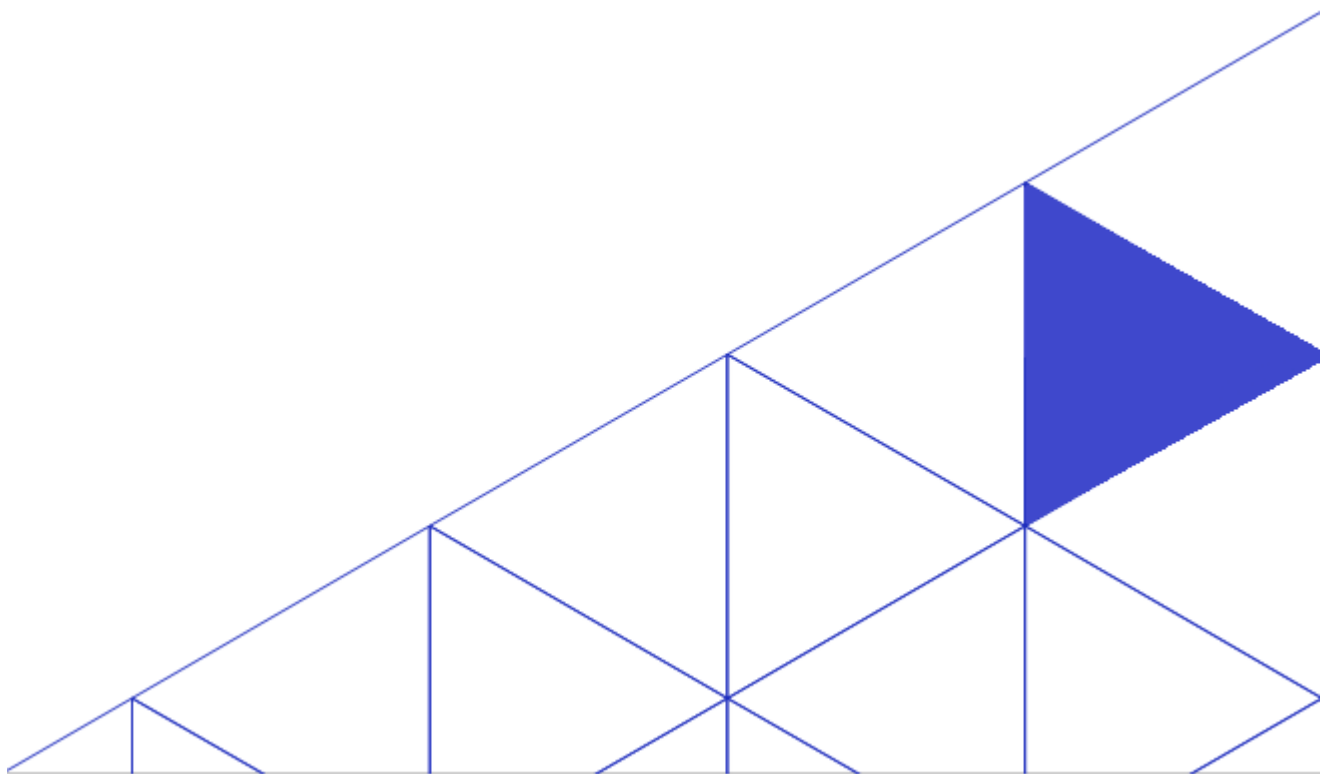




BANGLADESH

► Report to the Governance Board

Actuarial Valuation of the Employment
Injury Scheme Pilot for the Export-Oriented
Ready-Made Garment Sector
as of 30 June 2024



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► Abbreviations and acronyms

BBS	Bangladesh Bureau of Statistics
BDT	Taka (Bangladesh)
BGMEA	Bangladesh Garment Manufacturers and Exporters Association
BGTB	Bangladesh Government Treasury Bonds
BKMEA	Bangladesh Knitwear Manufacturers and Exporters Association
BLA	Bangladesh Labour Act
BLR	Bangladesh Labour Regulations
BoB	Bank of Bangladesh
CF	Central Fund
DGUV	Deutsche Gesetzliche Unfallversicherung
DLP	Disability Level Percentage
EIS	Employment Injury Scheme
FCIA	Fellow of the Canadian Institute of Actuaries
FSA	Fellow of the Society of Actuaries
GB	Governance Board
GIZ	Deutsche Gesellschaft für International Zusammenarbeit GmbH
IBNR	Incurred But Not Reported
ILO	International Labour Organization
IMF	International Monetary Fund
LAA	<i>Loi sur l'assurance-accidents</i> (Switzerland)
MfAD	Margin for Adverse Deviation
PSU	Pilot Special Unit
RMG	Ready-Made Garment
SOC/ASU	Actuarial Service Unit (of the Social Protection Department)
SOCPRO	Social Protection Department
UN	United Nations
USD	Dollars (United States)
WEO	World Economic Outlook (IMF)
WPP	World Population Prospects (the 2024 Revision)

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The ILO entrusted the Universal Social Protection Department (SOCPRO) with the completion of this mandate. The ILO mandated Mr Raphaël Imbeault, FSA, FCIA to undertake the assignment. Dr Anne Marie La Rosa, senior EIS Pilot project technical expert assumed responsibility for the technical review supervision, and the edition of this ILO technical report. Mr André Picard, FSA, FCIA, head of the Actuarial Service Unit (SOC/ASU) of SOCPRO, provided technical backstopping for this actuarial valuation.

The ILO project team worked in close collaboration with the EIS Pilot Special Unit composed of Md. Shafiqul Islam (Special advisor), Ms Sujana Tabassum (Coordinator), Md. Ali (Administration and finance officer), Mr Salah Uddin Kader (Verification, documentation and correspondence officer) and Mr Faruque Hasan (MIS Officer). The project team was also supported by the Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH team in Bangladesh composed of Dr Silvia Popp (Commission Manager) and Mr Syed Moazzem Hussain (Senior social protection advisor) who provided support with additional data on workplace accidents in the RMG sector of Bangladesh.

► Executive summary

Review of the experience of the EIS Pilot

Context of the EIS Pilot

The Employment Injury Scheme (EIS) Pilot is the culmination of various stakeholders' efforts to implement an adequate assurance-based employment injury protection scheme in Bangladesh. The Pilot has two components:

- data gathering and capacity-building component on occupational accidents, diseases and rehabilitation based on a sample reference of representative factories; and
- risk-sharing component for long-term benefits: payment of compensations to the level of the ILO Convention No. 121 in case of permanent disability/death for the entire export-oriented RMG sector.

To manage the compensation component of the EIS Pilot, a tripartite Governance Board (GB) was established. It adopted rules for benefit entitlement and also adopted governance measures, which includes the mandatory drafting of financial statements and actuarial valuations of the EIS Pilot for its duration. The EIS Pilot started in June 2022 and will end in June 2027.

Compensation paid under the EIS Pilot

The EIS Pilot provides a monthly top-up compensation for the duration of the contingency in case of permanent disability or for survivors of a deceased worker. The top-up compensation is determined by carving-out the compensation paid by the Central Fund (CF) and/or group insurance policy, whichever is applicable at the factory of the worker.

At the inception, only accidents at the workplace were compensated under the Pilot. On 13 May 2024, the GB approved the prospective compensation of commuting accidents occurring from 1 July 2024 under the Pilot.

There is no mandatory requirement for automatic indexing benefits in payment. As of the writing of this report, no indexation of benefits was provided under the Pilot. However, it should be noted that the minimum wage for RMG workers in Bangladesh increased significantly on 1 December 2023, going from BDT 8,000 to BDT 12,500 per month¹. Considerations for indexation due to the important change in the reference wages in the RMG sector after 1 December 2023 are also provided in this report.

Financial structure of the EIS Pilot

The EIS Pilot is voluntary financed by international brands sourcing their ready-made garment (RMG) from Bangladesh. The required contribution from brands participating in the Pilot is 0.019 per cent of their value of RMG export.

The voluntary contributions are made in United States dollars (USD) by the brands to a specific ILO passthrough bank account. The sole purpose of that bank account is to provide for compensation to victims of workplace accidents under the EIS Pilot and to cover for the administrative expenditures of the Pilot, excluding the international development cooperation support (i.e. ILO and GIZ's fees). At

¹ Bangladesh hikes minimum wage for garment workers after protests, 7 November 2023, [Reuters](#).

national level, a specific EIS Pilot account within the CF is administered by the Pilot Special Unit (PSU). This account is fed with USD funds coming from the ILO pass-through account on the basis of budgeted compensation and administrative expenses.

Due to the voluntary nature of the Pilot and the market in which the brands operate, the confidentiality required by the brands for their voluntary participation, and to add a safeguard on the brands' fund, the value of the contribution and the ILO's pass-through is not publicly available. For the purpose of determining the sufficiency of the total Pilot's accounts, the actuary performing the valuation was presented the value of the accounts and was tasked to assess the financial sustainability of the Pilot based on the presented figures.

Due to the Pilot's short duration, it is important to note that its funds are not invested during its operation.

EIS Pilot's institutionalisation

After the Pilot's period of operation, in June 2027, the expected outcome is the adoption by the Government of a full-fledge EIS in Bangladesh, which would provide at least the same level of benefits as per the Pilot as well as short-term incapacity income replacement, medical care and rehabilitation. Under this potential scenario, the administering agency of the EIS would be able to administer the current compensation cases of the Pilot.

There is also the need to consider the possibility that no EIS is adopted after the end of the Pilot's period. In that case, two solutions could be envisioned:

- o lump-sum payments equivalent to the present value of future expected benefits are made to the beneficiaries of the Pilot; or
- o annuities are bought to provide for the duration of the benefits accrued under the Pilot.

In such scenario, if funds would not be sufficient to pay the totality of the lump sums or annuities, the benefits would be proportionally reduced accordingly.

Financial statement of the EIS Pilot specific account

Table ES.1 shows the statement of financial position of the EIS specific account as of 30 June 2024.

► **Table ES.1. Statement of financial position, EIS Pilot specific account, 2023–24 (in BDT)**

	2023–24
Assets	
Cash and cash equivalents	6 774 973.30
Fixed assets	103 010.42
Total – Assets	6 877 983.72
Fund and liabilities	
Unutilized grant fund	6 791 733.72
Accounts payable	86 250.00
Total – Fund and liabilities	6 877 983.72
Source: Draft financial statements of the EIS Pilot specific account as of 30 June 2024.	

Administrative records of the EIS Pilot

Tables ES.2 and ES.3 show the number of claims made to the EIS Pilot by quarter of the workplace accidents for permanent disability and death claims respectively.

► **Table ES.2. Permanent disability claims to the EIS Pilot by quarter, 2022–23 to 2023–24**

	Q3 2022	Q4 2022	Q1 2023	Q2 2023	Q3 2023	Q4 2023	Q1 2024	Q2 2024
Total claims to the EIS GB	0	4	2	2	2	4	4	1
Claims approved	0	4	2	2	2	4	0	0
Claims denied	0	0	0	0	0	0	0	0
Claims pending	0	0	0	0	0	0	4	1
<i>% of claims approved</i>	<i>N/A</i>	<i>100</i>	<i>100</i>	<i>100</i>	<i>100</i>	<i>100</i>	<i>0</i>	<i>0</i>

Source: Administrative records of the EIS PSU.

► **Table ES.3. Death claims to the EIS Pilot by quarter, 2022–23 to 2023–24**

	Q3 2022	Q4 2022	Q1 2023	Q2 2023	Q3 2023	Q4 2023	Q1 2024	Q2 2024
Total claims to the EIS GB	5	5	3	2	5	4	5	0
Claims approved	3	5	2	2	5	4	4	0
Claims denied	2	0	0	0	0	0	0	0
Claims pending	0	0	1	0	0	0	1	0
<i>% of claims approved</i>	<i>60</i>	<i>100</i>	<i>67</i>	<i>100</i>	<i>100</i>	<i>100</i>	<i>80</i>	<i>N/A</i>

Source: Administrative records of the EIS PSU.

The report presents various analysis of the profile of claimants to the EIS Pilot, and these characteristics are considered when setting up the assumptions for this actuarial valuation. Information on commuting accidents that lead to death are also provided in the report. This information was provided by the CF who handled claims for these victims.

Review of the experience of the EIS Pilot

- The general mortality table used for this actuarial valuation is based on the United Nations' World Population Prospects, 2024 Revision. Adjustments are made for the mortality of disabled pensioners.
- It is assumed that the difference between the higher mortality of disabled pensioners against the general population leads to the entitlement of survivors' benefits.
- The assumed family structure, the marriage and remarriage rate assumptions are the same as the one used for the calculation of the carve-out of CF benefits by the EIS PSU. These are described in the report.
- Incurred but not reported (IBNR) claims' provisions are made for each type of pensioners. IBNR for permanent disability pensioners represents 15.79 per cent of the liability of the group, whereas it represents 13.79 per cent of the liability of the survivors' pensioners.
- Economic assumptions are based on short-term projections made by the International Monetary Fund (IMF) and other historical information provided by the Bank of Bangladesh. Main economic assumptions are summarized in table ES.4.

