3%
Orphan's pension	2.4%	2.6%	2.9%	3.2%	3.5%	4.0%	4.7%	5.3%	5.8%	6.1%	6.4%	6.6%	6.7%	6.8%
FINANCIAL PROJECTION														
Total insurable earnings (trillion kip)	**10.41**	**18.84**	**32.69**	**54.64**	**88.72**	**130.86**	**192.10**	**280.46**	**407.35**	**589.18**	**848.50**	**1,215.67**	**1,732.45**	**2,456.91**
Benefit expenditure (billion kip)	**268.95**	**622.2**	**1,466.1**	**3,414.7**	**7,443.2**	**14,813**	**28,550**	**52,744**	**92,819**	**154,180**	**242,698**	**369,566**	**554,577**	**819,448**
Old age pension	177.24	407.3	983.3	2,388.9	5,391.7	10,967	21,466	40,022	70,852	117,666	184,170	278,513	416,605	615,343
Old age lump sum	3.55	5.8	14.7	34.7	47.6	22	7	24	27	41	25	30	34	61
Invalidity pension	37.89	94.6	219.5	471.4	949.9	1,777	3,175	5,427	8,852	13,849	20,988	31,102	45,343	65,168
Widow/er pension	32.14	78.4	179.1	390.7	821.6	1,655	3,241	6,170	11,307	19,838	33,263	53,578	83,338	125,575
Orphan's pension	18.14	36.1	69.4	129.0	232.5	392	661	1,101	1,780	2,787	4,252	6,342	9,256	13,302
PAYG cost rate	**2.58%**	**3.30%**	**4.48%**	**6.25%**	**8.39%**	**11.32%**	**14.86%**	**18.81%**	**22.79%**	**26.17%**	**28.60%**	**30.40%**	**32.01%**	**33.35%**
Old age pension	1.70%	2.16%	3.01%	4.37%	6.08%	8.38%	11.17%	14.27%	17.39%	19.97%	21.71%	22.91%	24.05%	25.05%
Old age lump sum	0.03%	0.03%	0.05%	0.06%	0.05%	0.02%	0.00%	0.01%	0.01%	0.01%	0.00%	0.00%	0.00%	0.00%
Invalidity pension	0.36%	0.50%	0.67%	0.86%	1.07%	1.36%	1.65%	1.94%	2.17%	2.35%	2.47%	2.56%	2.62%	2.65%
Widow/er pension	0.31%	0.42%	0.55%	0.71%	0.93%	1.27%	1.69%	2.20%	2.78%	3.37%	3.92%	4.41%	4.81%	5.11%
Orphan's pension	0.17%	0.19%	0.21%	0.24%	0.26%	0.30%	0.34%	0.39%	0.44%	0.47%	0.50%	0.52%	0.53%	0.54%
AVERAGE AMOUNTS (monthly)														
Insurable earnings (million kip)	**4.71**	**6.92**	**10.19**	**14.98**	**22.05**	**32.47**	**47.77**	**70.44**	**103.46**	**151.02**	**218.39**	**313.19**	**447.01**	**636.02**
Average pension amount (million kip)														
Old age pension	1.22	1.73	2.70	4.20	6.50	10.06	15.35	23.35	34.93	51.71	75.59	109.41	157.37	225.13
Invalidity pension	1.52	2.38	3.68	5.62	8.57	12.99	19.43	29.10	43.42	64.29	94.17	136.58	196.63	281.10
Widow/er pension	0.87	1.29	1.91	2.85	4.26	6.38	9.53	14.32	21.48	32.01	47.28	69.24	100.75	145.63
Orphan's pension	0.34	0.51	0.75	1.11	1.64	2.41	3.53	5.26	7.85	11.63	17.04	24.70	35.46	50.52
System replacement rate														
Old age pension	26%	25%	27%	28%	29%	31%	32%	33%	34%	34%	35%	35%	35%	35%
Invalidity pension	32%	34%	36%	38%	39%	40%	41%	41%	42%	43%	43%	44%	44%	44%
Widow/er pension	18%	19%	19%	19%	19%	20%	20%	20%	21%	21%	22%	22%	23%	23%
Orphan's pension	7%	7%	7%	7%	7%	7%	7%	7%	8%	8%	8%	8%	8%	8%

Table A.9.a. Results of status quo projections for long-term benefits, 2004 – 2099, scenario 3

