



Property Insurance

By

Azhar Ehtesham Ahmed

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Property Insurance – the timeline

Major constituents of Fire Policy

Endorsements – Gap Analysis

MPL

Nat Cat Perils & other influencing factors

All risk Policy and its necessity.



Property Insurance – progress

1666	Great Fire of London resulted in 1 st Insurance company “Sun Fire Office” in parallel “Hamburger Feuerkasse” was established in Germany.
1797 : Natural perils	The first recorded insurer against the forces of nature was “Mecklenburgische” (German Hailstorm Insurance), established in 1797.
1861. Tooley street fire	Tooley street fire Bank Corrupted a few insurers. Fire brigade was centralized with Govt, Tariff Jacked up to 300% Construction warranties placed.
1852 : Reinsurance	Cologne Re became the 1 st Reinsurance provider followed by Swiss Re and Munich Re
1867: LOP	Loss of Rent/earning was introduced
1866 : Engineering	Boiler & Machinery insurance
1929: Engineering	The first CAR policy can be traced to 1929 covering the construction of the Lambeth Bridge in London
1950 PAR	Chubb initiates All Risk Policy
1911 & 1965	Aviation and space insurance respectively
From Mid 20 th and early 21 st century	CMI, Political Violence, Manuscript wordings for specific plants were introduced.

Property Insurance

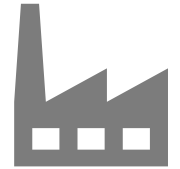
INSURANCE PRODUCT

Fire & Allied Peril
Home owner & Shop owner.
Property All Risk
Industrial All Risk
Machinery Insurance
Political Violence
Electronic Equipment
Erection All Risk
Construction All Risk



PROPERTIES

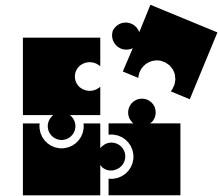
Homes, high rises, hotels, Shops etc.
Industries, plants & Machinery
Dams, Roads, Buildings & Structures.
Stocks in Warehouses, Godowns
Building & Plants Under construction
Electronic and electrical equipment



Risk Categorization



- Risk** Describes both, the situation and the uncertainty of an event
- Peril** Means the agent which can damage, destroy or reduce the value of an asset.
- Hazard** Indicates riskiness



RISK	example	Suitable policy
Stock extensive	Ware Houses, ginners, tank farms, solvent extraction etc	Fire & Allied Peril or Property All Risk
Stock & Machinery balance	Textile mills, Pharmaceutical	Fire & Allied Peril or Property All Risk
Machinery extensive	Power Plant, fertilizer, Petro chemical, Cement	Industrial All Risk

Man Made & Natural Perils



NAT CAT EVENTS

Nat Cat events can have either a **geophysical origin**, such as an earthquake, tsunami or volcano, or

of **meteorological origin**. Such as:

- floods,
- hurricanes, windstorms, tornadoes.
- Landslides, Hail, Avalanche (or weight of snow)
- Wildfires
- Endemic or Pandemic



MAN-MADE CAT EVENTS

- Strikes, Riots and Civil Commotion, or SRCC,
- Terrorism,
- Pollution accidents,
- Rail or aircraft accidents, bridge collapses,
- Cyber-attacks,
- or even a Pandemic!

World Property Losses

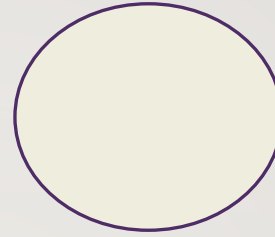
USD billion in 2022 prices	2022	2021	Previous 10-y average
Economic losses (total)	284	303	220
Natural catastrophes	275	292	208
Man-made catastrophes	9	11	12
Insured losses (total)	132	130	91
Natural catastrophes	125	121	81
Man-made catastrophes	7	9	9



Decadal average (2013 to 2022) for insured nat cat losses is now \$112bn, which signifies that \$100bn+ loss per year have now become a “new normal” for insurers.

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POLICY WORDINGS



Fire Insurance

Fire Insurance – Policy Structure

Schedule (declaration)	Contains Information of Sum insured Deductible, premium, location, type and other details of Property, perils covered in brief
Operative clause	Broadly defines the cover, the promise the insurer binds to make good a loss
Exclusions	<ul style="list-style-type: none"> The Perils, Losses and the type of property which is not a part of coverage of the policy
Conditions	<ul style="list-style-type: none"> Conditions in the policy, qualify or place limitations on the insurer’s promise to pay or perform. Such as proof of loss, protecting property at loss etc.
Warranties	<ul style="list-style-type: none"> Promises an insured makes or declares, this could be written(expressed) or Implied (constructed). Business wise warranties provided by Tariff
Definition	<ul style="list-style-type: none"> This portion defines various words and terms used in the policy.
Extraneous Clauses	<ul style="list-style-type: none"> Clauses that increase the scope of cover in financial terms or operative section

Operative Clause – Fire Policy

Fire Policy

if after payment of the premium the Property insured described in the said Schedule, or any part of such Property,

be destroyed or damaged by **Fire and/or Lightning** specified in the Schedule at any time during the policy period,

the Company will pay to the Insured the **value of the property at the time of the happening** of its destruction or the amount of such damage or at its option reinstate or replace such Property or any part thereof.

Indemnity

STOCK: at replacement provided Sum Insured is adequate.

Fixed Assets: on actual cash Value (can be altered by re-instatement clause).

Fire Policy- Exclusion Buy back - Gap analysis



Exclusion	Exclusion Wording	Endorsement wording
Atmospheric Disturbance	<p>(a) Hail, Snow, Wind, Typhoon, Hurricane, Tornado, Cyclone Rain, Flood or other atmospheric disturbances.</p> <p>(b) <i>Landslide and Subsidence.</i></p>	<p>LOSS OR DAMAGE to the property described in the Schedule directly caused by:-</p> <p>A. Hail, Snow, Wind, Hurricane, Cyclone; or Typhoon, and/or,</p> <p>A. Rain, provided the building(s) in respect of which the claim made or containing the property in respect of which the claim is made is so damaged by any of the perils specified in A supra as to admit rain water to the interior of the said building (s) ; and/or, Flood</p>
Earthquake	<p>Any loss or damage occasioned by or through or in consequence directly or indirectly due to Earthquake, <i>Volcanic eruption, tsunami or other convulsions of nature.</i></p>	<p>that..... this insurance covers loss or damage (including loss or damage by fire) to any of the property insured by this policy occasioned by or through or in consequence of earthquake”.</p>
Riot Strike	<p>Mutiny, riot and strike, lock out, malicious act, civil commotion, popular rising, military rising, rebellion, revolution</p>	<p>the act of any person taking part together with others in any disturbance of the public peace (whether in connection with a strike or lock-out or not) not being an occurrence mentioned in Condition II of the Special Conditions hereof.</p>

