

Railway Insurance

Munich Re Rail Operators Insurance Policy

Thomas Kibet
Engineering Underwriter



NOT IF, BUT HOW



Agenda

01



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1. Railway Assets
 2. The ROP Wording
 3. Underwriting Summary
 4. Questions

Railway Assets

02



Railway Assets (Fixed & Mobile) Classification



1. Buildings
2. Rail vehicles/Rolling stock
3. Railtrack
4. Civil infrastructure
5. Machinery and installations
6. Other facilities/services
7. Stock

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Railway Assets

The rail track

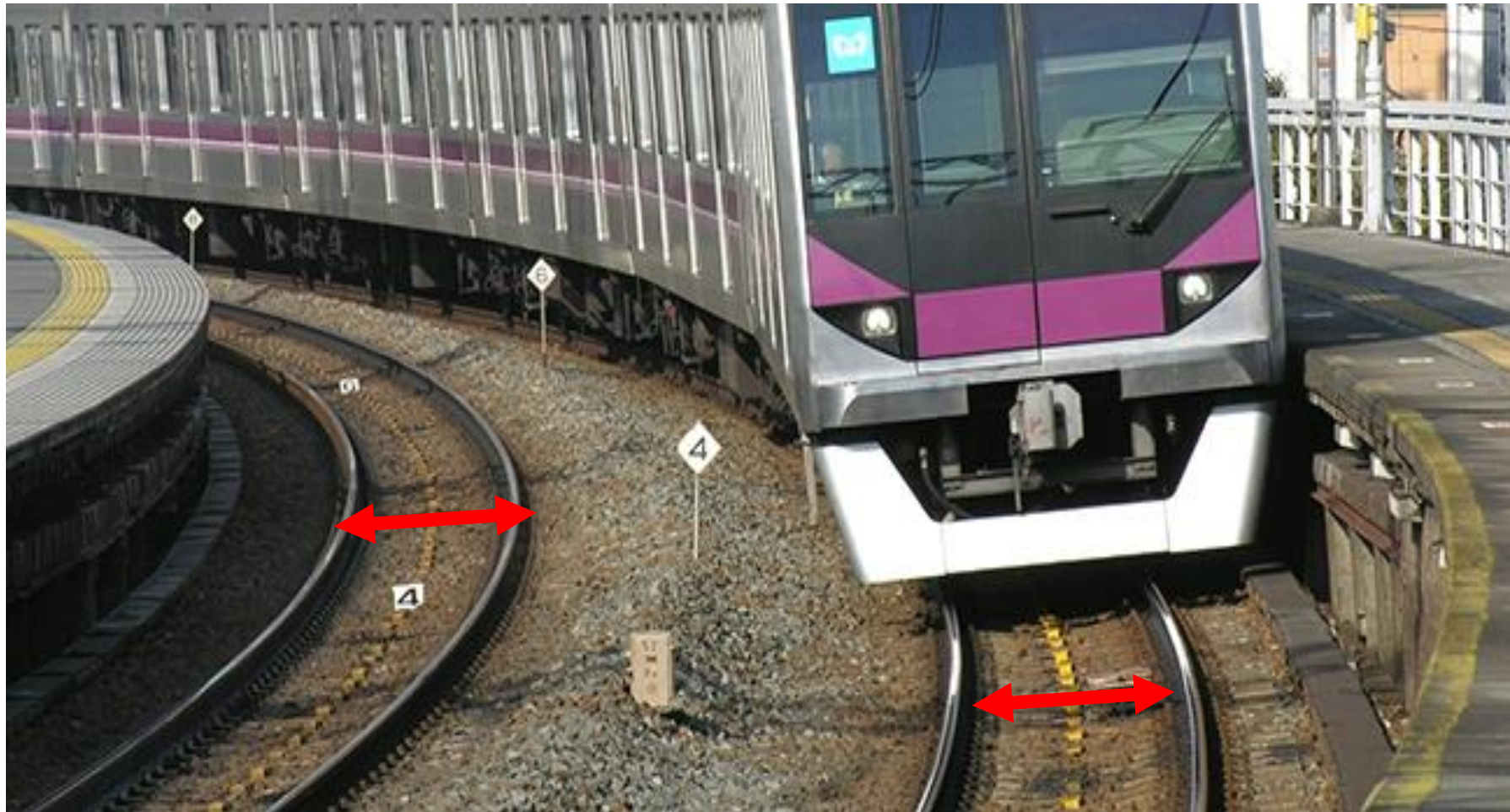


Image source: <http://www.railway-technology.com/>



- Also known as rail line
- Parallel steel rails on sleepers
- Assess sleeper material (steel/concrete/timber?)
- Track platform/foundation—provision for erosion protection & heat protection (ballast)
- Gauges;
 1. Broad Gauge: 1524mm to 1676mm, 5'0"-5'6"
 2. Standard Gauge: width 1435 mm, 4'8½", >60% of world's rail lines
 3. Metre Gauge: width 1000 mm (also variants of 1067 mm/915 mm)
 4. Narrow Gauge: width 762 mm and 610 mm or 2'-6" and 2'-0"
- Gauge considerations depend on terrain(mountainous/flat), cost, speed of train
- Can be single- of multi-track(double, tri, quad)
- Gauge and No. of tracks are important underwriting considerations

Classification by Engine Propulsion/power

1. Steam engine - 18th and 19th centuries- upto 1940s, coal/wood fired
2. Diesel – diesel-mechanical, diesel-electric, or diesel-hydraulic
3. Electric – 1960s to date, electric power from grid or own generated power
4. Combined/dual engines –electrical (urban areas) + diesel (remote areas)

Classification by Use

1. Freight/Cargo train
2. Passenger/Commuter train – low/high speeds, may be land or underground/subway
3. Trams – for low capacity public transport
4. Special operations – Mines, Tunnels/underground works/construction/quarry sites

NB: Shunters/Switchers : Note Age/YOM

Railway Assets

Rolling Stock: Locomotives



Classification by Speed

1. Conventional – Below 180 - 200 km/h
