International Labour Organization

Malaysia

Technical Note on Extension of Coverage Following the Eleventh Actuarial Valuation of the Employees' Social Security Act

Regional Actuarial Services Unit (RAS), DWT for East and South-East Asia and the Pacific, Bangkok

ILO Global Employment Injury Programme (ILO/GEIP), Enterprises Department, Geneva

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Introduction

The Social Security Organization (SOCSO) of Malaysia requested the International Labour Organization (ILO) to carry out the review and a Funds-in-Trust agreement was negotiated between the ILO and the SOCSO for the provision of services for carrying out the eleventh actuarial valuation of the ESSS as of 31 December 2019, the first actuarial valuation of the SESSS at the same date and other actuarial work. These actuarial valuations are covered in the reports called *Report to the Government Social Security Organization: the eleventh actuarial valuation of the Employees' Social Security Act as of 31 December 2019 and Report to the Government Social Security Organization: the first actuarial valuation of the Self-Employed Social Security Act as of 31 December 2019.*

As part of the Funds-in-Trust agreement, several reform options and issues related to ESSS and SESSS were requested to be studied by the ILO, especially in respect of the potential extension of coverage and benefits offered by SOCSO. As such, these elements of the terms of reference between SOCSO and the ILO are analysed in this technical report. Calculations and recommendations often refer to the analysis performed in the actuarial valuations of the schemes; users of this technical note should review these actuarial reports prior to reading this document.

The report has been structured as follows:

- Section 1 deals with the potential extension of the Invalidity Scheme (IS) to the foreign workers.
- Section 2 deals with the potential creation of a new branch of benefit for houseworker/housewives.
- Section 3 deals with the potential creation of a new old-age pension branch for participants to ESSS.
- Section 4 discusses the recent expansion of coverage to domestic workers under the Employment Injury (EI) branch of ESSS.
- The appendices contain a summary of key SOCSO contribution and benefit provisions for proposed EI branch that includes foreign workers, the proposed housemakers/housewives branch and the two

old-age pension scenarios, a description of the methodology used for the valuation, the demographic and macro-economic framework, key data inputs and assumptions related to the calculations and analysis performed in this technical note.

1 No parameters on commutation of small pensions were provided to the ILO. An arbitrary parameter of 20 percent of incapacity was retained by the ILO as the criteria for automatic commutation of small pension.

1

Potential extension of coverage to foreign workers to the IS branch

As the possibility of extending coverage of the IS scheme to foreign workers is being contemplated, an assessment of the impact of this change is presented in this technical note. The financial analysis intends to assess the impact of the proposed extension of coverage.

1.1 Contemplated benefit provision for foreign workers under the IS branch

Act 4 currently offers a benefit package to local workers (Malaysian citizen and permanent residents) under the EI branch. The intent of the stakeholders in the extension is to offer a similar package, with the amount of compensation for foreign workers at a level of 50% of that for local workers. Table 1.1 shows the main elements of the benefit package proposed for foreign workers under the IS extension. For details of the full benefit package of the EI branch for both local and foreign workers, users of the report are invited to read Appendix 1 of this technical note.

▶ Table 1.1 Summary of benefit provision under the proposed IS extension to foreign workers

Category	Description
Invalidity pension	Subject to qualifying contribution conditions, in the event of a serious disablement or disease of a permanent nature that is incurable or unlikely to be cured, occurring before age 60 and as a result of which an employee's earning capacity is reduced by at least two-thirds. Subject to a credit of at least 12 contribution months over the preceding 20 months, or contributions for at least two-thirds of the period since entry subject to a minimum of 12 months, a "full pension" is payable: 25 percent of the reference wage, augmented by 0.5 percent for every 12 contribution months in excess of 12, subject to a maximum of 32.5 percent. The reference wage is the average assumed wage over the last 12 contribution months. If the above conditions are not satisfied, but subject to a contribution record of at least one-third of the period since entry and a minimum of 6 months, a "reduced pension" is payable: 25 percent of the reference wage. In either case, the pension is subject to the minimum of MYR200 per month.
Invalidity grant	If qualifying conditions for pension are not satisfied, subject to a minimum of 6 contributions, the invalidity pension contributions are reimbursed with the addition of simple interest.
Constant care attendance	If the invalidity pensioner needs constant attendance, a constant attendance allowance of MYR250 (in 2019 MYR) per month is payable.
Survivor's pension	Payable on the death of an insured employee before age 60, or of an invalidity pensioner. The basic amount of the pension is the invalidity pension actually received by the deceased or which would have been payable if a claim had been made on the date of death. The provision relating to the eligible beneficiaries, and to their shares, is identical to that which applies to the dependants' benefit.
Funeral benefits	MYR1,000 is payable on the death of an invalidity pensioner, or of an insured employee before age 60 subject to the satisfaction of the minimum qualifying conditions for Invalidity Pension.
Dialysis benefit	Provided to employees suffering from chronic renal failure.
Rehabilitation benefits	Vocational and physical rehabilitation is provided to employees who suffer invalidity.

1.2 Estimation of contribution rate for non-Malaysian workers

Demographic and financial projections have been performed to assess the impact of the extension of coverage on the contribution rate for the IS scheme. The effective date of extension has been set at 1 January 2024 for practical purpose, as it is also the same proposed date for reforms proposed in the document called Technical Note on Potential Reforms and Other Issues Following the Eleventh Actuarial Valuation of the Employees' Social Security Act.

Demographic projections of the covered foreign workers are already performed for the EI branch in the 11th Actuarial Review of ESSS. These projections also include the salary profile of this specific population. These elements of the projection are used for this cost assessment and users of the report are invited to consult the document *Report to the Government and Social Security Organization – The Eleventh Actuarial Valuation of the Employees' Social Security Act as of 31 December 2019* for further details on the data and assumptions related to these projections.

As for IS specific assumptions, they are directly derived from the experience of the local population, with the necessary adjustments made to benefits expressed as a percentage of other benefits . This is mainly due to the fact that the benefit payable is half the amount paid for local workers[1]. The underlying assumption is that the incidence for the foreign worker population is going to be equal to the incidence of local workers population.

The key assumptions are presented in Table 1.2.

▶ Table 1.2 Key assumptions underlying the projections of extension of SOCSO IS coverage to foreign workers

Assumptions	Description
Covered population	As per the foreign worker population projected under the EI scheme (see Appendix 3 of the 11th Actuarial Valuation Report)
Earnings	As per the foreign worker population projected under the EI scheme (see Appendix 3 of the 11th Actuarial Valuation Report)
Incidence rates	As per the local worker population projected under the IS scheme (see Appendix 3 of the 11th Actuarial Valuation Report)
Other	Dialysis costs are projected using the prevalence and severity of the 11th Actuarial Valuation assumptions of ESSS Physical and vocational rehabilitation costs are 160 per cent of CAA costs OSH activities are 80 per cent of CAA costs All other assumptions are the same as those of the base scenario as shown in Appendix 3 of the 11th Actuarial Valuation Report.

Table 1.3 presents financial projections of the IS scheme if the extension to foreign workers under the modified benefit package for this specific group was effective 1 January 2024.

1 In other words, the physical and vocational rehabilitation and the prevention measure costs expressed as a percentage of the constant care allowance is double of that of the 11th Actuarial Valuation assumption as the rehabilitation and the prevention measures are fixed costs

▶ Table 1.3 Financial projections of invalidity and survivors' benefits branch including extension of coverage to foreign workers from 2024 (cost reported according to the funding method) (in MYR million)

Year	Insured salary bill	Invalidity pensions	Dependent benefits		Funeral grants	Dialysis	Other[1]	Total	Total as % of insured salary bill
			Widow (ers)	Other dependents					
2020	166,845	948	977	605	34	303	103	2,970	1.78
2021	180,675	1,053	1,096	705	36	325	116	3,332	1.84
2022	195,474	1,156	1,215	752	39	354	129	3,645	1.86
2023	212,949	1,265	1,341	800	42	388	143	3,978	1.87
2024	253,394	1,386	1,476	892	48	425	157	4,384	1.73
2025	274,950	1,521	1,624	990	52	466	172	4,824	1.75
2026	296,681	1,676	1,787	1,091	56	508	188	5,305	1.79
2027	319,372	1,848	1,965	1,194	60	586	204	5,857	1.83
2028	342,973	2,039	2,159	1,299	64	673	222	6,456	1.88
2029	367,444	2,250	2,371	1,408	69	733	242	7,073	1.92
2034	510,823	3,649	3,710	2,028	97	1,116	371	10,973	2.15
2039	686,283	5,822	5,633	2,708	136	1,652	541	16,492	2.40
2044	883,233	8,984	8,275	3,386	181	2,264	755	23,844	2.70
2049	1,121,998	13,289	11,694	4,231	232	2,964	1,008	33,418	2.98
2059	1,787,091	25,573	20,801	5,828	348	4,493	1,607	58,650	3.28
2069	2,880,726	44,426	33,198	8,173	543	7,263	2,315	95,918	3.33

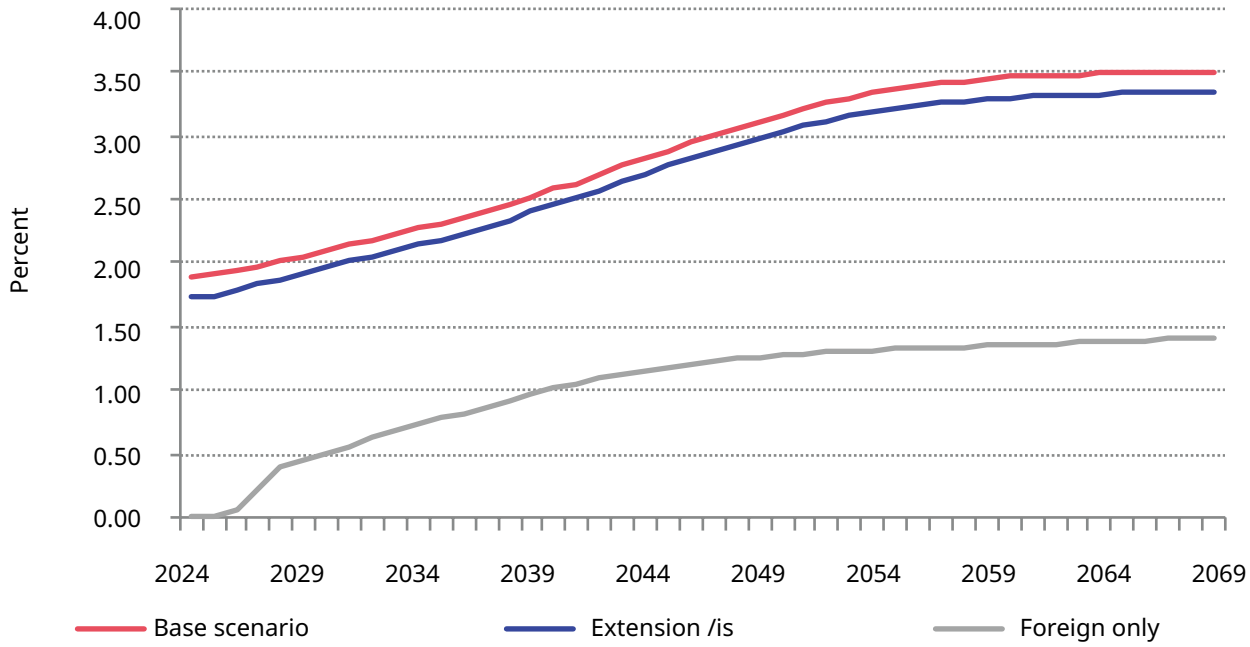
1 Includes grants for invalidity and deaths, physical and vocational rehabilitation, constant attendance allowances, activities promoting safety and health, FCLB (penalties written off) and general expenditure not elsewhere classified

Projections indicate that the ratio of the cost of the insured salary bill would decrease from 1.87 percent in 2023 to 1.73 percent in 2024 which is the first year of the projected extension of coverage to foreign workers. In the long-term the impact of extending coverage to foreign workers represents a decrease of the cost by about 15 basis points compared to the status quo scenario of the 11th Actuarial Valuation. This small decrease results from the lower benefit package offered to foreign workers compared to local workers[2]. Over the projection period, the development pattern of the ratio would be similar to the pattern in the absence of extension (as reported in Table 4.4 of the main valuation report). Taken alone, the cost as a percentage of earnings for non-Malaysian workers is lower than for SOCSO insured by 207 basis points in the long-term[3]. The impact of the extension as measured by the ratio of benefit cost to insurable earnings is illustrated in Figure 1.1.

2 In the baseline scenario of the 11th Actuarial Valuation, the cost expressed as a percentage of insured earnings was 3.48 percent in 2069 while the blended rate is 3.33 per cent in Table 1.3 .

3 In the baseline scenario of the 11th Actuarial Valuation, the cost expressed as a percentage of the insured bill for the IS branch for foreign workers is 1.41 percent in 2069.

▶ Figure 1.1 Ratio of benefit cost to insurable earnings



Base Scenario = current situation with no foreign workers (as reported in main valuation report); Extension IS = benefit cost if foreign workers included; Foreign only = benefit cost for foreign workers only

In order to assess the impact on the contribution, the administrative expenditure must be considered. For the purpose of this valuation, it is considered reasonable to assume that the extra cost related to operations would be proportional to the increase in the amount of benefits paid out. Therefore, the ratio of administrative expenditure to benefits paid, which is 0.15 percent in 2024, can be used to assess the relevant contribution rate. In subsequent years, the administrative expense follows the same pattern of increase as all other expenses, as mentioned in Appendix 3 of the 11th Actuarial Valuation Report.

1.3 Determination of the contribution rate

Determining the contribution rate under the proposed benefit package and the financial situation of the IS branch under the status quo is a challenging exercise. On one hand, best practice states that the benefit package and contribution rate should be closely linked. Hence, stakeholders could expect to set a contribution rate that is half of the current contribution rate for the IS branch (notwithstanding some adjustments for rehabilitation given that certain expenses cannot be halved like pensions and grants). On the other hand, the dire financial situation of the IS branch needs to be addressed and only a significant increase in its contribution rate can save it from insolvency.

It could be argued that the proposed IS scheme for foreign workers is different than the current IS branch. As such, this specific foreigner worker IS branch should accrue its specific reserve, based on best actuarial practice and without any influence from the current branches of Act 4 (i.e. EI and local workers' IS). As such, an open-group basis for funding should be used, and a specific funding objective should be set in order to determine the underlying contribution rate that will meet the objective. For the sake of example, it was determined that the funding objective of the specific branch should be to have a reserve equivalent to one time the annual benefit and administrative expenses of the year. With this rule, the contribution rate should be established at 1.56 per cent of the covered earnings.[4]

4 The contribution rate was established by calculating the GAP over the projection period, i.e. until 2069, in which the remaining reserve at the end would be equivalent to one year of benefit payment.

The current financial situation of the IS branch is not sustainable and extending its coverage should not be contemplated unless there is a real intention from stakeholders to improve the sustainability of the branch. Adding this new covered population on 1 January 2024 will not save the IS branch from an increasingly substantial deficit and will still lead to a negative reserve at the end of 2024. Hence, the inclusion of foreign workers in the IS branch with the benefit package referred to in Table 1.3 must be undertaken according to these two conditions:

- The financial sustainability plan presented in Section 5.4 of the 11th Actuarial Valuation Report needs to be implemented. This is a sine qua none condition to extend the IS branch coverage as this branch is not financially sustainable.
- The contribution rate of the foreign workers needs to reflect the accompanying benefit package. Using the benefit projection per type for the local workers and the proposed benefit package for foreigners, it is expected that foreign workers will effectively receive about 60 per cent of the benefit package of local workers. As such, the contribution rate of foreign workers to the IS branch should be 60 per cent of the proposed contribution rate in Section 5.4 of the 11th Actuarial Valuation Report.

Applying the above solution would ensure that the IS branch is sustainable over the projection period.