► **Table ES.4. Summary of economic assumptions (percentages)**

Year	Inflation	Real discount rate	Nominal discount rate	Indexation of pensions
2024–25	7.7	0.0	0.0	0.0
2025–26	5.9	0.0	0.0	0.0
2026–27	5.6	0.0	0.0	0.0
2027–28	5.5	0.5	1.9	1.4
2028–29 and later	5.5	2.0	7.6	5.5

Source: Authors' calculation.

Demographic and financial projections of the EIS Pilot

Actuarial liabilities

Table ES.5 presents the actuarial liabilities of the EIS Pilot as of 30 June 2024.

► **Table ES.5. Actuarial liabilities of the EIS Pilot as of 30 June 2024 (in BDT)**

	Liabilities
Disability	
Pensioners	23 427 000
IBNR	3 699 000
Future lump sum payments	82 000
Retroactive payments ¹	92 000
Total – Disability	27 300 000
Survivors	
Pensioners	48 222 000
IBNR	6 650 000
Future lump sum payments	0
Retroactive payments ¹	158 000
Total – Survivors	55 030 000
Total – Actuarial liabilities before MfAD	82 330 000
MfAD	12 350 000
Total – Actuarial liabilities with MfAD	94 680 000

Note: ¹ These payments represent the value of monthly cashflows that will be disbursed for pending cases that are assumed to be approved by the GB.

Source: Author's calculations.

The actuary had access to the value of all the accounts that supports the EIS Pilot (a pass-through account in Geneva held by the ILO and an operating bank account in Bangladesh administered by the EIS PSU). It is possible to confirm that the EIS Pilot is in surplus as of 30 June 2024.

Sensitivity analysis

Sensitivity analyses are conducted on the following assumptions for both the liabilities and cost of insurance of the EIS Pilot:

- discount rate;
- mortality rate;
- inflation rate (which impacts the indexation of pension);
- IBNR; and
- investment of the reserve during the EIS Pilot.

► 1. Introduction

This report presents the results of the actuarial valuation of the Employment Injury Scheme (EIS) Pilot for the export-oriented ready-made garment (RMG) sector as of 30 June 2024. This actuarial valuation is made as per the Pilot's Governance Board rules where it is stated that not later than three months before the financial year-end, an audited financial statement and actuarial valuation should be produced. It is the first actuarial valuation conducted for the EIS Pilot (S. 22). The report is divided as follows:

- Chapter 2 is a review of the experience of the EIS Pilot since its inception from 21 June 2022.
- Chapter 3 presents the data and assumptions used to perform the actuarial valuation.
- Chapter 4 deals with the demographic and financial projections of the EIS Pilot. A base scenario is presented first, including the insurance cost for financial year 2024/25, followed by sensitivity analyses.
- Chapter 5 contains the conclusion of the report.

Appendix 1 presents a summary of the provisions of the EIS Pilot while Appendix 2 describes the methodology used to perform the actuarial valuation.

▶ 2. Review of the experience of the EIS Pilot

This chapter reviews the financial experience of the EIS Pilot since its inception from 21 June 2022. It also explains the context in which the Pilot operates, including the roadmap to the implementation of a full-fledge nationally owned EIS in Bangladesh at the end of the Pilot.

2.1. Context of the EIS Pilot

The Pilot is the culmination of various stakeholders' efforts to implement an adequate employment injury protection scheme in Bangladesh. As stated on the Pilot's website:

▶▶ As a decisive step towards adequate protection, the Government of Bangladesh, the ILO and the German Social Accident Insurance (DGUV) agreed in September 2019 to initiate a pilot of an EIS for the RMG sector. It was agreed that the ILO and GIZ would work in close cooperation on establishing the administrative processes and support the implementation as well as the transition to a permanent EIS after 3–5 years.

On 18 February 2021, the Government of Bangladesh established a tripartite committee tasked to piloting an employment injury insurance scheme in Bangladesh. The committee's working group met at the end of 2021 to discuss the details and main elements of the Pilot, which were finally endorsed by national stakeholders in early 2022. Accordingly, the EIS Pilot is conceptualised as a transformative approach, leading to the introduction of a permanent statutory EIS. In March 2022, the Government of Bangladesh notified that the Central Fund will administer the Pilot and open a separate fund account as well as establish a governance system. The EIS Pilot was officially launched on 21 June 2022.

The Pilot has two components:

1. Data gathering and capacity-building component on occupational accidents, diseases and rehabilitation, based on a sample of representative factories

Research is carried out on the average medical care costs for workers in case an injury occurs. This will help identify the resources necessary to ensure that the obligation to provide medical care enshrined in the Bangladesh Labour Act (BLA) is effectively met.

The research extends to the process adhered to and the benefits provided in case of temporary incapacity. This will allow to demonstrate, based on reliable evidence, the viability, feasibility and cost efficiency of a comprehensive EIS in Bangladesh and ensure the affordability of employers' contributions by testing the impact of a sharing-of-responsibility approach. Approximately 150 factories will be participating in this component, covering at least 150,000 workers.

2. Risk-sharing component for long-term benefits: payment of compensations to the level of the ILO Convention 121 in case of permanent disability / death for the entire export-oriented RMG sector

Under component 2, the Pilot provides income replacements for the permanently disabled and the dependents of deceased workers, covering all factories contributing to the export-oriented RMG sector. This takes the form of periodical payments / pensions as top-ups to the lump-sum payments of the Central Fund, rendering the level of benefits compatible with ILO Convention No. 121. These payments are financed by international brands.

The Pilot thus contributes to a better understanding of how the future system should work to ensure that workers are compensated adequately and expeditiously regardless of an accident's magnitude.

The Pilot's tripartite governance mechanism strengthens national governance structures and ownership and provides a clear exit strategy after 3–5 years.

Source: The Pilot of an Employment Injury Scheme for Bangladesh's RMG Sector, [EIS Pilot website](#).

A tripartite Governance Board (GB) was established to oversee the operationalization and management of the component 2 of the EIS Pilot. The GB is responsible for making administrative decisions including the endorsement of the relevant rules and regulations, ensuring a transparent audit process, confirming the compensation of eligible cases, adopting financial reports and the annual budget for the EIS Pilot. To that effect, the GB has established the following rules:

- The financial year of the EIS Pilot runs from 1 July to the 30 June of the next year, with a special exception for the first year when it runs from 21 June 2022 to 30 June 2023.
- Within the first three months of the end of the financial year, an independently audited financial statement of the EIS Pilot must be approved by the GB.
- Within the same time period, an actuarial valuation with an actuarial opinion made by a qualified actuary must be presented to the GB.

2.1.1. Compensation paid under the EIS Pilot

The EIS Pilot provides a monthly top-up compensation for the duration of the contingency in case of permanent disability or for survivors of a deceased worker. The top-up compensation is determined by carving-out the compensation paid by the Central Fund (CF) and/or group insurance policy, whichever is applicable at the factory of the worker. More details on the compensation provided under the Pilot can be found in appendix 1 of this report.

At the inception, only accidents at the workplace were compensated under the Pilot. On 13 May 2024, the GB approved the prospective compensation of commuting accidents occurring from 1 July 2024 under the Pilot.² Discussions are still being held with regards to the retroactive compensation of commuting accidents under the Pilot since its inception (from 21 June 2022 to 1 July 2024). The financial impact of that retroactive compensation is analysed as part of this actuarial valuation.

It is important to note that under the current rules of the EIS Pilot, there is no mandatory requirement for automatic indexing benefits in payment. As of the writing of this report, no indexation of benefits was provided under the Pilot. However, it should be noted that the minimum wage for RMG workers in Bangladesh increased significantly on 1 December 2023, going from BDT 8,000 to BDT 12,500 per month.³ While it is not an indexation per-se of the compensation offered under the EIS Pilot, the increase in the minimum wage significantly increased the top-up compensation since December 2023. This is due to the non-indexing of other carved-out lump-sums in case of workplace accidents, most notably the compensation paid by the CF. Considerations for indexation due to the important change in the reference wages in the RMG sector after 1 December 2023 are also provided in this report.

2.1.2. Financial structure of the EIS Pilot

The EIS Pilot is voluntary financed by international brands sourcing their RMG from Bangladesh. The required contribution from brands participating in the Pilot is 0.019 per cent of their value of RMG export. This cost is based on the calculation made in the prior cost assessment of a full-fledge EIS for the RMG sector of Bangladesh, with the necessary adjustments (i.e. removal of benefits not covered under the Pilot, carving-out of payments by CF in case of death and permanent disablement).

The voluntary contributions are made in United States dollars (USD) by the brands to a specific ILO pass-through bank account. The sole purpose of that bank account is to provide for compensation to victims of workplace accidents under the EIS Pilot and to cover for the administrative expenditures of the Pilot,

² As per the decision of the 8th EIS_GB and in line with Convention No. 121 a commuting accident within the ambit of the Pilot is an accident sustained while on the direct way between the place of work and the workers' local residence.

³ Bangladesh hikes minimum wage for garment workers after protests, 7 November 2023, [Reuters](#).

excluding the international development cooperation support (i.e. ILO and GIZ's fees). At national level, a specific EIS Pilot account is administered through the Pilot Special Unit (PSU) of the CF. This account is fed with USD funds coming from the ILO pass-through account on the basis of budgeted compensation and administrative expenses. These funds are then converted into takas (BDT) for the operationalization of the Pilot.

Due to the voluntary nature of the Pilot and the market in which the brands operate, the confidentiality required by the brands for their voluntary participation and to add a safeguard of the brands' fund, the value of the contribution and the ILO's pass-through is not publicly available. For the purpose of determining the sufficiency of the total Pilot's accounts, the actuary performing the valuation was presented the value of the accounts and was tasked to assess the financial sustainability of the Pilot based on the presented figures.

Due to the pilot's short duration, it is important to note that its funds are not currently invested. This non-investment can be justified by the short period the EIS Pilot is covering. As it will be explained in the next subsection, the institutionalisation process will plan for the long-term investment of the funds accumulated as part of the Pilot. The non-investment of funds during the Pilot period will have an impact on the discount rate used to calculate the liabilities under the Pilot. This is further explained in chapter 3 of this report.

2.1.3. EIS Pilot's institutionalisation process

After the Pilot's period of operation, in June 2027, the expected outcome is the adoption by the Government of a full-fledged EIS in Bangladesh, which would provide at least the same level of benefits as per the Pilot and most probably short-term incapacity income replacement, medical care and rehabilitation. Under this potential scenario, the administering agency of the EIS would be able to administer the current compensation cases of the Pilot. It would mean that the accumulated reserve could be transferred to the agency with a view of administering the level of benefits determined under the Pilot. Under this scenario, the reserve would be invested after the transfer of the reserve is made to the newly created administrative agency of the EIS.

There is also the need to consider the possibility that no EIS is adopted after the end of the Pilot's period. In that case, two solutions could be envisioned:

- lump-sum payments equivalent to the present value of future expected benefits are made to the beneficiaries of the Pilot; or
- annuities are bought to provide for the duration of the benefits accrued under the Pilot.

In such scenario, if funds would not be sufficient to pay the totality of the lump sums or annuities, the benefits would be proportionally reduced accordingly.

In either case, the ILO has the experience of delivering the benefits under both potential scenarios and would pursue the option that provides the best value for the beneficiaries of the Pilot, always considering the periodicity preferred under the ILO Convention No. 121.

In all cases mentioned above, a notion of investment is in place after the end of the EIS Pilot. This situation will have to be considered in determining the discount rate used to set the liabilities under the EIS Pilot.

2.2. Financial statements

As stated in section 2.1 of this report, there are two bank accounts that supports the EIS Pilot in Bangladesh:

- EIS Pilot specific account in BDT located in Bangladesh; and
- ILO's pass-through account in USD located in Switzerland.

2.2.1. EIS Pilot specific account

On 14 August 2024, a draft financial statement of the EIS Pilot was provided to the ILO by the EIS PSU. The draft financial statement covers the period from 1 July 2023 to 30 June 2024. In fact, this period covers the whole time of the operation of the EIS Pilot, as the first transactions for benefit payment and expenditures are recorded during this financial year.

Table 2.1 shows the statement of financial position of the EIS Pilot specific account as of 30 June 2024.

► **Table 2.1. Statement of financial position, EIS Pilot specific account, 2023–24** (in BDT)

	2023–24
Assets	
Cash and cash equivalents	6 774 973.30
Fixed assets	103 010.42
Total – Assets	6 877 983.72
Fund and liabilities	
Unutilized grant fund	6 791 733.72
Accounts payable	86 250.00
Total – Fund and liabilities	6 877 983.72

Source: Draft financial statements of the EIS Pilot specific account as of 30 June 2024.

The objective of the EIS Pilot specific account located in Bangladesh is to cover the financial transactions of the Pilot, i.e. providing compensation to the victims and to cover for the administrative expenditures of the Pilot. As such, there are no investment made of the money in the account; all assets are very liquid.

Table 2.2 shows the statement of comprehensive income of the EIS Pilot specific account for the financial year 2023–24.