	Base year	Projection												
	2004	***2005***	***2006***	***2007***	***2008***	***2009***	***2010***	***2011***	***2012***	***2013***	***2014***	***2015***	***2020***	***2025***
DEMOGRAPHIC PROJECTION														
Insured workers	**27,769**	**28,651**	**29,522**	**30,389**	**31,246**	**32,077**	**32,893**	**33,785**	**34,667**	**35,536**	**36,381**	**37,209**	**41,443**	**45,408**
Number of beneficiaries														
Old age pension	0	0	0	2	22	79	169	279	404	546	707	891	2,080	3,643
Old age lump sum	25	67	101	112	91	62	60	63	61	56	47	37	20	30
Invalidity pension	0	0	0	1	4	13	26	43	63	86	112	140	314	527
Widow/er pension	0	0	0	0	4	15	34	57	86	118	154	193	449	807
Orphan's pension	0	0	0	5	29	83	162	260	368	481	593	700	1,119	1,300
Demographic ratios														
Old age pension	0%	0%	0%	0.01%	0.09%	0.31%	0.64%	1.0%	1.5%	1.9%	2.4%	3.0%	6.3%	10.0%
Invalidity pension	0%	0%	0%	0.00%	0.02%	0.05%	0.10%	0.2%	0.2%	0.3%	0.4%	0.5%	0.9%	1.4%
Widow/er pension	0%	0%	0%	0%	0.02%	0.06%	0.13%	0.2%	0.3%	0.4%	0.5%	0.7%	1.4%	2.2%
Orphan's pension	0%	0%	0%	0.02%	0.12%	0.32%	0.62%	1.0%	1.3%	1.7%	2.0%	2.4%	3.4%	3.6%
FINANCIAL PROJECTION														
Total insurable earnings (trillion kip)	**0.15**	**0.17**	**0.20**	**0.22**	**0.25**	**0.28**	**0.31**	**0.35**	**0.39**	**0.43**	**0.48**	**0.53**	**0.84**	**1.28**
Benefit expenditure (billion kip)	**0.04**	**0.06**	**0.13**	**0.20**	**0.28**	**0.50**	**0.96**	**1.64**	**2.54**	**3.68**	**5.09**	**6.87**	**22.15**	**50.90**
Old age pension	0	0	0	0.00	0.06	0.25	0.59	1.06	1.68	2.47	3.48	4.77	15.86	36.38
Old age lump sum	0.04	0.06	0.13	0.20	0.18	0.13	0.12	0.13	0.15	0.15	0.14	0.11	0.10	0.19
Invalidity pension	0	0	0	0.00	0.01	0.04	0.08	0.14	0.23	0.34	0.49	0.67	2.28	5.80
Widow/er pension	0	0	0	0	0.01	0.02	0.06	0.11	0.18	0.27	0.39	0.54	1.94	5.15
Orphan's pension	0	0	0	0.00	0.02	0.06	0.12	0.20	0.31	0.44	0.60	0.78	1.96	3.39
PAYG cost rate	**0.03%**	**0.03%**	**0.06%**	**0.09%**	**0.11%**	**0.18%**	**0.31%**	**0.47%**	**0.65%**	**0.85%**	**1.07%**	**1.30%**	**2.65%**	**3.97%**
Old age pension	0%	0%	0%	0.00%	0.02%	0.09%	0.19%	0.30%	0.43%	0.57%	0.73%	0.90%	1.90%	2.84%
Old age lump sum	0.03%	0.03%	0.06%	0.09%	0.07%	0.05%	0.04%	0.04%	0.04%	0.04%	0.03%	0.02%	0.01%	0.01%
Invalidity pension	0%	0%	0%	0.00%	0.00%	0.01%	0.03%	0.04%	0.06%	0.08%	0.10%	0.13%	0.27%	0.45%
Widow/er pension	0%	0%	0%	0%	0.00%	0.01%	0.02%	0.03%	0.05%	0.06%	0.08%	0.10%	0.23%	0.40%
Orphan's pension	0%	0%	0%	0.00%	0.01%	0.02%	0.04%	0.06%	0.08%	0.10%	0.13%	0.15%	0.23%	0.26%
AVERAGE AMOUNTS (monthly)														
Insurable earnings (million kip)	**0.58**	**0.63**	**0.69**	**0.76**	**0.83**	**0.91**	**1.00**	**1.08**	**1.18**	**1.28**	**1.39**	**1.51**	**2.21**	**3.21**
Average pension amount (million kip)														
Old age pension	n.a.	n.a.	n.a.	0.17	0.23	0.26	0.29	0.32	0.35	0.38	0.41	0.45	0.67	0.91
Invalidity pension	n.a.	n.a.	n.a.	0.20	0.21	0.23	0.25	0.27	0.30	0.33	0.36	0.40	0.63	0.97
Widow/er pension	n.a.	n.a.	n.a.	n.a.	0.12	0.13	0.14	0.16	0.18	0.20	0.22	0.24	0.38	0.58
Orphan's pension	n.a.	n.a.	n.a.	0.05	0.05	0.05	0.06	0.06	0.07	0.08	0.08	0.09	0.15	0.22
System replacement rate														
Old age pension	n.a.	n.a.	n.a.	23%	28%	29%	29%	29%	29%	29%	30%	30%	30%	28%
Invalidity pension	n.a.	n.a.	n.a.	26%	25%	25%	25%	25%	25%	26%	26%	26%	28%	30%
Widow/er pension	n.a.	n.a.	n.a.	n.a.	14%	14%	15%	15%	15%	15%	16%	16%	17%	18%
Orphan's pension	n.a.	n.a.	n.a.	7%	6%	6%	6%	6%	6%	6%	6%	6%	7%	7%

Table A.9.b. Results of status quo projections for long-term benefits, 2004 – 2099, scenario 3 *(continued)*