1.4 Conclusion

Extending social security coverage to foreign workers is considered best practice and is in line with the objectives of international conventions. However, sound financing principles should be in place to ensure that workers and employers pay the right amount of contribution to reflect the current benefit package. Adding foreign workers to the current IS branch with a diminished package will not improve its serious financial situation. Keeping in mind that extending coverage is vital for stakeholders and is promoted by international conventions, this technical note proposes two approaches that ensures financial sustainability of the extension of coverage:

- If the stakeholders do not want to reform the IS branch as per the recommendations of Section 5.4 of the 11th Actuarial Valuation Report of ESSS, a specific IS branch for foreign workers should be established. This is compatible with international best practice and addresses the issue of differentiated benefit provision. The contribution rate should be set at 1.68 per cent of insured wages.[5]
- If the stakeholders are willing to undertake significant reform to the funding of the current IS branch, the proposed benefit package of Table 1.3 could be added to the current IS branch. The contribution rate levied for foreign workers should be set at 60 per cent of the contribution rate established for local workers of the IS branch as stated in Section 5.4 of the 11th Actuarial Valuation Report of ESSS.

5 The contribution rate was established by calculating the GAP over the projection period, i.e. until 2069, in which the remaining reserve at the end would be equivalent to four times the benefit payment of the last year.

2

Implementation of a new insurance protection scheme to cover housemakers/ housewives

2.1 Introduction

The Government is considering implementing an insurance scheme to protect housemakers/housewives.[6] The aim of the new proposed package is to cover the most vulnerable in case of accident, with a view to provide the necessary financial support to the family in case of loss of support of the housemaker/housewives. The benefit package is similar to the one offered under ESSS, with a difference of having a fixed amount of benefit paid instead of being expressed as percentage of covered earnings and only lump sums paid in case of disablement. A single annual premium in fixed MYR terms would be levied each year for each insured to cover the cost of the present value of future benefits for contingencies occurring in that year and the related administrative expenses.

Details on the proposed design of the scheme is presented in Appendix 2 of this note. This technical note assumes that the new scheme will be implemented on 1 January 2024 and that the characteristics of the coverage and the claims will follow the assumptions mentioned in Appendix 6.

6 Housemakers is the term referred to in the Terms of Reference between SOCSO and ILO and we use this throughout the report. The term 'househusbands' is sometimes used to denote the same person.

2.2 Demographic and financial projections

Demographic and financial projections were carried out according to the methodology and assumptions described in Appendix 6. As presented in the Appendix, there are three groups of covered members that are targeted at the inception of the scheme:

- Housewives that live in poverty (Government subsidy is budgeted for these vulnerable citizens);
- Housewives not in poverty; and
- Housewives that work part-time but are not entitled for coverage under either ESSS or SESSS.

The coverage of these targeted populations is detailed in Appendix 6 of this technical note. It is important to note that the scheme is not yet in place and that experience on these groups does not exist. With these limitations, it is assumed that the incidence and severity experience of all these three groups will be the same and will be in line with the experience of women in ESSS. More details on this assumption can be found in Appendix 6 of this technical note.

It is also important to note that the inclusion of housemakers is not considered at this stage. While they would be entitled to benefits on the same terms af for housewives no demographic profile on these vulnerable citizens exists. Developing an estimate of covered population of housemakers would require a number of assumptions or which data and statistics are not currently available.

Demographic projections of the new scheme are presented in Table 2.1.

▶ Table 2.1 Demographic projections of new scheme – All groups

Year	Active insured members	Numbers					% per active insured				
		Invalid	Dependents		Dis. grants	Fun. grants	Invalid	Dependents		Dis. grants	Fun. grants
			Widow (ers)	Other dependents				Widow (ers)	Other dependents		
2024	318,559	0	0	0	634	0	0.00	0.00	0.00	0.20	0.00
2025	322,388	294	41	211	643	276	0.09	0.01	0.07	0.20	0.09
2026	326,137	800	112	630	652	274	0.25	0.03	0.19	0.20	0.08
2027	329,754	1,247	175	1,041	661	273	0.38	0.05	0.32	0.20	0.08
2028	333,295	1,645	231	1,434	671	273	0.49	0.07	0.43	0.20	0.08
2029	336,828	2,007	280	1,786	681	272	0.60	0.08	0.53	0.20	0.08
2034	354,172	3,477	438	2,758	746	282	0.98	0.12	0.78	0.21	0.08
2039	362,174	4,262	488	2,957	788	284	1.18	0.13	0.82	0.22	0.08
2044	367,700	4,667	480	2,862	818	283	1.27	0.13	0.78	0.22	0.08
2049	361,012	4,610	432	2,670	807	263	1.28	0.12	0.74	0.22	0.07
2059	338,022	4,070	347	2,142	738	207	1.20	0.10	0.63	0.22	0.06
2069	335,657	4,151	311	1,867	739	183	1.24	0.09	0.56	0.22	0.05

1 Active insured: number of insured paying an annual premium to the scheme
Dis. grants = Disability Grants; Fun. grants = Funeral Grants

Table 2.2 present the financial projections for all 3 groups.

▶ Table 2.2 Financial projections of new accident scheme – All groups (MYR millions)

Year	Invalidity pensions	Dependent benefits		Funeral grants	Other[1]	Total
		Widow (ers)	Other dependents			
2024	0.0	0.0	0.0	0.0	1.1	1.1
2025	1.2	0.1	0.2	0.6	1.2	3.3
2026	3.2	0.3	0.6	0.6	1.2	6.0
2027	5.1	0.4	1.0	0.6	1.3	8.5
2028	6.9	0.6	1.4	0.6	1.3	11.0
2029	8.7	0.7	1.8	0.7	1.4	13.3
2034	17.0	1.3	3.0	0.8	1.8	23.8
2039	23.5	1.6	3.7	0.9	2.1	31.9
2044	29.2	1.8	4.1	1.0	2.5	38.6
2049	32.6	1.8	4.4	1.0	2.8	42.7
2059	36.8	1.9	4.5	1.1	3.3	47.6
2069	48.1	2.2	5.0	1.2	4.2	60.6

1 Includes grants for disability, physical and vocational rehabilitation, and constant attendance allowances.

Financial projections for the scheme were not segregated by type of insured members. The main reasons supporting this decision are:

- Low number of expected insured members: The figures of expected insured members is almost negligible compared against the current coverage of ESSS. The effect of risk sharing is lost when groups are subdivided into smaller units.
- Incidence and severity are unknown for each group: It is not possible to establish a different profile for all 3 groups mentioned in Appendix 6 of this technical note. There are good reasons to believe that their risk profile is not materially different.

2.3 Contribution setting mechanism

The key design issue with the new proposed scheme is the contribution setting mechanism. The proposed scheme is similar to a general insurance scheme compared to a scheme providing salary replacement under social security:

- Payments are made in nominal fixed MYR terms.
- There is no salary reference possible for most of the insured members.

As such, SOCSO should take a similar approach to contribution setting as used by traditional private insurers. The contribution levied in the year should cover all the benefits accrued during the year, including the present value of future pensions to be paid, and the administrative expenses related to these benefits. Hence, the funding would also be on a terminal basis as per the EI branch of ESSS and the premium would be expressed in nominal MYR terms, just like the benefit package. It is important to note that good funding principles were used for this projection and that the constant care attendance pension is now funded taking into account the present value of future benefits, which is not the case in the administrative procedures used by SOCSO for ESSS and SESSS.

The contribution to be charged would be greatly influenced by the initial funding provided by the Government. Based on conversations with SOCSO, it is projected that the Government will provide an annual RM120 contribution for housewives under the poverty level and provide 2 million to cover capital expenditures and promotional activities. The per capita contribution for housewives would be renegotiated each year and depend on the government fiscal ability. Table 2.3 presents the annual premium to be charged to each insured member of the scheme to cover the cost according to the funding method described above. Use of the government subsidy will be discussed below.

▶ Table 2.3 Annual premium to be charged to each insured member under the new scheme (MYR)

Year	Annual premium
2024	58
2025	58
2026	61
2027	63
2028	66
2029	68
2034	79
2039	91
2044	103
2049	116
2059	153
2069	206

The figures above must be considered with caution. The uncertainty regarding the injury experience is high. It relies exclusively on the experience of females and there is no information in the distribution of females in industries which is reliable to assess whether the risk of housewives would be higher or lower than the average. Presently, the contemplated annual per capita contribution of RM120 is higher than the projected cost. However, the range of possible outcomes does not totally exclude that the cost could reach that level. It will take a few years of experience to assess the proper experience.

2.4 Illustration of the fund of the proposed scheme

Based on the calculations and considerations of sections 2.2 and 2.3, Table 2.4 illustrates the evolution of the insurance fund under the following conditions:

1. Premiums of RM 120 will be charged to all housewives for the first 2 years.
2. After the first two years, the premiums will gradually move over a 7-year period to the level indicated in Table 2.3.
3. The government subsidy for capital expenditures and promotional activities in the first year are left out of the illustration.

The first condition is based on the premise that it would be difficult to justify charging a contribution of the level indicated in Table 2.3 to housewives not eligible to a subsidy while the government provides a subsidy of RM120 to those in poverty. An alternative would be to set the government subsidy at the level of the premium of Table 2.3 and charge that premium to all. This would leave the program vulnerable to contribution increases.

The second condition assumes that the negotiations between SOCSO and the government regarding subsidies will rely on the emerging experience of housewives and that, with increasing statistical credibility of data, the government subsidy would gradually converge towards the premium indicated in table 2.3.For example, in 2027 the projected premium would be (120 x 5/7 + 63 x 2/7 = 104).

The subsidy for administrative expenditures and its counterpart in one-time administrative expenditures are left out of the projection for the sake of simplicity as they cancel each other in revenue and expenditure.

The projections indicate that the program could be safely launched even if the per capita government subsidy is lower than RM120. Prudence suggests that the lowest acceptable level of the subsidy and consequently of the premium for the housewives not in poverty should include a 25 percent margin of the illustrated premiums in the current context of uncertainty.

▶ Table 2.4 Illustration of projected revenue, expenditure, and assets (MYR million)

Year	Income			Annual Expenditure			Assets	
	Contribution*	Investment	Total	Benefits	Admin	Total	Total	Assets/ Expenditure
2024	38.2	0.9	39.1	1.1	0.2	1.3	37.8	28.4
2025	38.7	2.6	41.3	3.3	0.5	3.8	75.3	19.8
2026	36.4	4.3	40.7	6.0	1.0	7.0	109.0	15.6
2027	34.2	5.9	40.2	8.5	1.4	9.9	139.2	14.0
2028	32.3	7.4	39.7	11.0	1.8	12.8	166.1	13.0
2029	30.5	8.7	39.2	13.3	1.9	15.2	190.1	12.5
2034	28.1	13.2	41.3	23.8	2.6	26.4	275.1	10.4
2039	32.9	16.8	49.6	31.9	3.4	35.3	347.0	9.8
2044	37.8	20.4	58.3	38.6	4.4	43.0	421.4	9.8
2049	41.9	24.5	66.4	42.7	5.7	48.3	505.3	10.5
2059	51.7	36.2	87.9	47.6	9.5	57.0	748.5	13.1
2069	69.2	55.5	124.7	60.6	15.7	76.4	1,148.1	15.0

With the assumptions used in the projection of this specific insured population, a calculation was performed to see the utilisation of the Government funding related to the payment of the premium for housewives living under the poverty line. Assuming that there is no indexation of the proposed budget of MYR18 million for the sole purpose of paying the premium to poor housewives, table 2.5 shows the usage of the Government funding if this budget is maintained throughout the projection period.

▶ Table 2.5 Usage of the Government funding to pay the premium of poor housewives (in MYR million)

Year	Premium of poor housewives	Usage of budget (in %)
2024	12.64	70.2
2025	12.74	70.8
2026	11.94	66.3
2027	11.21	62.3
2028	10.56	58.7
2029	9.95	55.3
2034	9.34	51.9
2039	11.19	62.2
2044	13.28	73.8
2049	14.83	82.4
2059	17.70	98.3
2069	23.95	133.1

3

Implementation of a new old-age pension branch for ESSS

National stakeholders are considering the implementation of an old-age branch to the coverage offered by ESSS. The design of the branch is not yet set and is currently being discussed at national level. However stakeholders are considering a contribution rate for the branch of 8 percent of the insured wages of ESSS members.

The ILO has a specific convention on the minimal benefit standards in respect of old-age pension benefits at retirement. This minimum standard is stated in Part V of Convention No. 102 of the ILO.

For this section, two approaches on benefit design are considered and analysed:

- Minimum requirements based on Part V of Convention No. 102 of the ILO [later referred to as *Scenario C.102*]; and
- Contribution of 8 percent of the covered wage [later referred to as *Scenario Budget*].

While the proposed benefits packages are in line with Convention 102 with the necessary changes so as to fit the budgetary constraints, readers should refer to Appendix 3 for more details on the proposed benefits package for each scenario.

Scenario C.102 can be seen as the "cost of entry" or minimum level for providing decent old-age pension to workers in Malaysia as per ILO Conventions. The underlying design of this scheme is not overly generous, and it can be considered as the first step that stakeholders must take when designing a social protection scheme for retirement. Subject to the legal review of the proposed benefit package by the International Labour Standards Department (NORMES), *Scenario C.102* could be assessed as being compliant with Part V of Convention No. 102 of the ILO.

Scenario Budget is based on a proposal submitted by the SOCSO to the ILO. We understand that stakeholders are in agreement for the payment of a contribution rate of 8 percent of insured wage to pay for a new branch of social security that would cover the old-age contingency (and as a complement to current lump sum retirement benefits from the EPF). As such, the ILO has costed a scenario that fits the budget considered by national stakeholders over the next 90 years. Since the benefit package of *Scenario Budget* is lower than *Scenario C.102,* it is doubtful that the implementation of this scenario would meet the minimum requirements of Part V of Convention No. 102 of the ILO.

For practical purpose, it is assumed that this new branch would be implemented on 1 January 2024. This is in line with the other costings made as part of the document entitled *Technical Note on Potential Reforms and Other Issues Following the Eleventh Actuarial Valuation of the Employees' Social Security Act.* This period leaves room for social dialogue on the agreement of benefit design and the funding policy. It would also allow enough time to implement the administrative system related to this new branch of social security for SOCSO.

3.1 Financing approach for old-age pension benefits

These benefits are long-term benefits, awarded in the form of pensions which continue in payment throughout the lifetime of the beneficiary (i.e. retirement or survivor pensioner) or during a specified status (e.g. an orphan being under the age of 21). Total annual benefit expenditure as a percentage of the insured salary bill is expected to increase continuously over a long period of time until the scheme reaches maturity. Any significant changes in the scheme, such as expansion of coverage or changes in the benefit formula will extend the scheme maturing process.

In view of the above, there is a variety of possible financing approaches for a social security pension scheme, from pay-as-you-go (PAYG) at one extreme to the general average premium system (GAP) at the other. PAYG cost rates continuously increases with practically no reserves. The GAP contribution rate is a flat contribution rate at the same fixed rate over the projection period with an accumulation of reserves in line with the financing policy during the projection period. Calculating a GAP over the projection period which would only cover the cost of benefits and scheme expenses – i.e. without any adjustment to build up reserve funds - will lead to a situation where there will not be any reserve at the end of the projection period and will expose national stakeholders to a significant increase in contribution rate at the end of the projection period.

This financing approach is often accompanied by reviews on a frequent basis of the financial situation of an old-age scheme with a goal of leaving sufficient reserves aside for future generation. This could be considered a variation of the scaled-premium approach discussed in the 11th Actuarial Valuation report of ESSS for the IS branch.

In practice, many social security pension schemes apply an intermediate partially funded system where the contribution rate falls between the PAYG contribution rate and the GAP rate. This financing approach is to adopt a partially funded system with flat contribution rates over successive intervals to meet a target reserve condition. This financial system is called the scaled premium system (SP).

A variant reserve condition of this system is that the reserve should increase over each interval, reaching a plateau at the end of the interval. The reserve fund would start to decrease if the same contribution rate continued beyond the interval as the scheme continues to mature. This financing approach is applied in several developing countries. Although the scheme intends to use the investment return on funds for benefit payments, it does not use the reserve itself to meet expenditure. This enables the reserves to be invested in long-term assets.

The proposed financing system for the old-age benefit branch is the same as the one used in the invalidity and survivors' branch of ESSS and in line with international practice if an appropriate supporting funding policy accompanies the approach.

3.2 Demographic and financial projections

Demographic and financial projections were carried out according to the benefit structure, methodology and assumptions described in Appendix 3, 4 and 7 respectively. Demographic projections for both scenarios are presented in Table 3.1.