Fire Policy- Exclusion Buy back - Gap analysis



Exclusion

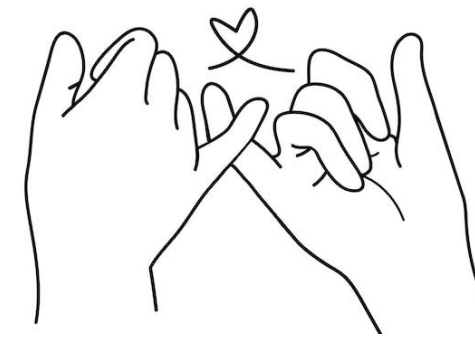
Exclusion Wording

Endorsement wording

<p>Terrorism</p> <p>Covered through a separate policy, if required.</p>	<p>an act of terrorism means an act, including but not limited to the use of force or violence and/or the threat thereof, of an act harmful to human life, tangible or intangible property or infrastructure,</p> <p>of any person or group(s) of persons, whether acting alone or on behalf of or in connection with any organisation(s) or government(s), committed for political, religious, ideological or similar purposes including the intention to influence any government and/or to put the public, or any section of the public, in fear.</p>	<p>"Act of Terrorism" shall mean an act or series of acts, including the use of force or violence, of any person or group(s) of persons, whether acting alone or on behalf of or in connection with any organisation(s), committed for political, religious or ideological purposes including the intention to influence any government and/or to put the public in fear for such purposes.</p> <p>"Sabotage" shall mean wilful physical damage or destruction perpetrated for political reasons by known or unknown person(s).</p>
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Other exclusions include: War, Mutiny, Nuclear, Pollution, Bush Fire, Subterranean Fire, Explosion, Theft, debris removal, architect fee Etc.,

Fire Insurance – Warranties & Conditions



Implied or Constructed Warranties

The Venture is legal

The Insured has a monetary interest in the subject matter

Express warranties (written).

Warranted that fire fighting equipment will be maintained always.

Warranted that no more than 3,000 bales will be kept in any one Godown.

Warranted that premises will be guarded 24 Hours.

Warranted that cash will be kept in a safe of proper specification after office Hours.

Condition Precedent;

Premium Payment

Risk Survey ?

Warranties are promises made or required from the insured.

Conditions are provisions inserted in the policy that qualify or place limitations on the insurer's promise to pay or perform. If the policy conditions are not met, the insurer can deny the claim

Underwriting Considerations

Working of an Equitable Premium

UW Consideration – Equitable Premium

- PML– one risk definition
- Construction & Occupancy
- Proximity of Natural Hazards
- Distance between buildings
- Perfect party walls with self closing doors,
- fire suppression system.
- Sum Insured or Maximum Loss limit.
- Treaty Restrictions inline with peculiarity of Risk
Petro Chem, mining etc.,



UW Consideration – one risk definition & MPL



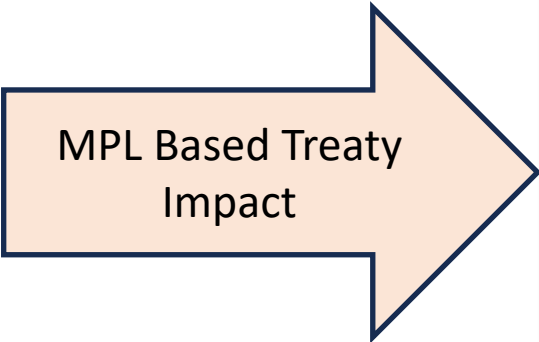
- Individual policies were accounted as one risk. in manually produced list/ledgers before the use of computer.
- Meanwhile, the loss trend changed and Data became available.
- The re insurers had difficulties in working their commitment for one risk from different insurers or accumulation.
- One risk definition was introduced.
- Accumulation through CRESTA (Catastrophe Risk Evaluation and Standardizing Target Accumulations) followed up for natural perils.
- PML (Probable Maximum Loss) became of significant Importance.
- Restriction on co ins and fac capacities.



UW Consideration – Maximum Probable Loss PML

The Probable Maximum Loss (PML) is that which may occur when, the most unfavorable circumstances being more or less exceptionally combined the fire is only stopped **by impassable obstacles or lack of substance.**

Original Capacity	Assumed PML % of TSI	Allowed Capacity
1,000,000,000	10%	2,000,000,000
1,000,000,000	30%	2,000,000,000
1,000,000,000	50%	2,000,000,000
1,000,000,000	60%	1,800,000,000
1,000,000,000	75%	1,500,000,000
1,000,000,000	100%	1,000,000,000

