

‘Accident - 11’.

A - ‘13 - Storey’ - ‘Completed -
Building’ - ‘Collapsed’ - in -
‘Shanghai’. ‘1 - Worker’ - buried.
(‘5.30 - a.m.’, ‘27th - June -
2009’). (‘Daqi’).

‘Shanghai - Building - Collapse’ - ‘Facts’ - of - the - ‘Cause’.



























‘Accident - Analysis’ .

(1) An - ‘Underground - Garage’ - was - ‘forgotten’ - to - be - ‘constructed’.

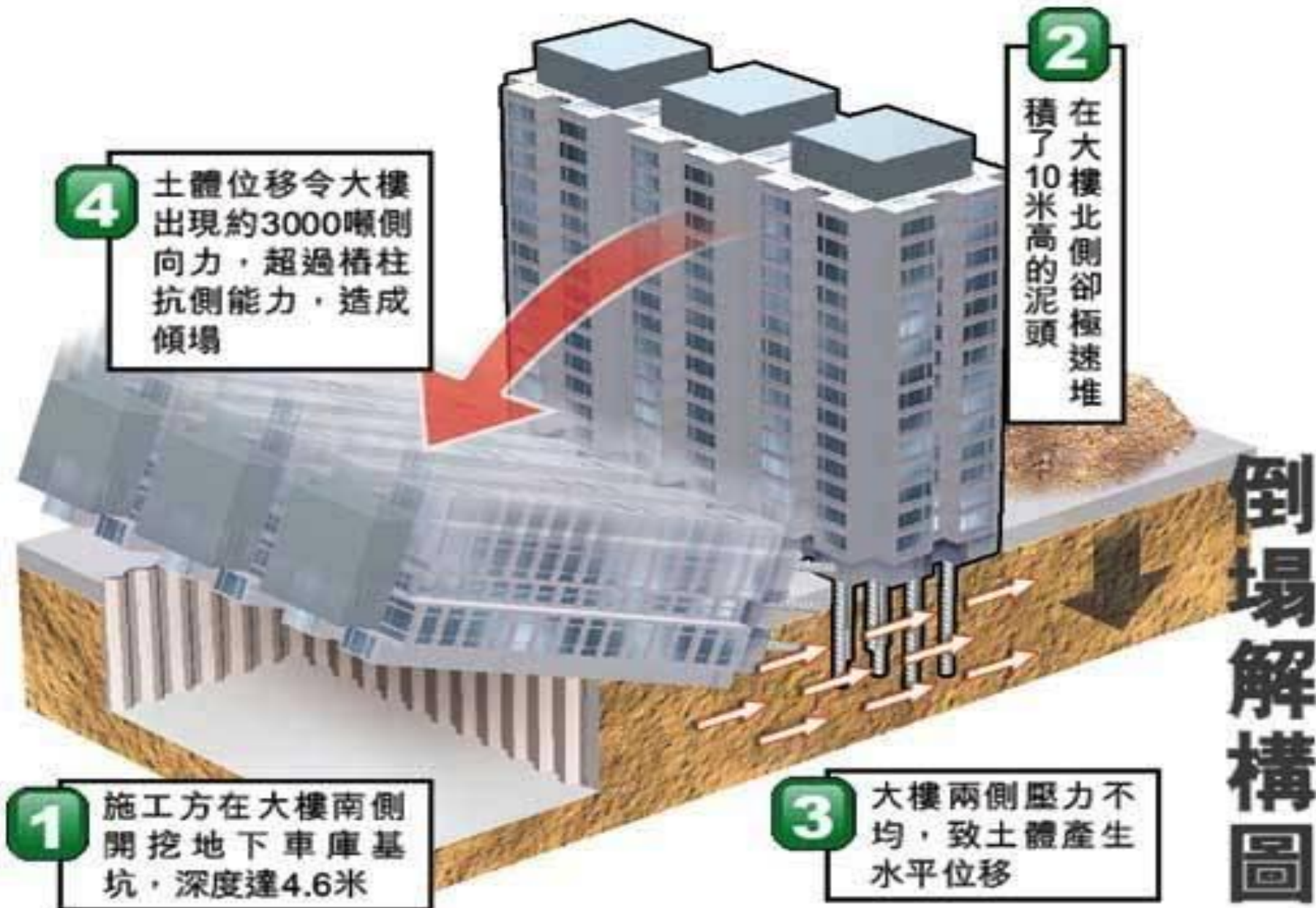
(2) So, ‘Excavation’ - was - being - ‘carried - out’ - on - the - ‘South - Side’, to - a - ‘Depth’ - of - ‘4.6 - Meters’.

(3) The - ‘Excavated - Soil’ - was - being - ‘piled - up’ - on - the - ‘North - Side’, to - a - ‘Height’ - of - ‘10 - Meters’.

(4) The - ‘Building’ - ‘experienced’ - ‘Uneven - Lateral - Pressure’ - both - from - ‘South’ - as - well - as - ‘North’.

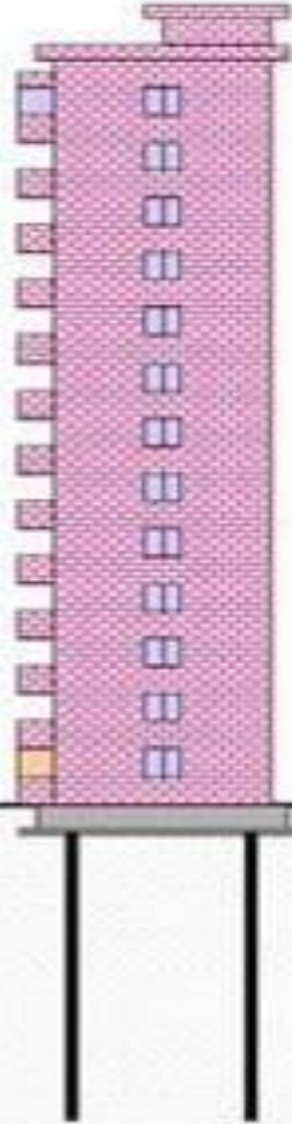
(5) This - ‘resulted’ - in - a - ‘Lateral - Pressure’ - of - ‘3,000 - Tons’, which - was - ‘greater’ - than - what - the - ‘Pilings’ - could - ‘Tolerate’.