2. HSR - High Speed Rail – above 250 - 300+ km/h or more



Image source: <http://www.https://www.https://slate.com/>

New Technology

- Maglev – under development, electromagnetic technology, no moving parts
- Hyperloop - trains ride inside sealed vacuum tubes (less air) still on development
- Target speeds 400 – 500km/h

Railway Assets

Rolling Stock: Locomotives



Image source: <https://www.railjournal.com/>

Railway Assets

Rolling Stock: Locomotives



Image source: <https://voiceofdjibouti.com/>

Railway Assets

Rolling Stock: Wagons



Classification by Speed

1. Flat bed wagons
2. Covered/box wagon
3. Hopper/open top
4. Tankers
5. Coil car
6. Refrigerated/cold-room – fire safety?
7. Passenger coaches

NB- Check stacking – double/single



Image source: <http://www.maritime-executive.com/>

1. Bridges
 - Cable-stayed & Suspension Bridges
 - Beam Bridges
 - Arch Bridges
2. Tunnels/Subways – underground – seepage concerns
3. Viaducts- series of several
above ground bridges
4. Culverts, drainages,
5. External works and services e.g, parking zones

Railway Assets

Buildings and contents/stocks



- Railway buildings – offices, residences
- Stations and terminals
- Maintenance yards, garages
- Storage facilities – warehouses, open air yards
- Contents therein

Image source: <https://voiceofdjibouti.com/>

- Workshop and Yards equipment
- Cargo handling equipment
- Communication, signalling and signage equipment/system
- Electrical/Switching system
- Power stations/mini-, sub- stations? – (own/supplied)

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- Power stations/mini-, sub- stations? – (own/supplied)

Railway Assets

Machinery and installations

Bottomline/Recommendation:

Each item sub-group sum is provided and listed in the insurance schedule

Railway Assets

Sec I - PD

Settlement

- repair, replacement
- Limit item as per schedule

1. Property damage (PD)

Total

Locomotives

Passenger carriages

Freight wagons

Machinery

T&D lines and signalling system

Tracks and roadbed, incl. culverts, etc.