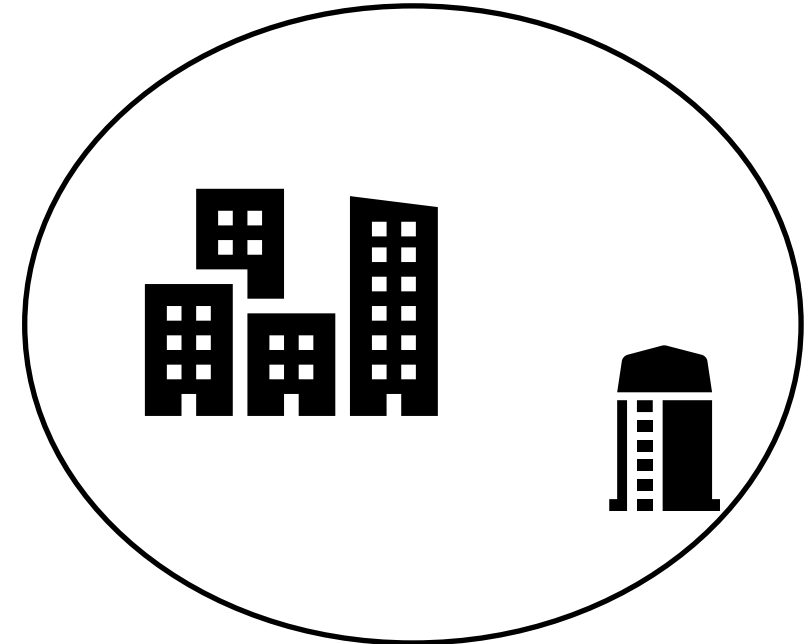


MPL Based Treaty Impact

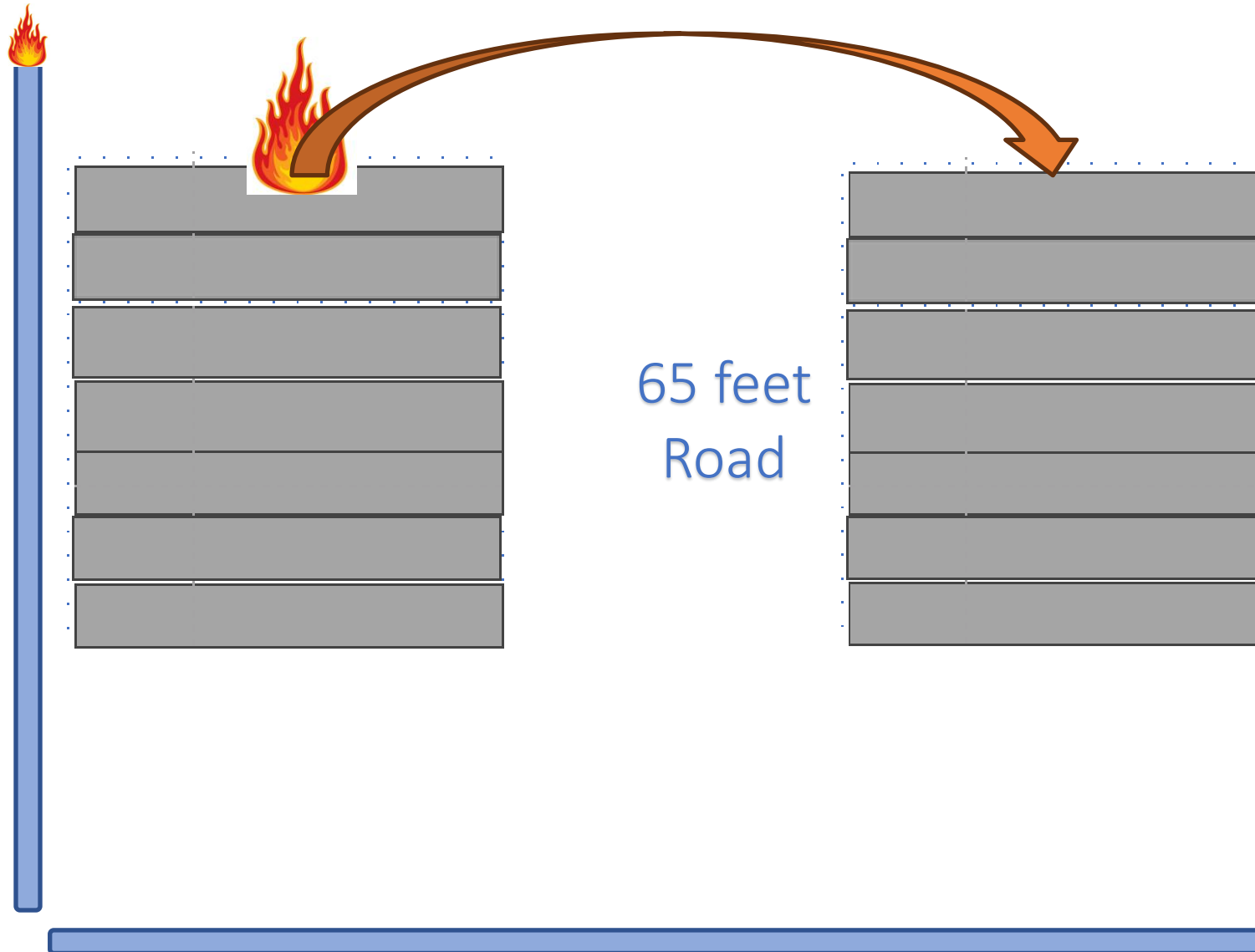
UW Consideration – one risk definition & MPL



- A normal one risk definition stipulates that all properties within one boundary wall and under one roof regardless of subdivisions and of number of policies, shall be regarded as one risk.
- In case more than one building is surrounded within the same boundary and if the insurer is satisfied that separate buildings can not be influenced by the dormant Peril, the insurer can treat such buildings as separate risks provided all insurable values are separately available for each building.
- Predominant Peril for which the risks are being considered separate, shall be noted in the records such as, fire, inundation, flood etc.