▶ Table 3.1 Demographic projections of the old-age benefits branch

Year	Active insured members	Numbers				As a % of number of active insured			
		Old-age Pensions	Dependents		Contrib. Refund	Old-age Pensions	Dependents		Contrib. Refund
			Widow (ers)	Other dependents			Widow (ers)	Other dependents	
2024	8,701,081	0	0	0	0	0.00	0.00	0.00	0.00
2029	9,113,968	0	0	0	93,939	0.00	0.00	0.00	1.03
2034	9,444,599	0	0	0	125,942	0.00	0.00	0.00	1.33
2039	9,645,687	14,427	0	0	154,393	0.15	0.00	0.00	1.60
2044	9,661,641	373,533	4,217	1,072	118,067	3.87	0.04	0.01	1.22
2049	9,593,430	1,034,652	27,746	4,683	104,595	10.79	0.29	0.05	1.09
2054	9,452,320	1,956,259	82,492	8,347	89,018	20.70	0.87	0.09	0.94
2059	9,243,921	2,991,374	176,214	11,150	73,638	32.36	1.91	0.12	0.80
2064	9,035,717	3,908,239	309,572	11,772	61,985	43.25	3.43	0.13	0.69
2069	8,876,728	4,586,131	472,562	10,688	58,088	51.66	5.32	0.12	0.65
2074	8,760,526	5,079,800	647,579	9,405	59,387	57.99	7.39	0.11	0.68
2079	8,654,732	5,432,773	813,080	8,983	55,775	62.77	9.39	0.10	0.64
2084	8,528,889	5,654,444	946,725	8,373	57,532	66.30	11.10	0.10	0.67
2089	8,400,119	5,798,483	1,030,260	7,947	56,627	69.03	12.26	0.09	0.67
2094	8,252,020	5,888,901	1,061,475	7,643	53,408	71.36	12.86	0.09	0.65
2099	8,113,614	5,925,233	1,053,251	7,087	50,304	73.03	12.98	0.09	0.62
2104	7,998,583	5,913,639	1,032,306	6,606	48,944	73.93	12.91	0.08	0.61
2109	7,900,205	5,867,407	1,020,161	6,394	48,687	74.27	12.91	0.08	0.62
2114	7,805,785	5,797,869	1,017,068	6,342	48,623	74.28	13.03	0.08	0.62
2119	7,706,130	5,725,512	1,010,428	6,345	48,396	74.30	13.11	0.08	0.63

1 Active insured: number of insured contributing at least once during the year. 'Contib-Refund' refers to those leaving before retirement age and receiving a refund of contributions

The new old-age branch will face significant beneficiary pressure due to the maturing of the population. The ratio of old-age pensioners to active insured members will reach almost 75 percent at the end of the projection period. The ratio of survivors to the active insured shows a less significant increase, due to the non-availability of the pension before reaching retirement age for the participant.

Table 3.2 and Table 3.3 present the financial projections for Scenario C.102 and Scenario Budget respectively.

▶ Table 3.2 Financial projections of old-age benefits branch – Scenario C.102 (in MYR Millions)

Year	Insured salary bill	Old-age pensions	Dependents		Contrib. Refund	Total	Total as % of insured salary bill
			Widow (ers)	Orphans			
2024	259,346	0	0	0	0	0	0.00
2029	376,284	0	0	0	1,388	1,388	0.37
2034	523,558	0	0	0	4,592	4,592	0.88
2039	704,995	207	0	0	10,252	10,458	1.48
2044	913,943	7,582	30	1	10,494	18,107	1.98
2049	1,168,330	29,635	255	8	13,278	43,176	3.70
2054	1,484,962	79,913	981	19	15,538	96,451	6.50
2059	1,877,965	172,375	2,699	36	17,753	192,862	10.27
2064	2,372,390	309,190	6,087	54	21,744	337,075	14.21
2069	3,005,270	482,690	11,841	67	26,324	520,922	17.33
2074	3,792,827	698,015	20,570	78	33,443	752,107	19.83
2079	4,788,793	968,814	32,765	96	40,375	1,042,051	21.76
2084	6,035,762	1,308,010	48,700	114	51,435	1,408,259	23.33
2089	7,613,523	1,732,570	68,287	139	63,842	1,864,839	24.49
2094	9,586,692	2,268,289	91,340	171	76,533	2,436,333	25.41
2099	12,076,043	2,924,171	118,124	202	92,113	3,134,612	25.96
2104	15,235,592	3,720,248	150,406	242	114,733	3,985,630	26.16
2109	19,243,704	4,701,843	191,328	300	146,036	5,039,507	26.19
2114	24,316,596	5,933,978	243,698	381	186,459	6,364,516	26.17
2119	30,724,502	7,503,075	309,041	488	237,129	8,049,733	26.20

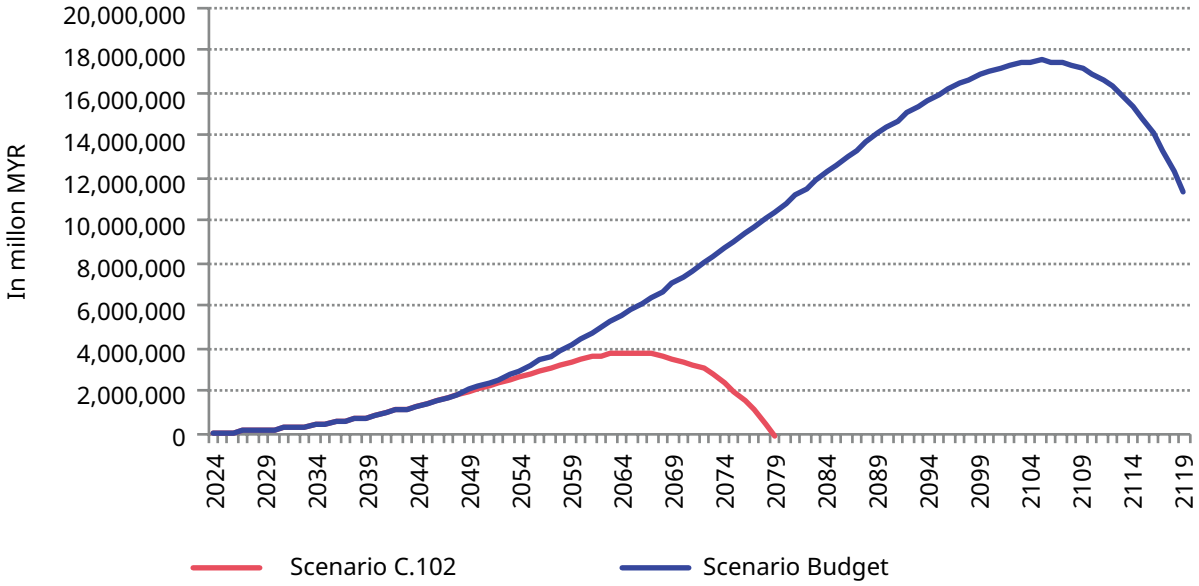
▶ Table 3.3 Financial projections of old-age benefits branch – Scenario Budget (in MYR Millions)

Year	Insured salary bill	Old-age pensions	Dependents		Contrib. Refund	Total	Total as % of insured salary bill
			Widow (ers)	Orphans			
2024	259,346	0	0	0	0	0	0.00
2029	376,284	0	0	0	1,388	1,388	0.37
2034	523,558	0	0	0	4,592	4,592	0.88
2039	704,995	63	0	0	10,252	10,314	1.46
2044	913,943	2,465	35	1	10,494	12,995	1.42
2049	1,168,330	11,931	289	5	13,278	25,504	2.18
2054	1,484,962	35,545	1,081	13	15,538	52,176	3.51
2059	1,877,965	78,613	2,918	23	17,753	99,307	5.29
2064	2,372,390	142,515	6,476	34	21,744	170,768	7.20
2069	3,005,270	223,679	12,422	41	26,324	262,466	8.73
2074	3,792,827	325,245	21,326	48	33,443	380,062	10.02
2079	4,788,793	453,308	33,633	59	40,375	527,375	11.01
2084	6,035,762	613,926	49,563	70	51,435	714,994	11.85
2089	7,613,523	814,189	68,981	85	63,842	947,097	12.44
2094	9,586,692	1,067,192	91,697	105	76,533	1,235,527	12.89
2099	12,076,043	1,377,165	118,031	124	92,113	1,587,434	13.15
2104	15,235,592	1,752,785	149,862	148	114,733	2,017,529	13.24
2109	19,243,704	2,215,219	190,423	184	146,036	2,551,862	13.26
2114	24,316,596	2,795,312	242,476	233	186,459	3,224,481	13.26
2119	30,724,502	3,533,990	307,462	299	237,129	4,078,881	13.28

The less generous package afforded by the limited budget of national stakeholders (Scenario Budget) results in less financial pressure to fund the proposed branch. The projection of both scenarios shows the higher cost of offering an old-age protection to insured of ESSS compared to its other branches. It is in line with international experience, where the main cost driver of social security are old-age benefits.

Figure 3.1 shows the value of the reserve under both scenarios using the proposed contribution rate of 8 percent of insured wages.

▶ Figure 3.1 Projection of the reserve using an 8 percent contribution rate for both scenarios



It is important to note that the above projections do not consider the administrative costs that are required to cover the operations of the old-age benefit branch. However, it shows the trend of the reserve of the proposed old-age branch. Clearly, the proposed contribution rate is insufficient to afford a benefit package compliant with Part V of the Convention No. 102 of the ILO. Also, even if the reduced benefit package of Scenario Budget was adopted, the rapid depletion of the reserve at the end of the projection period shows the inappropriateness of the proposed contribution rate after the projection period. The ultimate PAYG rate of about 13 per cent provides a good indication of the contribution rate that would be required at that time.

Despite this caveat, the Scenario Budget can be considered broadly as the maximum benefit package that is affordable within the constrained budget. It is not in line with Convention No. 102 and international best practice. However, it can constitute a starting point for discussions on implementing an old-age retirement branch to ESSS. National dialogue should revolve around the contribution capacity of each stakeholder and an assessment to the old-age retirement needs. These discussions might lead to a conclusion where there is a willingness to increase the contribution rate and/or change the retirement age in order to provide for enhanced benefit that are at least in line with Convention No. 102.

Issues related to contribution setting of the old-age benefit branch are discussed further in the next section.

3.3 Determination of the contribution rate

The PAYG cost is not the recommended funding method for an old-age benefit branch of social security as these schemes age over time with an ever-increasing contribution rate. National stakeholders should refer to the scaled-premium method, using different measures provided by the general average premium (GAP). Table 3.4 shows the GAP for various periods under each scenario, without any considerations for administrative fees. This is the level contribution rate required to meet benefits and expenses over the relevant projection period under column 'GAP Period'.

▶ Table 3.4 GAP for both scenarios for the old-age branch for various period (in percentage of covered earnings)

GAP Period	Scenario C.102	Scenario Budget
50	6.55	3.55
60	9.00	4.75
70	11.10	5.80
80	12.83	6.65
90	14.20	7.33

Scenario Budget leaves national stakeholders a budget of less than 0.67 percent of insured wages to cover the cost of the administrative expenses for the new benefit branch. This leaves a suitable margin for this specific expense when compared to other social security schemes that have more complex old-age benefit branch under their umbrella.

However, Table 3.4 in combination with Table 3.3 shows that the 8 percent contribution rate will be just enough over the projection period to cover the benefit and other expenses related to proposed old-age benefit. However, it entails that the reserve will be used to provide for benefits in the later stage of the projection period. Indeed, the PAYG cost at the end of the projection period (2119) is above 13 percent of insured wage, which is significantly over the proposed contribution rate of 8 percent. While national stakeholders can expect the fund to be used for providing the promised benefits, it will not be sustainable over the long-term and an increase in the contribution rate will be required for the branch in the future.

In line with best international practice and ILO recommendations, each social security branch should be financed and funded independently of other benefit branches, in order to process the costs to the right contributor. As mentioned in the 11th Actuarial Valuation Report, there should be outmost transparency in the financial disclosure of SOCSO and the segregation of each branch should be imperative for the implementation of an old-age benefit branch to ESSS.

3.4 Financing issues to consider

The projections show that establishing a funding policy for ESSS is of the outmost importance, and even more pressing if an old-age branch is added to it. First, it is important to remember the dire financial situation of the invalidity branch of ESSS. In 2024, it is expected that the reserve of the branch will be depleted. This serious financial situation should be dealt via a formal funding policy that will address the situation and will ensure clear rules and approaches in relation to the reforms required to return to financial sustainability (either via increase of contribution, reduction of benefits or both). With the above analysis of the old-age benefit branch, it is expected that the financial situation of the old-age branch will not be sustainable after the end of the projection period. National stakeholders should immediately agree on a strategy for the funding of this branch in case future actuarial projections show a deficit in the branch.

Social security common good practice stipulates that contribution rates must be fixed so that the total income makes it possible to cover the benefit expenses as well as part of the administrative costs related to the branch of the social security. Furthermore, a specified reserve amount should be constituted to diversify the financing and investment risk (horizons of investment varies greatly amongst various branches of social security), increase the expected return of the scheme, cushion the impact of economic downturns, and ensure and promote equity among different generations of contributors. However, there are different factors that will affect the achievement of this goal and need to be taken into account in a financing policy:

- The natural increase in the level of expenditures over a long period for pension schemes (especially for a non-mature scheme like the proposed old age branch of ESSS when more and more pensions will be paid in future years with relatively fewer number of active members).
- The desire to have a stable contribution rate (increasing employees and employers' confidence in the scheme and reducing the administrative burden of frequent changes) and to have a contribution rate that will not become a financial burden on those contributing to old-age branch of ESSS.
- The duration of the equilibrium period (the period where the contribution rate and the investment incomes are enough to pay the expenditures of the scheme) and the amount (level) of reserve that will be attained throughout this period.

Currently there are no formal explicit financing objectives for any branch of ESSS[7]. One of our recommendations is to define, adopt and review such objectives as part of the Financing Policy. Given this, the following questions need to be addressed in the decision making for such schemes: Over which period should the contribution rate be assessed and judged adequate? What is the desired level of reserve-to-expenditure ratio or funding level? Is a stable contribution rate desirable to maintain equity among generations? What happens if experience is worse than expected? How are the risks of the scheme shared amongst different stakeholders?

Many countries include such explicit financing objectives in their financing strategy. A number have also put in place automatic adjustment provisions to schemes (i.e. changes to benefits and/or contributions) to take into account future demographic, economic and financing changes in their countries.

To address these issues and formalise the policies to respond, ss institutions should put in place a funding policy. A funding policy good governance practice and is required to:

- formalize the long-term funding objectives of the scheme;
- better understand the risks and advantages of financing options;
- ensure that plan assets are sufficient to deliver the promised benefits; and
- enhance good governance by increasing transparency.

7 Present value of future benefits are accounted in the financial statements and used in the actuarial valuation model for the EI branch of ESSS. This amounts of using terminal funding principle for this branch. However, this is not supported explicitly in a funding policy document adopted by SOCSO's board and could be changed without further notice.

Funding rules must address the interests of stakeholders:

- plan participants and former participants, as beneficiaries of the system and often as contributors to the financing of the system;
- employers, as one of the parties bearing responsibility for financing the pension system; and
- the general public and the government.

The funding policy would specify:

- contribution rates;
- risks faced by the scheme and how these risks can be managed;
- risk tolerance;
- allocation of risk among participants, employers and government;
- funding objectives (such as contribution stability or improving the reserve-to-expense ratio);
- frequency of actuarial valuation and the method of actuarial projection;
- funding method;
- goals related to intergenerational equity;
- all other funding issues.

We recommend that SOCSO holds discussions with stakeholders on the possibility of implementing an explicit written funding policy. The policy should be approved by the Board t and periodically reviewed.

3.5 Benefit design issues to consider

The current retirement age in Malaysia is set at age 60. This age allows for a long retirement period. Based on current life expectancy at age 60 based on the 11th Actuarial Valuation of ESSS, males can expect to have 19.2 years of retirement and females can expect to have 21.1 years. Projections of mortality improvement will only lead to longer and costlier retirement for Malaysians.