(6) Thus, the - ‘Building’ - ‘Toppled - Over’ - in - the - ‘Southernly - Direction’.



First, the - 'Apartment - Building' - was - 'Constructed'.

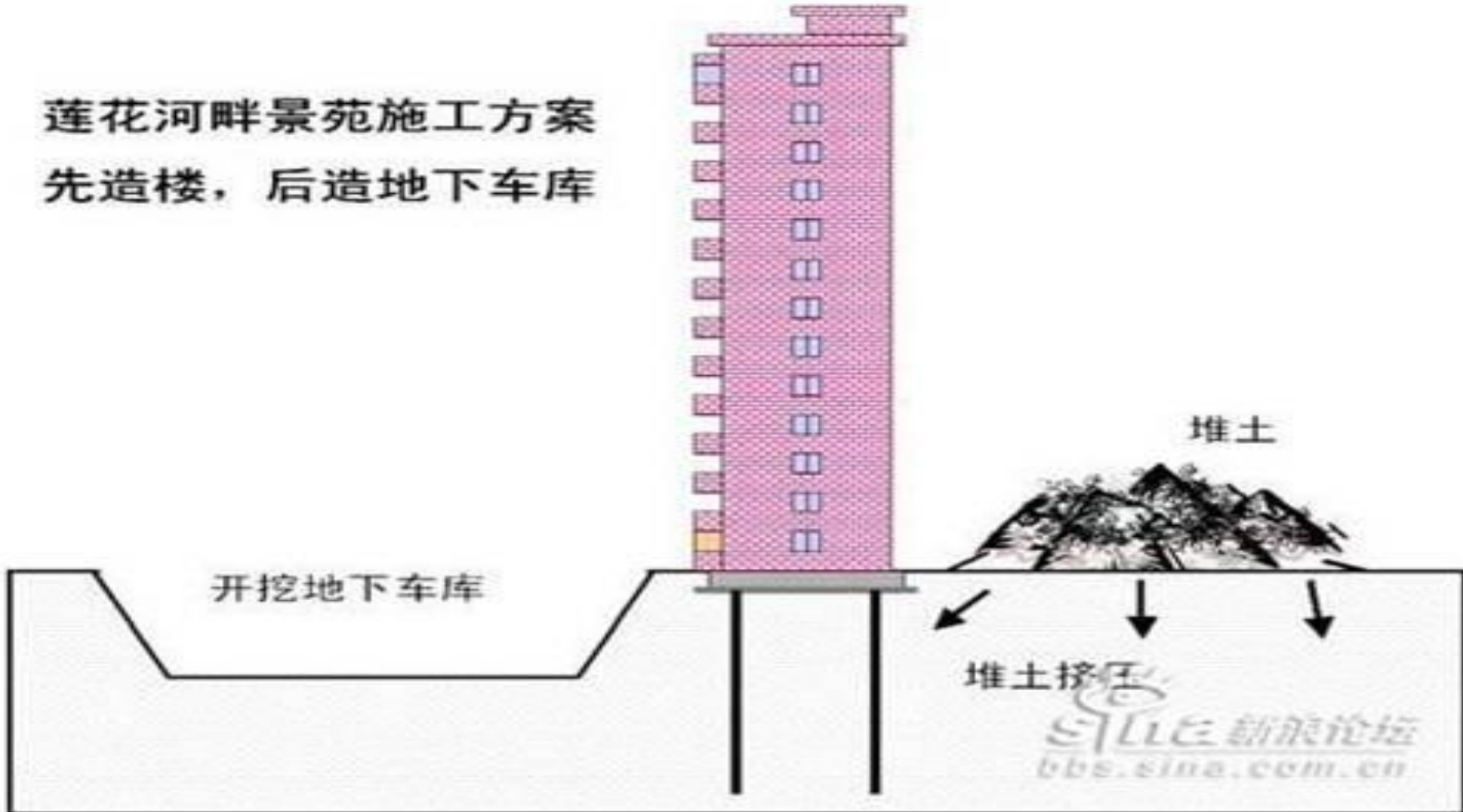
美丽的
莲花河畔景苑大楼
是怎样倒塌的



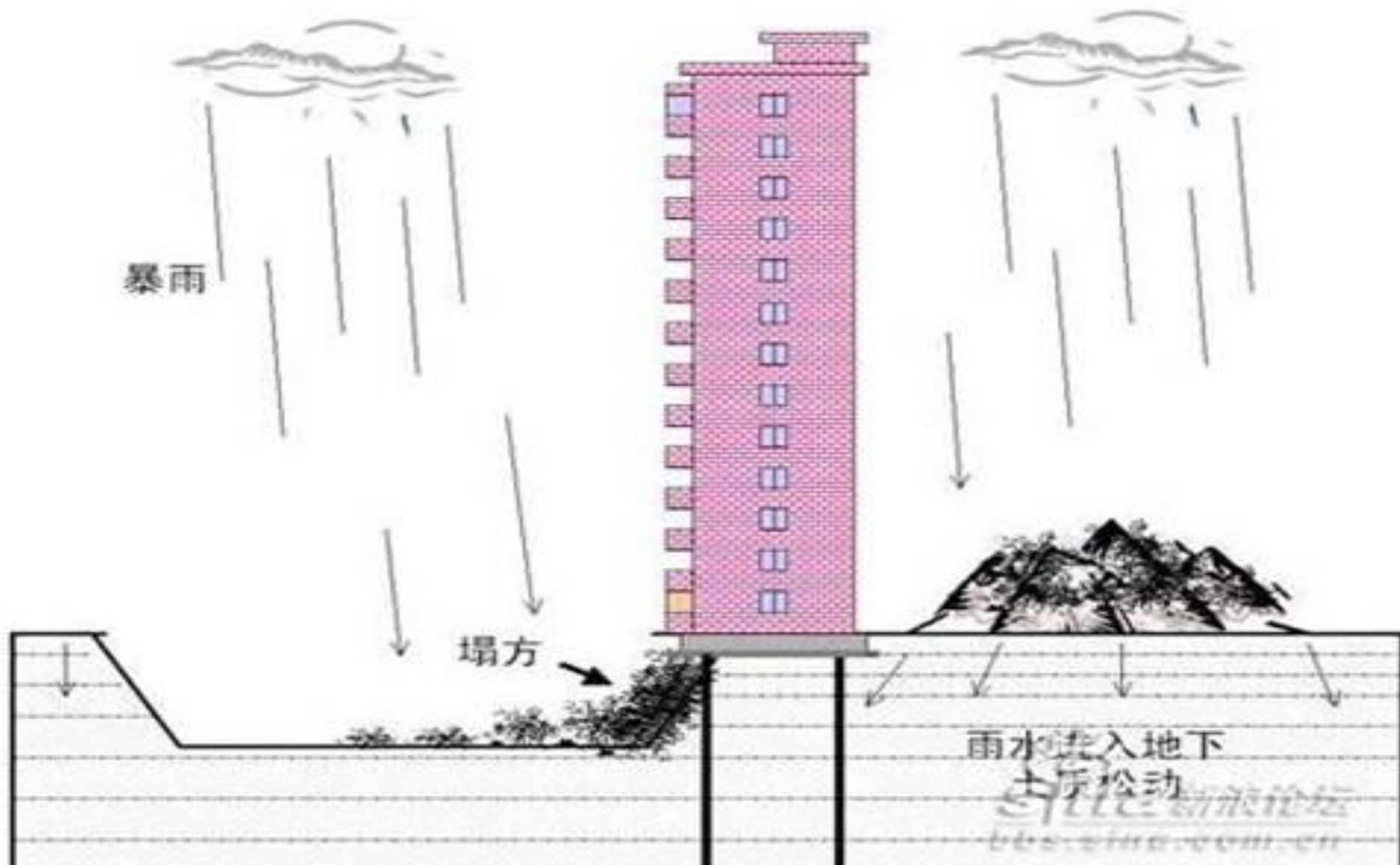
• Then, the - 'Plan' - called - for - an - 'Underground - Garage' - to - be - 'Dug - Out'.

- The - 'Excavated - Soil' - was - 'piled - up' - on - the - 'Other - Side' - of - the - 'Building'.