	2030	2035	2040	2045	2050	2055	2060	2065	2070	2075	2080	2085	2090	2095
DEMOGRAPHIC PROJECTION														
Insured workers	**48,983**	**52,064**	**54,302**	**55,688**	**56,240**	**56,350**	**56,224**	**55,667**	**55,044**	**54,543**	**54,318**	**54,267**	**54,184**	**54,007**
Number of beneficiaries														
Old age pension	5,747	8,608	12,517	16,223	19,870	22,837	25,669	28,221	30,371	31,687	32,134	32,207	32,406	32,676
Old age lump sum	42	82	100	32	14	5	7	6	4	4	4	3	3	8
Invalidity pension	762	1,027	1,322	1,625	1,905	2,157	2,375	2,545	2,653	2,711	2,739	2,755	2,759	2,751
Widow/er pension	1,279	1,882	2,614	3,446	4,309	5,144	5,899	6,551	7,081	7,491	7,793	7,994	8,091	8,085
Orphan's pension	1,402	1,602	1,834	2,046	2,193	2,313	2,412	2,503	2,570	2,601	2,606	2,595	2,565	2,532
Demographic ratios														
Old age pension	14.7%	20.7%	28.8%	36.4%	44.2%	50.7%	57.1%	63.4%	69.0%	72.6%	73.9%	74.2%	74.8%	75.6%
Invalidity pension	1.9%	2.5%	3.0%	3.6%	4.2%	4.8%	5.3%	5.7%	6.0%	6.2%	6.3%	6.3%	6.4%	6.4%
Widow/er pension	3.3%	4.5%	6.0%	7.7%	9.6%	11.4%	13.1%	14.7%	16.1%	17.2%	17.9%	18.4%	18.7%	18.7%
Orphan's pension	3.6%	3.8%	4.2%	4.6%	4.9%	5.1%	5.4%	5.6%	5.8%	6.0%	6.0%	6.0%	5.9%	5.9%
FINANCIAL PROJECTION														
Total insurable earnings (trillion kip)	**1.97**	**2.96**	**4.37**	**6.31**	**8.95**	**12.61**	**17.77**	**25.02**	**35.21**	**49.61**	**69.93**	**98.53**	**138.76**	**195.45**
Benefit expenditure (billion kip)	**104.48**	**209.7**	**430.7**	**833.7**	**1,522.4**	**2,593**	**4,282**	**6,886**	**10,746**	**16,131**	**23,370**	**33,265**	**47,353**	**67,381**
Old age pension	74.32	149.7	317.4	630.7	1,173.5	2,011	3,335	5,377	8,404	12,597	18,166	25,743	36,617	52,212
Old age lump sum	0.36	0.8	1.1	0.6	0.3	0	0	0	0	0	1	1	1	4
Invalidity pension	12.79	26.2	50.7	91.9	156.7	256	405	626	937	1,368	1,963	2,791	3,950	5,563
Widow/er pension	11.75	24.5	47.9	89.3	159.5	276	467	773	1,242	1,930	2,902	4,254	6,121	8,679
Orphan's pension	5.26	8.5	13.6	21.3	32.4	49	73	110	163	237	337	476	663	923
PAYG cost rate	**5.31%**	**7.08%**	**9.85%**	**13.21%**	**17.01%**	**20.56%**	**24.10%**	**27.53%**	**30.52%**	**32.52%**	**33.42%**	**33.76%**	**34.12%**	**34.47%**
Old age pension	3.78%	5.05%	7.26%	9.99%	13.11%	15.95%	18.77%	21.49%	23.86%	25.39%	25.98%	26.13%	26.39%	26.71%
Old age lump sum	0.02%	0.03%	0.03%	0.01%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Invalidity pension	0.65%	0.88%	1.16%	1.46%	1.75%	2.03%	2.28%	2.50%	2.66%	2.76%	2.81%	2.83%	2.85%	2.85%
Widow/er pension	0.60%	0.83%	1.10%	1.41%	1.78%	2.19%	2.63%	3.09%	3.53%	3.89%	4.15%	4.32%	4.41%	4.44%
Orphan's pension	0.27%	0.29%	0.31%	0.34%	0.36%	0.39%	0.41%	0.44%	0.46%	0.48%	0.48%	0.48%	0.48%	0.47%
AVERAGE AMOUNTS (monthly)														
Insurable earnings (million kip)	**4.71**	**6.92**	**10.19**	**14.98**	**22.05**	**32.47**	**47.77**	**70.44**	**103.46**	**151.02**	**218.39**	**313.19**	**447.01**	**636.02**
Average pension amount (million kip)														
Old age pension	1.22	1.73	2.70	4.20	6.50	10.06	15.35	23.35	34.93	51.71	75.59	109.41	157.37	225.13
Invalidity pension	1.52	2.38	3.68	5.62	8.57	12.99	19.43	29.10	43.42	64.29	94.17	136.58	196.63	281.10
Widow/er pension	0.87	1.29	1.91	2.85	4.26	6.38	9.53	14.32	21.48	32.01	47.28	69.24	100.75	145.63
Orphan's pension	0.34	0.51	0.75	1.11	1.64	2.41	3.53	5.26	7.85	11.63	17.04	24.70	35.46	50.52
System replacement rate														
Old age pension	26%	25%	27%	28%	29%	31%	32%	33%	34%	34%	35%	35%	35%	35%
Invalidity pension	32%	34%	36%	38%	39%	40%	41%	41%	42%	43%	43%	44%	44%	44%
Widow/er pension	18%	19%	19%	19%	19%	20%	20%	20%	21%	21%	22%	22%	23%	23%
Orphan's pension	7%	7%	7%	7%	7%	7%	7%	7%	8%	8%	8%	8%	8%	8%

Annex G

Statistical tables

Table A.10. Assumptions on family composition of insured

Age[a]	Male insured				Female insured			
	Proportion with a living spouse	Average age of spouse	Average nr. of dependent children[b]	Average age of dependent children[b]	Proportion with a living spouse	Average age of spouse	Average nr. of dependent children[b]	Average age of dependent children[b]
15	0.04	15	0.001	0	0.007	21	0.005	0
20	0.47	20	0.02	2	0.28	25	0.67	2
25	0.62	23	0.19	4	0.55	30	1.34	4
30	0.73	27	0.70	7	0.72	34	2.00	7
35	0.80	31	1.47	9	0.78	39	2.00	9
40	0.80	35	2.00	12	0.80	44	2.00	12
45	0.80	39	2.00	14	0.78	50	2.00	14
50	0.79	43	2.00	14	0.77	55	2.00	14
55	0.78	48	1.98	14	0.75	59	1.16	14
60	0.76	52	1.52	14	0.64	61	0.33	14
65	0.74	57	1.02	14	0.51	63	0.20	14
70	0.72	62	0.72	14	0.37	68	0.12	14
75	0.69	67	0.52	14	0.24	73	0.10	14
80	0.61	72	0.31	14	0.10	78	0.10	14
85	0.52	77	0.13	14	0.10	83	0.10	14
90	0.43	82	0.13	14	0.10	88	0.10	14
95	0.34	87	0.13	14	0.10	93	0.10	14
100	0.25	92	0.13	14	0.10	98	0.10	14

a. In years; for ages in between those displayed, family statistics have been determined via linear interpolation;
b. Children aged under 18 or 25 if in full-time education; includes adopted children.