► **Table 2.2. Statement of comprehensive income, EIS Pilot specific account, 2023–24** (in BDT)

	2023–24
Income	
Grant received from the ILO	10 371 047.00
Total – Income	10 371 047.00
Expenses	
Death claims' top-up benefits	2 015 471.88
Disability claims' top-up benefits	1 074 434.82
Sub-total – Top-up benefit costs	3 089 906.70
Stationary, supply, postal and printing material	66 253.00
Travel, food, nighthold allowance for staff and ben.	10 141.00

	2023–24
Local conveyance for staff and beneficiaries	320.00
Depreciation expense	156 877.00
Governance Board meeting expense	123 269.00
Sub committee meeting & other meeting expenses	33 092.00
Disability assessment expenditure	3 840.00
Audit fees	112 375.00
Sub-total - Operating expenses	506 167.00
Total - Expenses	3 596 073.70
Excess of income over expenditures	6 774 973.30

Source: Draft financial statements of the EIS Pilot specific account as of 30 June 2024.

Table 2.2 shows that the grants provided by the ILO from its pass-through account to the local EIS Pilot specific account was sufficient to cover the expenditures of the first two years of operation of the Pilot.

Table 2.3 shows the transaction details for the grants received from the ILO pass-through account into the EIS Pilot specific account during the financial the 2023–24 financial year.

► **Table 2.3. Grants from the ILO pass-through account, 2023–24 (in BDT)**

Date of the transaction	Transfer
7 July 2023	425 282.00
28 August 2023	3 857 925.00
16 May 2024	6 087 840.00
Total grants	10 371 047.00

Source: Draft financial statements of the EIS Pilot specific account as of 30 June 2024.

2.2.2. ILO pass-through account

Given the confidential nature of the contributions provided by international brands to the EIS Pilot, it is not possible to share details on the financial transactions of the ILO pass-through account. However, the actuary performing the valuation was given full access to the transaction records and the statement of financial position of the ILO pass-through account in order to establishing his actuarial opinion. With this transmitted information, the actuary is in a position to deliver a statement on the financial adequacy of the EIS Pilot under the current financial rules.

2.3. Administrative records of the EIS Pilot

The EIS PSU administers the claims covered under the Pilot. It is also in contact with various stakeholders in Bangladesh, mainly the CF, that administers compensation related to workplace accidents. As such, its role is critical in understanding the Pilot’s transactions and the impact of potential changes that could be brought to the EIS Pilot.

Administrative records of the EIS Pilot were transmitted to the actuary performing the valuation. Analysis and checks were made to ensure the soundness of the information provided. In general, the information provided is a good quality to perform the actuarial valuation of the EIS Pilot in Bangladesh.

Tables 2.4 and 2.5 shows the number of claims made to the EIS Pilot by quarter of the workplace accidents for permanent disability and death claims respectively.

► **Table 2.4. Permanent disability claims to the EIS Pilot by quarter, 2022–23 to 2023–24**

	Q3 2022	Q4 2022	Q1 2023	Q2 2023	Q3 2023	Q4 2023	Q1 2024	Q2 2024
Total claims to the EIS GB	0	4	2	2	2	4	4	1
Claims approved	0	4	2	2	2	4	0	0
Claims denied	0	0	0	0	0	0	0	0
Claims pending	0	0	0	0	0	0	4	1
<i>% of claims approved</i>	<i>N/A</i>	<i>100</i>	<i>100</i>	<i>100</i>	<i>100</i>	<i>100</i>	<i>0</i>	<i>0</i>

Source: Administrative records of the EIS PSU.

► **Table 2.5. Death claims to the EIS Pilot by quarter, 2022–23 to 2023–24**

	Q3 2022	Q4 2022	Q1 2023	Q2 2023	Q3 2023	Q4 2023	Q1 2024	Q2 2024
Total claims to the EIS GB	5	5	2	2	5	4	5	0
Claims approved	3	5	2	2	5	4	4	0
Claims denied	2	0	0	0	0	0	0	0
Claims pending	0	0	1	0	0	0	1	0
<i>% of claims approved</i>	<i>60</i>	<i>100</i>	<i>67</i>	<i>100</i>	<i>100</i>	<i>100</i>	<i>80</i>	<i>N/A</i>

Source: Administrative records of the EIS PSU.

Tables 2.4 and 2.5 shows that the experience for the quarters of 2024 might not be fully mature, as there is always a lag between the accident and its reporting to the CF and EIS PSU. As such, consideration for incurred but not reported (IBNR) claims will have to be made to reflect that state of immaturity.

Table 2.6 shows the average loss of earning capacity percentage assessed for the permanent disability claims that are approved or pending by financial year.

► **Table 2.6. Average loss of capacity earning percentage assessed for permanent disability claims, by financial year, 2022–23 to 2023–24 (percentages)**

	2022–23	2023–24	2022–2024
All approved and pending claims	24	49	38

Source: Administrative records of the EIS PSU.

It should be noted that the above figure is driven by extreme values of loss of capacity earnings. 5 cases out of 19 permanent disability claims are assessed with a 100 per cent loss of capacity earnings, while 11 cases are assessed with a degree of 20 per cent or less. While the average loss of capacity degree is sufficient to establish the financial situation of the EIS Pilot, it should be noted that accidents in the RMG sector of Bangladesh can lead to significant loss of capacity earnings.

Table 2.7 shows the ratio of total death benefits provided to total family of survivors of workplace accidents to the salary of the deceased worker (expressed in percentage). This value is driven by the family structure of the deceased worker.

► **Table 2.7. Ratio of total death benefits provided to the total survivors to the salary of the deceased worker, by financial year, 2022–23 to 2023–24 (percentages)**

	2022–23	2023–24	2022–2024
All approved and pending claims	46	48	47
Source: Administrative records of the EIS PSU.			

It should be noted that the maximum percentage that can be allowed for a surviving family is 60 per cent.

As stated in the document called *Detailed calculation of the Employment Injury Scheme (EIS) Pilot top-up benefits* adopted by the EIS GB, small benefits can be commuted to a lump-sum instead of being paid over the contingency. Table 2.8 shows the number of approved cases that were paid in pension and lump-sum form by financial year, along with the value of the top-up benefits determined at the time of the accident.

► **Table 2.8. Number and average present value of EIS benefits for approved case, per type of payment and by financial year, 2022–23 to 2023–24**

	2022–23	2023–24	2022–2024
Permanent disability			
Number of approved cases	8	6	14
Number of approved cases paid as pension	6	3	9
<i>Average present value of total EIS Pilot benefits for pension cases (in thousand BDT)</i>	898.7	2 746.2	1 514.5
Number of approved cases paid in lump-sum	2	3	5
<i>Average present value of total EIS Pilot benefits for lump-sum cases (in thousand BDT)</i>	222.9	125.9	164.7
Death			
Number of approved cases	12	13	25
Number of approved cases paid as pension	12	13	25
<i>Average present value of total EIS Pilot benefits for pension cases (in thousand BDT)</i>	1 381.1	1 543.3	1 465.5
Number of approved cases paid in lump-sum ¹	1	1	2
<i>Average present value of total EIS Pilot benefits for lump-sum cases (in thousand BDT)</i>	85.5	259.6	172.6
Note: ¹ Family unit containing at least one member paid as a lump-sum are included. However, they remain in the cases paid as pension as other family members of the unit are still provided with a pension.			
Source: Administrative records of the EIS PSU.			

Table 2.8 shows that the value for the duration of the benefit is a key driver in the determination of eligibility to a lump-sum benefit for permanent disability. As for survivors' benefit, there are few dependants outside of widow and orphans (i.e. parents and siblings) who may receive a low pension due to the current benefit entitlement rules. These cases are the one that can be (and usually are) commuted to a lump-sum. In general, most survivors are entitled to a pension that will be paid over the contingency period.

Table 2.9 shows the average age of claimants at accident date by gender and by type of claim for the duration of the EIS Pilot.

► **Table 2.9. Average age at accident date, gender ratio and average wage of claimants to the EIS Pilot, by type of claims, 2022–2024**

	Male			Female		
	Average Age	Ratio (%)	Average wage	Average Age	Ratio (%)	Average wage
Permanent disability claims	36.5	95	16 135	39.6	5	9 988
Death claims	31.4	86	16 565	41.2	14	13 274

Source: Administrative records of the EIS PSU.

Table 2.9 will help establish the expected cost of the EIS Pilot for the next financial year, as the gender and age of the claimant impacts the cost of the top-up benefits provided.

2.4. Commuting accidents data (as provided by the CF)

The EIS PSU had discussions with the CF with regards to information related to commuting accidents. Deaths resulting from all sources are covered for workers insured under the CF. When a claim is made to the CF, the reason of the death is provided to the CF, who records this information in its database. The EIS PSU had access to the claims made to the CF and for which the death description fits the commuting accident that will be covered under the Pilot from 1 July 2024.

Table 2.10 shows the statistics gathered by the EIS PSU from the CF with regards to commuting accidents that led to death over the Pilot’s period (51 cases in 2022–23 and 28 cases in 2023–24).

► **Table 2.10. Average age at accident date and gender ratio of commuting death accident claimants to the CF, 2022–2024**

	2022–23		2023–24		2022–24	
	Avg. age	Ratio (%)	Avg. age	Ratio (%)	Avg. age	Ratio (%)
Male	35.9	55	34.7	79	35.4	63
Female	31.7	45	34.8	21	32.4	37

Source: Administrative records of the CF.

It should be noted that there is some ambiguity as to what extent CF fully covers commuting accidents that leads to permanent disability.⁴ The low level of number of cases leading to permanent disability notified to the CF leads to believe that such notification is not understood as compulsory in the practice. However, the very low number of reported permanent disability cases for commuting accidents should not be interpreted as a near-nil incidence rate for permanent disability due to commuting but as a lack of recording of experience. This is the interpretation of the actuary for the low number of recorded commuting accidents that leads to permanent disability.

Commuting accidents leading to permanent disability are however covered by the EIS-Pilot since 1 July 2024.

⁴ See S. 215 (%5 and (7, letters (A)-(C)) and S. 217(5) of the BLR for more details.

► 3. Data and assumptions specific to the EIS Pilot

The purpose of this actuarial projection is to determine the adequacy of the current reserve against the accrued liability of the Pilot. The projection of these liabilities is only possible with the usage of an actuarial model that integrates calibrated data and assumptions. Significant effort must be made by the actuary to check the consistency of the data used against the financial statements and to develop relevant assumptions for the projection.

This chapter presents the demographic and economic assumptions that are retained to perform the actuarial valuation of the EIS Pilot as of 30 June 2024.

3.1. Demographic assumptions

3.1.1. General mortality table

The estimated and projected mortality rates of the general population of Bangladesh have been determined using the United Nations' World Population Prospects, 2024 Revision (UN WPP). The future mortality improvement pattern has been determined so that it matches as closely as possible the UN medium projection over the projection period.

The life expectancy at birth is assumed to increase from 73.2 years in 2023–24 to 87.5 years in 2100–01 for males, and from 76.5 years in 2023–24 to 89.1 years in 2100–01 for females. Table 3.1 presents life expectancies at different age for selected years. Sample mortality rates for selected age and years are presented in table 3.2.

► **Table 3.1. Residual life expectancy at selected ages, by sex, 2023–24, 2050–51, 2075–76 and 2100–01**

Year	Male				Female			
	At birth	At 20	At 40	At 60	At birth	At 20	At 40	At 60
2023–24	73.2	55.8	36.8	19.9	76.5	59.0	39.8	22.3
2050–51	79.6	60.5	41.1	23.1	82.3	63.3	43.9	25.4
2076–76	84.4	64.8	45.2	26.5	86.0	66.6	47.0	28.0
2100–01	87.5	67.8	48.1	28.9	89.1	69.5	49.7	30.4

Sources: UN WPP, 2024 Revision and author's calculations.

► **Table 3.2. Sample mortality rates, by age and sex, 2023–24, 2050–51, 2075–76 and 2100–01 (percentages)**

Age	Males				Females			
	2023–24	2050–51	2075–76	2100–01	2023–24	2050–51	2075–76	2100–01
0	2.121	0.625	0.310	0.205	1.839	0.612	0.361	0.247
5	0.085	0.029	0.013	0.007	0.080	0.035	0.018	0.010
10	0.033	0.016	0.008	0.004	0.028	0.017	0.009	0.005
15	0.093	0.038	0.018	0.010	0.100	0.040	0.021	0.011
20	0.113	0.050	0.026	0.015	0.106	0.047	0.026	0.015
25	0.085	0.045	0.025	0.015	0.058	0.041	0.025	0.015
30	0.124	0.063	0.034	0.020	0.080	0.052	0.032	0.020

Age	Males				Females			
	2023-24	2050-51	2075-76	2100-01	2023-24	2050-51	2075-76	2100-01
35	0.124	0.072	0.040	0.024	0.085	0.060	0.038	0.025
40	0.192	0.102	0.058	0.035	0.144	0.103	0.064	0.040
45	0.307	0.171	0.097	0.060	0.250	0.141	0.089	0.057
50	0.593	0.318	0.179	0.110	0.410	0.242	0.151	0.094
55	0.921	0.532	0.299	0.183	0.684	0.344	0.214	0.133
60	1.391	0.838	0.469	0.288	0.875	0.493	0.307	0.191
65	1.833	1.090	0.636	0.410	1.319	0.840	0.523	0.327
70	2.925	1.795	1.089	0.734	2.351	1.357	0.884	0.583
75	4.763	3.086	1.931	1.334	3.516	2.266	1.542	1.061
80	7.139	5.139	3.426	2.491	5.664	3.982	2.879	2.094
85	11.327	8.952	6.342	4.782	8.884	6.913	5.271	4.000
90	17.396	15.139	11.396	8.895	14.413	12.016	9.545	7.441
95	27.716	25.453	20.357	16.440	22.848	20.514	17.031	13.735
100	42.062	38.794	33.587	28.708	34.520	32.493	28.655	24.306

Sources: UN WPP, 2024 Revision and author's calculations.