Social security schemes in developed countries were established at a time when life expectancy after reaching retirement age was significantly shorter than is the case today. This meant that a reasonable contribution rate levied to active members was enough to finance a decent benefit package to the most vulnerable citizens of the country. For example, in the province of Québec, the life expectancy of male and female was less than 10 years after reaching retirement age at the time of the implementation of the Québec Pension Plan in 1966.

As these schemes matured and that the life expectancy of the population increased, these first social security schemes were faced with financial issues soon after their inception. This led stakeholders to take measures to ensure the financial sustainability of these schemes, with a combination of contribution rate increase and reduction in benefit package (for example, increasing the retirement age).

Implementing an old-age branch in ESSS should be an occasion to initiate national dialogue on increasing the retirement age. Malaysia is faced with a relatively rapid increase in life expectancy. Preliminary projections of Scenario C.102 with a retirement age at 65 instead of 60 leads to a decrease of the 90 years GAP of 2.84 percent. However, integration with other branches of social security is important; the implication of any changes to the retirement age.

The ILO is strongly in favour of implementing an old-age branch in ESSS that is in line with international conventions and best practices. However, national stakeholders should reframe the national dialogue around the following process:

- Stakeholders should define the old-age pension needs of the population, such as the level of benefit, retirement age, ancillary benefits, etc.
- Based on these needs, the ILO could support stakeholders through supporting activities which could include:
  - Legal assessment of the proposal with regards to Part V of Convention No. 102 of the ILO.
  - Actuarial assessment of the proposed designed based on sound actuarial practice.
  - Assessment of potential benefit design issues and administrative challenges of the proposed package(s).
  - Financing policy and appropriate investment management and governance structures
- With the technical support of the ILO, national stakeholders could adjust the parameters of the old-age branch and take sound and financially sustainable decision with regards to the implementation of the new social security branch.

More details on these issues are covered in the report entitled 'Financial and Design options for a new pension scheme'

Considering these issues will lead to a more efficient and serene dialogue with relevant stakeholders. Good practice in developing a new pension scheme is to first assess an appropriate benefit structure which is consistent with the objectives of such a scheme, in particular the adequacy of benefits, and then determine the most appropriate way of financing Trying to fit a benefit design within a constrained budget is more difficult in the process of developing an agreeable benefit package for pensioners in Malaysia.

3.6 Conclusion

This section has highlighted the financial challenges related to the implementation of an old-age branch for ESSS. Whilst the ILO welcomes and supports measures to increase adequacy of retirement benefits in the form of regular income payments, careful consideration must be given to the funding of this branch and the issues related to the other branches of ESSS. Contributions paid for the financing of retirement benefits must solely be used for this specific purpose and does not alleviate the need for stakeholders to address the funding of the IS branch of ESSS

4

Extension of coverage of EI branch to domestic workers

4.1 Introduction: recent change to ESSS

ESSS was amended during the course of 2021 to include the coverage of domestic workers. Before the change, domestic workers were specifically excluded from coverage under ESSS. With the new change in coverage, SOCSO is actively working on providing coverage under ESSS for domestic workers. The ILO requested information on the demographic profile of the domestic workers newly covered under the scheme. This information was provided at the end of 2021. With this information, the ILO has performed a specific projection of the expected benefit payments and contribution collection for this newly covered group under ESSS.

While all Malaysians are technically entitled to benefit coverage under the EI and IS branch of ESSS as domestic workers, the vast majority of these workers covered under ESSS are female foreign workers (1,825 out of 1,929 insured members). As such, all the domestic workers included in the data provided are female foreign workers and the increase in this covered population is assumed to be wholly composed of these specific workers for the purpose of this valuation. This assumption can be refined in the next actuarial valuation as experience emerges.

Details on the data used and the assumptions related to the projection can be found in Appendix 9 of this technical note. The assumptions related to the frequency of work-place accident and their severity is the same as the one used for female foreign workers under the EI scheme of ESSS for its 11th Actuarial Valuation.

4.2 Financing system for the employment injury benefits branch

Financial system or approach means the arrangement according to which resources are raised to meet expenditures on benefits and administration. It varies according to the type of benefit, i.e. (a) short-term benefits and (b) long-term benefits.

Short-term benefits

The short-term benefits of the Employment Injury Benefits Branch include medical and rehabilitation benefits, temporary disablement benefits and funeral benefits. The annual expenditure on these benefits in relation to the total insured salary bill is expected to stabilize within a relatively short time after the scheme starts operating. The annual Pay-As-You-Go (PAYG) system (or the annual assessment system) is the financial system applied to these benefits. Under the PAYG system, the contribution rate is set so that the expected contribution income in a given year equals the expected benefit expenditure in that same year plus a small margin to build up a contingency reserve. The purpose of this reserve is to meet unexpected variations in receipts and expenditure over a certain period. Its target level has been set equal to six months of benefit expenditure (average over the three most recent years).

Long-term benefits

The long-term benefits include permanent disablement benefits and dependents' benefits which are essentially in the form of pensions for life, although they may be partly or fully commuted to a lump sum under specified conditions[8]. The amount of pension depends on the insured salary and, in the case of permanent disablement benefits, on the degree of disability, but does not depend on past service of the individual. In contrast to short-term benefits, the annual expenditure on these long-term benefits in relation to the total insured salary bill is expected to grow continuously for several decades until the scheme attains maturity. The capitalized present value of benefit awards in relation to the insured salary bill is expected to stabilize much sooner.

The financial system applied to these benefits is the terminal funding system, sometimes called the system of assessment of constituent capitals. The contribution rate is set such that the expected contribution income in a given year should equal the capitalized present value of the future benefits awarded in that year[9]. In other words, all the new benefits incurred in a year but paid in the future are fully funded during that year. This leads to the build-up of a technical reserve which, in theory, should at any time be equal to the capitalized value of all pensions in payment so long as the assumptions for the calculation hold. A margin is added to constitute a contingency reserve for unexpected variations of income and expenditure. The target level of this reserve has been set equal to the six-month average of capitalized present value of benefit awards over the three most recent years.

Administration costs

Administration costs are covered by adding a loading to the sum of contributions rates set for short-term and long-term benefits. The determination of administration costs is described in Section 5.

8 Constant attendance allowances (CAA) are normally considered long term benefits however SOCSO accounting practice treats them as short term benefits. This actuarial valuation applies SOCSO accounting practice.

9 For example, if the expected benefit payment period is 20 years, the contribution rate is based on the present value of all these future payments as at today's date

4.3 Prospective cost analysis

Demographic and financial projections were carried out according to the methodology described in Appendix 2 of the 11th Actuarial Valuation[10] and assumptions described in Appendix 9 of this technical note. It has been assumed that the incidence and severity of temporary and permanent disablement benefits would remain constant over the projection period. The incidence of deaths is assumed to decrease more slowly than the mortality from all causes. To establish the cost as a percentage of the salary of an industrial accident plan financed according to the method described above, the number of covered workers is not relevant because, for the same profile, the ratio of the cost of benefit payments to insurable salaries will be the same regardless of the number of covered workers. However, in order to give an insight into the possible evolution of the number of beneficiaries and the financial implications, an assumption of the evolution of the coverage rate was formulated for illustration only. The latter is presented in Appendix 9. It is understood that the actual evolution of the coverage rates will depend on SOSCO's practices and could be quite different from that used here for illustrative purposes.

Table 4.1 presents the demographic projections for the long-term benefits (number of disablement and survivors' pensioners at the end of each year) and the temporary disablement benefits for the domestic workers. The demographic ratio is the ratio of the number of pensioners to the number of active insured at risk. The latter is obtained by multiplying the number of active contributors by the density factor.

▶ Table 4.1 Demographic projections of employment injury benefits branch for domestic workers (Stock of pensioners and temporary disablement)

Year	Average number of contributors[1]	Numbers				As a % of number of active insured			
		PD pensions	Dependents		TDB	PD pensions	Dependents		TDB
			Widow (ers)	Other dependents			Widow (ers)	Other dependents	
2021	1,774	0	0	0	13	0.00	0.00	0.00	0.72
2022	5,399	0	0	0	39	0.00	0.00	0.00	0.72
2023	9,112	0	0	0	66	0.00	0.00	0.00	0.72
2024	12,895	1	0	1	93	0.01	0.00	0.01	0.72
2025	16,734	2	0	2	121	0.01	0.00	0.01	0.72
2026	20,618	3	1	3	149	0.01	0.00	0.01	0.72
2027	24,539	4	1	4	177	0.02	0.00	0.02	0.72
2028	28,496	5	2	6	206	0.02	0.01	0.02	0.72
2029	32,486	7	2	7	236	0.02	0.01	0.02	0.73
2034	53,046	20	6	18	393	0.04	0.01	0.03	0.74
2039	54,247	38	11	27	412	0.07	0.02	0.05	0.76
2044	53,837	56	15	30	418	0.10	0.03	0.06	0.78
2049	53,356	73	19	29	419	0.14	0.04	0.05	0.78
2059	51,900	102	25	27	403	0.20	0.05	0.05	0.78
2069	49,791	122	28	26	386	0.25	0.06	0.05	0.77

1 Average number of contributors: active contributors x density. PD = Permanent Disability; TDB = Temporary Disability Benefits

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Table 4.2 presents another set of demographic projections for domestic workers related to newly awarded benefits in each year.

▶ Table 4.2 Demographic projections of employment injury benefits branch for domestic workers (Newly awarded pensions and funeral benefits in each year) (in MYR Millions)

Year	Average number of contributors[1]	PD pensions[2]	PD Lump sums[3]	Dependents		Funeral benefits
				Widow (er)s	Orphans	
2021	1,774	0	0	0	0	0
2022	5,399	0	4	0	0	0
2023	9,112	0	12	0	0	0
2024	12,895	1	20	0	1	0
2025	16,734	1	28	0	1	1
2026	20,618	1	37	0	1	1
2027	24,539	1	46	0	1	1
2028	28,496	2	54	0	2	1
2029	32,486	2	64	1	2	1
2034	53,046	3	112	1	3	2
2039	54,247	4	127	1	4	2
2044	53,837	4	129	1	3	2
2049	53,356	4	129	1	3	2
2059	51,900	4	124	1	3	2
2069	49,791	4	119	1	3	2

1 Average number of contributors: active contributors x density
2 Includes all new pensions awarded including those for which part of them is commuted to a lump sum
3 Includes all lump sums with a degree of incapacity below 20% (excludes the number of lump sums related to the commutation of a newly awarded pension)

Table 4.3 presents the financial projections of employment injury benefits for domestic workers according to the financing system applicable for each of them.

▶ Table 4.3 Financial projections of employment injury benefits for domestic workers (MYR million) (costs reported according to the funding method)

Year	Insured salary bill	PD pensions	PD Lump sums	Dependents		Funeral grants	TD	Other[1]	Total	Total as % of insured salary bill
				Widow (ers)	Orphans					
2021	20.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.15
2022	67.4	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.2	0.22
2023	121.6	0.0	0.1	0.0	0.0	0.0	0.1	0.0	0.3	0.28
2024	183.8	0.0	0.2	0.0	0.0	0.0	0.2	0.1	0.6	0.31
2025	254.7	0.1	0.3	0.0	0.0	0.0	0.3	0.1	0.8	0.32
2026	333.7	0.1	0.5	0.1	0.0	0.0	0.3	0.1	1.1	0.32
2027	421.9	0.1	0.6	0.1	0.0	0.0	0.4	0.1	1.4	0.33
2028	519.8	0.1	0.8	0.1	0.1	0.0	0.5	0.1	1.7	0.33
2029	627.8	0.2	1.0	0.1	0.1	0.0	0.6	0.2	2.1	0.33
2034	1,365.0	0.4	2.3	0.2	0.1	0.0	1.3	0.4	4.6	0.34
2039	1,841.9	0.6	3.4	0.3	0.2	0.0	1.8	0.5	6.7	0.36
2044	2,384.2	0.8	4.4	0.4	0.2	0.0	2.3	0.7	8.8	0.37
2049	3,076.0	1.0	5.6	0.5	0.3	0.0	3.0	0.9	11.4	0.37
2059	4,990.0	1.6	9.1	0.8	0.4	0.0	4.9	1.4	18.2	0.37
2069	7,919.4	2.5	14.5	1.2	0.6	0.0	7.7	2.2	28.8	0.36

The cost of PD pensions and dependents benefits is the present value of pensions awarded during the year. For all other benefits, the cost is the payments made during the year.
1 Includes medical benefits, physical and vocational rehabilitation, constant attendance allowances, activities promoting safety and health, penalties written off and general expenditure not elsewhere classified.

The nominal cost of benefits increases as the covered population matures. The cost rapidly converges towards an ultimate level which oscillates between 0.33 and 0.37 per cent of the insured salary bill. Significantly extending coverage to the domestic worker population will be difficult for SOCSO as these workers may be in vulnerable situation and may not be legally declared to authorities. In any case, adding this population to the coverage of the EI branch under SOCSO using current assumptions does not worsen the financial situation of the branch. The cost of benefits expressed as percentage of the insured bill is low compared to the contribution rate of the branch. Adding administrative expenses to the cost of benefit still makes the addition of this covered population beneficial for the EI branch's financial situation. However, it is important to note that the domestic worker population is very low compared to the overall covered population of the EI branch and its impact on the overall results of SOCSO will be marginal at best. It is important to mention that the projections are subject to uncertainty. The real risk profile will be known only after a few years of experience which can then be assessed in the next actuarial valuation.

ILO does not recommend introducing a specific rate for the domestic workers until credible experience emerges. If SOCSO's intention is to set a specific rate when experience emerges which shows a credible gap with the average, the question of industry rating should be discussed by stakeholders to assess the desirability to apply industry rating for all industries, not only for domestic workers.

Table 4.4 presents the projections of the technical reserve for domestic workers calculated at the end of each year by using the projected number of pensioners, their average amount of pensions at the end of each year and the annuity factors defined by regulation. This is a prospective calculation. It would differ from the result reported in the financial statements, which is calculated retrospectively and depends on the actual benefits paid and investment returns realized by the fund. The prospective approach gives more adequate information on benefits liabilities.

The contingency reserve is based on the projected benefits expenditure and the capitalized present value of benefits awarded.

▶ Table 4.4 Projected required prospective technical reserve and contingency reserve for domestic workers (MYR million)

Year	Technical reserve	Contingency reserve	Ratio: Technical Reserve/ Long-term benefits
2021	0.0	0.0	-
2022	0.0	0.0	14.2
2023	0.1	0.0	14.0
2024	0.2	0.1	13.9
2025	0.4	0.2	13.8
2026	0.7	0.3	13.7
2027	1.2	0.4	13.6
2028	1.7	0.5	13.5
2029	2.4	0.6	13.4
2034	8.4	1.6	13.0
2039	19.6	2.8	12.6
2044	34.5	4.0	12.1
2049	53.8	5.7	11.5
2059	108.8	10.6	10.4
2069	192.4	18.5	9.5

The ratio of the technical reserve over the annual long-term benefits slightly decreases over the projection period. This is due to the fact that the scheme, when only looking at this population, is maturing.

Appendix 1

Description of the Employees' Social Security Scheme (as proposed after the inclusion of foreign workers in the IS branch)

This appendix provides a general overview of the key coverage, contribution, benefit, and administration provisions of ESSS under the proposed extension of coverage to foreign workers under the IS branch. The benefit package for foreign workers is approximately half of the benefit package offered to local workers under the IS branch of ESSS. It is important to note that foreign workers are fully entitled to EI benefits under the EI branch of ESSS and this state of play is already considered in the 11th Actuarial Valuation Report of ESSS.

Legislation

The Employees' Social Security Act, 1969 (as amended), providing employment injury and invalidity benefits. This Act will have to be amended to allow the coverage of foreign workers with its specific benefit package on 1 January 2024. Coverage for invalidity benefits ceases on attainment of age 60.

Administering Organisation

The Social Security Organisation was established as a government department on 1 January 1971 to enforce the Employees' Social Security Act. It is a statutory body headed by a director-general appointed by the Minister of Human Resources. The general direction and superintendence of the organisation vests in a tripartite Board. SOCSO administers a Social Security Fund for the payment of the benefits. The Organisation should maintain proper accounts and prepare yearly statements of accounts to be audited by the Auditor General. An annual report should be submitted to the Minister and, at intervals of five years, the Board should initiate an actuarial review on the working of the schemes involving a valuation of the assets and liabilities of the Organisation.