Source: ILO assumptions based on sample data provided by SSO, 2005.

Table A.11. Invalidity incidence rates[a]

Age[b]	Males[c]	Females[c]
17	0.005	0.006
22	0.04	0.02
27	0.12	0.13
32	0.25	0.29
37	0.37	0.72
42	0.85	1.34
47	2.02	2.73
52+	5.42	6.38

a. Assumption based on permanent invalidity incidence rates experienced in 2002 by the Social Security Scheme of Malaysia (SOCSO);
b. For other ages, incidence rates have been obtained via linear interpolation between the rates displayed;
c. Cases per thousand insured.

Source: ILO, 2005.

Annex H

Projected life tables, SSO members, 2004, 2050, and 2099

Table A.12.a. Projected life table, SSO members, 2004

Males				Females			
x	l_x	q_x	$^{o}e_x$	x	l_x	q_x	$^{o}e_x$
Age	Number of lives[a]	Probability of death[b]	Life expectancy[c]	Age	Number of lives[a]	Probability of death[b]	Life expectancy[c]
0	100,000	0.08592	60.6	0	100,000	0.08261	62.6
1	91,408	0.02298	65.3	1	91,739	0.02255	67.2
2	89,308	0.01112	65.8	2	89,671	0.01093	67.7
3	88,315	0.00653	65.5	3	88,691	0.00641	67.5
4	87,738	0.00427	64.9	4	88,123	0.00416	66.9
5	87,364	0.00299	64.2	5	87,756	0.00289	66.2
6	87,102	0.00221	63.4	6	87,502	0.00211	65.4
7	86,910	0.00171	62.6	7	87,317	0.00161	64.5
8	86,761	0.00137	61.7	8	87,177	0.00127	63.6
9	86,642	0.00116	60.7	9	87,066	0.00105	62.7
10	86,542	0.00102	59.8	10	86,975	0.00090	61.8
11	86,453	0.00095	58.9	11	86,897	0.00082	60.8
12	86,371	0.00092	57.9	12	86,826	0.00079	59.9
13	86,292	0.00092	57.0	13	86,757	0.00080	58.9
14	86,213	0.00094	56.0	14	86,688	0.00083	58.0
15	86,132	0.00098	55.1	15	86,616	0.00088	57.0
16	86,048	0.00102	54.1	16	86,540	0.00095	56.1
17	85,961	0.00107	53.2	17	86,458	0.00103	55.1
18	85,869	0.00112	52.2	18	86,369	0.00111	54.2
19	85,772	0.00117	51.3	19	86,273	0.00118	53.2
20	85,672	0.00121	50.4	20	86,171	0.00125	52.3
21	85,568	0.00127	49.4	21	86,064	0.00131	51.4
22	85,460	0.00131	48.5	22	85,951	0.00137	50.4
23	85,348	0.00136	47.6	23	85,834	0.00141	49.5
24	85,232	0.00140	46.6	24	85,712	0.00146	48.6
25	85,113	0.00145	45.7	25	85,587	0.00149	47.6
26	84,989	0.00151	44.7	26	85,459	0.00153	46.7
27	84,861	0.00157	43.8	27	85,328	0.00157	45.8
28	84,727	0.00165	42.9	28	85,195	0.00161	44.9
29	84,588	0.00173	42.0	29	85,058	0.00165	43.9
30	84,442	0.00182	41.0	30	84,918	0.00169	43.0
31	84,288	0.00193	40.1	31	84,775	0.00175	42.1
32	84,125	0.00205	39.2	32	84,626	0.00181	41.1
33	83,952	0.00219	38.3	33	84,474	0.00188	40.2
34	83,769	0.00234	37.3	34	84,315	0.00196	39.3
35	83,573	0.00251	36.4	35	84,150	0.00205	38.4
36	83,363	0.00271	35.5	36	83,977	0.00217	37.4
37	83,137	0.00291	34.6	37	83,795	0.00229	36.5
38	82,895	0.00315	33.7	38	83,603	0.00245	35.6
39	82,634	0.00341	32.8	39	83,398	0.00262	34.7
40	82,352	0.00371	31.9	40	83,180	0.00281	33.8
41	82,047	0.00402	31.0	41	82,946	0.00303	32.9
42	81,717	0.00438	30.2	42	82,695	0.00327	32.0
43	81,359	0.00476	29.3	43	82,425	0.00355	31.1
44	80,971	0.00518	28.4	44	82,132	0.00386	30.2
45	80,552	0.00565	27.6	45	81,815	0.00420	29.3
46	80,097	0.00616	26.7	46	81,472	0.00458	28.4
47	79,604	0.00671	25.9	47	81,098	0.00500	27.6
48	79,069	0.00732	25.1	48	80,693	0.00547	26.7

a. Number of survivors out of 100,000 born alive;
b. Probability of dying within one year; it is assumed that all persons will die before reaching the age of 100;
c. The life expectancy at a given age represents the average number of years of life remaining if the person were to experience the mortality rates displayed over the course of their remaining lifetime.