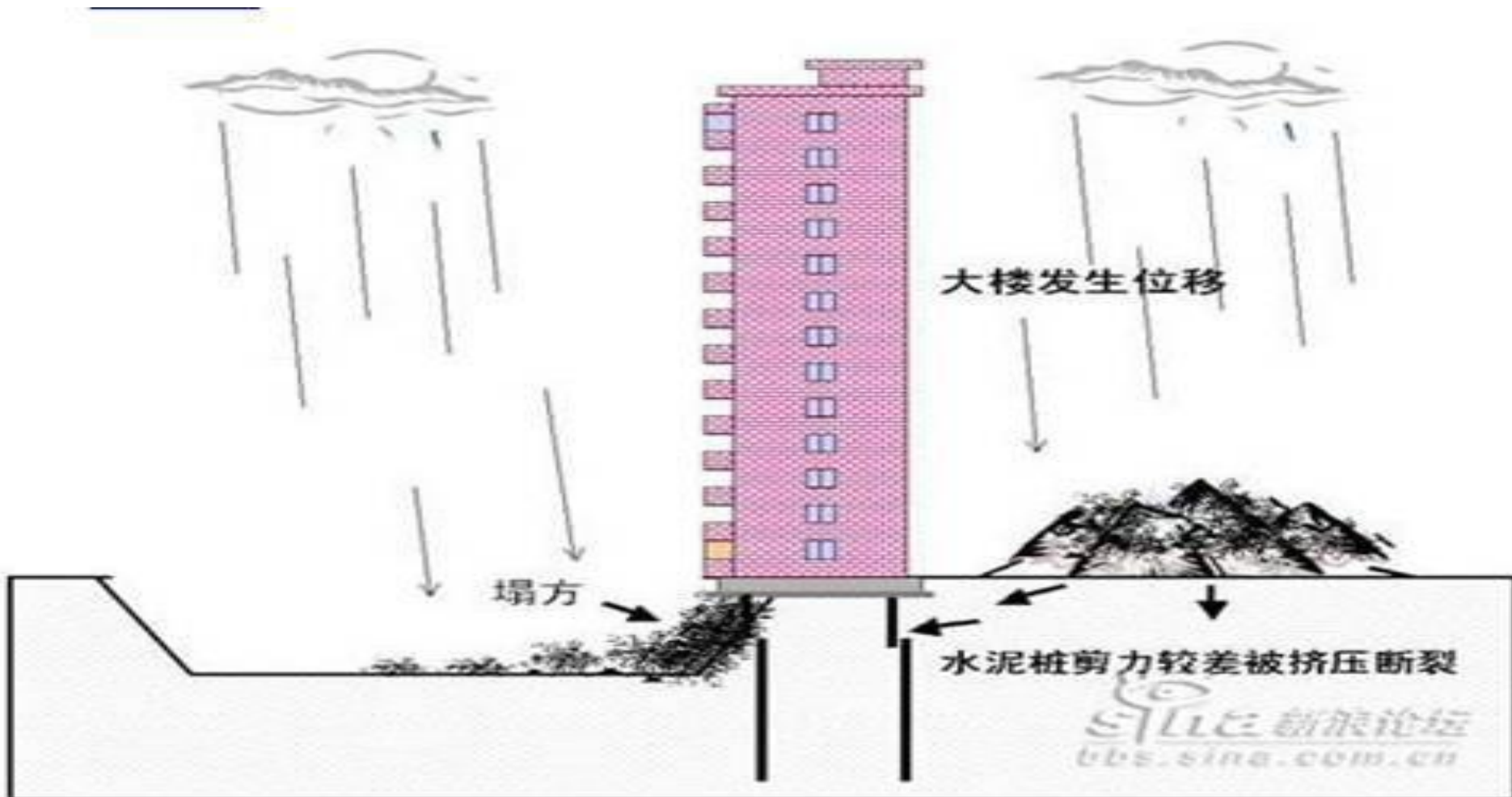
莲花河畔景苑施工方案
先造楼，后造地下车库



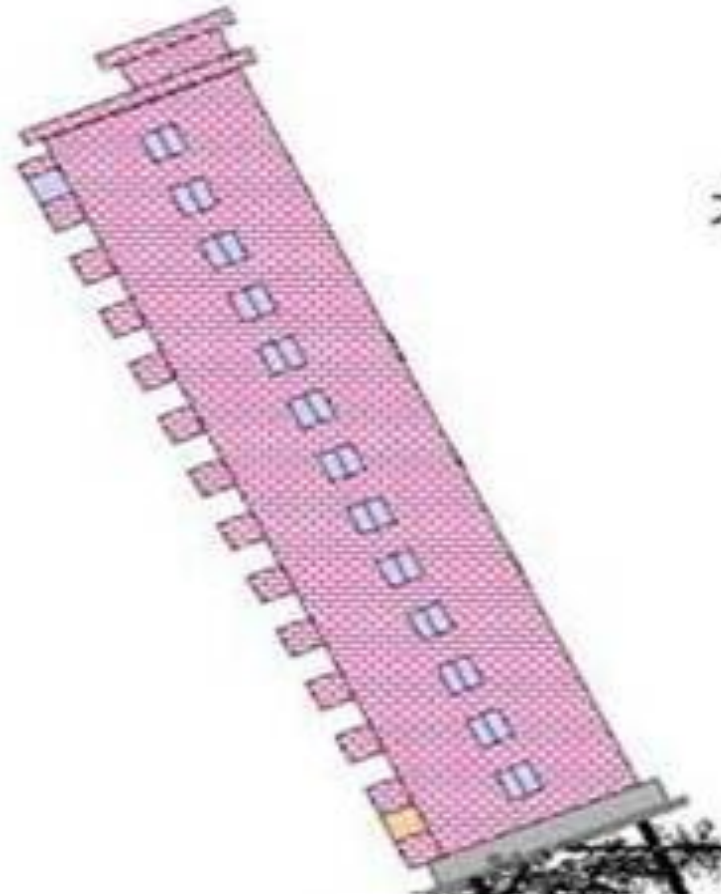
'Heavy - Rains' - 'resulted - in' - 'Water'
'seeping' - in - the - 'Ground'.



The - 'Building' - began - to - 'shift' - & - the -