Bridges

Tunnels

Buildings

Contents

Stock

Other

Railway Assets

Summary

| CAR/EAR/CEAR | ROP |
|---|---|
| EARTHWORKS, WATER SUPPLY AND DRAINAGE WORKS | CIVILS, WATER AND SEWERAGE SERVICES |
| CULVERTS AND DRAINAGE WORKS | CULVERTS AND DRAINAGE FACILITIES |
| TRACK LAYING WORK | RAILTRACK |
| BRIDGE AND VIADUCTS WORKS | BRIDGES, VIADUCTS |
| BUILDING WORKS | RAILWAY STATIONS, OFFICES AND OTHER UNITS |
| TUNNEL WORKS | TUNNELS |
| SIGNAL/INFORMATION/COMMUNICATION SYSTEM | SIGNAL/INFORMATION/COMMUNICATION SYSTEM |
| ELECTRIC (OT) SYSTEM | ELECTRIC (OT) SYSTEM |
| MACHINERY AND EQUIPMENT - CPM | MACHINERY AND EQUIPMENT |
| ROLLING STOCK – used as CPM, during testing | ROLLING STOCK, WAGONS, COACHES,CARRIAGES |
| | |
| | |

Refer to MRe questionnaire for railways for more details on values/sums

Munich Re Rail operator policy (ROP) wording

03



Structure of Policy

| | | | |
|--------------------------------------|---|--|--|
| Schedule | <u>Details</u> : cover, insurer, insured, sum insureds, limits & sublimit, location, business insured, periods, deductibles, premium, choice of law, seat of arbitration | Insuring Agreement | General insurance agreement |
| Section 1 Property Damage | <u>Insured property</u> : Cover for any sudden physical loss to the property insured within the territorial limits and within the period of insurance | Section 2 Business Interruption | <u>Business interruption</u> : Cover for loss of the interest insured (gross of profit or standing charges, increased cost of working up to the indemnity period insured |
| Section 3 Liability | <u>Liability</u> : Cover when legally liable for accidental death / bodily injury or accidental loss or damage to property of third parties within the territorial limits and within the period of insurance. | General Exclusions | <u>Exclusions</u> : Applicable to all sections of the policy, e.g. war, terror, nuclear, etc. |
| Claims conditions | <u>Claims conditions</u> : Applicable to all sections of the policy, e.g. claim notification, reimbursement, etc. | General Conditions | <u>General conditions</u> : Applicable to all sections of the policy, e.g. reasonable precautions, risk inspection, etc. |
| General Definitions | <u>Definitions</u> : Clear understanding of the main terms under policy wording based on a clear definition. | Endorsements | <u>Endorsements</u> : Very specific extensions based on clear defined conditions. |

Wording

Munich Re Rail operator policy (ROP)

**Scope: All Risks Property Damage,
Business Interruption and Liability**

- Sec I:** Property Damage
 - External
 - Internal
 - Operational
- Sec II:** Business Interruption as a consequence of a loss or damage to insured property
- Sec III:** Liability
 - General Liability
 - Passenger Liability
- (Sec IV): Marine Cargo

NB: Sec I – Compulsory. Sec II,III,IV optional

Munich Re Rail operator policy (ROP)

Sec I - PD

- Indemnity

Cause: direct, sudden, accidental

Damage: Physical

Settlement: repair, replacement

- Ownership interest

3 Section 1 – Property Damage

3.1 Indemnification

- 3.1.1 The *insurer* shall indemnify the *insured* for any direct sudden and accidental physical loss of or damage to the *property insured* which the *insured* and/or its *representatives* could not reasonably have foreseen and which occurs at any time during the *period* of insurance unless specifically excluded and which results in *property insured* needing to be repaired or replaced, and occurs at the situation listed in the *policy schedule*.
- 3.1.2 The indemnity shall not exceed the *sum(s) insured* specified in the *schedule* or any limit of indemnity that may be applicable.

3.2 Property insured

The *property insured* under this *section* is

- 3.2.1 Real property in which the *insured* has an insurable interest and is situated at the *location(s)* specified in the *schedule*.
- 3.2.2 Personal property situated at the *location(s)* specified in the *schedule*
- 3.2.2.1 in which the *insured* has an insurable interest;
- 3.2.2.2 held in the care, custody or control of the *insured* in which case this *policy* only provides cover to the extent of *insured's* legal liability for physical loss or damage to that property; and
- 3.2.2.3 owned by officers and employees of the *insured*.

other than property excluded under clause 6 of this *section*.

Munich Re Rail operator policy (ROP)

Sec I - PD

Sec I: Property Damage

Cause

- External
- Internal
- Operational

Perils/triggers

- External exposures, e.g.
 - Natural perils, e.g. flood, earthquake, storm, etc.
 - FLEXA
- Internal exposures, e.g.
 - Machinery breakdown, Boiler explosion, etc.
 - Electrical breakdown-short-circuits etc
- Operational exposures, e.g.
 - Mobility concerns
 - Human errors



Definition

The sum insured for each property has to be equal to the

NEW REPLACEMENT VALUE

of such property

The sum insured, less the deductible, is the **limit of indemnity**.