Source: ILO projection, 2005.

Table A.12.b. Projected life table, SSO members, 2004 *(continued)*

Males				Females			
x	l_x	q_x	$^{o}e_x$	x	l_x	q_x	$^{o}e_x$
Age	Number of lives[a]	Probability of death[b]	Life expectancy[c]	Age	Number of lives[a]	Probability of death[b]	Life expectancy[c]
49	78,490	0.00799	24.2	49	80,252	0.00598	25.8
50	77,863	0.00872	23.4	50	79,772	0.00656	25.0
51	77,183	0.00952	22.6	51	79,248	0.00719	24.1
52	76,449	0.01039	21.9	52	78,678	0.00789	23.3
53	75,655	0.01134	21.1	53	78,057	0.00866	22.5
54	74,797	0.01237	20.3	54	77,381	0.00951	21.7
55	73,872	0.01351	19.6	55	76,645	0.01044	20.9
56	72,874	0.01474	18.8	56	75,845	0.01146	20.1
57	71,800	0.01609	18.1	57	74,975	0.01260	19.3
58	70,644	0.01756	17.4	58	74,031	0.01384	18.6
59	69,404	0.01916	16.7	59	73,006	0.01521	17.8
60	68,074	0.02090	16.0	60	71,896	0.01670	17.1
61	66,651	0.02280	15.3	61	70,695	0.01835	16.4
62	65,132	0.02487	14.7	62	69,398	0.02016	15.7
63	63,512	0.02713	14.0	63	67,999	0.02215	15.0
64	61,789	0.02958	13.4	64	66,493	0.02432	14.3
65	59,961	0.03224	12.8	65	64,876	0.02670	13.7
66	58,028	0.03514	12.2	66	63,143	0.02931	13.0
67	55,990	0.03828	11.6	67	61,292	0.03218	12.4
68	53,846	0.04170	11.1	68	59,320	0.03531	11.8
69	51,601	0.04540	10.6	69	57,225	0.03873	11.2
70	49,258	0.04942	10.0	70	55,009	0.04247	10.6
71	46,824	0.05377	9.5	71	52,673	0.04655	10.1
72	44,306	0.05848	9.0	72	50,221	0.05101	9.6
73	41,715	0.06358	8.6	73	47,659	0.05587	9.0
74	39,063	0.06910	8.1	74	44,996	0.06117	8.6
75	36,364	0.07504	7.7	75	42,244	0.06693	8.1
76	33,635	0.08147	7.3	76	39,416	0.07319	7.6
77	30,895	0.08838	6.9	77	36,532	0.07998	7.2
78	28,164	0.09582	6.5	78	33,610	0.08736	6.8
79	25,466	0.10382	6.1	79	30,674	0.09534	6.4
80	22,822	0.11239	5.8	80	27,749	0.10395	6.0
81	20,257	0.12158	5.4	81	24,865	0.11326	5.6
82	17,794	0.13142	5.1	82	22,049	0.12329	5.3
83	15,456	0.14192	4.8	83	19,330	0.13406	4.9
84	13,262	0.15312	4.5	84	16,739	0.14563	4.6
85	11,231	0.16502	4.3	85	14,301	0.15801	4.3
86	9,378	0.17765	4.0	86	12,041	0.17123	4.1
87	7,712	0.19104	3.7	87	9,980	0.18531	3.8
88	6,239	0.20518	3.5	88	8,130	0.20028	3.5
89	4,959	0.22008	3.3	89	6,502	0.21612	3.3
90	3,867	0.23574	3.1	90	5,097	0.23286	3.1
91	2,956	0.25215	2.9	91	3,910	0.25049	2.9
92	2,210	0.26931	2.7	92	2,930	0.26897	2.7
93	1,615	0.28719	2.5	93	2,142	0.28830	2.5
94	1,151	0.30576	2.3	94	1,525	0.30844	2.3
95	799	0.32498	2.1	95	1,054	0.32931	2.0
96	540	0.34480	1.8	96	707	0.35090	1.8
97	353	0.36518	1.5	97	459	0.37311	1.5
98	224	0.38606	1.1	98	288	0.39586	1.1
99	138	1.00000	0.5	99	174	1.00000	0.5
100	0			100	0	0.00000	

a. Number of survivors out of 100,000 born alive;
b. Probability of dying within one year; it is assumed that all persons will die before reaching the age of 100;
c. The life expectancy at a given age represents the average number of years of life remaining if the person were to experience the mortality rates displayed over the course of their remaining lifetime.

Source: ILO projection, 2005.