'Concrete - Pilings' - were - 'snapped'
- due - to - the - 'Uneven - Lateral - Pressures'.



The - 'Building' - then - began - to - 'Tilt'.

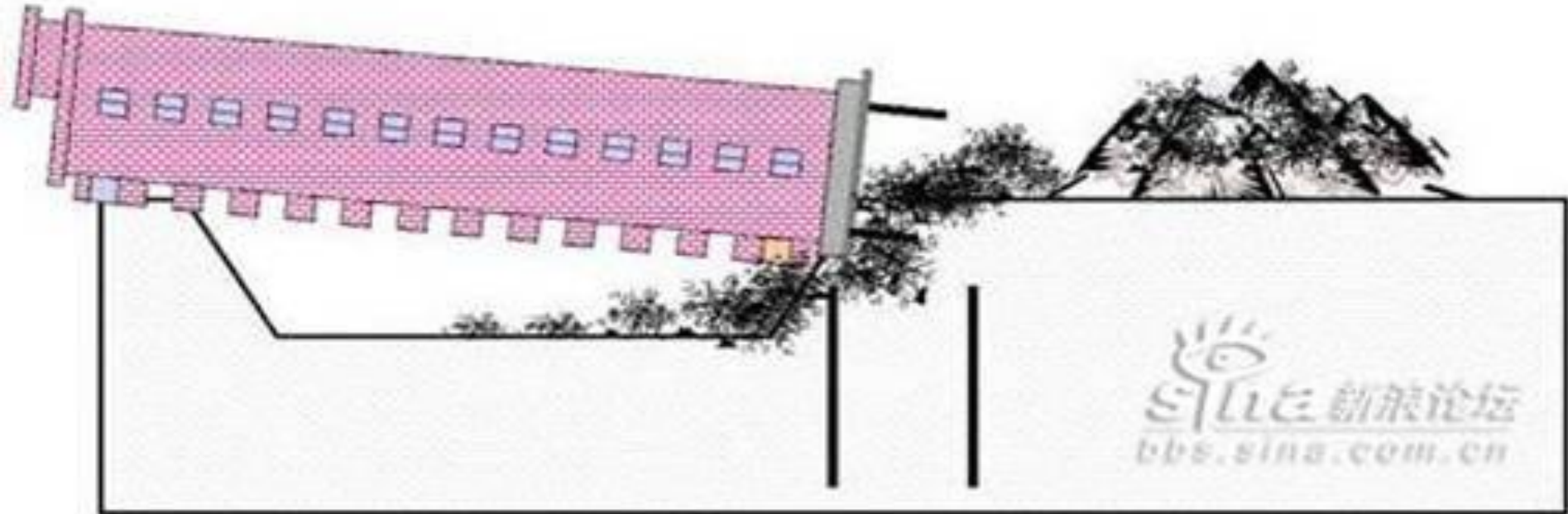


大楼开始倾斜



And - Thus, came - the - '8th - Wonder' -
of - the - 'World'!!!