3.1.2. Mortality of survivors' pensioners

It is assumed that the mortality of survivors' pensioners is the same as per the general mortality table developed for Bangladesh.

3.1.3. Mortality of permanent incapacity pensioners

Many studies and statistics indicate that mortality rates of permanently injured persons are higher than those of the general population. Based on information from the report on the actuarial valuation as of 31 December 2012 of the Quebec Workers Compensation Board, from a Canadian study on the mortality of victims of traumatic brain injury and from mortality statistics of Suva and the *Loi sur l'assurance-accidents* (LAA) in Switzerland, adjustment factors have been determined, based on the disability level percentage (DLP). The formula to obtain the mortality rate of a disabled worker ($q_x(d)$) is the following: $q_x(d) = a * q_x + b$, where q_x is the mortality rate of the general mortality table and the parameters a and b vary depending on DLP. Table 3.3 shows the parameters of the formula according to the DLP.

► **Table 3.3. Mortality adjustment factors for permanent incapacity pensioners**

DLP	a	b
1 to 25%	1.10	0.00021
26 to 50%	1.12	0.00052
51 to 75%	1.15	0.00118
76% and above	1.20	0.00388

Source: Author's calculations.

In no case the application of the adjustment formula can lead to a mortality rate above 100 per cent. In this case, the mortality rate is set at 100 per cent.

This assumption is the same as the one used for the determination of the value of the *total benefit* under the EIS Pilot.

3.1.4. Mortality rates related to the injury after the date of calculation

Under the EIS Pilot, if the permanently injured worker dies after the date of calculation from a cause related to the injury, the dependents at time of death are entitled to the survivor benefits. For the calculation of the present value of benefits payable to a permanently injured worker, an assumption is required on mortality rates after the date of calculation from a cause related to the injury.

The assumption is that the mortality rates related to the injury are equal to the difference between the mortality rates adjusted for disability as per section 3.1.3 and the general mortality rates.

3.1.5. Assumed family structure of deceased workers

Under the EIS Pilot, if the permanently injured worker dies after the date of calculation from a cause related to the injury, the dependents at time of death are entitled to the survivor benefits. For the calculation of the present value of benefits payable to a permanently injured worker, an assumption is required on the number and age of the injured worker's dependents. The following profile of dependents is assumed: a mother 25 years older than the injured worker, a widow or widower (male 5 years older than female), a son (half of the injured worker's age minus 7) and a daughter (half of the injured worker's age minus 9).

For the calculation of next year's accidents, this family profile is also retained for the projected death and permanent disability cases.

This assumption is the same as the one used for the determination of the value of the *total benefit* under the EIS Pilot.

3.1.6. Marriage rate (for female orphans)

Table 3.4 shows the assumed marriage rate used for female orphans for the liability calculation. This assumption is necessary to calculate the end of the payment contingency for female orphans as the marriage is an event that leads to the end of benefit entitlement (aside from death).

► **Table 3.4. Marriage rate assumption (percentages)**

Age	Rate
0 to 15	0
16	5
17	10
18	35
19	55
20 to 24	30
25 to 29	25
30 to 34	20
35 to 39	15
40 to 44	10
45 to 49	5
50 & over	0
Source: Authors' calculation.	

This assumption is the same as the one used for the determination of the value of the *total benefit* under the EIS Pilot.

3.1.7. Remarriage rate (for widows)

For widows, it is assumed that the applicable remarriage rate is 25 per cent of the equivalent marriage rate for orphans. This assumption is the same as the one used for the determination of the value of the total benefit under the EIS Pilot. This assumption is based on the calculations made for the Rana Plaza compensation scheme administered by the ILO.

3.1.8. Permanent incapacity pensioners as of 30 June 2024

Table 3.5 presents the distribution of monthly top-up pensions paid to male and female permanent disability pensioners of the EIS Pilot. The distribution assumes that pending cases will be approved as-is by the EIS Pilot GB.

► **Table 3.5. Permanent disability pensions in payment¹, by age and gender, 30 June 2024 (in BDT)**

Age group	Male		Female	
	Number	Average monthly pension	Number	Average monthly pension
15-19	0	0	0	0
20-24	2	4 467	0	0
25-29	0	0	0	0
30-34	4	6 681	0	0
35-39	2	2 468	0	0
40-44	4	2 734	0	0
45-49	1	7 270	0	0
50-54	1	720	0	0
55-59	0	0	0	0
60-64	0	0	0	0
65-69	0	0	0	0
70-74	0	0	0	0
75-79	0	0	0	0
80-84	0	0	0	0
85-89	0	0	0	0
90-94	0	0	0	0
95+	0	0	0	0
Total	14	4 251	0	0

Note: ¹ For pending cases, the top-up benefit entitlement is calculated using the EIS PSU total benefit calculation tools and by assuming a payment of BDT 50,000 from the CF.

Sources: Administrative records of the EIS PSU and author's calculations.

For the pending cases, it is assumed that BDT 92,278.38 will be paid for retroactive top-up pensions from the date of the accident to the 30 June 2024. Retroactive top-up pensions from 1 July 2024 if cases are approved later in the year are implicitly considered in the liability calculations.

The amount of outstanding payments to permanent disability beneficiaries paid in lump-sum as of 30 June 2024 is BDT 81,848. This information was provided by the EIS PSU to the ILO.

3.1.9. Survivors' pensioners as of 30 June 2024

Table 3.6 presents the distribution of monthly top-up pensions paid to survivors' pensioners of the EIS Pilot per type of beneficiaries. The distribution assumes that pending cases will be approved as-is by the EIS Pilot GB.

► **Table 3.6. Survivors' pensions in payment¹, by age, gender and type, 30 June 2024**
(in BDT)

Age group	Widow		Widower		Orphan - male		Orphan - female		Others	
	Number	Average monthly pension	Number	Average monthly pension	Number	Average monthly pension	Number	Average monthly pension	Number	Average monthly pension
0-4	0	0	0	0	6	727	3	1 552	0	0
5-9	0	0	0	0	3	3 132	3	627	0	0
10-14	0	0	0	0	4	750	0	0	3	1 532
15-19	0	0	0	0	1	1 322	0	0	1	888
20-24	2	3 371	0	0	0	0	0	0	0	0
25-29	6	9 132	0	0	0	0	0	0	0	0
30-34	2	3 921	0	0	0	0	0	0	0	0
35-39	3	8 320	0	0	0	0	0	0	2	1 343
40-44	1	1 910	2	4 800	0	0	0	0	4	546
45-49	0	0	2	5 277	0	0	0	0	8	2 605
50-54	1	1 910	0	0	0	0	0	0	4	1,357
55-59	0	0	0	0	0	0	0	0	5	2,308
60-64	0	0	0	0	0	0	0	0	1	2 478
65-69	0	0	0	0	0	0	0	0	4	2 260
70-74	0	0	0	0	0	0	0	0	1	1 554
75-79	0	0	0	0	0	0	0	0	0	0
80-84	0	0	0	0	0	0	0	0	2	2 310
85-89	0	0	0	0	0	0	0	0	0	0
90-94	0	0	0	0	0	0	0	0	0	0
95+	0	0	0	0	0	0	0	0	0	0
Total	15	6 544	4	5 038	14	1 291	6	1 089	35	1 882

Note: ¹ For pending cases, the top-up benefit entitlement is calculated using the EIS PSU total benefit calculation tools and by assuming a payment of BDT 200,000 from the CF.

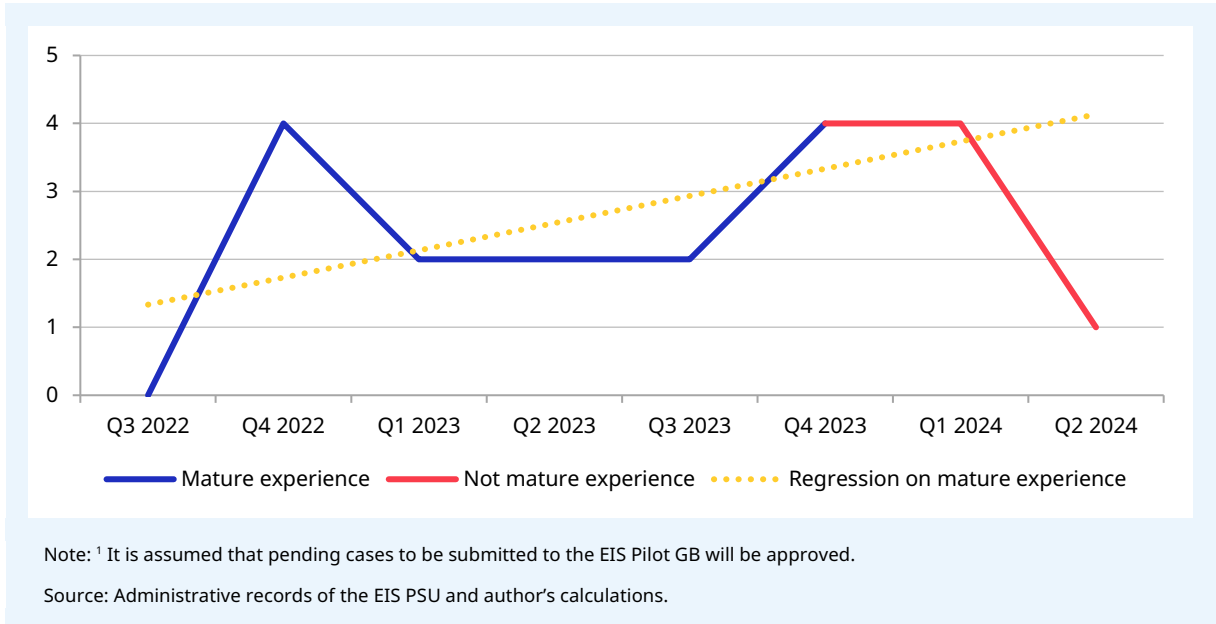
Source: Administrative records of the EIS PSU and author's calculations.

For the pending cases, it is assumed that BDT 158,310 will be paid for retroactive top-up pensions from the date of the accident to the 30 June 2024. Retroactive top-up pensions from 1 July 2024 if cases are approved later in the year are implicitly considered in the liability calculations.

3.1.10. Incurred but not reported permanent incapacity pensioners as of 30 June 2024

Figure 3.1 shows the number of permanent incapacity cases reported by quarter for the duration of the EIS Pilot, along with a regression curve to estimate the number of claims for more recent quarters.

► **Figure 3.1. Number of permanent incapacity claims filed and approved¹ to the EIS Pilot by quarter, including a regression curve to estimate future cases, Q3 2022–Q2 2024**

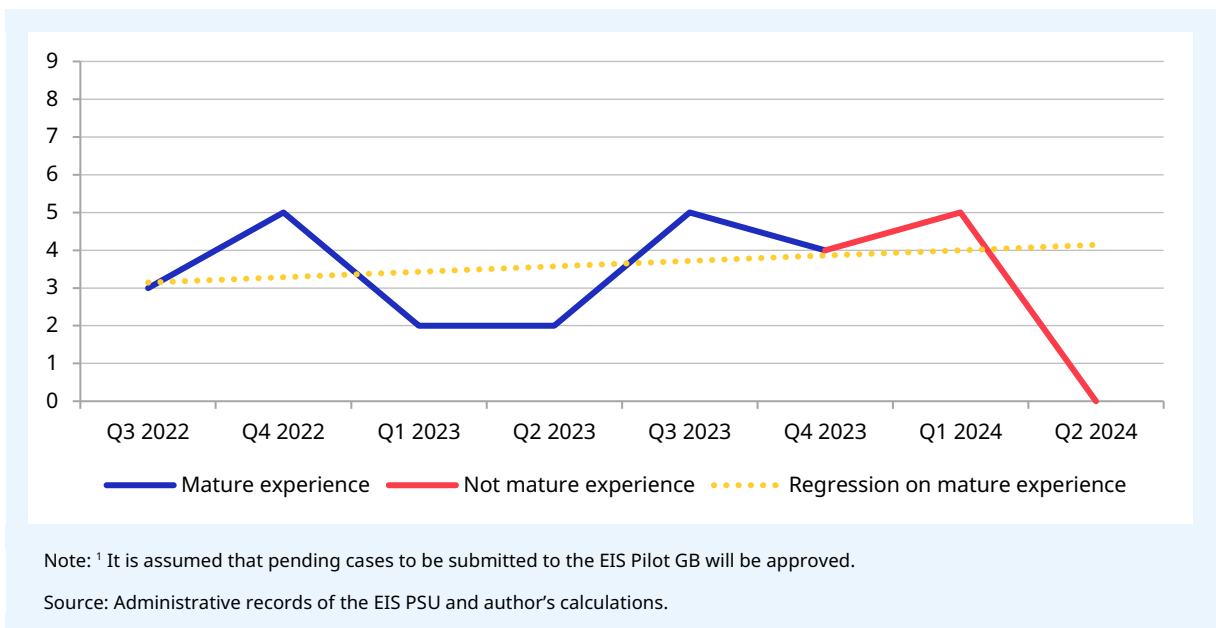


Based on the above regression, it can be estimated that 3 additional permanent incapacity cases could be considered in the IBNR for permanent incapacity. For the purpose of the actuarial valuation, the liability of the permanent incapacity pensions will be loaded by 15.79 per cent, which is obtained by dividing the 3 IBNR cases by the total number of permanent incapacity claims made during the EIS Pilot (19).