Table A.13.a. Projected life table, SSO members, 2050

Males				Females			
x	l_x	q_x	$^{o}e_x$	x	l_x	q_x	$^{o}e_x$
Age	Number of lives[a]	Probability of death[b]	Life expectancy[c]	Age	Number of lives[a]	Probability of death[b]	Life expectancy[c]
0	100,000	0.03600	72.4	0	100,000	0.03345	75.9
1	96,400	0.00587	74.1	1	96,655	0.00501	77.5
2	95,834	0.00271	73.5	2	96,170	0.00221	76.9
3	95,575	0.00160	72.7	3	95,957	0.00126	76.1
4	95,422	0.00107	71.8	4	95,836	0.00082	75.2
5	95,320	0.00077	70.9	5	95,757	0.00058	74.2
6	95,247	0.00058	70.0	6	95,702	0.00042	73.3
7	95,192	0.00046	69.0	7	95,662	0.00033	72.3
8	95,148	0.00039	68.0	8	95,630	0.00026	71.3
9	95,111	0.00033	67.1	9	95,605	0.00022	70.3
10	95,079	0.00030	66.1	10	95,584	0.00019	69.4
11	95,051	0.00028	65.1	11	95,566	0.00017	68.4
12	95,024	0.00028	64.1	12	95,549	0.00017	67.4
13	94,997	0.00028	63.1	13	95,532	0.00017	66.4
14	94,970	0.00029	62.2	14	95,516	0.00018	65.4
15	94,942	0.00031	61.2	15	95,499	0.00019	64.4
16	94,912	0.00033	60.2	16	95,481	0.00020	63.4
17	94,881	0.00034	59.2	17	95,463	0.00021	62.4
18	94,848	0.00036	58.2	18	95,442	0.00022	61.5
19	94,814	0.00038	57.3	19	95,421	0.00023	60.5
20	94,778	0.00039	56.3	20	95,398	0.00024	59.5
21	94,741	0.00041	55.3	21	95,375	0.00026	58.5
22	94,702	0.00042	54.3	22	95,350	0.00027	57.5
23	94,662	0.00044	53.3	23	95,324	0.00028	56.5
24	94,621	0.00045	52.4	24	95,297	0.00029	55.5
25	94,578	0.00047	51.4	25	95,270	0.00030	54.6
26	94,534	0.00049	50.4	26	95,241	0.00031	53.6
27	94,488	0.00051	49.4	27	95,212	0.00033	52.6
28	94,440	0.00054	48.5	28	95,180	0.00034	51.6
29	94,389	0.00057	47.5	29	95,148	0.00036	50.6
30	94,335	0.00061	46.5	30	95,114	0.00039	49.6
31	94,277	0.00065	45.5	31	95,077	0.00041	48.7
32	94,216	0.00070	44.6	32	95,038	0.00043	47.7
33	94,150	0.00075	43.6	33	94,997	0.00047	46.7
34	94,079	0.00082	42.6	34	94,952	0.00051	45.7
35	94,002	0.00090	41.7	35	94,903	0.00055	44.7
36	93,918	0.00098	40.7	36	94,852	0.00060	43.8
37	93,825	0.00107	39.7	37	94,794	0.00066	42.8
38	93,725	0.00118	38.8	38	94,732	0.00073	41.8
39	93,614	0.00130	37.8	39	94,663	0.00080	40.9
40	93,493	0.00144	36.9	40	94,587	0.00089	39.9
41	93,358	0.00158	35.9	41	94,504	0.00098	38.9
42	93,211	0.00175	35.0	42	94,411	0.00109	38.0
43	93,047	0.00194	34.1	43	94,308	0.00121	37.0
44	92,867	0.00214	33.1	44	94,194	0.00134	36.0
45	92,668	0.00238	32.2	45	94,067	0.00150	35.1
46	92,447	0.00264	31.3	46	93,926	0.00167	34.1
47	92,204	0.00292	30.3	47	93,770	0.00185	33.2
48	91,934	0.00325	29.4	48	93,596	0.00205	32.3
49	91,636	0.00360	28.5	49	93,404	0.00229	31.3
50	91,306	0.00400	27.6	50	93,189	0.00255	30.4
51	90,941	0.00443	26.7	51	92,952	0.00283	29.5
52	90,538	0.00492	25.9	52	92,689	0.00316	28.6
53	90,093	0.00546	25.0	53	92,396	0.00353	27.6

a. Number of survivors out of 100,000 born alive;
b. Probability of dying within one year; it is assumed that all persons will die before reaching the age of 100;
c. The life expectancy at a given age represents the average number of years of life remaining if the person were to experience the mortality rates displayed over the course of their remaining lifetime.

Source: ILO projection, 2005.