创造世界房屋倒塌奇迹



(12) '1 - Dead', '8 - Injured' - as - a - 'Part - of - Bridge' - on - 'Eastern - Freeway' - 'collapsed' - in - 'Mumbai'.

'Wadala, Mumbai'.

'19th - July - 2012'.

'Girder - Collapse' - on - 'Eastern - Freeway'.

- The - 'Purpose' - of - 'Eastern - Freeway' - was - to - 'connect' - 'Ghatkopar' - to - 'South - Mumbai'.
- The - 'Work' - of - 'Anik - Panjarpol - Connecting - Road' - was - in - 'Progress'.
- The - 'Girder - Launching - Work' - was - 'going - on' - as - per - the - 'Segment - Construction - Method' - with - the - help - of - 'Launching - Steel - Truss'.

'Girder - Collapse' - on - 'Eastern - Freeway'.

- The - 'Day - Shift - Workers' - had - brought - & - kept - a - 'Few - Girders' - on - the - 'Launching - Truss'.
- The - 'Night - Shift - Workers' - were - to - 'join' - these - 'Girders' - to - 'Complete' - a - 'Span'.
- However, 'Girder - Nos. - 7 - & - 8' - 'suddenly' - 'Slipped' - & - 'Fell - Down'.

'Girder - Collapse' - on - 'Eastern - Freeway'.

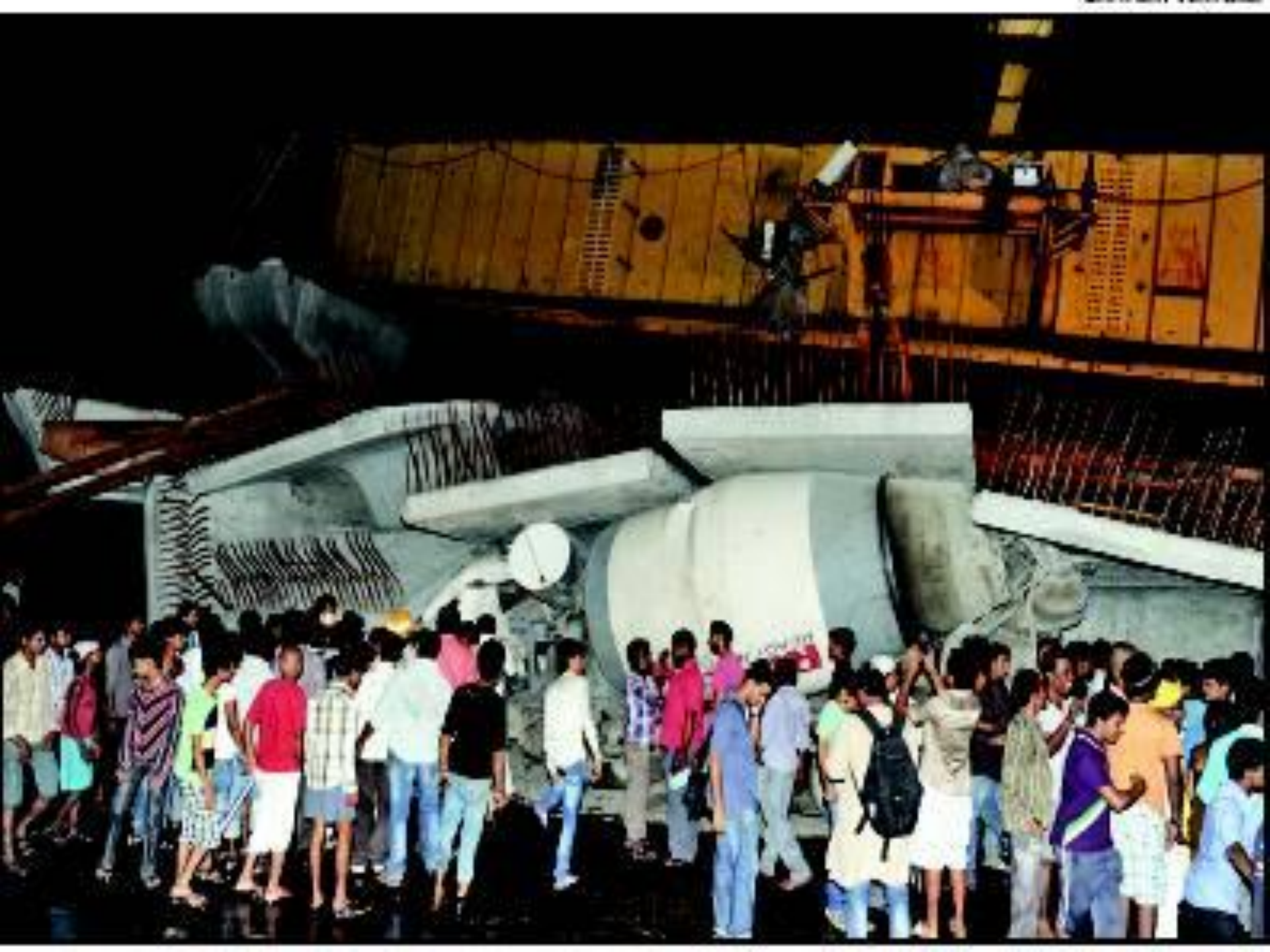
- The - **'Launching - Truss'** - with - a - **'Load - Carrying - Capacity'** - of - **'1,100 - Tons'** - also - 'toppled' - down.
- Thus, at - '9.40 - p.m.', '13 - Portions' - of - the - 'Girders' - 'collapsed' - at - 'Shanti - Nagar, Wadala.
- '8 - Persons' - were - 'trapped', under - the - 'Debris'.
- '1 - Worker' - 'died' - on - the - 'Spot' - & - 'Other - 7' - were - seriously - 'Injured'.