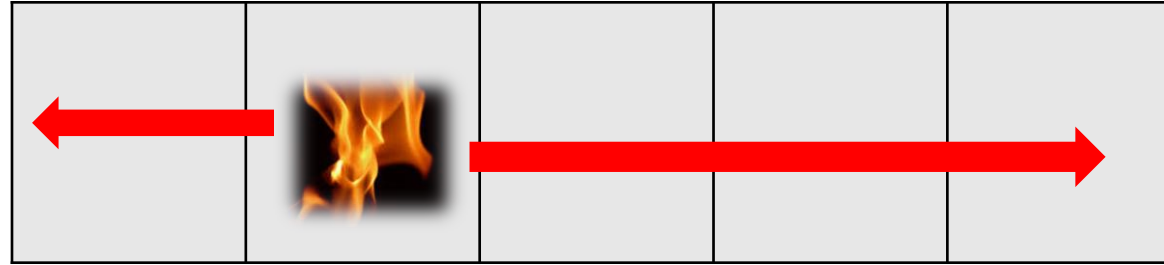
Fire Spread – Radiated Heat



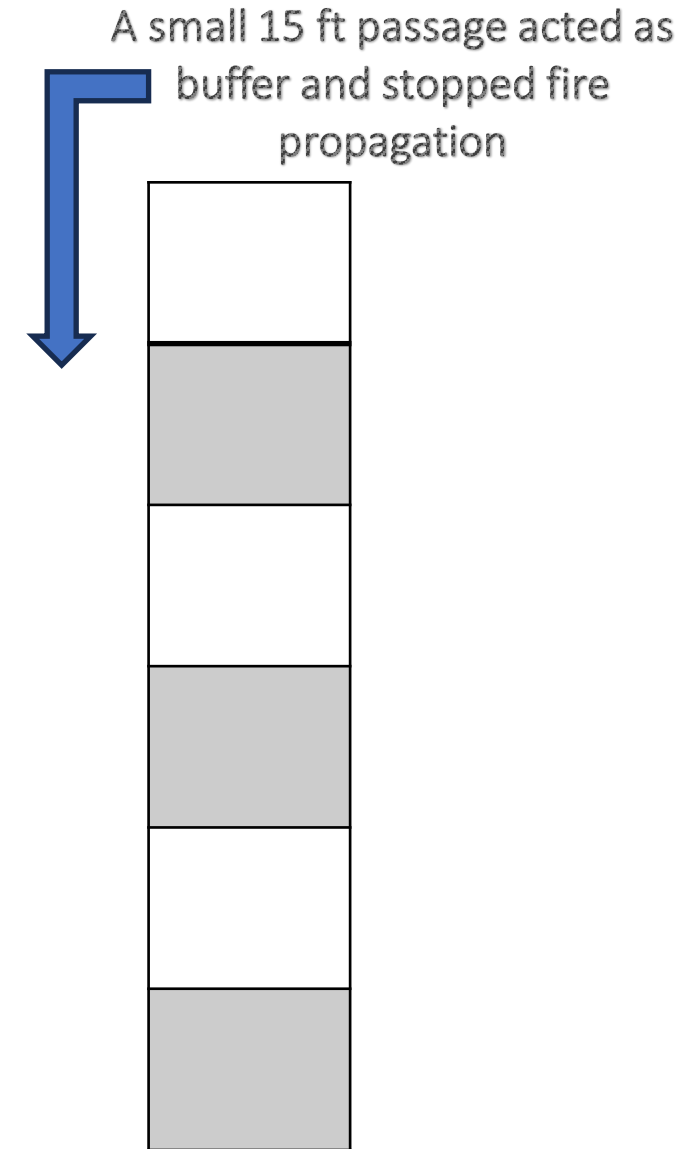
- Fire starts on left side compound
- Stock of Bedding foam
- Right side also burnt.
- Suspicion of Arson ????
- Over two million \$ loss

- Forensic analysis revealed that heat travelled through radiation from one heap to other covering a distance of 65 feet

Impassable object - separation



Total Stock of electronics 2.8 billion
Affected = 1.13 billion



Typical PML Calculation of a chemical Plant

Sum Insured PD = 150,000,000 B/I = 30,000,000. TOTAL = 180,000,000

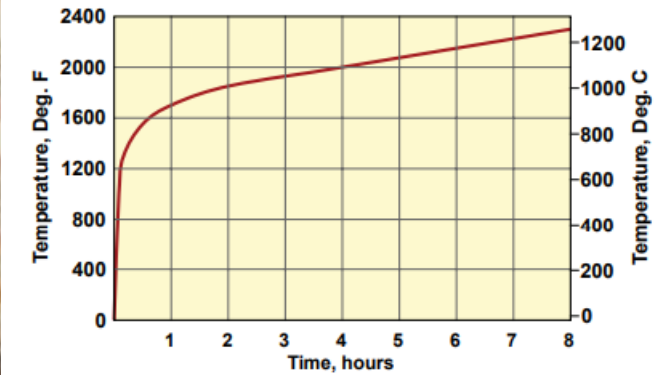
Loss Calculation following explosion in a reactor

Reactor 1	100%	36,000,000
Surrounding property damage in 10 meter radius	10%	3,600,000
40 M radius	5%	1,800,000
Debris Removal	2%	720,000
LOP 40% of the Indemnity		12,000,000
Total PML		50,120,000
PML as percentage of Total Sum Insured		41.08%



- Fire Tariff Stipulates Construction types as Class 1A, 1, II and II A Check tariff
- Class 1 A stands the highest fire test and is termed as fire Proof.
- Historically, the industries were Sub divided through Perfect Party Walls between areas of different activities.
- Electric lines and openings were regulated.
- Distance between buildings was stipulated.
- Godowns were divided by PPW to restrict capacity, i.e., Max 3,000 bales.
- Mixed activities were forbidden in any one hall or they would attract a higher premium such as Public and private ware houses.
- With the advent of Pre Fab Construction, open hall manufacturing has become the order of the day, this draws the highest MPL

Godowns – Conventional



Time-Temperature Curve for ASTM Standard E119

Structural adequacy- Load Bearing
 Integrity – transfer of Flames
 Insulation – Stop/restrict Heat transfer