3.1.11. Incurred but not reported survivors' pensioners as of 30 June 2024

Figure 3.2 shows the number of death cases reported by quarter for the duration of the EIS Pilot, along with a regression curve to estimate the number of claims for more recent quarters.

► **Figure 3.2. Number of death claims filed and approved¹ to the EIS Pilot by quarter, including a regression curve to estimate future cases, Q3 2022–Q2 2024**



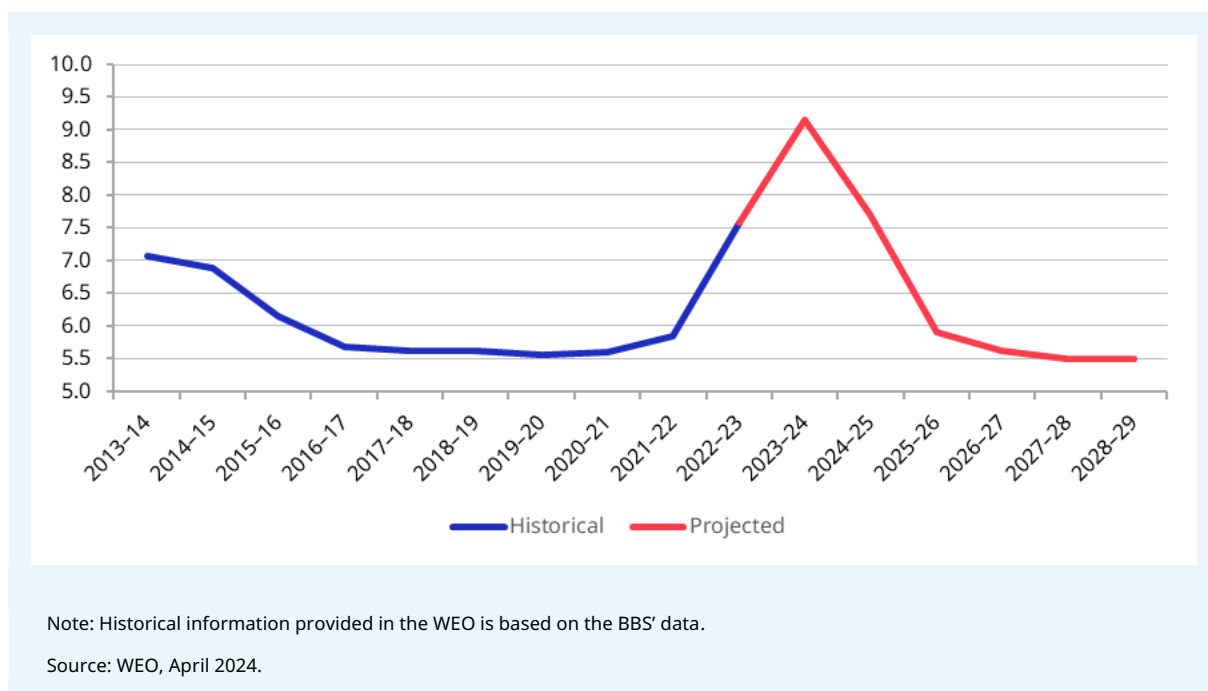
Based on the above regression, it can be estimated that 4 additional death cases could be considered in the IBNR for death. For the purpose of the actuarial valuation and based on preliminary data of August 2024 that was still not fully validated, the liability of the survivors' pensions will be loaded by 13.79 per cent, which is the results of 4 divided by 29 accidents (which was later revised to 27). It should be noted that a reconciliation on the usage of the IBNR will be conducted in the next actuarial valuation.

3.2. Economic assumptions

3.2.1. Inflation rate

Figure 3.3 shows the historical and projected inflation in Bangladesh as per the World Economic Outlook (WEO), published by the International Monetary Fund (IMF) in April 2024. It should be noted that the historical information is taken directly from the Bangladesh Bureau of Statistics (BBS) up until financial year 2022–23, which becomes IMF's projections afterward.

▶ **Figure 3.3. Historical and projection inflation rate in Bangladesh as per WEO, 2013–14 to 2028–29 (percentages)**



For the purposes of the actuarial valuation of the EIS Pilot as of 30 June 2024, the inflation assumption retained is the same as per the WEO of April 2024 for the projection period of the WEO. Afterward, an ultimate inflation rate of 5.5 per cent is retained, which is the same as the last few years of WEO's projection. A table detailing various economic assumptions, including inflation, is shown in section 3.2.5 of this report.

3.2.2. Real discount rate

The Bank of Bangladesh (BoB) publishes an annual report on the Government securities. It shows the yield of newly sold Bangladesh Government Treasury Bonds (BGTB) on the market. This publication can be used to calculate the historical spread of BGTB yield against the inflation.

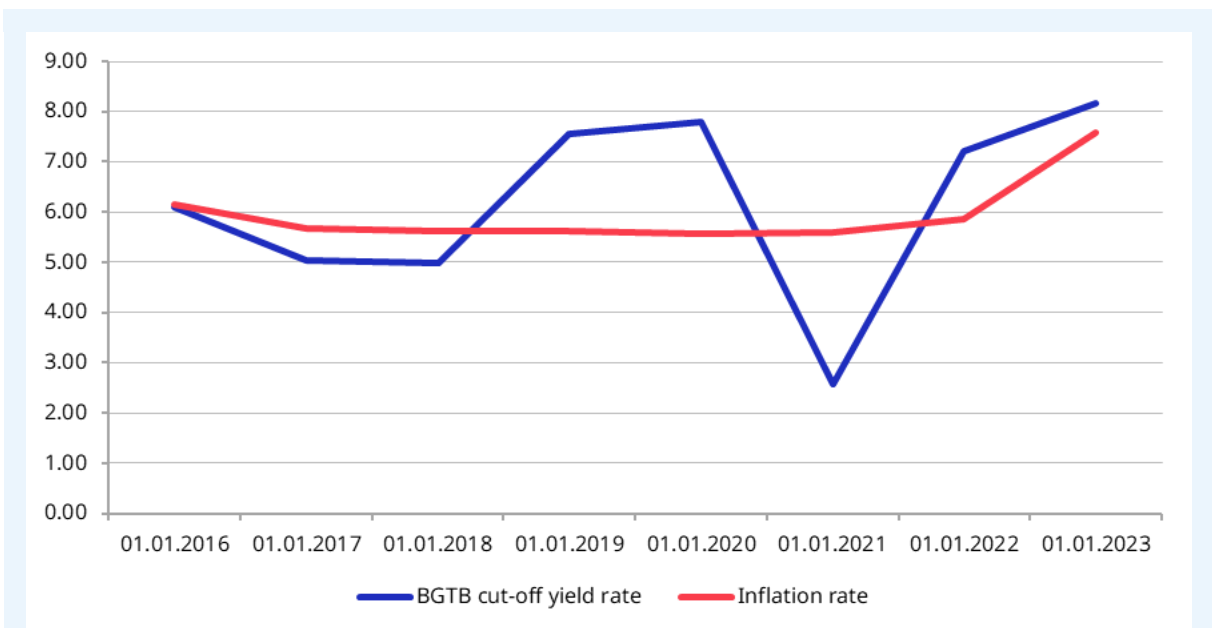
Table 3.7 shows the BGTB yield for different durations as published by the BoB and compares it against the historical inflation as per the WEO of April 2024. Figures 3.4 to 3.8 shows graphically the BGTB yield rate and the inflation for each of the financial year.

► **Table 3.7. Cut-off yield rate of BGTB and inflation, 2016–17 to 2022–23 (percentages)**

Month	BGTB cut-off yield rate					Inflation
	2 years	5 years	10 years	15 years	20 years	
June 2016	6.09	6.60	7.29	8.00	8.50	6.16
June 2017	5.05	5.83	6.86	7.70	8.05	5.68
June 2018	4.99	6.10	7.50	8.06	8.90	5.61
June 2019	7.55	8.10	8.44	8.90	9.29	5.63
June 2020	7.80	8.05	8.66	8.70	8.94	5.56
June 2021	2.57	3.88	5.40	5.85	6.07	5.60
June 2022	7.21	7.80	8.10	8.55	8.65	5.85
June 2023	8.16	8.75	8.60	8.65	8.80	7.58

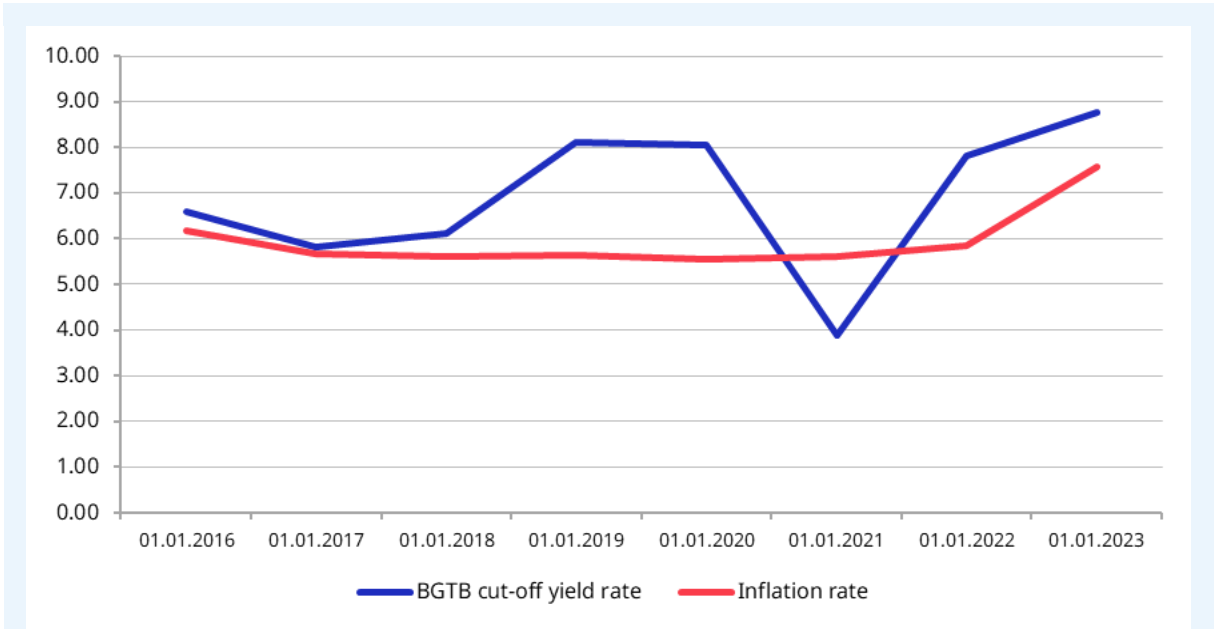
Sources: BoB's Report on Government Securities 2016–17 to 2022–23, WEO of April 2024 and author's calculations-

► **Figure 3.4. Historical BGTB cut-off yield rate and inflation, 2-years duration, 2016–17 to 2022–23 (percentages)**



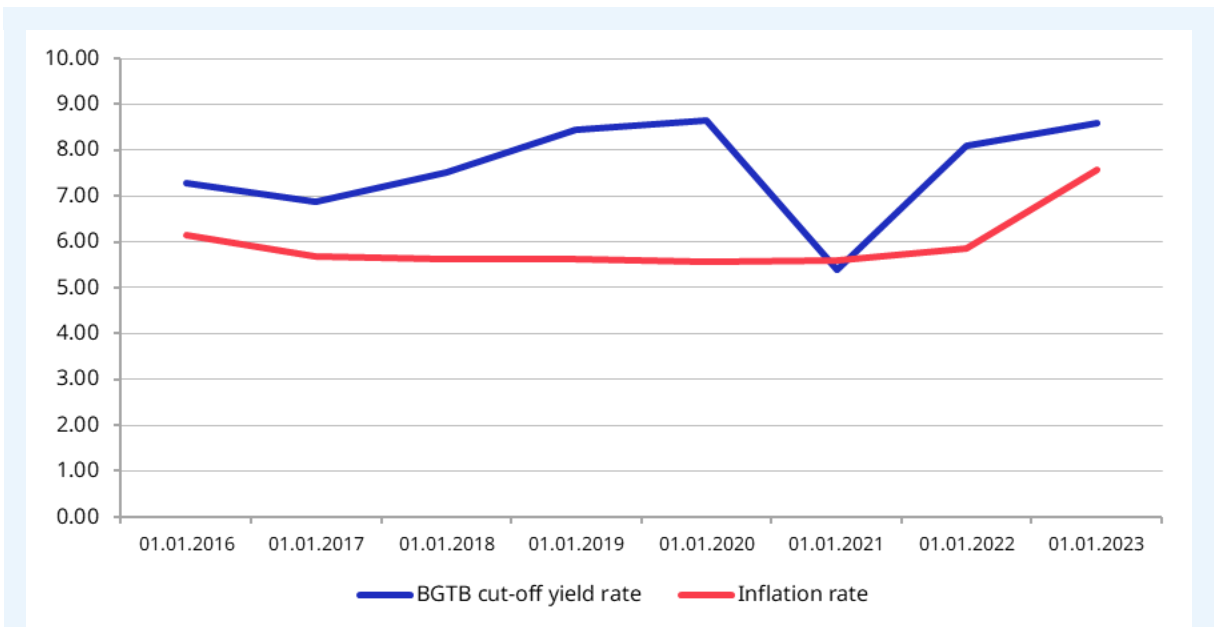
Sources: BoB's Report on Government Securities 2016–17 to 2022–23, WEO of April 2024 and author's calculations.