'Girder - Collapse' - on - 'Eastern - Freeway'.

- A - 'Swift - Car', 'Concrete - Transit - Mixer', 'Taxi - & - Truck' - were - 'parked' - 'below' - the - 'Incomplete - Portion' - of - the - 'Bridge'. They - were - a - 'Total - Loss'.
- The - 'Cause' - could - be - a - 'Flaw' - in
- the - 'Steel - Launching - Girder' - or -
'Collapse' - of - 'Steel - Truss'.
- 'MMRDA' - has - 'announced' - an - 'appointment' - of - an - 'Independent - Inquiry - Committee' - 'comprising' - of - 'Experts'.

'Girder - Collapse' - on - 'Eastern - Freeway'.

- The - 'Contractor' - '**Simplex - Infrastructure**' - was - also - 'involved' - in - an - 'Accident', during - the - 'Construction' - of - 'Lalbaug - Flyover'.
- It - was - 'proposed' - to - have - a - '**Ban**' - on - them - for - a - 'Period' - of - '**2 - Years**'.
- It - was - 'decided' - to - 'verify' - the - 'Capacities' - of - all - the - 'Construction - Machineries' - 'involved'.
- 'MMRDA' - had - 'established' - a - '24 - Hrs.' - '**Disaster - Control - Cell**'. However, after - the - 'Accident' - '**Nobody**' - was - '**Responding**' - to - the - '**Telephone - Calls**' - over - there.









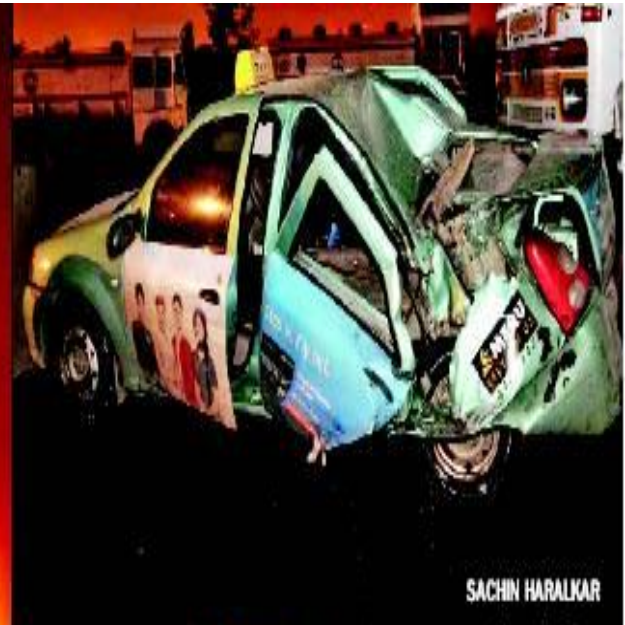
'Bridge - Launcher' - 'lifting' - a - 'Prefabricated - Bridge - Section' - into - 'Place'.

'Collapse' - at - 'Eastern - Freeway', 'Wadala, Mumbai' - on - '19th - July - 2012'.



SACHIN HARALKAR

'1 - Killed, 7 - Injured'. 'Delay'??



SACHIN HARALKAR



‘Actions - Taken’.

- ‘MMRDA’ - ‘fined’ - the -
‘Contractor’ - ‘Rs. - 25 - Lakhs’ -
as - a - ‘Penalty’.
- The - ‘Consultant’ - was - ‘fined’ -
‘Rs. - 5 - Lakhs’.

(13) 'Third - Party - Liability'.

- Due - to - the - 'Excavation - Work' - of - 'Sewer - Lines', a - 'nearby' - 'Mall - Building' - 'subsided' - & - 'collapsed'.
- During - 'Excavation' - of - 'Sewer - Lines', the - 'Natural - Gas - Pipelines' - of - 'Mahanagar - Gas' - were - be - 'damaged'.
- 'Leaking - Gas' - 'caught' - 'Fire' - or - 'Explode' - 'damaging' - some - other - 'Property' - or - 'injuring / killing' - some - nearby - 'People' - 'not' - 'connected' - with - either - of - the - 'Projects'.

(14) 'Third - Party - Liability'.

- During - 'One' - such - 'Excavation' - a - 'VSNL - Cable' - related - to - 'Overseas - Communication' - was - 'severely - damaged'.
- 'Repairs' / 'Replacement' - 'required' - a 'Couple - of - Weeks'.
- It - was - a - 'Heavy - Business - Revenue - Loss', which - 'VSNL' - asked - the - 'Excavating - Project - Company' - to 'compensate' - for - & - the - 'Court' - 'agreed' - upon - 'VSNL's - Demand'.

'Risk - Management - Lessons' - 'Learnt'.

(1) 'Lack - of - **Identification**' - of - the -
'Risks' - 'associated' - with - the -
'**Excavation - Work**' - by - the - 'Gas -
Pipeline - Laying - Company'.