Categories of employees covered

Since 1 June 2016 all employees who are Malaysian citizens or permanent residents are covered regardless of their level of earnings (previously coverage was voluntary for those earning more than RM3,000 per month when eligible for the first time). For determining contributions and benefits, the earnings are limited to a maximum of RM4,000 per month. Public sector employees are excluded from coverage, except temporary and contract employees who are covered under the Act effective from 1 June 2013. Migrant workers (designated as foreign workers in Malaysia) were excluded from April 1993 but reinstated on 1 January 2019. Under the proposed change in Act 4, foreign workers will be entitled to a specific benefit package under the IS branch on 1 January 2024. Domestic servants were excluded up until 2021 while self-employed are covered under Law 789.

Contribution provisions

Insured persons are classified into one of the wage classes for each of which an assumed wage is specified in ringgit. Since 1 June 2016 there are 45 wage classes with the 45th class including those earning more than RM4,000. Contributions for employment injury benefits represent 1.25 percent of the assumed wage of the wage class and are entirely at the charge of the employer. Contributions for invalidity (and survivors') benefits represent 1 percent and are shared equally between the employer and the employee. Considerations for setting the contribution rate for foreign workers are stated in this technical note.

Employment injury benefits

"Employment injury" covers both industrial injuries and occupational diseases and includes commuting accidents. The qualifying condition for benefit is that of being in insurable employment at the relevant time.

"Medical benefit", provided to victims of employment injury, includes: medical consultations and home visits, outpatient treatment, pharmaceutical supplies, inpatient treatment and prosthetic appliances. Medical benefits are provided through a system of panel doctors appointed by SOCSO and in government hospitals.

"Temporary disablement benefit" is paid in the event of certified incapacity for work arising out of an employment injury, subject to a waiting period of three days. The daily rate of benefit is 80 percent of the reference wage - i.e. one-thirtieth of the average assumed monthly wage over the preceding six months - subject to a minimum of MYR30 per day and to a maximum of MYR105.33 per day. The benefit is payable for seven days a week until the temporary disablement ends.

"Permanent disablement benefit" is payable if permanent disablement, partial or total, results from an employment injury. The daily rate of total disablement benefit is 90 percent of the reference wage, subject to a minimum of MYR30 per day. The benefit rate for partial disablement is proportional to the degree of disablement. If the degree is 20 percent or less, the benefit can be commuted into a lump sum; if the degree exceeds 20 percent, one-fifth of the benefit can be commuted. A constant attendance allowance of MYR500 per month is payable to total disablement pensioners.

"Dependants' benefit" is payable in the event of death arising out of an employment injury, to a widow or widower and orphans. The widow(er) receives three-fifths and the orphans two-fifths (raised to three-fifths in the absence of a widow(er)) of 90 percent of the average assumed daily wage of the deceased. If there are no primary dependants, parents, grandparents (in the absence of parents) and siblings may claim the benefit (40 percent for parents and grandparents, 30 percent for siblings), subject to whole or partial dependence. Benefits for adults are generally payable for life; for orphans and siblings, until the age of 21 or until marriage before 21; for orphans, beyond age 21 until completion of the first university degree or if mentally retarded or physically handicapped.

"Funeral benefit" (MYR2,000) on death as result of an employment injury or while receiving disablement benefit.

"Education benefit" may be provided to a dependent child of an insured employee who dies as a result of an employment injury or is in receipt of employment injury or invalidity benefits. Such benefit is provided on the terms and conditions that SOCSO deems fit to impose.

"Constant allowance" is payable to an insured employee who is entitled to disablement benefits and who is so severely incapacitated that he requires personal attendance and care of another person.

"Rehabilitation benefit", consisting of vocational and physical rehabilitation, is available to employees suffering permanent disablement.

Invalidity (and survivors') benefits

"Invalidity pension" is payable, subject to qualifying contribution conditions, in the event of a disease of a permanent nature that is incurable or unlikely to be cured, occurring before age 60 and as a result of which an employee's earning capacity is reduced by at least two-thirds.

For local workers: Subject to a credit of at least 24 contribution months over the preceding 40 months, or contributions for at least two-thirds of the period since entry subject to a minimum of 24 months, a "full pension" is payable: 50 percent of the reference wage, augmented by 1 percent for every 12 contribution months in excess of 24, subject to a maximum of 65 percent. The reference wage is the average assumed wage over the last 24 contribution months.

If the above conditions are not satisfied, but subject to a credit of contributions for at least one-third of the period since entry and a minimum of 24 months, a "reduced pension" is payable: 50 percent of the reference wage.

In either case, the pension is subject to the minimum of MYR400 per month. If the invalidity pensioner needs constant attendance, a constant attendance allowance of MYR500 per month is payable.

For foreign workers: Subject to a credit of at least 12 contribution months over the preceding 20 months, or contributions for at least two-thirds of the period since entry subject to a minimum of 12 months, a "full pension" is payable: 25 percent of the reference wage, augmented by 0.5 percent for every 12 contribution months in excess of 12, subject to a maximum of 32.5 percent. The reference wage is the average assumed wage over the last 12 contribution months.

If the above conditions are not satisfied, but subject to a credit of contributions for at least one-third of the period since entry and a minimum of 6 months, a "reduced pension" is payable: 25 percent of the reference wage.

In either case, the pension is subject to the minimum of MYR200 per month. If the invalidity pensioner needs constant attendance, a constant attendance allowance of MYR250 per month is payable (in 2019 MYR).

"Invalidity grant" if qualifying conditions for pension are not satisfied, subject to a minimum of 12 contributions for local workers and 6 contributions for foreign workers, the invalidity pension contributions are reimbursed with the addition of simple interest.

"Survivors' pension" is payable on the death of an insured employee before age 60, or of an invalidity pensioner. The basic amount of the pension is the invalidity pension actually received by the deceased or which would have been payable if a claim had been made on the date of death. The provision relating to the eligible beneficiaries, and to their shares, is identical to that which applies to the dependants' benefit.

"Funeral benefit" (MYR2,000 for local workers, MYR1,000 for foreign workers) is payable on the death of an invalidity pensioner, or of an insured employee before age 60 subject to the satisfaction of the minimum qualifying conditions for Invalidity Pension.

"Rehabilitation benefit" (vocational and physical rehabilitation) is provided to employees who suffer invalidity.

"Dialysis benefit" is provided to employees suffering from chronic renal failure.

Adjustment of benefits

If substantial changes in the general level of earnings result from substantial changes in the cost of living, the situation should be examined and steps taken to maintain the real value of benefits.

Appendix 2

Description of the proposed insurance protection to the housemakers/housewives

This appendix provides a general overview of the key coverage, benefit and administration provisions of a new Act applicable to housemakers/housewives in case of accidents. For the purpose of this technical note and the results presented in this technical note, it is assumed that this new Act would be applicable from 1 January 2024. The Act would cover any wife, divorcee or widow whose marriage has been registered under any written law and any mother of child, including single mothers[11]. The Government has identified 3 profiles to the potential covered members in the scheme:

- Housewives outside the labour force that are considered as poor
- Housewives outside the labour force that are not considered as poor
- Housewives that work part-time outside the household but that are not covered neither by ESSS nor SESSS.

For the first group of potential participants, the Government is considering financing the coverage to these poor housewives (duration and modality of financing is not clear over the mid- and long-term). As for the two other groups, it is expected that the eligible participants that elect coverage under the new Act would pay a flat annual premium.

All nominal figures of Appendix 2 are expressed in MYR as of 2020.

11 The Terms of Reference under the project also refer to housemakers. The projections refer to housewives because these are the overwhelming majority of cases in reality and assumptions are based on observed behaviour for this group.

Legislation

A new act providing accident and invalidity benefits to housemaker/housewives. Coverage for invalidity benefits ceases on attainment of age 55.

Administering Organisation

The Social Security Organisation was established as a government department on 1 January 1971 to enforce the Employees' Social Security Act. It is a statutory body headed by a director-general appointed by the Minister of Human Resources. The general direction and superintendence of the organisation vests in a tripartite Board. SOCSO administers a Social Security Fund for the payment of the benefits. The Organisation shall maintain proper accounts and prepare yearly statements of accounts to be audited by the Auditor General An annual report shall be submitted to the Minister and, at intervals of five years, the Board shall initiate an actuarial review on the working of the schemes involving a valuation of the assets and liabilities of the Organisation. SOCSO would be responsible to administer the proposed scheme for housemakers/housewives.

Categories of citizens covered

The Act would cover any wife, divorcee or widow whose marriage has been registered under any written law and any mother of a child, including single mothers. Coverage would be available until the age of 55. The Government has identified 3 profiles of potential covered members in the scheme:

- Housewives outside the labour force that are considered as poor
- Housewives outside the labour force that are not considered as poor
- Housewives that work part-time outside the household but that are not covered either by ESSS nor SESSS.

The principle "once in, never out" would be applicable. It would imply that a registered housewife would not be able to leave the scheme until the end of the coverage; housewives that would be entitled for coverage under either ESSS or SESSS would be able to leave the plan upon registration to these schemes.

Contribution provisions

A flat annual contribution would be levied from the insured person in order to cover for the cost of the benefits provided and administration. The Government is considering providing financing to cover the cost of the coverage for the housewives outside the workforce that are considered poor MYR120 per capita annual contribution).

Benefits

- Permanent Disability – lump sum payment between MYR 1,000 to MYR 30,000 depending on the severity of injury i.e. percentage of disability;
- Medical benefit – the same rate as Act 4;
- Constant Attendance Allowance – MYR 250 per month and the eligibility criteria for this benefit remains the same as under Act 4;
- Physical or vocational rehabilitation facilities – up to MYR 50,000 per claim and dialysis treatment is subject to a maximum of MYR 200 per month;
- Invalidity Pension – MYR 300 per month up to the age of 55 or death, whichever is earlier;
- Survivors' Pension – MYR 300 per month payable if insured person dies before the age of 55 years old, subject to up to age 21 for a child or up to age 55 for other than a child or until marriage and other conditions to be imposed on dependents, according to the same proportion of daily rate payment as stipulated under Act 4;
- Funeral Benefit – MYR 2,000 for the death of insured person before reaching the age of 55 years old;

Adjustment of benefits

Level of benefits and their accompanying limits are automatically indexed every year in line with changes in the Consumer Price Index (CPI).

Appendix 3

Description of the proposed old-age pension branch for ESSS

This appendix provides a general overview of the key coverage, contribution, benefit, and administration provisions of a new proposed branch covering old-age pension for ESSS. The ILO worked on two scenarios:

- Minimum requirements based on Part V of Convention No. 102 of the ILO [later referred as *Scenario C.102*]; and
- Contribution budget of 8 percent of the covered wage [later referred as *Scenario Budget*].

Scenario C.102 can be seen as the "cost of entry" or minimum level for providing decent old-age pension to workers in Malaysia as per ILO Conventions. The underlying design of this scheme is not overly generous and it can be considered as the first step that stakeholders must take when designing a social protection scheme for retirement. Subject to the legal review of the proposed benefit package by the International Labour Standards Department (NORMES), *Scenario C.102* could be assessed as being compliant with Part V of Convention No. 102 of the ILO.

Scenario Budget is based on a proposal submitted by the SOCSO to the ILO to assess. We understand that stakeholders agree for the payment of a contribution rate of 8 percent of insured wage in order to pay for a new branch of social security that would cover the old-age contingency (and as a complement to current lump sum retirement benefits from the EPF). As such, the ILO has costed a scenario that fits the budget considered

by national stakeholders over the next 90 years. Since the benefit package of *Scenario Budget* is lower than *Scenario C.102*, it is doubtful that the implementation of this scenario would meet the minimum requirements of Part V of Convention No. 102 of the ILO.

Legislation

Amendment to Act 4 would be required to implement an old-age pension branch in ESSS as of 1 January 2024.

Administering Organisation

The Social Security Organisation was established as a government department on 1 January 1971 to enforce the Employees' Social Security Act. It is a statutory body headed by a director-general appointed by the Minister of Human Resources. The general direction and superintendence of the organisation vests in a tripartite Board. SOCSO administers a Social Security Fund for the payment of the benefits. The Organisation shall maintain proper accounts and prepare yearly statements of accounts to be audited by the Auditor General An annual report shall be submitted to the Minister and, at intervals of five years, the Board shall initiate an actuarial review on the working of the schemes involving a valuation of the assets and liabilities of the Organisation. The old-age pension branch would also fall under the responsibility of SOCSO.

Categories of employees covered

All workers covered under Act 4 would be covered by the proposed old-age branch of ESSS. For more details on the current coverage eligibility of ESSS, users of this technical note should refer to Appendix 1 of the 11th Actuarial Valuation Report of ESSS.

Contribution provisions

Contribution provisions will need to be discussed as per the elements raised in Section 3 of this technical note. This issue is covered in more detail in the separate report covering the proposed pension scheme.

Old-age benefits

Normal retirement age is set at age 60, which is the same as the retirement age of the Employees' Provident Fund. There is no possibility of early retirement before normal retirement age.

For members that have 15 years of credited service or more at the time of the retirement, the following old-age pension is payable according to each scenario:

- *Scenario C.102*: 1.33 per cent X years of credited service X indexed career-average insured salary of the worker (for example, 40% of career average insured salary for 30 years of credited service)
- *Scenario Budget:* 0.75 per cent X years of credited service X indexed career-average insured salary of the worker (for example, 22.5% of career average insured salary for 30 years of credited service)

Historical salaries recorded in the participation record of the worker are indexed as per the average salary increase of the insured workers in the scheme.

If the participant does not accumulate 15 years of credited service at the time of retirement, the benefit paid to the worker is the accumulated value with interest of his/her contributions and the contributions made by his/her employer(s) during the career. The interest credited in case of refund of contribution is the rate of the return of the fund for the old-age branch of ESSS.

The pension calculated under the old-age branch is subject to a minimum of MYR365 per month (in MYR of 2019). This amount is based on the minimum pension payable in the EI branch for a fully disabled worker, with the necessary adjustment to the replacement ratio for the old-age benefit[12].

12 In the EI branch, a full disability is entitled to a minimum pension of MYR30 per day. The total annual minimum pension is MYR10,950, which is MYR912.50 per month. As a starting point in the discussions regarding the pension scheme design, we have applied a minimum pension of 40% of this minimum which amounts to MYR365 per month.

Survivors' benefits

In case of death before attainment of retirement age, the survivors are eligible to the refund of employee and employer contributions of the worker as per the same rule stated above.

In case of death while an old-age pension is payable to a former participant, survivors are entitled to the following payment according to each scenario:

- *Scenario C.102*: 30 percent to the widow(er), 5 percent to each orphan.
- *Scenario Budget*: 50 percent to the widow(er), 5 percent to each orphan.

Definition and eligibility of widow(er) and orphan remains the same as per the other branch of ESSS. Users of this technical note are invited to refer to Appendix 1 of the 11th Actuarial Valuation Report of ESSS for further details.

Indexation of pensions and scheme's parameters

Pensions in payment are fully indexed each year according to the annual variation in the Consumer Price Index (CPI). The minimum pension is indexed each year using the average increase in the insured salary of ESSS.

Appendix 4

Description of the proposed old-age pension branch for ESSS

Calculations performed in this technical note for the old-age branch makes use of the comprehensive methodology developed by the Public Finance, Actuarial and Statistical Services of the ILO for reviewing the long-term actuarial and financial status of national pension schemes. These modelling tools include a population model, an economic model, a labour force model, a wage model, a long-term benefits model, a short-term benefits model, and an employment injury model. The review has been undertaken using a version of the ILO models that were then specifically developed for the proposed old-age benefits to SOCSO.

The actuarial projections of the old-age branch start with a projection of the future demographic and economic environment of Malaysia. Next, projection factors specifically related to SOCSO are determined and used in combination with the demographic/economic framework.

A4.1 Modelling the demographic and economic environment

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

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

General population

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

Economic growth

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

Labour force, employment and insured population

The projection of the labour force, i.e., the number of persons available for work, is obtained by applying assumed labour force participation rates to the projected number of persons in the general population. Employment rates are assumed for the future and unemployment is calculated as the difference between labour force and employment.