▶ **Figure 3.5. Historical BGTB cut-off yield rate and inflation, 5-years duration, 2016–17 to 2022–23 (percentages)**



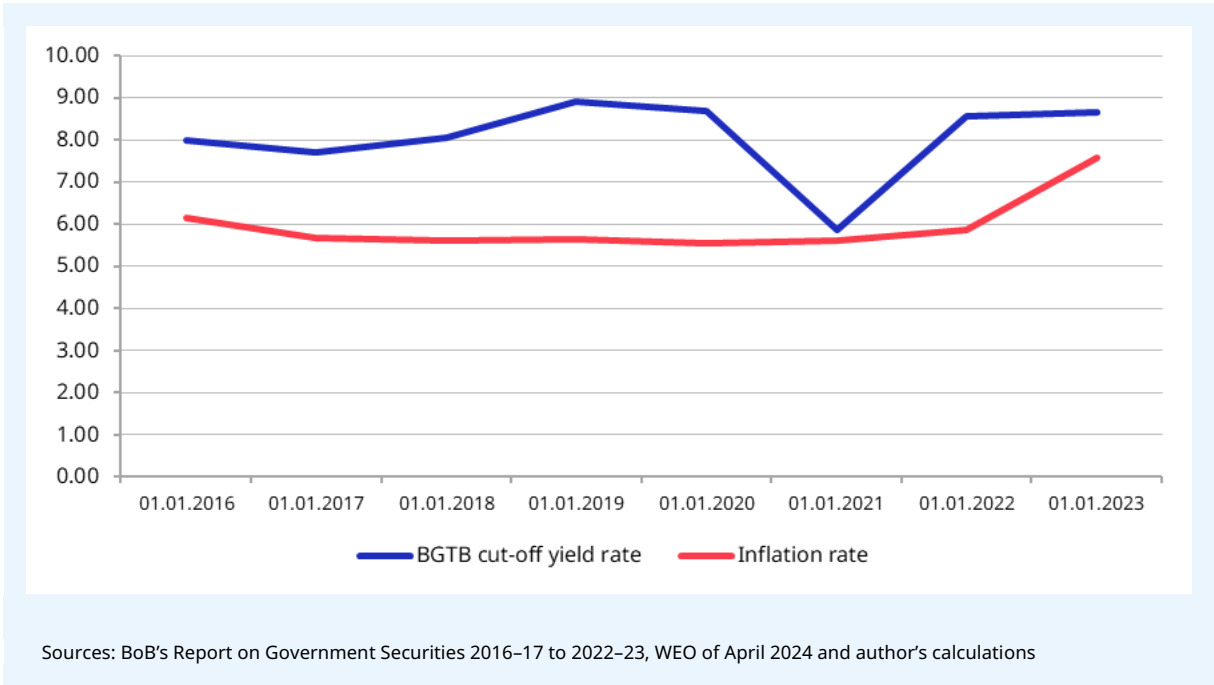
Sources: BoB's Report on Government Securities 2016–17 to 2022–23, WEO of April 2024 and author's calculations.

▶ **Figure 3.6. Historical BGTB cut-off yield rate and inflation, 10-years duration, 2016–17 to 2022–23 (percentages)**

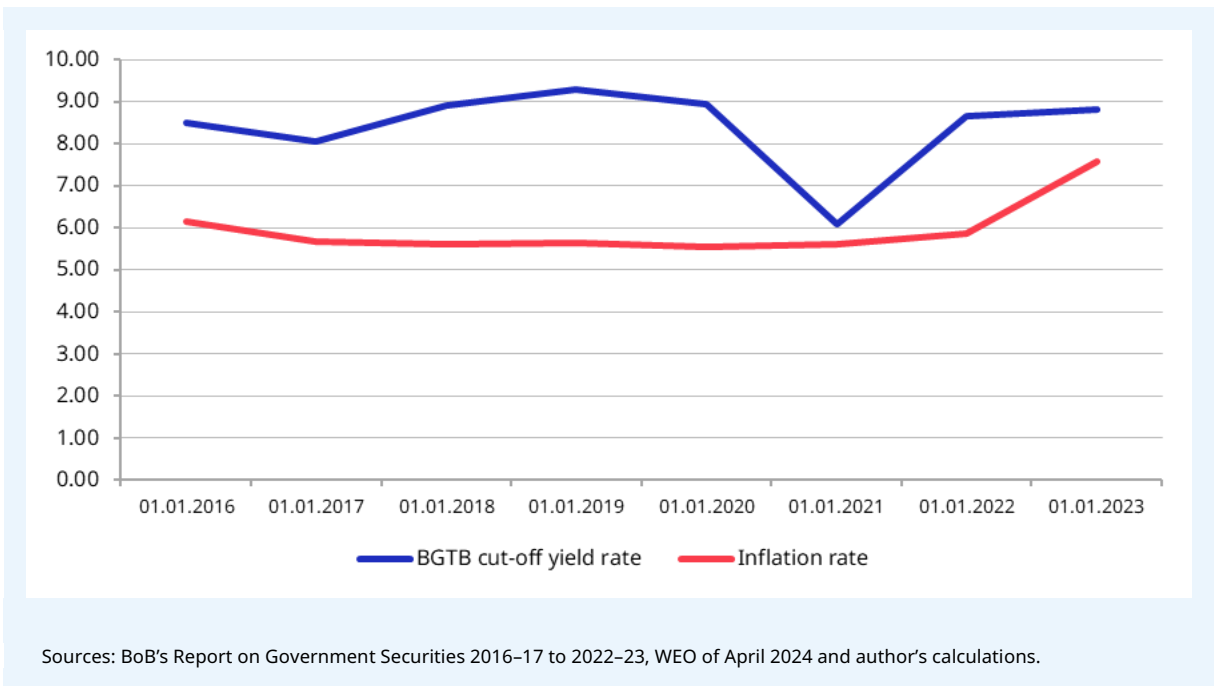


Sources: BoB's Report on Government Securities 2016–17 to 2022–23, WEO of April 2024 and author's calculations.

▶ **Figure 3.7. Historical BGTB cut-off yield rate and inflation, 15-years duration, 2016–17 to 2022–23 (percentages)**



▶ **Figure 3.8. Historical BGTB cut-off yield rate and inflation, 20-years duration, 2016–17 to 2022–23 (percentages)**



The previous table and figures show that the spread of BGTB yield over inflation is greater as the duration of bonds increases. It is in line with the expectation of financial market behaviour, where the lenders ask for a higher yield for longer borrowing durations. The historical spread observed supports the 2.0 per cent real discount rate used for the determination of the value of the benefit used by the EIS PSU. Based on the above information, this actuarial valuation retains the real discount rate of 2.0 per cent for its long-term assumption.

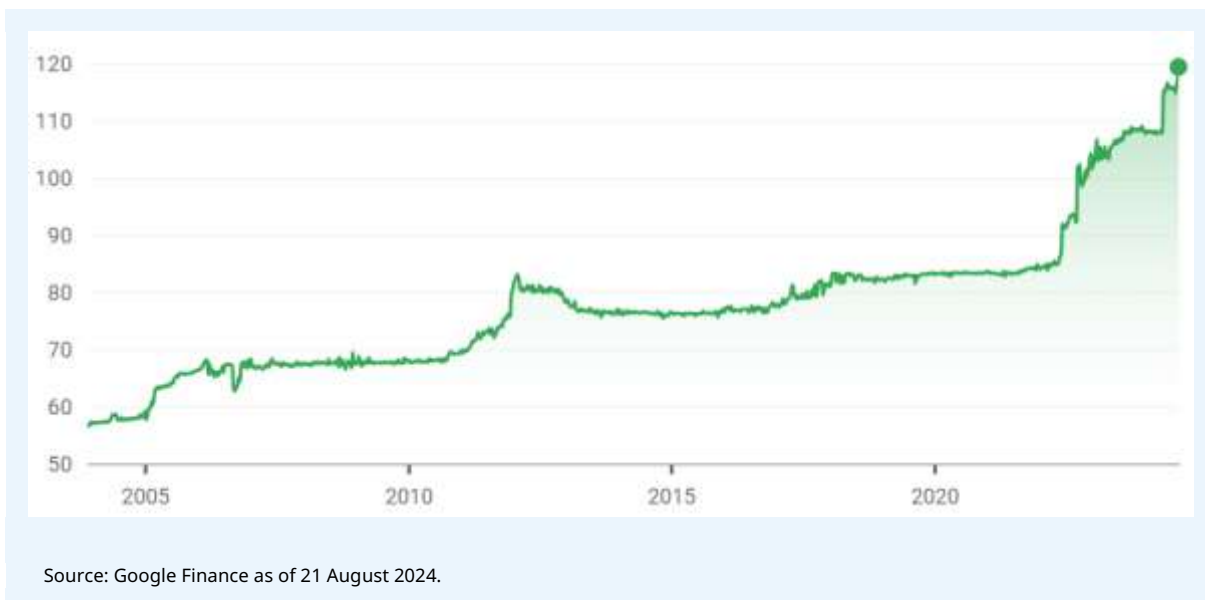
However, considerations have to be made for the short-term assumption due to the following elements:

- The ILO's pass-through account and the local EIS Pilot account are not invested. It is not planned that investments will be made for these two accounts considering the short duration of the Pilot.
- The ILO's pass-through account is exposed to the currency risk, as its value is denominated in USD and that liabilities are expressed in BDT. While the exchange rate varies over time, it is important to link this variation with the inflation at national level, as the net exchange rate influences the financial situation of the EIS Pilot. Historically, variation in the exchange rate of USD to BDT is linked with period of inflation. As such, the exchange rate could play for or against the Pilot's financial sustainability.
- There will be a transition period in the next months following the end of the Pilot. The ILO has experienced a similar transition period for the Ali Enterprise's fire compensation scheme in Pakistan and it is reasonable to assume the same for the EIS Pilot.

Due to the previous elements, it is assumed that during the EIS Pilot duration and the first 9 months out of the Pilot, the accumulated reserve will not generate any investment return (i.e. nil nominal rate of return). After that period, it is assumed that the real rate of return of the reserve will be the long-term assumption mentioned previously (2.0 per cent).

To capture the impact of the currency risk, an analysis of the historical USD to BDT exchange rate was performed. Figure 3.9 shows the historical exchange rate between the two currencies over the last 20 years.

► **Figure 3.9. Historical USD to BDT exchange rate**



In general, the exchange rate between the USD and the BDT was fairly stable over the last 20 years, except in the more recent year. However, these changes were associated with higher inflation in Bangladesh which nets no gain from holding USD instead of BDT; while the USD can afford more BDT, more BDT are required to buy the same basket of goods in Bangladesh. As such, no adjustment for currency fluctuations on the nominal rate of return is retained for this actuarial valuation.

The real nominal rate of return for the short-term period will be determined once the indexation assumption is set. Section 3.2.5 will summarize the real return assumption retained for the projection period of this actuarial valuation.

3.2.3. Indexation of benefits in payment

Convention No. 121 states that the benefits paid to victim of workplace accidents must keep its purchasing power over the contingency period. It is assumed that indexation will be provided to the beneficiaries, although special financial circumstances could justify lower indexation if required.

The long-term assumption retained for this actuarial valuation is that top-up benefits provided under the EIS Pilot will be fully indexed to the inflation rate. The inflation rate assumption is set in section 3.2.1 of this report.

For the base scenario of this actuarial valuation, it is assumed that the EIS Pilot GB will not provide indexation of EIS Pilot's top-up pension for the duration of the Pilot and during a transition period of 9 months.