Table A.13.b. Projected life table, SSO members, 2050 *(continued)*

Males				Females			
x	l_x	q_x	$^{o}e_x$	x	l_x	q_x	$^{o}e_x$
Age	Number of lives[a]	Probability of death[b]	Life expectancy[c]	Age	Number of lives[a]	Probability of death[b]	Life expectancy[c]
54	89,601	0.00607	24.1	54	92,070	0.00394	26.7
55	89,057	0.00673	23.3	55	91,706	0.00441	25.8
56	88,458	0.00747	22.4	56	91,302	0.00492	25.0
57	87,797	0.00829	21.6	57	90,853	0.00550	24.1
58	87,069	0.00921	20.8	58	90,354	0.00613	23.2
59	86,268	0.01022	19.9	59	89,800	0.00684	22.3
60	85,386	0.01134	19.1	60	89,186	0.00763	21.5
61	84,418	0.01258	18.4	61	88,505	0.00852	20.7
62	83,355	0.01396	17.6	62	87,751	0.00950	19.8
63	82,192	0.01549	16.8	63	86,917	0.01060	19.0
64	80,919	0.01718	16.1	64	85,995	0.01183	18.2
65	79,528	0.01905	15.4	65	84,978	0.01321	17.4
66	78,013	0.02112	14.6	66	83,855	0.01474	16.7
67	76,365	0.02342	13.9	67	82,619	0.01645	15.9
68	74,577	0.02595	13.3	68	81,260	0.01835	15.2
69	72,641	0.02875	12.6	69	79,768	0.02047	14.4
70	70,553	0.03185	12.0	70	78,136	0.02283	13.7
71	68,306	0.03527	11.3	71	76,352	0.02545	13.0
72	65,897	0.03903	10.7	72	74,409	0.02838	12.4
73	63,325	0.04319	10.2	73	72,297	0.03162	11.7
74	60,590	0.04776	9.6	74	70,011	0.03523	11.1
75	57,696	0.05279	9.0	75	67,544	0.03925	10.5
76	54,651	0.05831	8.5	76	64,893	0.04367	9.9
77	51,464	0.06438	8.0	77	62,059	0.04856	9.3
78	48,151	0.07103	7.5	78	59,046	0.05396	8.7
79	44,731	0.07830	7.1	79	55,860	0.05991	8.2
80	41,228	0.08626	6.6	80	52,513	0.06650	7.7
81	37,672	0.09494	6.2	81	49,021	0.07372	7.2
82	34,095	0.10439	5.8	82	45,407	0.08165	6.7
83	30,536	0.11467	5.4	83	41,700	0.09035	6.3
84	27,034	0.12581	5.1	84	37,932	0.09988	5.9
85	23,633	0.13788	4.7	85	34,143	0.11037	5.5
86	20,375	0.15089	4.4	86	30,375	0.12174	5.1
87	17,300	0.16490	4.1	87	26,677	0.13412	4.7
88	14,447	0.17995	3.8	88	23,099	0.14757	4.4
89	11,848	0.19602	3.5	89	19,691	0.16215	4.1
90	9,525	0.21318	3.3	90	16,498	0.17792	3.7
91	7,495	0.23139	3.0	91	13,563	0.19494	3.4
92	5,760	0.25068	2.8	92	10,919	0.21323	3.1
93	4,316	0.27100	2.6	93	8,590	0.23283	2.9
94	3,147	0.29232	2.3	94	6,590	0.25374	2.6
95	2,227	0.31460	2.1	95	4,918	0.27598	2.3
96	1,526	0.33777	1.8	96	3,561	0.29953	2.0
97	1,011	0.36175	1.5	97	2,494	0.32437	1.6
98	645	0.38643	1.1	98	1,685	0.35045	1.1
99	396	1.00000	0.5	99	1,095	1.00000	0.5
100	0				0		

a. Number of survivors out of 100,000 born alive;
b. Probability of dying within one year; it is assumed that all persons will die before reaching the age of 100;
c. The life expectancy at a given age represents the average number of years of life remaining if the person were to experience the mortality rates displayed over the course of their remaining lifetime.

Source: ILO projection, 2005.

Table A.14.a. Projected life table, SSO members, 2099

Males				Females			
x	l_x	q_x	$^{o}e_x$	x	l_x	q_x	$^{o}e_x$
Age	Number of lives[a]	Probability of death[b]	Life expectancy[c]	Age	Number of lives[a]	Probability of death[b]	Life expectancy[c]
0	100,000	0.02138	76.6	0	100,000	0.01863	80.8
1	97,862	0.00282	77.3	1	98,137	0.00253	81.3
2	97,586	0.00131	76.5	2	97,889	0.00114	80.6
3	97,458	0.00079	75.6	3	97,777	0.00067	79.6
4	97,381	0.00055	74.7	4	97,712	0.00045	78.7
5	97,328	0.00040	73.7	5	97,668	0.00032	77.7
6	97,289	0.00031	72.8	6	97,637	0.00023	76.8
7	97,259	0.00024	71.8	7	97,614	0.00018	75.8
8	97,235	0.00020	70.8	8	97,596	0.00015	74.8
9	97,216	0.00018	69.8	9	97,582	0.00012	73.8
10	97,199	0.00016	68.8	10	97,570	0.00011	72.8
11	97,183	0.00015	67.8	11	97,560	0.00010	71.8
12	97,168	0.00015	66.8	12	97,550	0.00010	70.8
13	97,153	0.00016	65.8	13	97,540	0.00010	69.8
14	97,138	0.00017	64.9	14	97,531	0.00011	68.8
15	97,121	0.00018	63.9	15	97,520	0.00012	67.8
16	97,103	0.00020	62.9	16	97,509	0.00013	66.9
17	97,084	0.00021	61.9	17	97,496	0.00014	65.9
18	97,064	0.00022	60.9	18	97,482	0.00015	64.9
19	97,043	0.00023	59.9	19	97,468	0.00016	63.9
20	97,021	0.00024	58.9	20	97,452	0.00017	62.9
21	96,998	0.00025	57.9	21	97,436	0.00018	61.9
22	96,973	0.00026	57.0	22	97,419	0.00019	60.9
23	96,948	0.00027	56.0	23	97,401	0.00020	59.9
24	96,922	0.00028	55.0	24	97,382	0.00020	58.9
25	96,894	0.00030	54.0	25	97,363	0.00021	57.9
26	96,865	0.00032	53.0	26	97,342	0.00022	57.0
27	96,835	0.00033	52.0	27	97,321	0.00023	56.0
28	96,803	0.00034	51.1	28	97,298	0.00024	55.0
29	96,770	0.00037	50.1	29	97,274	0.00026	54.0
30	96,734	0.00039	49.1	30	97,249	0.00028	53.0
31	96,696	0.00042	48.1	31	97,221	0.00030	52.0
32	96,655	0.00045	47.1	32	97,192	0.00032	51.0
33	96,612	0.00049	46.2	33	97,162	0.00034	50.1
34	96,565	0.00052	45.2	34	97,129	0.00037	49.1
35	96,515	0.00057	44.2	35	97,093	0.00039	48.1
36	96,460	0.00062	43.2	36	97,055	0.00043	47.1
37	96,400	0.00068	42.2	37	97,013	0.00047	46.1
38	96,334	0.00076	41.3	38	96,967	0.00053	45.2
39	96,261	0.00084	40.3	39	96,916	0.00059	44.2
40	96,180	0.00093	39.3	40	96,858	0.00068	43.2
41	96,090	0.00105	38.4	41	96,793	0.00075	42.2
42	95,989	0.00118	37.4	42	96,720	0.00084	41.3
43	95,876	0.00132	36.5	43	96,638	0.00094	40.3
44	95,749	0.00150	35.5	44	96,548	0.00104	39.3
45	95,605	0.00171	34.6	45	96,448	0.00116	38.4
46	95,442	0.00190	33.6	46	96,336	0.00127	37.4
47	95,260	0.00212	32.7	47	96,214	0.00139	36.5
48	95,059	0.00235	31.8	48	96,080	0.00151	35.5
49	94,836	0.00259	30.8	49	95,935	0.00165	34.6
50	94,590	0.00283	29.9	50	95,777	0.00177	33.6
51	94,322	0.00314	29.0	51	95,607	0.00195	32.7
52	94,026	0.00351	28.1	52	95,420	0.00216	31.7
53	93,696	0.00392	27.2	53	95,214	0.00241	30.8