The model assumes movement of participants between the groups of active and inactive insured persons. This movement is simulated by comparing projected active insured persons for two successive years and for each age/sex cell. If the number of persons in that cell decreases by more than the number of persons dying or becoming disabled during the year (for ages at which retirement is not possible), then the difference is considered as new inactive persons. In the reverse case, it is presumed that former inactive persons re-integrate the active insured population.

Wages

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

In the medium term, real wage development is checked against the labour productivity growth. In specific labour market situations, wages might grow at a pace faster or slower than productivity. However, due to the long-term perspective of the present review, the real wage increase is assumed to gradually converge with the real increase of labour productivity. It is expected that wages will adjust to efficiency levels over time.

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

A4.2 Modelling the financial development of the old-age branch of ESSS

The actuarial projections of Section 3 set out projected benefit expenditure items of the proposed old-age branch of ESSS. Projections are performed for each gender separately. Insured members are separated by groups (local and foreign workers).

Purpose of pension projections

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

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

Pension data and assumptions

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

The database as of the valuation date includes the insured population by active and inactive status, the distribution of insurable wages among contributors, the distribution of past credited service and pensions in payment. Data are disaggregated by age and gender.

Scheme-specific assumptions such as the distribution of retirement by age are determined with reference to the scheme provisions and the current retirement schemes in place in Malaysia.

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

Pension projection approach

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

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

Appendix 5

ESSS specific data and assumptions following the extension of coverage to foreign workers under the IS branch

In addition to the demographic and economic assumptions presented in Section 2 of the report called *Report to the Government – Social Security Organization the eleventh actuarial valuation of the Employees' Social Security Act as of 31 December 2019,* the projection of the future financial development of the Invalidity scheme of ESSS following the extension of coverage to foreign workers under the branch as at 1 January 2024 requires a database specific to the system (characteristics of insured persons and pensions in payment) and some particular actuarial assumptions.

This database and assumptions are explained in detail in Appendix 1 of the *Report to the Government – Social Security Organization the eleventh actuarial valuation of the Employees' Social Security Act as of 31 December 2019.* Users of this note should refer to this appendix for more details.

In summary, the data applicable for foreign workers under the EI branch are taken as-is for the IS branch projections shown in Section 1 of this note. As for the assumption on incidence and severity of claims, it is assumed that the assumptions applicable for local workers will be the as for foreign workers under the IS branch.

Appendix 6

Specific data and assumptions related to the extension of coverage to houseworker/ housewives

In addition to the demographic and economic assumptions presented in Section 2 of the report called Report to the Government – Social Security Organization the eleventh actuarial valuation of the Employees' Social Security Act as of 31 December 2019, the projection of the future financial development of the proposed insurance scheme to housemakers/housewives as at 1 January 2024 requires a database specific to the system (characteristics of insured persons and pensions in payment) and some particular actuarial assumptions.

A6.1 Data and assumptions on the insured population

Number of insured persons

As mentioned in Appendix 2 of this technical note, the Government targets coverage of any wife, divorcee or widow/widower whose marriage had been registered under any written law and any mother of a child, including single mothers. The Government has identified 3 profiles for the potential covered members in the scheme:

- Housewives outside the labour force that are considered as poor
- Housewives outside the labour force that are not considered as poor
- Housewives that work part-time outside the household but that are not covered neither by ESSS nor SESSS.

As part of the macroeconomic framework model developed for the 11th Actuarial Valuation of ESSS, there was a projection made of the labour force for the whole duration of the projection period. The population not in the labour force is calculated as the total population less the total labour force. To establish the estimated population outside of the labour force that can be considered a housewife, the following assumptions were made:

- For women aged 35 and less outside the labour force, it is assumed that they are housewives if they are married. The proportion of married women at these ages are assumed to be equivalent to married rate of the national population as set out in Appendix 3 of the 11th Actuarial Valuation report.
- For women aged 36 and more outside the labour force, it is assumed that all these women are married or divorced or widows, and all are considered housewives.
- From this total housewives' population, the first two groups (housewives outside the labour force living in poverty and outside of poverty respectively) is derived as follows:
- Housewives living in poverty: It is assumed that these housewives are already registered under the e-Kasih system administered by the Government. The profile of the insured members under e-Kasih by age was transmitted to the ILO, which was used to calibrate the covered population. It is assumed that the ratio of e-Kasih insured (i.e. housewives outside labour force living under poverty) to the female population not in the labour force remains constant for the projection period.
- Housewives not living in poverty: The balance of the projected housewives outside labour force but not registered under e-Kasih are assumed to be housewives not living in poverty. Since the coverage for these potential insured members is optional, it is assumed that 5 percent of this projected population will elect for coverage under the proposed scheme. This percentage is used as an indication and should not be interpreted as a forecast of ILO's views about the ultimate proportion of coverage.

For the housewives working part-time but who are not eligible for either ESSS or SESSS membership, the following assumptions were made:

- Therefore, the total ineligible population of ESSS and SESSS is determined as the result of the calculation of the total labour force minus the covered population of ESSS and SESSS.
- For the above population aged 35 or less, the same proportion married as per the 11th Actuarial Valuation report was used in order to derive the eligibility to the status of housewife.
- For the population aged 36 or more, the proportion married, divorced or widows is assumed to be 100 percent.
- The population of housewives derived above is assumed to elect this optional coverage at a rate of 3 percent. This percentage is arbitrary and should not be interpreted as a forecast of ILO's views about the ultimate proportion of coverage.

It is important to note that in order to be qualified as housewives, it means that at one point in time the woman was married and supported a family. It does not necessarily mean that at the time of claim the housewife still has a husband and that she is still support of family at this precise time also.

Table 6.1 shows the initial insured population of the proposed scheme. It is assumed that the coverage rate of the population remains constant throughout the projection period when expressed as a part of its overall population (i.e. housewives outside the labour force and housewives outside the coverage of ESSS and SESSS).

▶Table A6.1 Insured persons, by age and sex

Age	Outside the labour force		In the labour force	Total
	Under poverty	Over poverty	Part-time	
15-19	378	1,613	78	2,069
20-24	2,561	8,847	1,036	12,444
25-29	4,190	10,846	13,940	28,976
30-34	8,232	15,785	22,486	46,502
35-39	12,983	18,694	22,941	54,618
40-44	16,746	17,975	18,501	53,223
45-49	20,106	16,022	12,739	48,868
50-54	31,638	18,007	8,425	58,070
Total 15-54	105,325	111,837	101,398	318,559
Average Age	**44.6**	**39.2**	**38.0**	**40.6**

A6.2 Demographic assumptions

Mortality of insured persons

Mortality rates for the insured population have been assumed to be equal to the mortality rates of the general population (sample mortality rates are presented in Table A6.2). Mortality rates are assumed to decline continuously during the projection period in line with the assumed increase of average life expectancy. This mortality pattern is also used to project survivors' benefits payable on the death of insured persons or pensioners. For disability pensioners, it is assumed that mortality rates are equal to five times those of the general population at age 20, decreasing gradually to twice as much at age 60 and to be equal at age 80. Mortality adjustments are based on an analysis of the experience in the period 2015-19 of the EI branch of ESSS through comparison of the observed number of deaths and the expected number based on the mortality table used for the general population.

▶ Table A6.2 Sample mortality rates (per 100) by age and sex (%)

Age	Male		Female	
	2019	2069	2019	2069
0	0.677	0.294	0.586	0.246
5	0.022	0.011	0.023	0.011
10	0.031	0.013	0.019	0.010
15	0.065	0.028	0.025	0.011
20	0.086	0.039	0.033	0.017
25	0.096	0.047	0.042	0.023
30	0.120	0.063	0.058	0.029
35	0.186	0.095	0.088	0.039
40	0.290	0.145	0.141	0.067
45	0.447	0.228	0.228	0.115
50	0.683	0.352	0.367	0.185
55	1.009	0.503	0.577	0.276
60	1.474	0.706	0.875	0.402
65	2.263	1.057	1.371	0.625
70	3.515	1.620	2.295	1.085
75	5.154	2.499	3.962	2.088
80	7.126	3.861	6.699	3.851
85	9.507	6.054	11.327	6.733
90	17.590	9.641	21.640	11.139
95	76.278	14.410	53.824	16.475
100	100.000	100.000	100.000	100.000

Family structure

Information on the family structure of the insured is necessary for the projection of survivors' benefits. Assumptions must be established on the probability of being married at death, the average age of the spouses, the average number of children, siblings, and parents possibly eligible to benefits and their average age. Sample assumptions are shown in Table A6.3 for both local and foreign workers.

▶Table A6.3 Family statistics

Age	Deceased female					
	Spouse		Orphans and siblings		Parents	
	Probability (%)	Average age	Average number	Average age	Average number	Average age
17	-	-	-	-	1.48	47
22	17	24	1.34	12	1.26	51
27	28	30	1.11	9	0.70	55
32	32	35	1.42	7	0.34	59
37	38	40	1.76	9	0.23	63
42	46	45	1.91	12	0.22	67
47	53	50	1.78	15	0.13	72
52	59	55	1.13	17	0.03	76
57	57	60	0.44	15	0.02	80
62	41	66	0.13	12	-	-
67	25	71	-	-	-	-
72	10	76	-	-	-	-
77	-	-	-	-	-	-
82	-	-	-	-	-	-
87	-	-	-	-	-	-

A6.3 Data and assumptions specific to the claims

For the demographic and financial projections of the proposed insurance scheme, a certain number of assumptions have to be set. They have been determined by using the experience of the inter-valuation period, i.e. 2015 to 2019 of both the EI and IS branches of ESSS. Users of this technical note are invited to refer to the actuarial valuation report of the 11th Actuarial Valuation of ESSS. Assumptions are determined by sex and single age. The following tables show the assumptions for selected ages.

Invalidity incidence

Table A6.4 presents the incidence of invalidity pensions as well as of constant attendance allowances, which are determined as a proportion of pension awards. The incidence rates of invalidity are applied to the active insured population.

▶ Table A6.4 Incidence of Invalidity

Age	Invalidity incidence	CAA awarded as % of invalidity pensions
	Female	Female
22	0.00003	18
27	0.00014	12
32	0.00040	10
37	0.00085	10
42	0.00165	11
47	0.00311	8
52	0.00555	7
57	0.01006	8

Permanent disablement

Several assumptions need to be set for the projection of permanent disablement benefits. Table A6.5 presents the permanent disability incidence and the related degree of disability.

▶ Table A6.5 Permanent disablement and degree of disability

Age	Invalidity incidence	CAA awarded as % of invalidity pensions
	Female	Female
22	0.00082	5.6
27	0.00091	5.4
32	0.00118	5.2
37	0.00163	5.4
42	0.00198	5.4
47	0.00231	5.6
52	0.00325	5.8
57	0.00356	5.8
62	0.00322	6.6
67	0.00242	8.1

Rehabilitation, medical and other benefits

Rehabilitation benefits are projected as 80 percent of the amount of constant care attendance benefits. Medical benefits are projected as 130 percent of the amount of the constant care attendance benefits.

A6.4 Other assumptions

Administrative expenses

There is no experience to build the assumption from. It was decided to follow the same administrative expense assumptions of the 11th Actuarial Valuation of ESSS. In 2024, the administrative expenses are expected to represent 15.0 percent of the benefits paid, which increases linearly to 16.0 percent in 2028. Afterward, administrative expenditures increase in line with the variation of average salaries as per the 11th Actuarial Valuation of ESSS. More details on the assumption of salary increases can be found in the actuarial valuation report of ESSS.

Appendix 7

ESSS specific data and assumptions following the addition of an old-age branch to ESSS

In addition to the demographic and economic assumptions presented in Section 2 of the report entitled *Report to the Government – Social Security Organization the eleventh actuarial valuation of the Employees' Social Security Act as of 31 December 2019*, the projection of the future financial development of the proposed old-age branch as at 1 January 2024 requires a database specific to the system (characteristics of insured persons and pensions in payment) and some particular actuarial assumptions.

The database of the covered population (both local and foreign workers) is explained in detail in Appendix 1 of the *Report to the Government – Social Security Organization the eleventh actuarial valuation of the Employees' Social Security Act as of 31 December 2019.* Users of this note should refer to this appendix for more details.

As for the other assumptions required for the projection of this branch, the retirement and leaving incidence of the insured population is calculated directly using the ILO-PENS model. The number of insured persons leaving and re-entering the scheme is a balancing item of the covered population.

It is assumed that people re-entering the scheme will have their previous service recredited for eligibility purposes.

Appendix 8

Projected demographic and macroeconomic environment of Malaysia

Future income and expenditure of the SOCSO scheme will be closely linked to changes in the size and age structure of the population of the country, employment levels, economic and wage growth, inflation, and rates of return on investments. Therefore, in order to estimate future SOCSO finances, a projection of Malaysia's total population and economic activity is required. Demographic projections provide estimates of the size and composition of the labour force, while projections of the gross domestic product (GDP) and the growth of labour productivity are necessary to project the number of workers and their earnings. Population and economic projections are interrelated. They are thus performed together to ensure consistency of results.

Demographic and macroeconomic variables were projected for a period of 100 years specifically for the purpose of the old-age pension branch, following an analysis of past trends and an estimate of plausible future experience. Population and economic projections are an intermediary step to derive SOCSO's scheme projections.

A8.1 Population projection

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

For this valuation, the estimate of the population of the reference year of this valuation (2019) is 32,522,800. It was extracted from the World Population Prospects 2019 (WPP) published by the United Nations in 2019[13]. This publication is the main source of the assumptions used for the projection of the population.

Fertility

The total fertility rate (TFR) represents the average number of children each woman of childbearing age would have if she had all her children in a particular year. If there is no migration, a TFR of about 2.1 is required for each generation to replace itself. The TFR in Malaysia has declined steadily from 2.93 in 2000 to 2.19 child per woman in 2012 and has been under the replacement level since 2013. Table A8.1 shows the assumptions used for this actuarial valuation. The retained assumption is to use the TFR in 2019 as mentioned by DoS (1.78) and to linearly amortize it until 2050, where the assumption is to use WPP projections for TFR.

▶ Table A8.1 Total fertility rate assumption

Year	Total fertility rate
2019-24	1.77
2025-29	1.76
2030-34	1.75
2035-39	1.74
2040-44	1.72
2045-49	1.71
2050-54	1.70
2055-59	1.70
2060-64	1.69
2064-69	1.69
2070-74	1.70
2075-79	1.70
2080-84	1.71
2085-89	1.71
2090-94	1.72
2095-99	1.72
2100-04	1.72

13 United Nations, Department of Economic and Social Affairs, Population Division (2019). World Population Prospects 2019, Online Edition. Rev. 1.

2105-09	1.72
2110-14	1.72
2115-19	1.72

Source: Dos, WPP 2019 and authors' calculation

Mortality

According to the DoS, life expectancy at birth is estimated at 72.4 years for males and 77.4 years for females in 2019. For this valuation, statistics of DoS are used as a starting point, and mortality converges back in 2030 to improvements in life expectancy and mortality that are assumed to occur in accordance with UN estimates. Under this pattern of mortality improvements, it is projected that life expectancy at birth will reach 82.0 years for males and 84.4 years for females in 2069 and 85.4 years for males and 87.5 years for female in 2119.

Migration

For this valuation, net migration is assumed to occur in accordance with WPP 2019. The annual net migration fluctuates between 50.0 and 48.8 thousand in the period 2020-2050 and is set constant at 48.8 thereafter. According to the model, the number of immigrants is double the number of those emigrating each year and both groups are evenly distributed by sex while the distribution by age is different for each group and by sex at adult ages.

Projected population

Figure A8.1 presents the projected population of Malaysia from 2019 to 2069 separated into three age categories: children (0-14), persons who can potentially be insured under both branches of SOCSO scheme (15-59) and persons at pensionable age (60 and over). The evolution of the relative size of each age-group (notably the slight decrease of the population of children and the increase of the number of persons at pensionable age) illustrates the projected ageing of the population of Malaysia.