3.2.4. Dollar to taka exchange rate on 30 June 2024

To convert the value of the funds held in the Geneva account or any cashflow expressed in USD, the exchange rate of 117.605 is retained for this actuarial valuation.⁵

3.2.5. Margin for adverse deviation

Due to the specific nature of the EIS Pilot, such as its voluntary nature, the absence of a national scheme that is able to take the accrued liability in case of its termination and the fact that an insurance company might take the liabilities under its responsibility after the end of the Pilot, a margin for adverse deviation (MfAD) is added to the value of the liability. Its value is equivalent to 15 per cent of all the liabilities of the EIS Pilot.

3.2.6. Summary of economic assumptions

Table 3.8 summarises the various economic assumptions used for the current actuarial valuation of the EIS Pilot.

► **Table 3.8. Summary of economic assumptions (percentages)**

Year	Inflation	Real discount rate	Nominal discount rate	Indexation of pensions
2024–25	7.7	0.0	0.0	0.0
2025–26	5.9	0.0	0.0	0.0
2026–27	5.6	0.0	0.0	0.0
2027–28	5.5	0.5	1.9	1.4
2028–29 and later	5.5	2.0	7.6	5.5

Source: Authors' calculation.

⁵ Source: xe.com, average daily exchange rate for 30 June 2024.

► 4. Demographic and financial projections of the EIS Pilot

The objective of this actuarial valuation is to assess the ability of the EIS Pilot to meet its current obligations towards the beneficiaries and their families. For this purpose, liabilities are calculated on a closed-group basis as at valuation date. The methodology retained for this actuarial valuation is shown in Appendix 2 together with the data and assumptions presented in chapter 3 of this report. The provisions of the scheme are summarized in Appendix 1.

Calculations are first performed under a base scenario, which is intended to be a likely “average” view of what may be expected in the long run.

4.1. Actuarial liabilities

Table 4.1 presents the actuarial liabilities of the EIS Pilot as of 30 June 2024.

► **Table 4.1. Actuarial liabilities of the EIS Pilot as of 30 June 2024 (in BDT)**

	Liabilities
Disability	
Pensioners	23 427 000
IBNR	3 699 000
Future lump sum payments	82 000
Retroactive payments ¹	92 000
Total - Disability	27 300 000
Survivors	
Pensioners	48 222 000
IBNR	6 650 000
Future lump sum payments	0
Retroactive payments ¹	158 000
Total - Survivors	55 030 000
Total - Actuarial liabilities before MfAD	82 330 000
MfAD	12 350 000
Total - Actuarial liabilities with MfAD	94 680 000
Note: ¹ These payments represent the value of monthly cashflows that will be disbursed for pending cases that are assumed to be approved by the GB. Source: Author's calculations.	

The actuary had access to the value of all the accounts that supports the EIS Pilot (a pass-through account in Geneva held by the ILO and an operating bank account in Bangladesh administered by the EIS PSU). It is possible to confirm that the EIS Pilot is in surplus as of 30 June 2024.

4.2. Sensitivity scenarios – Actuarial liabilities

The results presented so far are those from the best estimate assumptions of the actuary. The liabilities and project cost of insurance intend to represent a likely average view of what may be expected for the duration of the accrued liabilities. It is important to analyse how future results would be impacted if the actual experience were to deviate from this best estimate scenario.

Modifications to each of the following liabilities' assumptions are considered in this chapter and done in isolation (i.e. there is no change to other assumptions):

- Discount rate;
- Mortality rate;
- Inflation rate (which impacts the indexation of pension);
- IBNR; and
- Investment of the reserve during the EIS Pilot

4.2.1. Discount rate

Under the base scenario, the discount rate used is a real discount rate of 2 per cent after the end of the EIS Pilot period and the 9-months institutionalisation process period. In the sensitivity scenarios, the real discount rate is 1 and 3 per cent respectively. Table 4.2 shows the liabilities of the EIS Pilot under the sensitivity scenarios and compares it against the value of the base scenario.

► **Table 4.2. Actuarial liabilities of the EIS Pilot as of 30 June 2024 under the discount rate sensitivity scenarios (in BDT)**

	Real rate of 1%	Base scenario	Real rate of 3%
Disability			
Pensioners	28 574 000	23 427 000	19 758 000
IBNR	4 512 000	3 699 000	3 120 000
Future lump sum payments	82 000	82 000	82 000
Retroactive payments ¹	92 000	92 000	92 000
Total – Disability	33 260 000	27 300 000	23 052 000
Survivors			
Pensioners	55 871 000	48 222 000	42 494 000
IBNR	7 705 000	6 650 000	5 860 000
Future lump sum payments	0	0	0
Retroactive payments ¹	158 000	158 000	158 000
Total – Survivors	63 734 000	55 030 000	48 512 000
Total – Actuarial liabilities before MfAD	96 994 000	82 330 000	71 564 000
MfAD	14 549 000	12 350 000	10 735 000
Total – Actuarial liabilities with MfAD	111 543 000	94 680 000	82 299 000
Note: ¹ These payments represent the value of monthly cashflows that will be disbursed for pending cases that are assumed to be approved by the GB.			
Source: Author's calculations.			

As expected with the funding method retained for the EIS Pilot, the actuarial liabilities of the scheme are sensible to the interest rate used. It should be noted that the EIS Pilot remains in a surplus under both sensitivity scenarios.

4.2.2. Mortality

Under the base scenario, the general mortality table used is the one from the UN WPP: The 2024 Revision. Various adjustments to the mortality table are brought to invalid pensioners as described in chapter 3 of this report. In the sensitivity scenarios, the general mortality rates are decreased and increased by 25 per cent. Table 4.3 shows the liabilities of the EIS Pilot under the sensitivity scenarios and compares it against the value of the base scenario.

► **Table 4.3. Actuarial liabilities of the EIS Pilot as of 30 June 2024 under the mortality rate sensitivity scenarios (in BDT)**

	Rate increased by 25%	Base scenario	Rate decreased by 25%
Disability			
Pensioners	22 682 000	23 427 000	24 315 000
IBNR	3 581 000	3 699 000	3 839 000
Future lump sum payments	82 000	82 000	82 000
Retroactive payments ¹	92 000	92 000	92 000
Total – Disability	26 437 000	27 300 000	28 328 000
Survivors			
Pensioners	46 679 000	48 222 000	50 143 000
IBNR	6 437 000	6 650 000	6 915 000
Future lump sum payments	0	0	0
Retroactive payments ¹	158 000	158 000	158 000
Total – Survivors	53 274 000	55 030 000	57 216 000
Total – Actuarial liabilities before MfAD	79 711 000	82 330 000	85 544 000
MfAD	11 957 000	12 350 000	12 832 000
Total – Actuarial liabilities with MfAD	91 668 000	94 680 000	98 376 000
Note: ¹ These payments represent the value of monthly cashflows that will be disbursed for pending cases that are assumed to be approved by the GB.			
Source: Author's calculations.			

Table 4.3 shows that the liabilities of the EIS Pilot are not significantly sensitive to the mortality rate. It should be noted that the EIS Pilot remains in a surplus under both sensitivity scenarios.

4.2.3. Inflation rate

Under the base scenario, the inflation rate follows the projection of the IMF in the short-term and then is set at 5.5 per cent on the long-term. This assumption impacts the rate of return and the indexation of pension provided after the transition period out of the EIS Pilot. In the sensitivity scenarios, the inflation rate is 1 per cent less and more than in the base scenario.

Table 4.4 shows the liabilities of the EIS Pilot under the sensitivity scenarios and compares it against the value of the base scenario.

► **Table 4.4. Actuarial liabilities of the EIS Pilot as of 30 June 2024 under the inflation rate sensitivity scenarios (in BDT)**

	Inflation reduced by 1%	Base scenario	Inflation increased by 1%
Disability			
Pensioners	23 270 000	23 427 000	23 567 000
IBNR	3 674 000	3 699 000	3 721 000
Future lump sum payments	82 000	82 000	82 000
Retroactive payments ¹	92 000	92 000	92 000
Total - Disability	27 118 000	27 300 000	27 462 000
Survivors			
Pensioners	48 014 000	48 222 000	48 430 000
IBNR	6 621 000	6 650 000	6 679 000
Future lump sum payments	0	0	0
Retroactive payments ¹	158 000	158 000	158 000
Total - Survivors	54 793 000	55 030 000	55 267 000
Total - Actuarial liabilities before MfAD	81 911 000	82 330 000	82 729 000
MfAD	12 287 000	12 350 000	12 409 000
Total - Actuarial liabilities with MfAD	94 198 000	94 680 000	95 138 000
Note: ¹ These payments represent the value of monthly cashflows that will be disbursed for pending cases that are assumed to be approved by the GB.			
Source: Author's calculations.			

Table 4.4 shows that the liabilities of the EIS Pilot are not significantly sensitive to the inflation rate. This is due to the fact that both indexation of pensions and investment returns after the end of the transition period are impact by the same amplitude by the inflation rate assumption. It should be noted that the EIS Pilot remains in a surplus under both sensitivity scenarios.

4.2.4. IBNR

Under the base scenario, the IBNR for permanent disability claims represents 15.79 per cent of the liability of known disability claims, and for survivors it represents 13.79 per cent of known survivors' claims. In the sensitivity scenarios, the IBNR for each type of liability represents 10 per cent less and more than the percentage used in the base scenario.

Table 4.5 shows the liabilities of the EIS Pilot under the sensitivity scenarios and compares it against the value of the base scenario.

► **Table 4.5. Actuarial liabilities of the EIS Pilot as of 30 June 2024 under the IBNR sensitivity scenarios (in BDT)**

	Less IBNR	Base scenario	More IBNR
Disability			
Pensioners	23 427 000	23 427 000	23 427 000
IBNR	1 356 000	3 699 000	6 042 000
Future lump sum payments	82 000	82 000	82 000
Retroactive payments ¹	92 000	92 000	92 000
Total - Disability	24 957 000	27 300 000	29 643 000
Survivors			
Pensioners	48 222 000	48 222 000	48 222 000
IBNR	1 828 000	6 650 000	11 472 000
Future lump sum payments	0	0	0
Retroactive payments ¹	158 000	158 000	158 000
Total - Survivors	50 208 000	55 030 000	59 852 000
Total - Actuarial liabilities before MfAD	75 165 000	82 330 000	89 495 000
MfAD	11 275 000	12 350 000	13 424 000
Total - Actuarial liabilities with MfAD	86 440 000	94 680 000	102 919 000
Note: ¹ These payments represent the value of monthly cashflows that will be disbursed for pending cases that are assumed to be approved by the GB.			
Source: Author's calculations.			

Table 4.5 shows that the liabilities of the EIS Pilot are sensitive to the IBNR assumption. It will be important in the next actuarial valuation to perform a reconciliation on the IBNR in order to fine tune it for the next exercise. It should be noted that the EIS Pilot remains in a surplus under both sensitivity scenarios.

4.2.5. Investment of the reserve during the EIS Pilot

Under the base scenario, it is assumed that no investment and indexation will be provided during the EIS Pilot and the few months preceding its full institutionalisation. In the sensitivity scenario, it is assumed that the reserve of the EIS Pilot will be invested, and that in turn, top-up pensions are going to be indexed on a yearly basis as per the inflation rate assumption. The assumption retained for the assumptions during the EIS Pilot and its transition period under the investment sensitivity scenario are the following:

- **Indexation rate:** The inflation rate assumption is used. The inflation rate retained is the same as per the IMF's projections (7.7 per cent in 2024–25, 5.9 per cent in 2025–26, 5.6 per cent in 2026–27 and 5.5 per cent in 2027–28).
- **Real return on investment:** The real return of the reserve is assumed to be 2 per cent, which is the same assumption retained in the long-term.

Table 4.6 shows the liabilities of the EIS Pilot under the sensitivity scenario and compares it against the value of the base scenario.

► **Table 4.6. Actuarial liabilities of the EIS Pilot as of 30 June 2024 under the reserve investment sensitivity scenario (in BDT)**

	Investment of the reserve	Base scenario
Disability		
Pensioners	21 963 000	23 427 000
IBNR	3 468 000	3 699 000
Future lump sum payments	82 000	82 000
Retroactive payments ¹	92 000	92 000
Total - Disability	25 605 000	27 300 000
Survivors		
Pensioners	45 302 000	48 222 000
IBNR	6 247 000	6 650 000
Future lump sum payments	0	0
Retroactive payments ¹	158 000	158 000
Total - Survivors	51 707 000	55 030 000
Total - Actuarial liabilities before MfAD	77 312 000	82 330 000
MfAD	11 597 000	12 350 000
Total - Actuarial liabilities with MfAD	88 909 000	94 680 000
Note: ¹ These payments represent the value of monthly cashflows that will be disbursed for pending cases that are assumed to be approved by the GB. Source: Author's calculations.		

Table 4.6 shows that the liabilities of the EIS Pilot are sensitive to the investment of the reserve during the EIS Pilot and its transition period. It should be noted that the EIS Pilot remains in a surplus under the sensitivity scenario.