New Replacement Value Equivalent

Purchase price +

- Transportation costs
- Insurance fees
- Customs duties
- Installation charges
- Other procurement costs

Munich Re Rail operator policy (ROP)

Sec I - PD

Settlement

- repair, replacement
- Limit item as per schedule

1. Property damage (PD)

Total

Locomotives

Passenger carriages

Freight wagons

Machinery

T&D lines and signalling system

Tracks and roadbed, incl. culverts, etc.

Bridges

Tunnels

Buildings

Contents

Stock

Other

Munich Re Rail operator policy (ROP) Sec I (PD) PML Analysis

| CONSTRUCTION PHASE(CAR) | OPERATION PHASE(ROP,CECR) |
|---|---|
| Fire at a construction site, CPM storage yard | Fire at a main storage yard, terminal, station |
| Collapse or damage of a structure-Bridge, viaduct | Collapse or damage of a structure-Bridge, viaduct |
| Tunnel construction, damage to TBM | Value of tunnel; earthquake, landslides |
| Major peril damage – flood, washout | Head on collision of 2 or more trains |
| Loss limit | Derailment, overturning of complete train |

NB- For a proper PML analysis a risk survey is recommended

Munich Re Rail operator policy (ROP)

Sec II - BI

4 Section 2 – Business Interruption

4.1 Indemnification

- Indemnity

Cause: As per PD

Damage: Physical leading to interruption loss

Settlement:

- Loss of GP, and increased ICOW or
- Standing charges + NP, increased ICOW
- Limit: Loss period – max IP

4.1.1 The *insurer* shall indemnify the *insured* for a loss of the *interest insured* unless specifically excluded if at any time during the *period* the *property insured* under the property damage *section* suffers loss or damage indemnifiable under the property damage *section* or which would have been indemnifiable under the property damage *section* but for the application of a *deductible*, thereby causing an interruption of or interference with the *business insured*.

4.1.2 The indemnity for the loss of *interest insured* shall be in respect of

4.1.2.1 Option 1: *gross profit*, the loss actually sustained during the *period* resulting from a reduction in *turnover* and including *increased cost of working*