Construction – Pre fab/Pre engineered units



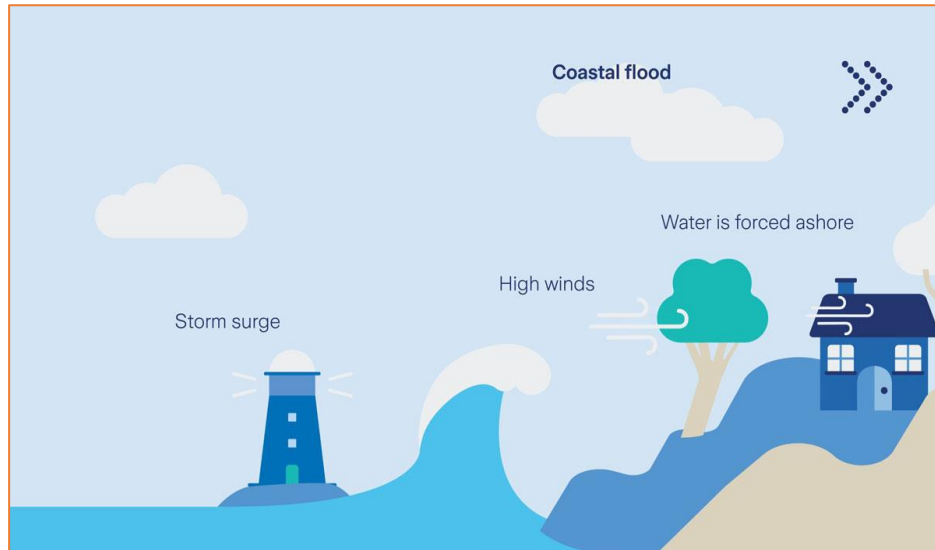
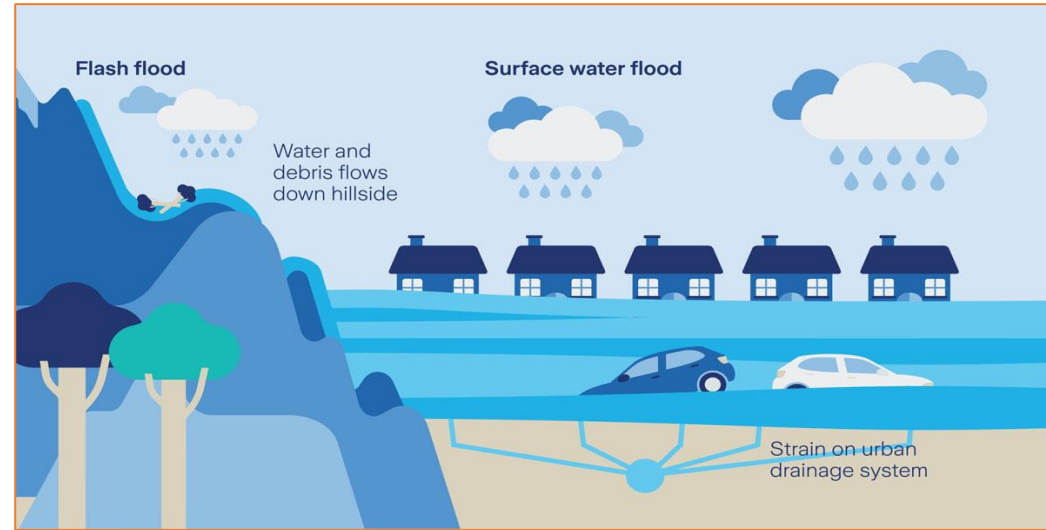
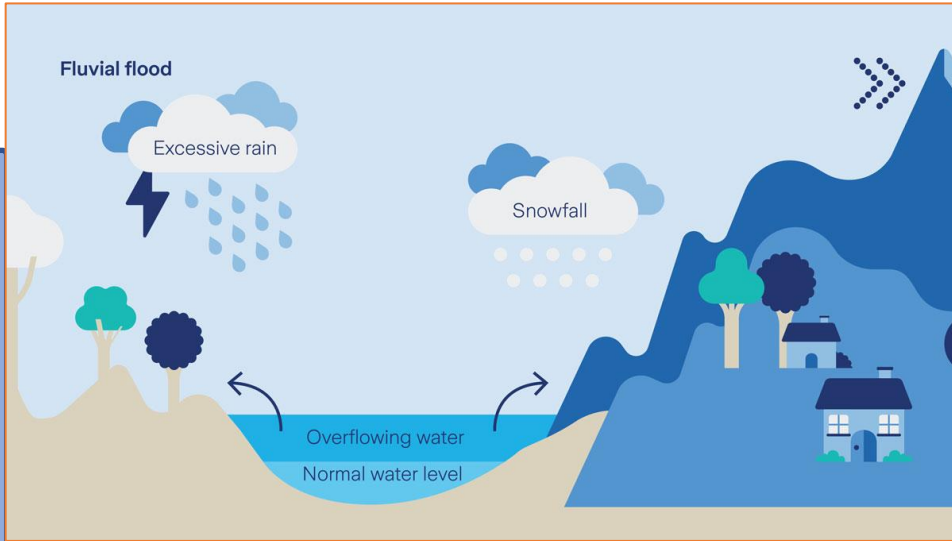
Good, economical and fast construction.

No Sub divisions means fire can easily travel all across.

Open steel is susceptible to high temperatures and buckles resulting in roof collapse.

Good Fire Fighting arrangements required, normally an automated smothering system.

Flood

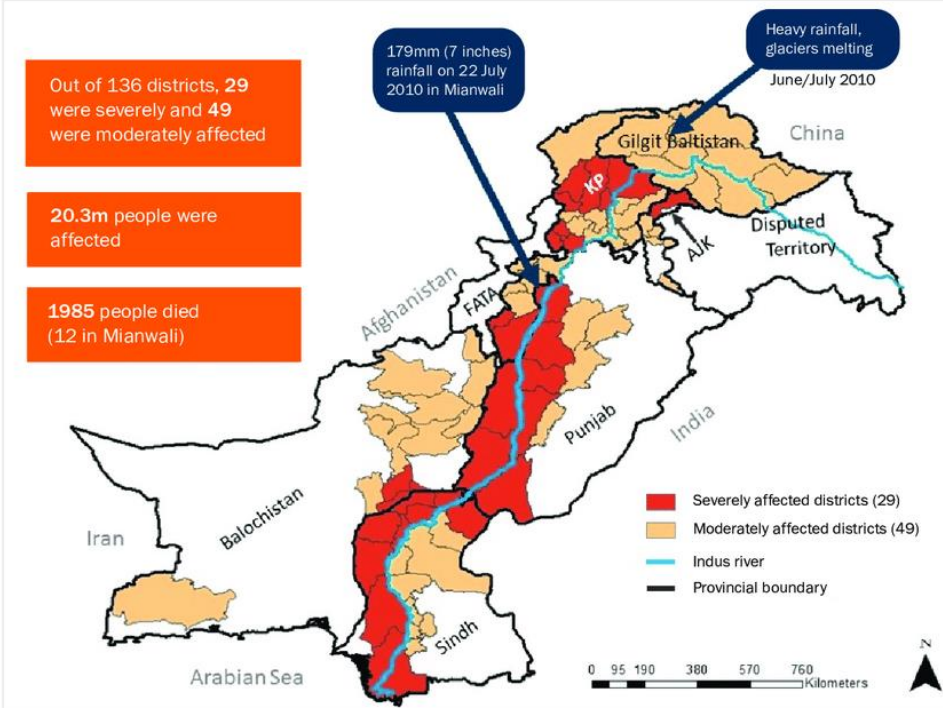


Pakistan Floods major

GLOF

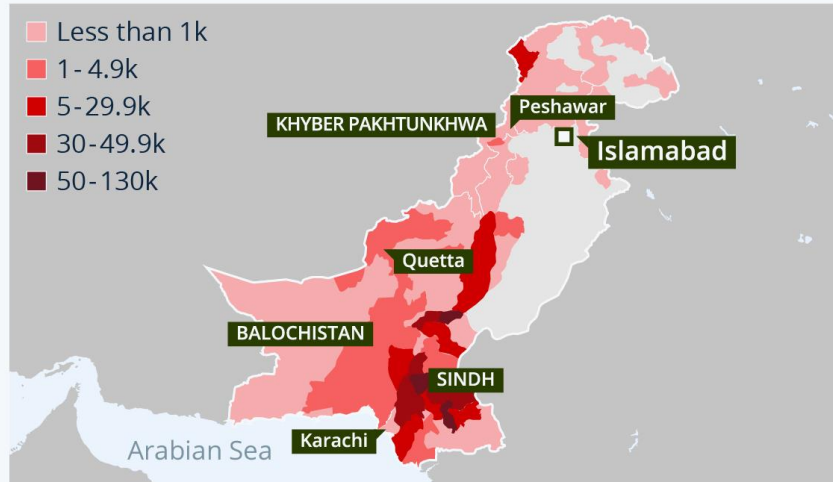
year	Loss of Life	Economic loss
2010	2,000	10 bn \$
2011	433	3.8 BN \$
2022	1,739	30 BN \$