(2) Also, '**Lack - of - Understanding**' - of -
the - '**Surrounding - Risks - Exposure**' - &
- the - 'Associated' - '**Third - Party -**
Liability - Risk - Potential'.

(15) 'Nicoll - Highway - Collapse', Singapore.

- On - 'April - 20, 2004', a - 'Section' - of - 'Tunnel' - being - 'built' - for - the - 'Circle - Line', Singapore - 'collapsed', apparently - when - a - 'Retaining - Wall' - 'used' - in - the - 'Tunnel's - Construction' - 'gave - way'.
- This - 'occurred' - near - what - was - to - 'become' - the - 'Nicoll - Highway - Station' - on - the - 'Circle - Line', not - far - from - the - 'Merdeka - Bridge'.

'Nicoll - Highway - Collapse', Singapore.

- The - 'Accident' - left - a - 'Collapse - Zone' - '150 - m - wide', '100 - m - long', & - '30 - m - deep'.
- '4 - Workers' - were - 'killed', with - '3 - more' - 'injured' - & - '1 - Body' - which - was - never - 'recovered'.

'Nicoll - Highway - Collapse'.

- A - 'Committee - of - Inquiry' - found - the - 'Main - Contractor' - 'Nishimatsu Construction - Company' - & - its - 'Officers', as - well - as - key - 'Land - Transport - Authority - Officers' - were - 'responsible' - for - the - 'Collapse'.
- 'Several - Other' - 'Officers' - & - 'Subcontractors' - were - 'reprimanded' - & - 'issued' - **'Warnings'** - in - 'connection - with' - the - 'Accident'.

8 Minuten nach dem Zusammensturz



‘Highway - Collapse’ (‘Circle - Line / Singapore’, April - 20, 2004; COI, 2005): ‘Site’ - roughly - ‘8 - Minutes’ - ‘after’ - the - ‘Incident’.

The - ‘Collapse’ - set - back - the - ‘completion’ - of - the - ‘Circle - MRT Line - Stage - 1’ - from - ‘2008 - to - 2010, April - 17’. [by - ‘2 - Years’].

‘No - ALOP’?

(16) '1994' : 'Heathrow - Express - Link, London' - '3 - Tunnels' - forming - part - of - the - 'Heathrow - Express - Link', connecting - 'Central - London' - & - 'Heathrow - Airport', 'caved - in' - & - 'took' - 'Several - Buildings' - with - them. - 'Damage' : - '\$ - 141 - Million'. ['INR - 775 - Crs.'] - '1994 / 95'.

(17) Metro, Taipei, Taiwan : -

**When, the - 'Metro' - was - being -
built - in - 'Taiwan' - in - the - 1990s,**

**'Several - Serious' - Tunnel -
Collapses' - 'occurred', 'causing' -**

major - 'Property - Damages' - to -

'Adjacent - Buildings' - as - well - as -

Serious - 'Liability - Losses'.

- '\$ - 41 - Million'. ['INR - 258 - Crs.']

(18) A - 'Worker' - 'killed', 11 -
'Injured' - as - a - 'Slab' - collapsed -
at - 'Mumbai - Metro - Rail - Site'.

'Andheri, Mumbai'.
'4th - September - 2012'.

'Incident'.

- '1 - Worker' - was - 'killed' - & - 11 - were -
'injured' - after - a - **'Slab'** - of - an -
'Under - Construction - Bridge' - of - the -
'Metro - Rail' - 'collapsed' - at - the -
'Arterial' - 'Andheri - Kurla - Road', on -
'Tuesday', in - the - **'Evening'**.
- The - **'Incident'** - took - place, at - around
- '4.50 - p.m.', near - **'Hotel - Leela'**, at -
the - 'Airport - Station' - of - the - **'Metro -**
Site'.
- The - 'Cause' - of - the - 'Accident' - was -
not - yet - 'known'.

‘Incident’.

- ‘Police’ - said - the - ‘Injured’ - were - ‘admitted’ - to - ‘Cooper - Hospital’ - & - ‘7 - Hills - Hospital’.
- ‘7 - Persons’ - were - ‘brought’ - to - our - ‘Hospital’. 1 - was - ‘brought’ - ‘dead’. While, ‘3 - Patients’ - were - found - to - be - ‘Seriously - Injured’, 3 - had - ‘Minor - Injuries’.
- “All - the - 6 - were - currently - undergoing - treatment”, a - ‘Doctor’ - at - ‘7 - Hills - Hospital’ - told - ‘*The - Hindu*’.

'Action - after - Probe'.

- 'Mumbai - Metropolitan - Region - Development - Authority' (MMRDA) - 'Commissioner' - Mr. Rahul Asthana - told - 'Reporters' - that - 'Action' - would - be - taken - 'against' - the - 'Erring - Parties', after an - 'Inquiry'.
- 'Social - Activists' - had - 'alleged' - 'Negligence' - on - the - part - of - 'Mumbai - Metro - 1 - Private - Limited'.
- "This - is - the - '7th - Death' - in - the - last - '4 - Years', on - a - 'Metro - Construction - Site' - in - the - 'City'," Mr. Anil Galgali, a - 'Social - Activist', said.
- He - 'claimed' - that - he - had - 'complained' - about - the - 'Precarious - & - Accident - Prone - Nature' - of - the - 'Spot', around - '2 - Months' - ago - to - 'MMRDA'.

'Action - after - Probe'.

- 'Fire - Brigade - Officials' - said - a - 'Slab' - joining - a - 'Pillar' - & - the - 'Staircase', had - been - 'fitted' - & - some - 'finishing - work' - was - going - on - when, it - 'collapsed'.
- "The - 'Concrete' - had - come - down. We - were - looking - into - the - 'Cause'," an - 'Official' - who - did - not - 'wish' - to - 'identify' - himself, told - '*The - Hindu*'.