[a] Number of survivors out of 100,000 born alive;
[b] Probability of dying within one year; it is assumed that all persons will die before reaching the age of 100;
[c] The life expectancy at a given age represents the average number of years of life remaining if the person were to experience the mortality rates displayed over the course of their remaining lifetime.

Source: ILO projection, 2005.

Table A.14.b. Projected life table, SSO members, 2099 *(continued)*

Males				Females			
x	l_x	q_x	$^{o}e_x$	x	l_x	q_x	$^{o}e_x$
Age	Number of lives[a]	Probability of death[b]	Life expectancy[c]	Age	Number of lives[a]	Probability of death[b]	Life expectancy[c]
54	93,329	0.00439	26.3	54	94,985	0.00269	29.9
55	92,920	0.00496	25.4	55	94,730	0.00305	29.0
56	92,459	0.00553	24.5	56	94,441	0.00339	28.1
57	91,948	0.00615	23.6	57	94,121	0.00378	27.1
58	91,382	0.00684	22.8	58	93,765	0.00419	26.2
59	90,757	0.00758	21.9	59	93,372	0.00465	25.4
60	90,069	0.00838	21.1	60	92,937	0.00515	24.5
61	89,314	0.00930	20.3	61	92,459	0.00572	23.6
62	88,483	0.01033	19.5	62	91,930	0.00636	22.7
63	87,569	0.01147	18.7	63	91,345	0.00708	21.9
64	86,565	0.01275	17.9	64	90,698	0.00789	21.0
65	85,461	0.01419	17.1	65	89,983	0.00881	20.2
66	84,248	0.01578	16.3	66	89,190	0.00983	19.4
67	82,919	0.01756	15.6	67	88,313	0.01098	18.6
68	81,463	0.01954	14.9	68	87,344	0.01227	17.8
69	79,872	0.02174	14.2	69	86,272	0.01370	17.0
70	78,135	0.02422	13.5	70	85,090	0.01529	16.2
71	76,243	0.02693	12.8	71	83,788	0.01711	15.4
72	74,189	0.02993	12.1	72	82,355	0.01915	14.7
73	71,969	0.03325	11.5	73	80,778	0.02143	14.0
74	69,575	0.03694	10.9	74	79,047	0.02398	13.3
75	67,005	0.04098	10.3	75	77,152	0.02692	12.6
76	64,259	0.04551	9.7	76	75,075	0.03003	11.9
77	61,335	0.05051	9.1	77	72,821	0.03344	11.3
78	58,236	0.05606	8.6	78	70,386	0.03718	10.6
79	54,972	0.06219	8.0	79	67,769	0.04131	10.0
80	51,553	0.06907	7.5	80	64,969	0.04598	9.4
81	47,992	0.07648	7.1	81	61,982	0.05097	8.9
82	44,322	0.08458	6.6	82	58,822	0.05645	8.3
83	40,573	0.09344	6.2	83	55,502	0.06251	7.8
84	36,782	0.10315	5.8	84	52,032	0.06922	7.3
85	32,988	0.11359	5.4	85	48,430	0.07701	6.8
86	29,241	0.12522	5.0	86	44,701	0.08520	6.3
87	25,579	0.13795	4.6	87	40,892	0.09426	5.9
88	22,051	0.15183	4.3	88	37,038	0.10432	5.4
89	18,703	0.16691	4.0	89	33,174	0.11555	5.0
90	15,581	0.18344	3.7	90	29,341	0.12818	4.6
91	12,723	0.20092	3.4	91	25,580	0.14231	4.2
92	10,167	0.21962	3.1	92	21,940	0.15811	3.8
93	7,934	0.23955	2.8	93	18,471	0.17574	3.4
94	6,033	0.26069	2.5	94	15,225	0.19541	3.0
95	4,460	0.28305	2.3	95	12,250	0.21731	2.6
96	3,198	0.30657	2.0	96	9,588	0.24166	2.2
97	2,218	0.33121	1.6	97	7,271	0.26864	1.7
98	1,483	0.35693	1.1	98	5,317	0.29845	1.2
99	954	1.00000	0.5	99	3,730	1.00000	0.5
100	0			100	0		

a. Number of survivors out of 100,000 born alive;
b. Probability of dying within one year; it is assumed that all persons will die before reaching the age of 100;
c. The life expectancy at a given age represents the average number of years of life remaining if the person were to experience the mortality rates displayed over the course of their remaining lifetime.

Source: ILO projection, 2005.

Annex I

Structure of the ILO pension model