<https://www.zurich.com/en/knowledge/topics/flood-and-water-damage/three-common-types-of-flood>



Pakistan's Floods Affect More than 30 Million People

Map of the estimated number of homes destroyed in the August 2022 monsoon floods



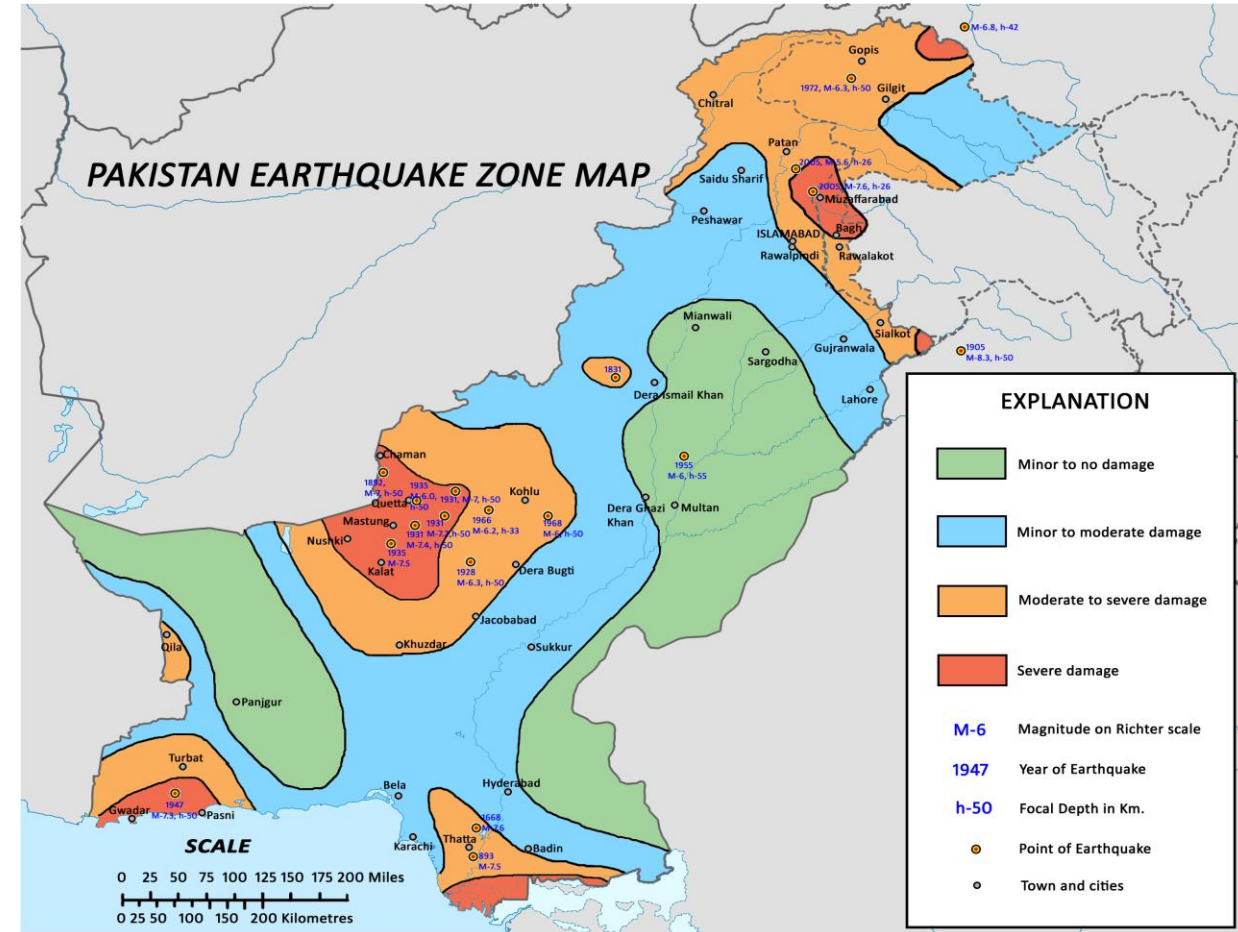
Flood Year	Loss of Life	Economic loss
2010	2,000	10 bn \$
2011	433	3.8 BN \$
2022	1,739	30 BN \$

UW Consideration - Earth Quake



Date	Locality, Mag	Deaths	Notes
2005	Azad Kashmir, 7.6 M _w	Over 100,000	Balakot & Muzaffarabad major Jhelum Fault Zone.
1945	Makran Coast 8.1 M _w	4000	Tsunami 98 KM SW of Pasni
1935	Ali Jaan, Balochistan 7.7	60,000	Quetta totally razed

1. EQ friendly construction
2. Return Period. Also applies to flood
3. Accumulation



Fire Load

Fire load" is a term used to describe the potential severity of a fire within a specified space

Fire load inspections require the assessment of all materials within the space in order to determine that space's overall flammability.

Cement or likes -	LOW
Paper	HIGH
Textiles	Moderate
Super Markets	High
Public Warehouses	HIGH
Supermarkets, Hotels high rise	High



Fire Fighting Arrangements.



Availability

Quality

Readiness

Training

adequacy as to number, type and placement

Proper certification, Brand reputation

Fire lines are charged or can be turned on fast.

Crew is trained & fire drills are logged.

sufficient manpower is available round the clock



Fire
to
Manuscript / All Risk

The Need

Banks required Fire only



By 90's Banks started demanding allied Perils as well



Early This century, Local and Foreign Lenders started looking for All Risk Insurances



Terrorism Insurance became mandatory by all Foreign Lenders and majority of Local Banks. Post 2007 Riots



Currently, Foreign Lenders, Multi Nationals and leading local business houses opt for all risk cover, B/I & PV
Rest maintain at least a complete Fire and special perils cover.



Manuscript, policy wordings specific to the kind of industry and requirement of insured.