▶ Figure A8.1 Projected population of Malaysia, by age groups (2019-2119)

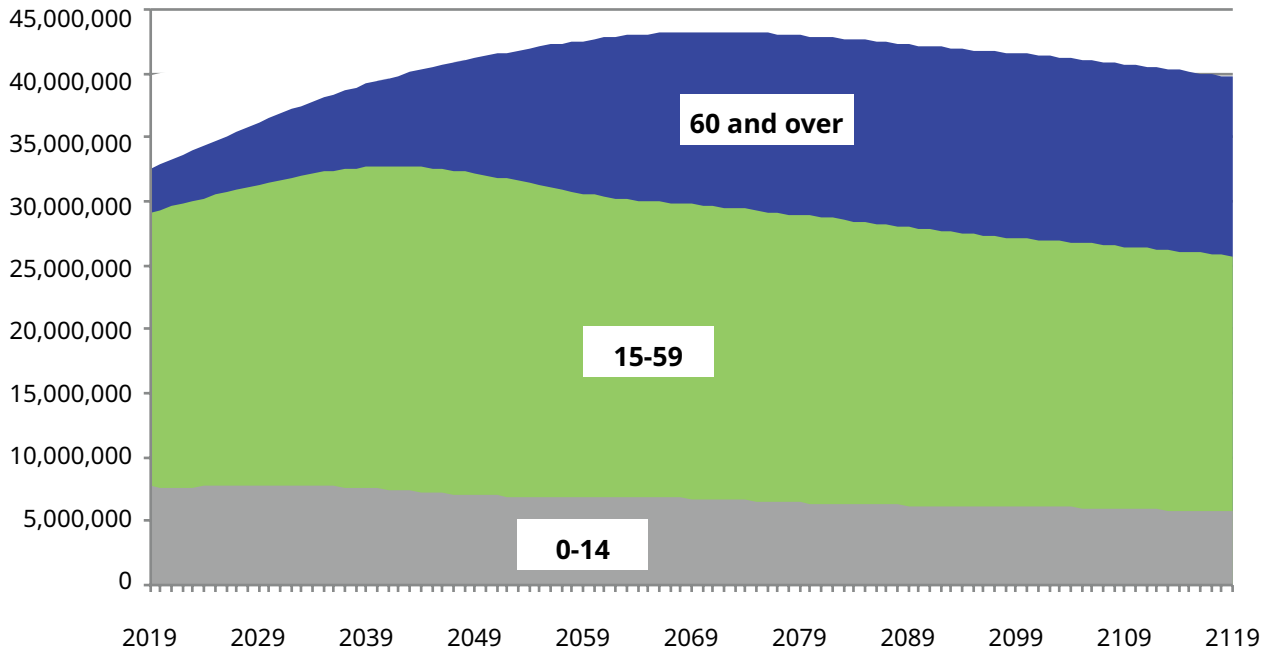


Table A8.2 presents detailed population projections. We observe that the total population will increase steadily from 32,522,800 in 2019 to 43,268,767 in 2069 and decreases to 39,730,081 in 2119. The number of persons aged 15 to 59 will increase from 21,509,000 in 2019 to 25,228,729 in 2049 and then decrease to 23,057,221 in 2069 and to 19,994,661 in 2119.

▶ Table A8.2 Projected population of Malaysia (2019-2119)

Year	Total	Age		
		0-14	15-59	60 & over
2019	32,522,800	7,652,300	21,509,000	3,361,500
2029	36,198,369	7,731,174	23,571,538	4,895,656
2039	39,187,066	7,554,367	25,146,860	6,485,839
2049	41,210,788	6,990,163	25,228,729	8,991,896
2059	42,605,437	6,835,863	23,777,370	11,992,203
2069	43,268,767	6,723,918	23,057,221	13,487,628
2079	43,024,947	6,385,462	22,534,774	14,104,711
2089	42,312,939	6,197,099	21,759,117	14,356,722
2099	41,605,628	6,119,916	21,009,330	14,476,382
2109	40,768,137	5,915,555	20,550,584	14,301,998
2119	39,730,081	5,730,953	19,994,661	14,004,467

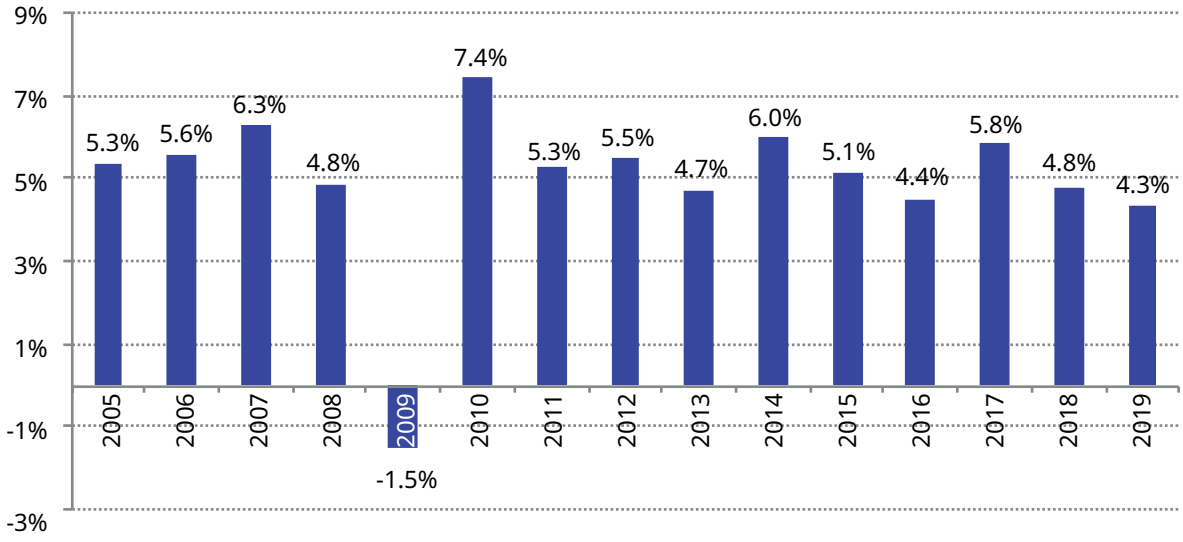
A8.2 Macroeconomic framework

Economic growth

The actuarial valuation and this technical note are being carried out in an unprecedented context due to the impacts of the COVID-19 pandemic. For this reason, establishing assumptions is subject to more uncertainty than in normal circumstances. Even though there seems to be a consensus that the economy will return to some normality after a period of transition, it can nevertheless be expected that the context will be different from what it would have been in the absence of the pandemic. For example, significant progress has been made in the digitalization of the economy which will have an impact on the labour market. The purpose of this note is to highlight over the long-term the financial implications of the proposed changes and reforms on the SOCSO fund. It aims to accurately predict the period of return to normality and its usefulness and relevance is not compromised by discrepancies between assumptions and observances, which could arise in the first years of projection. This is particular the case in this note as the new schemes and reforms are generally estimated to take effect from 2024 only.

Figure A8.2 shows that the GDP increased steadily over the 15 years ending in 2019 except in 2009 due to the financial crisis. The average growth during these 15 years has been 4.9 percent. The country recovered rapidly from the Global Financial Crisis in 2009, recording growth rates averaging 5.3 percent since 2010. In 2019, before the start of the pandemic, sustained growth of real GDP was expected at around 4.7 percent per annum for the decade ending in 2030[14].

▶ Figure A8.2 Real GDP growth of Malaysia (2005-2019)



Source: Department of Statistics of Malaysia.

14 Ministry of Economic Affairs Malaysia, Shared Economic Vision 2030, 2019.

The GDP assumptions used are as follows. In the short term, we have relied on the outlook of the Ministry of Finance[15], which is a decline of 4.5 percent in 2020 followed by a rebound of 6.9 percent in 2021. For 2022 to 2025, the IMF's estimates, i.e. a growth rate decreasing from 6 percent to 5 percent have been used. For the subsequent 5 years, the assumption is a linear decrease from 5 percent to 3.5 percent in 2030. From 2031 to 2035, GDP growth is constant at 3.5 percent and thereafter the change depends on the productivity per worker and the employed population.

The long-term assumption of GDP growth is the result of assumptions on the future evolution of the labour force, the wage share of GDP and labour productivity (discussed below).

Productivity

The assumptions on the growth of GDP and the employed population lead to a decrease in productivity per worker in 2020 followed by a resumption of growth. For the first 5 years of projection, i.e. for the period 2020-2024, productivity grows by an average of 2.4 percent per year. From 2025, the productivity growth of 3.5 percent gradually decreases to 2.6 percent in 2035 and decreases linearly to 2.5 percent in 2069 and remains constant thereafter.

The growth of compensation to employees as a proportion of GDP is a key indicator by the government to measure the development of the country. In the 2015-2020 plan, the objective was to increase this from 34.9 percent in 2015 to at least 40 percent in 2020. Progress has been slower than expected and the objective will not be achieved. In the revision of the 2015-2020 plan, the government set its new target for 2020 at 38 percent while recalling that the target must be greater than 40 percent in the medium term to reach that of high-income countries. For the purposes of this actuarial valuation, the assumption used is that the objective of 40 percent will be reached in 2035 and that it will increases at a reduced pace to reach 42.1 percent in 2069 and remains constant thereafter.

15 Ministry of Finance Malaysia, Economic Outlook, 2021

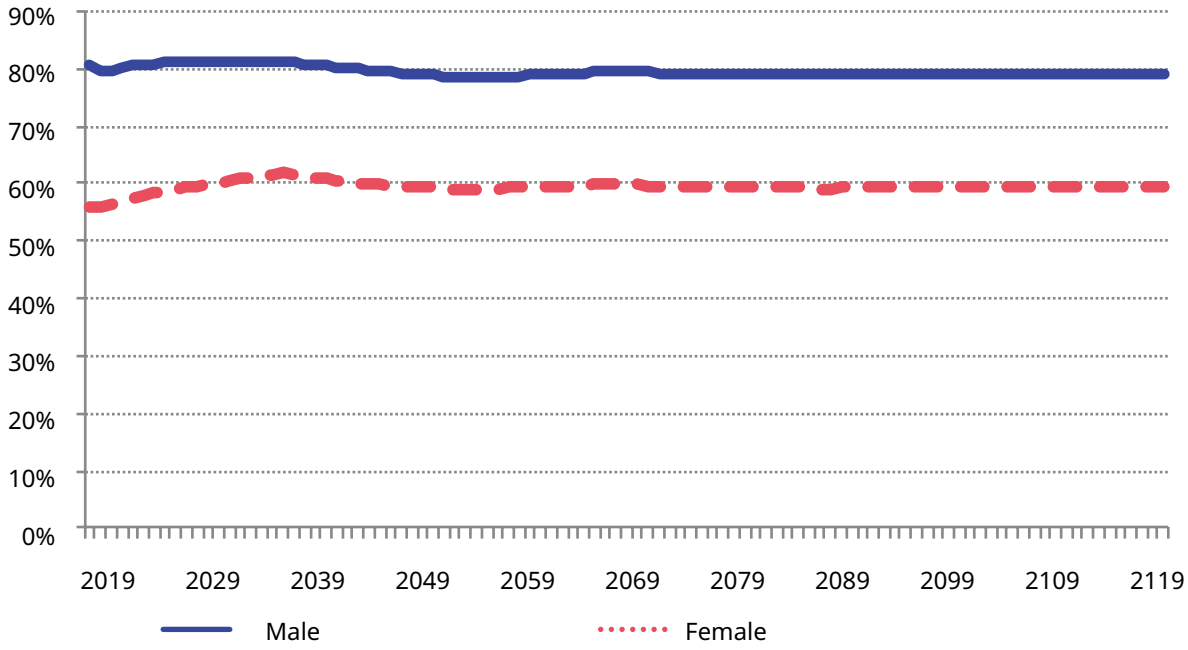
▶Table A8.3 Projected GDP growth, productivity, and total employment

Year	Real GDP growth (%)	Increase in productivity per worker (%)	Increase in the number of workers (%)	Labour income share in GDP (%)
2020	-4.5	-4.1	-0.4	35.9
2021	6.9	4.6	2.2	35.9
2022	6.0	4.1	1.8	35.9
2023	5.7	4.0	1.7	36.2
2024	5.3	3.7	1.6	36.5
2029	3.8	2.6	1.1	38.1
2039	3.0	2.6	0.4	40.5
2049	2.4	2.6	-0.2	41.1
2059	2.0	2.5	-0.5	41.6
2069	2.2	2.5	-0.3	42.1
2079	2.2	2.5	-0.3	42.1
2089	2.1	2.5	-0.4	42.1
2099	2.2	2.5	-0.3	42.1
2109	2.3	2.5	-0.2	42.1
2119	2.2	2.5	-0.3	42.1

Labour force

It is assumed that the total participation rates for males will stay constant at their level of 2019 for the entire projection period while it is assumed that the total participation rate of females will increase from 55.6 percent in 2019 to 60.0 percent in 2035 in accordance with the objective of the government. Age-specific participation rates remain constant from 2037. Fluctuations in the total participation rates are due to changes in the age composition of the population.

▶ Figure A8.3 Projected total participation rate, by sex (2019-2119)



Unemployment rates have been relatively stable during the period 2015-2019 with an average of 3.1 percent for males and 3.6 percent for females. Young people from the age of 15 to 25 years account for about two thirds of the unemployed.

For 2020 and 2021, the unemployment rates are those forecast by the Ministry of Finance. The forecast for 2020 is 4.3 for both genders. The 2021 rates, respectively 3.0 percent for males and 4.4 percent assume a return normal after the pandemic year. The age-specific rates of 2021 have been used for the remainder of the projection period. Fluctuations in the total unemployment rates are due to changes in the age composition of the population.

The distribution of the employed population between salaried workers, self-employed and unpaid family workers of 2019 by sex and age has been assumed to remain constant over the projection period.

▶Table A8.4 Labour market balance (2019-2119)

(in thousands)	2019	2029	2039	2069	2094	2119
Total population	**32,523**	**36,198**	**39,187**	**43,269**	**41,952**	**39,730**
Male	16,765	18,527	19,951	21,819	21,141	20,019
Female	15,758	17,672	19,236	21,450	20,810	19,711
Population 15-64	**22,680**	**25,062**	**26,913**	**25,548**	**23,905**	**22,356**
Male	11,759	12,929	13,853	12,954	12,128	11,354
Female	10,922	12,133	13,060	12,593	11,776	11,001
Labour force 15-64	**15,582**	**17,744**	**19,224**	**17,824**	**16,584**	**15,494**
Male	9,462	10,502	11,205	10,294	9,593	8,972
Female	6,119	7,242	8,019	7,530	6,991	6,523
Participation rate	**69%**	**71%**	**71%**	**70%**	**69%**	**69%**
Male	80.5%	81.2%	80.9%	79.5%	79.1%	79.0%
Female	56.0%	59.7%	61.4%	59.8%	59.4%	59.3%
Employed (15-64)	**15,073**	**17,199**	**18,675**	**17,327**	**16,121**	**15,058**
Male	9,202	10,234	10,939	10,055	9,371	8,763
Female	5,871	6,965	7,736	7,271	6,749	6,296
Salaried (15-64)	**11,180**	**12,596**	**13,368**	**12,238**	**11,348**	**10,594**
Male	6,835	7,488	7,805	7,078	6,574	6,144
Female	4,345	5,108	5,563	5,159	4,774	4,450
Self-Employed (15-64)	**3,316**	**3,961**	**4,582**	**4,391**	**4,119**	**3,852**
Male	2,160	2,554	2,946	2,805	2,637	2,468
Female	1,155	1,407	1,636	1,586	1,483	1,384
Unemployed	**508**	**546**	**549**	**497**	**463**	**436**
Male	260	268	266	239	222	209
Female	248	277	282	258	241	227
Unemployment rate	**3.3%**	**3.1%**	**2.9%**	**2.8%**	**2.8%**	**2.8%**
Male	2.7%	2.6%	2.4%	2.3%	2.3%	2.3%
Female	4.1%	3.8%	3.5%	3.4%	3.5%	3.5%

Inflation

Historically, inflation has been under control with an average annual rate of 2.4 percent since 1995. The annual average rate of inflation (ratio of the average CPI for the 12 months of a calendar year to the average CPI of the 12 months of the preceding year) was 1.9 percent over the last 5 years.