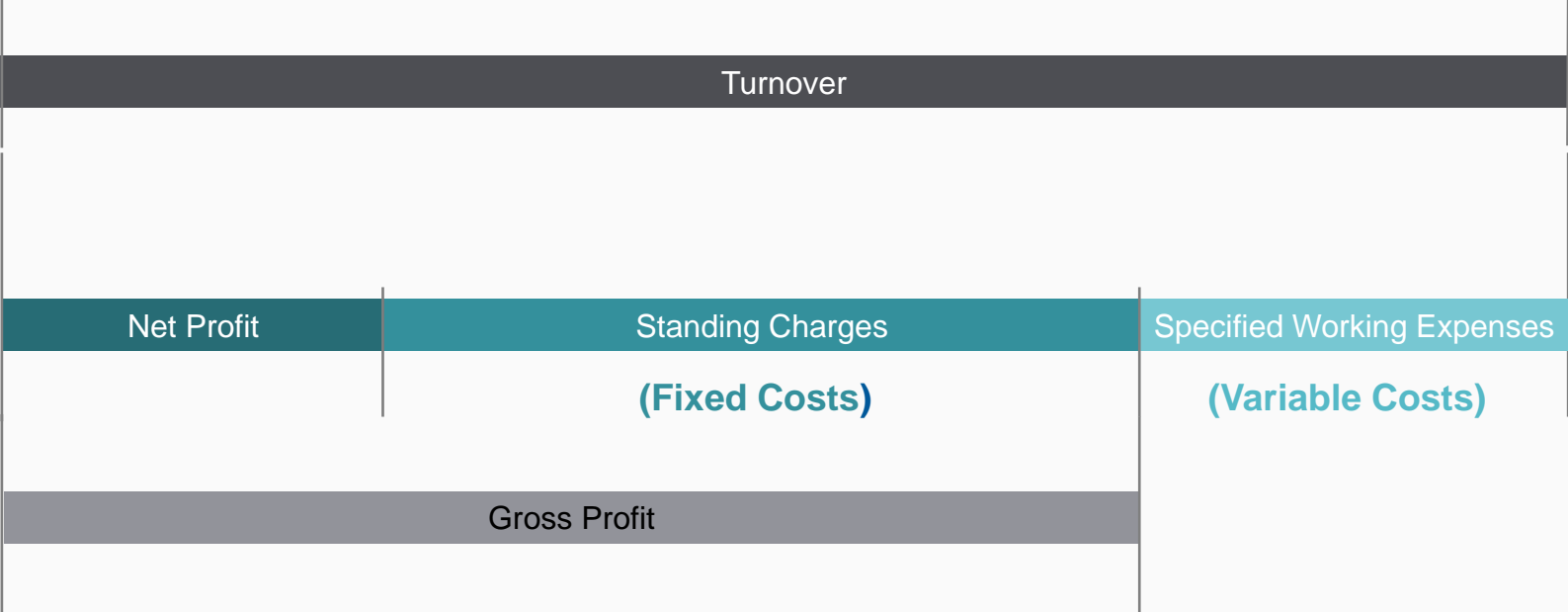
or

4.1.2.2 Option 2: *specified standing charges* and *net profit*, the amount actually not earned during the *indemnity period* resulting from a reduction in *turnover* and including *increased cost of working*.

4.1.3 The indemnity shall not exceed the *sum(s) insured* specified in the *schedule* or any limit that may be applicable for the *maximum indemnity period*.

Munich Re Rail operator policy (ROP)

Sec II - BI



- Fixed taxes,
- Property tax
- Insurance cost
- Fixed charges for electricity, heating or fuel
- Debt service (bank requirements)
- Wages and Salaries
- Etc.

Purchases of raw or consumable materials, operating costs, etc.

Munich Re Rail operator policy (ROP)

Sec III - Liability

General Liability

- Indemnity

Cause:

- property insured
- operations of the insured

Damage: Property or injury/death

Settlement:

- Loss suffered
- Limit: Amount as per schedule
- Each occurrence or
- Series of occurrence

5 Section 3 – Liability

5.1 General Liability

5.1.1 Indemnification

5.1.1.1 The *insurer* shall indemnify the *insured* up to the limits of indemnity specified in the *schedule* in respect of any sums the *insured* shall become legally liable to pay as damages as a result of

5.1.1.1.1 accidental death of or bodily injury to or illness of third parties
or

5.1.1.1.2 accidental loss of or damage to property belonging to third parties

5.1.1.2 Caused by the *property insured* or an insured's operation necessary to comply with the provisions of the *insured railway operation* and occurring within the *territorial limits* during the *period of insurance*.

5.1.2 Limit of indemnity

5.1.2.1 The *insurer's* total liability under this *section* for any one occurrence or series of occurrences arising from one event or attributable to a single cause shall not exceed in the aggregate the total limit of indemnity entered in the *schedule*.

Munich Re Rail operator policy (ROP)

Sec III - Liability

Passenger Liability

- Indemnity

Cause:

- property insured
- operations of the insured

Damage: Passenger property or injury/death to passenger

Settlement:

- Loss suffered
- Each occurrence or
- Per event(Series of occurrence)
- Limit: per passenger limit(option)

5.2 Passenger Liability

5.2.1 Indemnification

5.2.1.1 The *insurer* shall indemnify the *insured* up to the limits of indemnity specified in the *schedule* in respect of any sums the *insured* shall become legally liable to pay as damages as a result of

5.2.1.1.1 accidental death of or bodily injury to or illness of a fare paying passenger, whilst being carried in or upon or getting on to or alighting from the insured railway vehicle at the time of occurrence of the event

or

5.2.1.1.2 accidental loss of or damage to property, baggage and personal articles of passengers arising out of an accident involving the railway vehicle.

5.2.1.2 Caused by the *property insured* or an insured's operation necessary to comply with the provisions of the *insured railway operation* and occurring within the *territorial limits* during the *period of insurance*.

5.2.2 Limit of indemnity

5.2.2.1 The *insurer's* total liability under this *section* for any one occurrence or series of occurrences arising from one event or attributable to a single cause shall not exceed in the aggregate the total limit of indemnity entered in the *schedule*.