Major Areas of Insurance involvement

Ginners	1200	Stock Extensive, Fire is the main Risk
Total Textile	1217	Main Hazard is Fire damage to stock
Sugar Mills	46	Stock extensive, wet process, water Damage
Pharma	750	Stock extensive, Medicines are temperature sensitive
Cement	26	Machinery Extensive, High Values Fac required
Oil Distribution cos Petrol Pumps		Can be locally insured if treaty permits
Fertilizer	9	Machinery Extensive, High Values Fac required
Refineries, oil exploration etc.	5 + various	Machinery Extensive, High Values Fac required
Polymer & staple fiber producers	Various	Machinery Extensive, High Values Fac required petro chem
Power Plants IPPs	100	Fac Required, B/I is bigger risk
other Manufacturing plants, steel, chemical, auto, solvent extraction, oil drillers, ports aviation etc		Individual Risk Patterns.

Gaps in existing covers

Extensive Lending specially Foreign institutions required more comprehensive covers.

Improved Wordings required to cope with the changing technologies and exposures

Increasing size, complexity of plants.

Fire policies (FLEXA or IAR) are not designed for occupancies where electrical & mechanical breakdown is key concern.

Nature of claims and type of covers result in complex claims settlement

Developments in power investments multiple disciplines (elect, mech, comp, soft)

Munich RE comprehensive Machinery Insurance – CMI

The Mother of all.

Operating Clause;

The insurer shall indemnify the insured for any sudden physical loss of or damage to the property insured which the insured could not reasonably have foreseen and which occurs at the premises at any time during the period of insurance due to any **cause not specifically excluded** and which results in property insured needing to be repaired or replaced

Property Insured;

All permanent and temporary installations, mechanical, electrical and electronic equipment, buildings including contents, stock, and goods in

CMI – Definition applicable to all Sections;

There are a total of 27 definitions, but we pick only the following;

<i>Act(s) of God</i>	means an occurrence due to natural causes, directly and exclusively without human intervention and which could not have been foreseen or if foreseen, could not have been resisted by any amount of human care or skill.
<i>Actual value</i>	means the cost which in the event of loss or damage to any item or part of the <i>property insured</i> would be necessary to replace it with one of the same age and capacity and similar make and quality, inclusive of all materials, wages, freight, customs, duties and dues
<i>New replacement Value</i>	means the costs, which would be incurred to replace the property insured at the premises with new items of similar kind and quality at any time during the policy period.
Terrorism	means an act, including but not limited to the use of force or violence and/or the threat thereof, of any person or group(s) of persons, whether acting alone or on behalf of or in connection with any organization(s) or government(s), committed for political, religious, ideological, or ethnic purposes or reasons including the intention to influence any government and/or to put the public, or any section of the public, in fear.

CMI - Exclusions Applicable To All Sections.

War Invasion Act of Foreign Enemies

Ionization Radiation, Radioactive contamination

Act of overthrowing of Government

Any weapon of war employing nuclear fission or fusion

Act of terrorism

Act of default by insured or its representatives; i.e, reckless attitude towards safety of risk, breach of warranty.

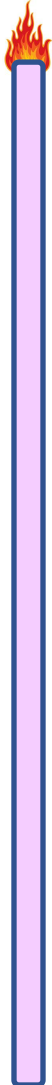
Wear & tear, design defect other than machinery, loss of inventory

Item falling under Guarantee

Common additional Exclusion

- Cyber exclusion
- Covid exclusion
- Sanction Clause

Extraneous Clauses



Debris Removal	Bank Mortgage /Loss Payee clause
Architect, consultant fee	Declaration Clause
Fire Fighting Expense	Re-Instatement Clause
Capital Addition	Capital addition Clause
Expediting expense	85% average clause
Depreciation Clause	Temporary removal
	Design defect clause (LEG)
All Risk policies require the Sum Insured to be on New Replacement Value (NRV)	

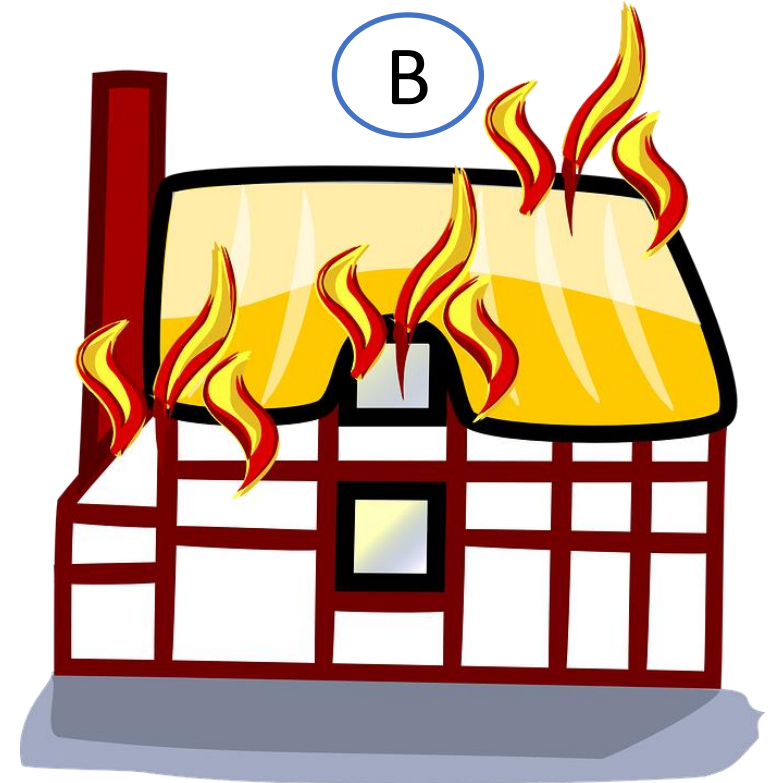
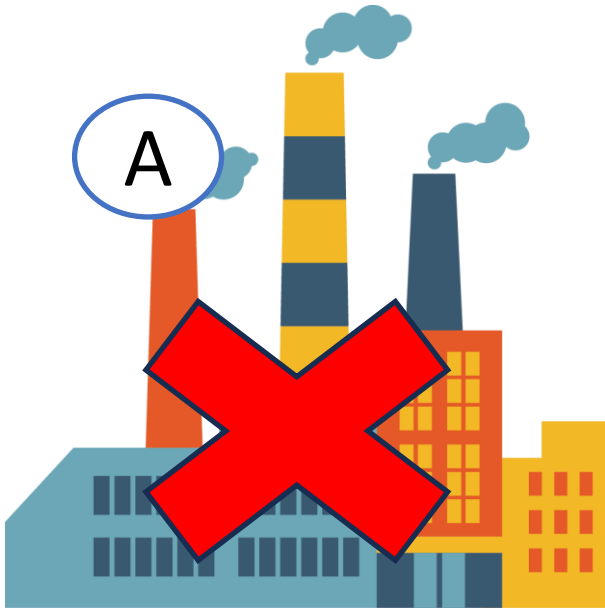
Non Damage Insurance ??

extension of Business Interruption

- Supplier’s extension
- Customer Extension
- Denial of Excess Clause also called (egress/ingress Clause)

Sub limits, generally remain covered within the sum insured

Supplier's Extension



- Company procures raw material from B
- Explosion at Company B, production stops
- The business procured Raw Material from Open Market,
- remained partly shut and
- Suffered loss of 43 million \$
- Indemnified under supplier's extension

Supplier's Extension;

Supply to the plant is restricted due to a loss at raw material supplier facility.