▶ Table A8.5 Historical inflation rates in Malaysia (1995-2019)

Period	Inflation rate (%)
1995-99	3.5
2000-04	1.5
2005-09	2.9
2010-14	2.4
2015-19	1.9
1995-2019	2.4

Source: Department of Statistics of Malaysia

For the first two years of projections, the forecasts of the Ministry of Finance concerning the variation of the CPI were adopted. Due to the pandemic, deflation is observed in 2020 (-1.0 percent) while a return to normal conditions is expected in 2021. For the years 2022 to 2025, the IMF forecasts were used. Beginning in 2026, we assumed that the projected variation of 2.0 percent in 2025 would increase to 2.5 percent in 2030 where it is assumed constant thereafter.

Wage increases

The real wage increase is assumed to gradually converge towards the productivity per worker, as it is expected that wages will adjust to efficiency levels over time. After a downturn in 2020 where the estimate is a decrease of the nominal salary of 4.4 percent, the increase of the nominal average salary is linked to the evolution of the share of compensation of employees. Therefore, the assumed nominal wage increases will be in the 6.0-7.0 percent range until 2035 and will decrease gradually to slightly above 5 percent in 2045 and thereafter.

Rate of return of the SOCSO fund

For social security programs such as the SOCSO programs, under which most of the benefits (and related actuarial liabilities) are fully sensitive to price inflation, the rate of return parameter which is most pertinent for actuarial projection purposes is the real rate of return, i.e. the rate of return in excess of price inflation. For the actuarial valuation as of December 31, 2019, the real rate of return assumption was set at 2.5 percent per annum which was the same as that used in the 10th Actuarial Valuation.

The methodology traditionally used in the actuarial profession for setting appropriate return assumption is referred to as the "building block" method. Under such a method, a long term expected rate of return is set for each asset category and the overall return assumption to be used for actuarial purposes is determined as the weighted average of these expected long-term rates of return, the weight given to each asset category corresponding to the long-term allocation to such asset category under the investment policy adopted for the program. The long term expected rate of return for each asset category is determined by adding to the price inflation assumption, the real rate of return expected for no-risk investment instruments (i.e. short-term government issues) and for other asset categories, the expected "risk premia" inherent to any such asset category, i.e. remuneration expected by the market investors as a compensation for the various risks inherent to the asset category.

For the 11th actuarial valuation, the long-term real rate of return was assumed to be equal to 2.5 percent except for the first 10 projection years where shorter-term forecasts were adopted. More details on the justification for this assumption are set out in the valuation report.

Table A8.6 presents the evolution of inflation, average wage growth and nominal rate of return that are assumed over the projection period.

▶ Table A8.6 Projected inflation rate, wage increase and rate of return of the Fund

Year	Inflation rate (%)	Annual nominal increase of average wage (%)	Rate of return of the Fund (%)
2020	-1.0	-4.4	4.5
2021	2.5	6.6	4.6
2022	1.9	6.0	4.6
2023	1.9	6.9	4.7
2024	2.0	6.9	4.7
2029	2.4	6.0	4.8
2039	2.5	5.4	5.1
2049	2.5	5.3	5.1
2059	2.5	5.2	5.1
2069	2.5	5.2	5.1
2079	2.5	5.1	5.1
2089	2.5	5.1	5.1
2099	2.5	5.1	5.1
2109	2.5	5.1	5.1
2119	2.5	5.1	5.1

Appendix 9

Specific data and assumptions for the extension of coverage to domestic workers

In addition to the demographic and economic assumptions presented in Appendix 8, the projection of the future financial development of the Employment Injury scheme for the additional coverage of domestic workers requires a database specific to the system (characteristics of insured persons) and some specific actuarial assumptions.

A9.1 Data and assumptions on the insured population

Number of insured persons

The information of domestic workers currently insured under SOCSO on 1 November 2021 was provided to the ILO at the end of 2021. The number of participants is summarized below:

- Male local domestic workers: 33
- Female local domestic workers: 29
- Male foreign domestic workers: 42
- Female foreign domestic workers: 1,825

Based on this information, it is assumed that domestic workers are wholly composed of female foreign workers for the purpose of the actuarial valuation projections given the low number of workers in other categories.

To project the extension of the coverage of the domestic workers under SOCSO, the following method is used:

- Based on the information provided by SOCSO, current domestic workers are distributed on a single age basis and a coverage rate is derived based on the female foreign workers employed in the labour force projection model of Appendix 8.
- A specific projection of the number of domestic workers in Malaysia is performed. The starting point is 104,300 in 2019, which is the number of employed person as published by the DoS for the sector called Activities of households as employers.
- From that starting point of 104,300, it is assumed that this total number of domestic workers in Malaysia will change at the same pace as the change in employed population of the female foreign workers.
- The coverage rate of SOCSO is derived from the actual experience in 2021. It is then assumed that SOCSO will increase its coverage at the same pace as the current coverage of 2021, expressed as a percentage of the total domestic workers and by annualizing the coverage rate of 2021.
- Once the coverage rate of SOCSO reaches 50 percent of all domestic workers in the country, it is assumed that the coverage rate of domestic workers remains constant for the remaining projection period.

▶ Table A9.1 Insured persons, by age and sex, Domestic workers in 2021

Age	Employment injury – Domestic workers Female
15-19	3
20-24	51
25-29	157
30-34	241
35-39	345
40-44	415
45-49	403
50-54	189
55-59	93
60-64	20
65+	12
Grand Total	**1,929**

Note: Foreign workers are not covered in the Invalidity Pensions Branch.

Coverage rates appearing in Table A9.2 are calculated as the ratio of insured persons to the employed population at the corresponding age for domestic workers.

▶Table A9.2 SOCSO coverage rates for domestic workers expressed as percentage of foreign female workers, by age and sex (2021 and 2069)

Age	2021 Female (%)	2069 Female (%)
17	0.01	0.13
22	0.04	0.88
27	0.11	2.17
32	0.30	6.05
37	0.59	11.96
42	0.90	18.30
47	2.08	42.32
52	1.39	28.24
57	1.92	39.11
62	0.89	18.01
Total	**0.37**	**10.00**

Insurable earnings

Information on the earnings of domestic workers covered under SOCSO was transmitted to the ILO. An analysis of these salaries against the salaries of female foreign workers was performed to establish an assumption. It is assumed that domestic workers earn 70 percent of the salary of female foreign workers. Table A9.3 shows the average insurable earnings of active domestic worker contributors.

▶ Table A9.3 Average monthly insurable earnings in 2021 (in MYR)

Age	Foreign workers Female
15-19	580
20-24	794
25-29	981
30-34	980
35-39	957
40-44	927
45-49	943
50-54	1,030
55-59	1,332
60+	1,419
Average	**981**

Source: SOSCO internal data

The average monthly insured salary of the contributing population is derived from the salary class distributions of the employee database. These figures are based on an analysis of contributions in a given month of each year, so that they reflect the actual salary, i.e. they are not affected by the contribution density.

In order to better take into account the effect of minimum and maximum limits on salary-based benefits, the average salary by age and sex is refined into three salary groups, the 30 percent lowest salaries, the 40 percent medium salaries and the 30 percent highest salaries. The distribution of insured persons according to their salary is assumed to remain constant over the projection period. The average salary by age, sex and salary group is projected according to the assumption of wage increase.

Density of contributions

Density of contribution represents the proportion of the year during which the average contributor pays contributions. Density factor by age and sex were obtained from the SOCSO for female foreign workers. Sample density factors appear in Table A9.4. They remain constant for the full projection period.

▶Table A9.4 Density factors, by age and sex

Age	Foreign workers Female
17	0.43
22	0.74
27	0.88
32	0.91
37	0.93
42	0.94
47	0.94
52	0.93
57	0.92
62	0.89
Total	**0.82**

A9.2 Demographic assumptions related to the system

Mortality of insured persons

Mortality rates for the insured population have been assumed to be equal to the mortality rates of the general population (sample mortality rates are presented in Table A9.5). Mortality rates are assumed to decline continuously during the projection period in line with the assumed increase of average life expectancy. This mortality pattern is also used to project survivors' benefits payable on the death of insured persons or pensioners. For disability pensioners of the EI branch, it is assumed that mortality rates are equal to five times those of the general population at age 20, decreasing gradually to twice as much at age 60 and to be equal at age 80. Mortality adjustments are based on an analysis of the experience in the period 2015-19 through comparison of the observed number of deaths and the expected number based on the mortality table used for the general population.

▶Table A9.5 Sample mortality rates (per 100) by age and sex

Age	Male		Female	
	2019	2069	2019	2069
0	0.677	0.294	0.586	0.246
5	0.022	0.011	0.023	0.011
10	0.031	0.013	0.019	0.010
15	0.065	0.028	0.025	0.011
20	0.086	0.039	0.033	0.017
25	0.096	0.047	0.042	0.023
30	0.120	0.063	0.058	0.029
35	0.186	0.095	0.088	0.039
40	0.290	0.145	0.141	0.067
45	0.447	0.228	0.228	0.115
50	0.683	0.352	0.367	0.185
55	1.009	0.503	0.577	0.276
60	1.474	0.706	0.875	0.402
65	2.263	1.057	1.371	0.625
70	3.515	1.620	2.295	1.085
75	5.154	2.499	3.962	2.088
80	7.126	3.861	6.699	3.851
85	9.507	6.054	11.327	6.733
90	17.590	9.641	21.640	11.139
95	76.278	14.410	53.824	16.475
100	100.000	100.000	100.000	100.000

Family structure

Information on the family structure of the insured is necessary for the projection of survivors' benefits. Assumptions must be established on the probability of being married at death, the average age of the spouses, the average number of children, siblings, and parents possibly eligible to benefits and their average age. Sample assumptions are shown in Table A9.6 for domestic workers.

▶ Table A9.6 Family statistics, domestic workers

Age	Deceased Female Family Assumptions					
	Spouse		Orphans and siblings		Parents	
	Probability (%)	Average age	Average number	Average age	Average number	Average age
17	-	-	-	-	1.48	47
22	17	24	1.34	12	1.26	51
27	28	30	1.11	9	0.70	55
32	32	35	1.42	7	0.34	59
37	38	40	1.76	9	0.23	63
42	46	45	1.91	12	0.22	67
47	53	50	1.78	15	0.13	72
52	59	55	1.13	17	0.03	76
57	57	60	0.44	15	0.02	80
62	41	66	0.13	12	-	-
67	25	71	-	-	-	-
72	10	76	-	-	-	-
77	-	-	-	-	-	-
82	-	-	-	-	-	-
87	-	-	-	-	-	-

A9.3 Data and assumptions specific to the Employment injury scheme

For the demographic and financial projections of the Employment Injury Branch, a certain number of assumptions must be set. They have been determined by using the experience of the inter-valuation period, i.e. 2015 to 2019. Generally speaking, an average of the 5-year experience has been used. Smoothing techniques are used in order to avoid certain irregularities in the patterns due to small volumes of data. Assumptions are determined by sex and single age. The following tables show the assumptions for selected ages.

Temporary disablement

Table A9.7 presents the assumptions used for the projection of temporary disablement benefits for domestic workers respectively.

▶Table A9.7 Temporary disablement, domestic workers

Age	Temporary disablement	
	Incidence	Average duration (days)
	Female	Female
22	0.0048	44.7
27	0.0044	46.7
32	0.0048	50.3
37	0.0057	54.9
42	0.0067	57.2
47	0.0080	56.3
52	0.0111	58.4
57	0.0127	56.8
62	0.0145	55.2
67	0.0167	59.4

The temporary disablement incidence rate is applicable to the average insured population.

The average amount of temporary disablement benefits is determined by using the projected earnings by sex and age and applying an adjustment factor of 0.93573 for domestic workers. The amount of pensions is based on earnings of insured and adjusted to take into consideration the difference between the earnings of benefit recipients and those of insured.

Rehabilitation, medical and other benefits

Rehabilitation benefit amounts are assumed as 15 percent of the amount of temporary disability benefits. Medical benefits are assumed as 2 percent of the amount of temporary disability benefits. As to other benefits that include cost of medical and appellate boards, activities promoting safety and health, penalties written off and general expenditure not elsewhere classified, they are estimated at 10 percent of the amount of temporary disability benefits.

Permanent disablement (including constant attendance allowances)

Several assumptions need to be set for the projection of permanent disablement benefits as a distinction must be made between beneficiaries receiving a pension or a lump sum or a combination of both. The model determines the number of new awards and separates them into appropriate categories of payment by using the variables shown in Table A9.8 for domestic workers respectively. The incidence of new cases of constant attendance allowances is determined as a proportion of pension awards.

▶Table A9.8 Permanent disablement and constant attendance allowance (CAA) incidence, domestic workers

Age	Permanent disability incidence	% of disabled awarded a pension	% of pensioners commuting 20 percent	% of pensioners awarded a CAA
	Female	Female	Female	Female
22	0.00092	3.0	94.8	4.0
27	0.00102	2.8	98.2	8.5
32	0.00133	2.1	88.7	6.5
37	0.00183	2.5	96.8	3.3
42	0.00223	2.7	85.9	4.7
47	0.00259	3.0	92.0	4.3
52	0.00365	3.3	96.0	3.9
57	0.00401	3.3	91.8	2.3
62	0.00362	4.1	100.0	4.8
67	0.00272	6.3	100.0	9.7

Table A9.9 shows the average degree of disablement separately for the pensioners (including those commuting part of their pension) and those receiving a lump sum only.

▶Table A9.9 Average degree of disablement, domestic workers (percent)

Age	Beneficiaries receiving an income	Beneficiaries receiving a lump sum only
22	44.8	4.4
27	45.4	4.3
32	40.3	4.4
37	36.4	4.6
42	33.9	4.6
47	37.0	4.6
52	34.5	4.8
57	32.5	4.9
62	38.0	5.2
67	43.1	5.7

16 This assumption is added to avoid underestimation of costs for work-related deaths. Generally, there is no evidence that safety and security at workplace will improve as fast as the general health condition of the general population.

Work-related deaths

The model generates the work-related deaths (including commuting accidents) by applying a coefficient to the total number of deaths. Table A9.10 presents the coefficients applied in 2020 for domestic workers. In the projection period, the coefficients are increased annually by 0.5 percent to partially offset the impact of mortality improvement for all causes. It is therefore assumed that the frequency of work-related accidents will decrease more slowly than the mortality rates in the population[16]. The survivors' pensions are determined by using the assumptions related to the family composition.

▶ Table A9.10 Proportion of deaths due to work-related accidents and diseases, domestic workers

Age	Female %
22	17.1
27	8.1
32	5.4
37	2.9
42	2.4
47	1.8
52	1.7
57	1.2
62	1.7
67	1.0

The amount of pension is based on earnings of insured and adjusted to take into consideration the difference between the earnings of benefit recipients and those of the insured. Adjustment factors are shown in Table A9.11.

▶ Table A9.11 Adjustment factors in calculation of benefits, domestic workers

Benefit	Female
PDNew awards (Periodical)	72%
PDNew awards (LS only)	91%
Death benefit	78%

Table A9.12 shows the replacement rates that are used in projecting survivors' benefits. The replacement rates defined by the scheme provisions are adjusted to take into account the survivors' degree of dependency.

▶ Table A9.12 Adjusted replacement rates of survivors' benefits, domestic workers

Benefit	Female
Widow(er)s	60%
Orphans	34%
Parents	27%

A9.4 Other assumptions

Indexing of system's parameters and pensions in payment

Maximum insurable earnings are MYR4,000 per month on 1 January 2020. For the remainder of the projection period, the maximum insurable earnings are indexed annually in line with the increase of the national average wage. The MIE indexation is reflected in the maximum benefits and in other fixed parameters of the system from 1 January 2021.

The pensions in payment are assumed to increase annually from 1 January 2020 in line with the CPI.

Administrative expenses

For 2021, administrative expenses have been set at 14.5 percent of benefits to match as closely as possible those of the previous year, taking into account an increase due to inflation and wages. For the years 2021-2028, the factor applied to benefits increases by 0.25 each year until it reaches 16.0 percent in 2028. During the period 2005-2019, the average ratio of administrative expenditure to benefits was 15.8 percent.

In 2029 and after, administrative expenditures increase in line with the variation of average salaries.

Technical Note on Extension of Coverage Following the Eleventh Actuarial Valuation of the Employees' Social Security Act

ILO Regional Office for Asia and the Pacific
United Nations Building, Rajdamnern Nok Avenue
Bangkok 10200, Thailand
T. +662 288 1234
F. +662 280 1735
E. BANGKOK@ilo/org
www.ilo.org/asia