Munich Re Rail operator policy (ROP)

Sec III - Liability

Example:

- Train derails off the track
- Several passengers onboard and farmers on their farms near the track injured and house during the incident.
- USD90,000 private house along the rail was damaged
- Farmworkers injury costs USD70,000
- Passenger injury claims USD80,000
- Passenger luggage worth USD20,000 damaged
- Total amount claimed: 260,000

3. General Liability (PD)

| | | |
|--|-----------------|-------------------|
| Total Aggregate Limit per policy period | | USD400,000 |
| General Liability per event and aggregate | Property Damage | USD100,000 |
| | Bodily injury | USD100,000 |
| Passenger Liability per event and aggregate | Property Damage | USD100,000 |
| | Bodily injury | USD100,000 |
| General Liability Extensions | Property Damage | ---- |
| | Bodily injury | ---- |

How much will Insurers pay?

Munich Re Rail operator policy (ROP)

Sec III - Liability

Example:

- Train derails off the track
- Several passengers onboard and farmers on their farms near the track injured and house during the incident.
- USD200,000 private house along the rail was damaged
- Farmworkers injury costs USD70,000
- Passenger injury claims USD80,000
- Passenger luggage worth USD20,000 damaged
- Total amount claimed: 370,000

3. General Liability (PD)

| | | |
|--|-----------------|-------------------|
| Total Aggregate Limit per policy period | | USD400,000 |
| General Liability per event and aggregate | Property Damage | USD100,000 |
| | Bodily injury | USD100,000 |
| Passenger Liability per event and aggregate | Property Damage | USD100,000 |
| | Bodily injury | USD100,000 |
| General Liability Extensions | Property Damage | ---- |
| | Bodily injury | ---- |

How much will Insurers pay?

Munich Re Rail operator policy (ROP)

Sec III - Liability

Example:

- Train derails off the track
- Several passengers onboard and farmers on their farms near the track injured and house during the incident.
- USD200,000 private house along the rail was damaged
- Farmworkers injury costs USD170,000
- Passenger injury claims USD180,000
- Passenger luggage worth USD120,000 damaged
- Total amount claimed: 670,000

3. General Liability (PD)

| | | |
|--|-----------------|-------------------|
| Total Aggregate Limit per policy period | | USD400,000 |
| General Liability per event and aggregate | Property Damage | USD100,000 |
| | Bodily injury | USD100,000 |
| Passenger Liability per event and aggregate | Property Damage | USD100,000 |
| | Bodily injury | USD100,000 |
| General Liability Extensions | Property Damage | ---- |
| | Bodily injury | ---- |

How much will Insurers pay?

Munich Re Rail operator policy (ROP)

Extensions

| Additional insurance cover | sublimits |
|--|------------------------|
| Capital additions (3 months reporting) | Enter specific amount. |
| Expediting and preservation expenses | Enter specific amount. |
| Fire-fighting expenses | Enter specific amount. |
| Removal of debris | Enter specific amount. |
| Professional fees | Enter specific amount. |
| Misdescription of property insured (immediate reporting) | Enter specific amount. |
| Accounting records | Enter specific amount. |
| Temporary Removal | Enter specific amount. |
| Burglary | Enter specific amount. |
| Optional endorsements BI only | sublimits |
| Civil authority interruption | Enter specific amount. |
| Contingent business interruption | Enter specific amount. |
| Denial of access | Enter specific amount. |
| Service interruption | Enter specific amount. |
| Optional other sublimits (please specify) | sublimits |
| Enter specific amount. | Enter specific amount. |

Underwriting Summary

04



Munich Re Rail operator policy (ROP) - Summary

Underwriting info

- Railway type – track and gauge
- No./types/sizes of railway structures and infrastructure – bridges, tunnels
- No./types/sizes of machinery – locos, wagons, cranes, hoists
- Soil / Geological information of project – subgrade, rocks, foundations
- Train schedules
- Design information – Design parameters + return periods for e/quake, floods
- Layout plan of major stations and railway route of the project
- Operator experience
- Government operations – support?
- Risk management/mitigation plan/policy
- Equipment/machinery maintenance
- Legal – laws and regulation governing rail transport
- PML value & percent

NB: Risk survey is important in railway projects

Why ROP?

- Fire policies (FLEXA or IAR) are not designed for occupancies where electrical & mechanical breakdown is key concern.
- Request for one stop shop solution by clients
- Need to simplify claims settlement: Multiple types of covers result in complex claims processes due to increasing complexity of railway equipment
- Modernization of railway investments multiple engineering disciplines (civil,elect,mech,computer,software) require that policies require improvement to cope with the changing technologies and exposures

Thank you for your attention!

Q & A

NOT IF, BUT HOW