Customer Extension;

Customer unable to receive goods due to a loss at his place

Denial of Access;

The access to the industry is denied due to a loss in the neighboring industries.

Known as Contingent Business Insurance

Also known as Non-Damage Insurance cover

The Cover in general is provided against Fire Lightning Explosion & Aircraft Damage (FLEXA) Perils only



INDEMNIFICATION

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

Loss of
Interest

- loss of Gross profit due to reduction in Turnover Plus increased cost of working or;
- Loss of Standing charges with increased cost of working.

Sum Insured:	Annual Gross Profit or Standing Charges. Adjusted according to the Indemnity Period,
Indemnity Period	commences from Date of loss/stoppage and continues till the business is restored or the period mentioned in the schedule runs off. (<i>normally 12 months</i>)
Premium	A deposit premium is charged on the given sum insured which may be adjusted at the end of year as per the actual numbers.
Excess	Excess could be mentioned as number of days or a monetary value.
Exclusions	Material Damage of any sort. Earthquake, Tsunami, volcanic eruption unless covered. Restrictions imposed by Public authority. Fines and Penalties

Sum Insured

Not to be less than *New Replacement Value*.

LIMIT OF LIABILITY: Higher Sum Insured may restrict the cover to maximum limit of Liability such as 40% of total Sum Insured.

Deductible

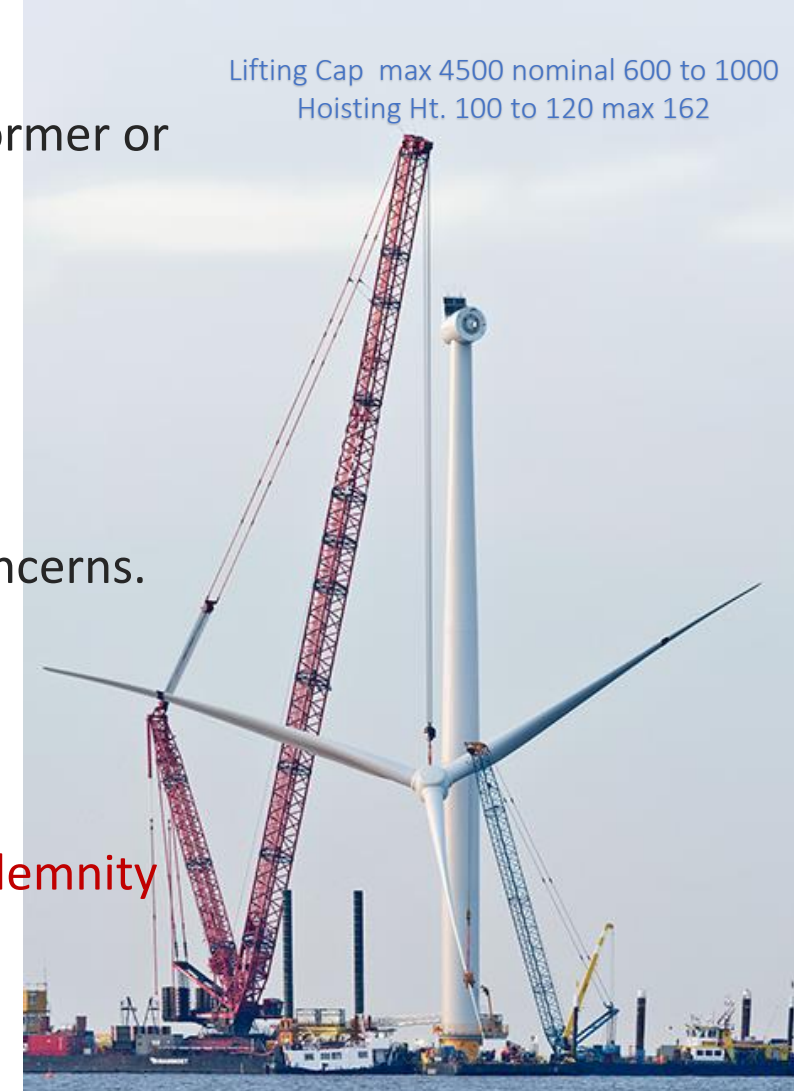
The policy may carry differential deductibles, such as

- US\$ 1,500,000 for ACT of God (EQ, Flood etc)
- US\$ 1,000,000 for Machinery Break Down
- US\$ 500,000 for All other losses

UW Consideration – Business Interruption

- Impact of a single peril on over all operation. Such as damage to transformer or Crusher
- Critical Items and their impact on total operations.
- Lead time of manufacturing of spares.
- *Specialized Machinery or repair tools may take longer, prototypes etc*
- **Spares:** Is sufficient inventory of spares maintained at plant or sister concerns.
- Possibility of maintaining production at alternate premises.
- Deductible, period of indemnity.

Period of Indemnity; how to determine ? One size fits all i.e. 12 Months Indemnity period may not suffice for every one.



Interpretation of Policy Document

Doctrine of Adhesion

As the policy document is drafted by the insurer, the courts will tend to interpret any ambiguities in policy wordings in favour of the insured.

Standard Market Wordings

As the policy document is standardized and widely used by the insurers, the insured is ought to know them. The courts will tend to interpret them under common law and/or law of precedent.

Manuscript Wordings

Since these are drafted and agreed by the insured (broker) and the insurer, the courts will tend to interpret the policies on equal footing.

Printed versus Hand written changes

Hand written changes takes precedent over the printed wordings, the courts will tend to accept hand written alterations tend to more accurately reflect true intent than do other, preprinted policy terms.

Statutory conditions versus Policy conditions

If there is a state law and statutory conditions then those conditions will prevail regardless of whatever policy conditions on the same matter is incorporated in the policy document.

خدا کرے کہ میری ارض پاک پر اترے
وہ فصلِ گل جسے اندیشہ زوال نہ ہو

Thank You for being patient