► 5. Conclusion

This actuarial valuation shows that the accrued liabilities of the EIS Pilot are fully funded against the total value of the accumulated reserve. Moreover, there is margin to provide for an ad hoc indexation, in accordance with the article 2.2.2 of the *Detailed calculation of the Employment Injury Scheme (EIS) Pilot top-up benefits* that was approved in the 4th EIS GB meeting on 10 May 2023, for cases of accident that happened prior to 1 December 2023. This ad hoc indexation could be granted from as early as 1 December 2023. The significant raise in the minimum wage on that date provides justification for the EIS GB to consider indexation of benefits of accidents that happened before 1 December 2023.

The EIS GB should conduct the next actuarial valuation on 30 June 2025 to ensure the good governance of the scheme. The current and future actuarial valuations will help provide insight for national stakeholders to implement a full-fledged EIS for all workers in Bangladesh.

While this actuarial valuation provides a comprehensive assessment of the Employment Injury Scheme (EIS) Pilot's current financial status as of 30 June 2024, its putting into full conformity with the ILO Convention No. 121 could involve several potential future liabilities which could significantly impact the fund's sustainability for the future. First, the potential **indexation of pensions for accidents before 1 December 2023** will increase liabilities. Second, the possible **retrospective coverage of commuting accidents**, applicable to accidents since the Pilot's inception until 1 July 2024, would further increase the number of claims, especially if both survivor and incapacity benefits are covered.

Additionally, the **effective coverage of workers in Export Processing Zones (EPZs)** and the expansion to **non-BGMEA and BKMEA** members, who are part of the ready-made garment sector's supply chain, would also increase the number of beneficiaries under the scheme. This would place additional pressure on the fund's resources, as these workers represent a sizable portion of the workforce.

A key risk to consider is the **need for more reliable data** on workplace accidents during the early phase of the Pilot. The current number of reported accidents is relatively low, potentially due to several reasons, including **underreporting and ignorance of the scheme**. As reporting mechanisms improve, the number of claims could increase significantly, adding strain to the fund, especially if no corresponding revenue adjustments are made.

Moreover, the potential for **exchange rate fluctuations and devaluation of the Bangladeshi Taka (BDT)** could also affect the scheme's financial stability. Since contributions are made in foreign currency (USD) and payouts are in local currency, any devaluation of the Taka against the USD, could improve the financial situation, all other things being equal, especially if the devaluation is not accompanied with an offsetting increase in inflation that would be reflected in the level of wages.

Without securing additional revenue streams or adjusting contribution levels, these combined factors could pose a serious threat to the EIS Pilot's long-term financial viability. It is crucial to consider these risks in future financial planning to ensure the scheme can sustainably meet its obligations and move serenely towards its institutionalisation

With the recent events in Bangladesh and the change in Government, there is a possibility that a **new minimum wage increase might be adopted in the RMG sector**. This would increase the current liability if the EIS GB provides an indexation to reflect significant wage increases in the RMG sector, just as it is proposed for the recent increase in wage on 1 December 2023.

► 6. Actuarial Opinion

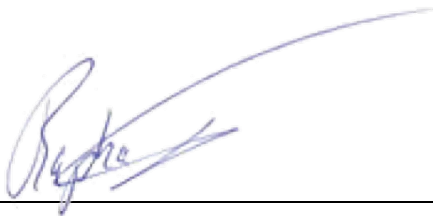
In our opinion,

- the data upon which the report is based are sufficient and reliable;
- the assumptions used for the report are reasonable and appropriate both in aggregate and individually; and
- the methodology employed is appropriate and consistent with accepted actuarial practice.

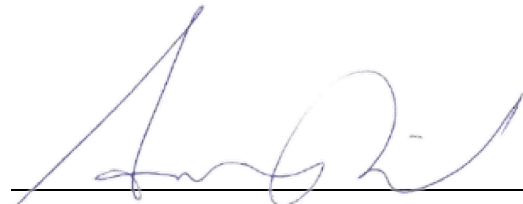
Based on the results of this valuation, we hereby certify that the EIS Pilot in Bangladesh is financially sustainable based on the terminal funding method retained for this scheme, for all accidents incurred prior to 30 June 2024.

This report and the opinions given have been prepared in accordance with the internationally accepted actuarial practice as provided under the *International Standard of Actuarial Practice 2 – Financial Analysis of Social Security Programs* of the International Actuarial Association.

30 September 2024



Raphaël Imbeault, FSA, FCIA
Senior Actuary



André Picard, FSA, FCIA
Chief Technical Advisor and Actuary

► Appendix 1. Summary of the provisions of the EIS Pilot

A1.1. Regulations

A document called *Detailed calculation of the Employment Injury Scheme (EIS) Pilot top-up benefits* was adopted by the EIS Pilot GB on 10th May 2023. The document is inspired by the *Framework for a sustainable employment injury insurance scheme in Bangladesh*, that was endorsed by national stakeholders on 10 March 2022.

Benefits payable under the EIS Pilot are not payable under any law or regulations and do not create any obligations for contributing brands or other stakeholders involved.

This appendix summarises the content of the detailed calculation methodology adopted by the GB.

A1.2. General definitions

Eligible dependents:	<p>The term <i>eligible dependents</i> is used as defined in S. 2 §30 of the Bangladesh Labour Act and encompasses any of the following relatives, namely:</p> <ul style="list-style-type: none">• A widow, minor child, unmarried daughter, or a widowed mother; and• If wholly or partly dependent on the earnings of the worker at the time of his/her death, a widower, father, daughter if widowed, minor brother, unmarried or widowed sister, widowed daughter-in-law, minor son of a deceased son, minor child of a deceased daughter where his/her father is not alive or, where no parent of the worker is alive, the paternal grandparent, son born out of wedlock, and unmarried daughter born out of wedlock. <p>In line with the Bangladesh Labour Act and the Tripartite National Technical Workshop, the dependency status ends at:</p> <ul style="list-style-type: none">• Death for all dependents;• Marriage for: widow, unmarried or widowed daughter, unmarried or widowed sister, widowed daughter-in-law, unmarried daughter born out of wedlock;• Attainment of age of majority for: son and daughter, brother and sister, son born out of wedlock, and minor child of a deceased daughter, except for disabled children, where it ends when disability ends or at death whichever comes first. <p>In the case of death of a permanently disabled worker receiving a top-up benefit, who dies from a cause related to the work-related injury, the eligible dependents become entitled to receive a benefit in line with the above criteria.</p>
Reference wage:	<p>As agreed during the Tripartite National Technical Workshop, the reference wage used for the calculation of the total benefit is the gross salary (basic salary plus allowances for housing, medical, food and transport) paid to the worker in the month prior to the work-related injury (excluding overtime). If a worker has not worked a full month in the month prior to the work-related injury, the reference wage is adjusted upward to reach the equivalent of a full month.</p>

A1.3. Coverage

Benefits are paid under the EIS Pilot in case of work-related injury occurring from 21 June 2022 resulting in permanent disability or death to all workers contributing to RMG sold to international buyers in Bangladesh or their eligible dependents. As agreed at the Tripartite National Technical Workshop held in December 2021, the EIS Pilot did not compensate work-related injuries happening while commuting to or from the workplace. Since 1 July 2024, commuting accidents are now covered under the EIS Pilot.

A1.4. Financing

The EIS Pilot is financed by brands on a voluntary basis renewed every year. Benefits payable under the EIS Pilot is therefore subject to the availability of funds.

Voluntary contributions from brands are determined at 0.019 per cent of the value of the export.

A1.5. Permanent disability benefits

Under the EIS Pilot, compensation for permanent disability is still payable by the CF (or group insurance, if any) under the same conditions as per the legal framework. The CF (or group insurance, if any) continues to act as the first payer for long-term benefits. A top-up benefit is then paid by the EIS Pilot to ensure that the value of long-term work-related injury benefits is equivalent to the actuarial value of benefits as defined in the ILO Convention No. 121. The top-up benefit is paid in lieu and place of the lump sum otherwise payable (if any) by the employers under the Fifth Schedule of the Bangladesh Labour Act (BLA), 2006 (see BLA, S. 151). The value of the top-up benefit should at least cover the value of this employers' liability.

The benefits payable under the EIS Pilot are benefits payable as long as the contingency of the disabled worker lasts. Benefits are first calculated as if no lump sum was payable from the CF (or other similar entity) (*total benefit*). Thereafter, the total benefit is reduced to consider the lump sum payable by the CF (or group insurance) (*top-up benefit*).

The total benefit is determined as 60 per cent of the reference wage multiplied by degree of permanent partial disability (or 100 per cent in case of permanent total disability).

The top-up benefit is equal to the total benefit reduced by a benefit having a value actuarially equivalent to the value of the lump sum paid by the CF (or other similar entity). For this actuarial value calculation, the following assumptions are made:

- **Discount rate:** 8.1 per cent per year.
- **Indexation of the benefits:** 6.0 per cent per year.
- **Mortality rates:** United Nation World Population Project revision for Bangladesh (most recent revision).

When calculating the top-up benefit, if the CF or any other institutions have not yet paid the lump sum, the EIS Pilot assumes that a lump sum of BDT 200,000 will be paid, in line with known practice. Thereafter, if it is demonstrated that the CF or any other institutions have paid less (or more) than BDT 200,000, the top-up benefit will be adjusted accordingly (upward or downward).

The approval procedures for the lump sum payable by the CF or any other institutions and the top-up benefit payable by the EIS Pilot are two separate procedures that are processed in parallel. The approval of a top-up benefit by the EIS Pilot GB is not conditional to the approval of a lump sum payment by the Board of the CF and vice-versa.

A1.6. Death benefits

Under the EIS Pilot, compensation for death is still payable by the CF (or group insurance, if any) under the same conditions as per the legal framework. The CF (or group insurance, if any) continues to act as the first payer for long-term benefits. A top-up benefit is then paid by the EIS Pilot to ensure that the value of long-term work-related injury benefits is equivalent to the actuarial value of benefits as defined in the ILO Convention No. 121. The top-up benefit is paid in lieu and place of the lump sum otherwise payable (if any) by the employers under the Fifth Schedule of the Bangladesh Labour Act (BLA), 2006 (see BLA, S. 151). The value of the top-up benefit should at least cover the value of this employers' liability.

The benefits payable under the EIS Pilot are benefits payable for as long as there are eligible dependents, as defined in BLA (see S. 2 §30). Benefits are first calculated as if no lump sum was payable from the CF (or other similar entity) (*total benefit*). Thereafter, the total benefit is reduced to consider the lump sum payable by the CF (or group insurance) (*top-up benefit*).

The total benefit varies depending on the status of dependents and their number and respects the following rules:

- The standard beneficiary is a widow/er with two children and their level of total benefit should amount to 50 per cent of the deceased's reference wage. In case there is only a widow/er or an orphan, the level of total benefit should amount to 40 per cent.
- Widow/er and orphans have priority over parents and other dependents.
- In case of multiple eligible dependents the total benefit cannot exceed 60 per cent of the deceased's reference wage.

The top-up benefit is equal to the total benefit reduced by a benefit having a value actuarially equivalent to the value of the lump sum paid by the CF (or other similar entity). For this actuarial value calculation, the following assumptions are made:

- Eligible dependents for the lump sum paid by the CF or any other institutions are the same as the one used to calculate the total benefit.
- **Discount rate:** 8.1 per cent per year.
- **Indexation of the benefits:** 6.0 per cent per year.
- **Mortality rates:** United Nation World Population Project revision for Bangladesh (most recent revision).

When calculating the top-up benefit, if the CF or any other institutions have not yet paid the lump sum, the EIS Pilot assumes that a lump sum of BDT 200,000 will be paid, in line with known practice. Thereafter, if it is demonstrated that the CF or any other institutions have paid less (or more) than BDT 200,000, the top-up benefit will be adjusted accordingly (upward or downward).

The approval procedures for the lump sum payable by the CF or any other institutions and the top-up benefit payable by the EIS Pilot are two separate procedures that are processed in parallel. The approval of a top-up benefit by the EIS Pilot GB is not conditional to the approval of a lump sum payment by the Board of the CF and vice-versa.

A1.7. Commutation of small benefits

In order to avoid payment of small benefits and when this is particularly advantageous for the beneficiary(ies) concerned, the GB of the EIS Pilot can approve the payment of lump sums equal to the commuted value of such small top-up benefits. Such decision is subject to the sufficiency of funds in the EIS Pilot separate account and a positive advice from an actuary.

A1.8. Indexation of top-up benefits

Top-up benefits will be reviewed following substantial changes in the general level of earnings where these result from substantial changes in the cost of living. The EIS Pilot GB will conduct this review, and upon recommendation of an actuary, will approve the percentage of indexation of top-up benefit.

► Appendix 2. Methodology of the actuarial valuation

This actuarial valuation is based on a model that was specifically developed for the projection of the EIS Pilot. The model performs the calculation of the accrued liability as of the valuation date. The model was developed by the actuary in R and shared with the ILO for future reference and usage in the next actuarial valuations.

The model projects cashflows per year for each of the pensioners, and for each of the projected pensioners for the next financial year. The following methodology and assumptions are retained in the model:

- Deaths of invalid pensioners that lead to the payment of survivors' benefits are assumed to happen at mid-year.
 - (i) Accordingly, cashflows of survivors in their first year of entitlement begins at mid-year.