'Action - after - Probe'.

- **Meanwhile, 'Mumbai - Metro - 1 - Private - Limited (MMOPL)', in - a - 'Statement' - said: "We - deeply - 'regret' - the - 'accident' - that - 'happened' - at - the - 'Airport - Station - Metro - Site', which - was - being - 'constructed' - by - our - 'Contractor' - 'HCC ['Hindustan - Construction - Company']'.**
- **Our - 'Emergency - Response - Team' - along - with - the - 'HCC - Staff', is - at - the - 'Site', to - 'provide' - 'Rescue - & - Relief - Services', which - was - the - 'Topmost - & - 'Immediate' - 'Priority' - for - us.**
- **We - will - keep - the - 'Media' - & - 'Affected - Parties' - 'posted' as, we - 'obtain' - more - 'information' - on - the - 'Accident'."**

'Action - after - Probe'.

- The - 'HCC' - **refused** - to - 'Comment'.
- There - was - no - 'Official - Clarification' - from - the - 'Construction - Company', about - what - 'collapsed', approx. - how - many - 'Workers' - were - 'present', at - that - time - & - the - 'possible - reason' - behind - the - 'Accident'.

'Action - after - Probe'.

- The - 'Dead' - was - 'identified' - as - '35 - year - old' - Mr. Umesh Sahu.
- "The - 'Injured' - 'suffered' - from - 'Polytrauma'," a - 'Doctor' - at - '7 - Hills - Hospital' - said.
- **'Fire - Brigade - Officials'** - said - they - sent - **'5 - Fire - Engines'** - & - **'4 - Ambulances'** - to - the - 'Spot', soon - after - they - were - 'informed' - about - the - 'Accident'.

'Action - after - Probe'.

- **More - than - 100 - 'Fire - Brigade - Jawans', 'worked' - for - 'hours' - to - 'clear' - the - 'Debris' - & - 'rescue' - 'Persons' - from - under - it.**
- **'Cranes - & - Bulldozers' - were - also - 'pressed' - into - 'Service'.**

'Action - after - Probe'.

- 'Traffic - Snarls' - were - 'experienced' - in - the - 'Area', since - the - 'Accident' - took - place - at - 'Peak - Time', in - the - 'Evening', when - 'Office - Goers' - were - 'returning' - Home.
- "Our - Focus - at - present - is - 'Clearing' - the - 'Debris' - & - providing - 'Medical - Attention' - to - the - Injured".

'Action - after - Probe'.

- We - will - 'look' - into - the - 'Cause' - of - the - 'Accident' - 'soon', a - 'Senior - Official' - said.
- Meanwhile, 'Official - Sources' - said : - The - 'MMRDA - Commissioner' - 'apprised' - 'Maharashtra - Chief - Minister' - about - the - 'Mishap'.
- 'Police' - said - 'Investigation' - was - 'going - on'.

'Action - after - Probe'.

- **Mr. Galgali - 'shared' - a - 'Copy' - of - the - 'Letter' - he - had - 'written' - to - 'MMRDA' - on - 'July - 8, 2012'.**
- **'Mumbai - Metro' - Again - 'failed' - in - ['ensuring'] - 'Security - Norm' - at - [the] - 'Same - Place' - at - 'Hotel - Leela - Turn', at - 'Andheri - Kurla - Road', 'Andheri - East'.**

'Action - after - Probe'.

- This - Time - [it - was] - only - 'Location - Change'; it - was - the - MMOPL's - 'Duty' - to - 'Inspect' - all - 'Sites' ['on - a'] - 'Regular - Basis' - & - follow - 'Security - Norms' - [but] - they - only - 'believe' - in - 'Dialogues',” the - 'Letter' - 'stated', 'referring - to' - a - 'Precariously - Hanging - Iron - Rod' - from - the - 'Bridge'.

'Action - after - Probe'.

- Mr. Galgali - 'claimed' - that - the - 'MMRDA' - had - 'taken - up' - the - 'Issue' - with - 'MMOPL', which - 'failed' - to - take - the - 'Complaint' - Seriously.
- 'MMOPL - Officials' - were - **not** - 'available' - for - 'Comment'.

'Rescue - Operations'.



'Rescue - Operations'.



'Rescue - Operations'.



'Rescue - Operations'.



BREAKING NEWS

'Rescue - Operations'.



'Rescue - Operations'.



(19) 'Collapse' - of - 'Cranes'.



'CPM / Cross - Liability - Exposure'.

**(20) 'Uttarakhand - Bridge' - 'under -
Construction' - 'Crashed'.
- '6 - Dead, 18 - Injured'.**

'DEHRADUN'.

'25th - March - 2012'.

6 - 'Dead' - in - 'Uttarakhand - Bridge - Crash'.

- At - least - '**6 - People**' - were - '**Killed**' - & - '**18 - Others**' - were - '**Injured**', when - an - 'Under - Construction - Bridge' - over - 'Alaknanda - River' - 'Collapsed', near - 'Srinagar - Town', in - Uttarakhand's - 'Pauri - District'.
- The - 'Incident' - 'prompted' - 'Chief - Minister' - Mr. Vijay Bahuguna' - to - order - an - 'Inquiry'.

6 - 'Dead' - in - 'Uttarakhand - Bridge - Crash'.

- “The - ‘Choras - Bridge’ - **Collapsed**’ - in - the - ‘Wee - Hours’ - of - ‘Sunday’, when - some - ‘Laborers’ - were - working - there.
- The - ‘Reasons’ - for - the - ‘Collapse’ - of - the - ‘Bridge’ - were - not - immediately - known” - ‘District - Magistrate’ - Pauri, Mr. M C Upreti - told - ‘PTI’.

6 - 'Dead' - in - 'Uttarakhand - Bridge - Crash'.

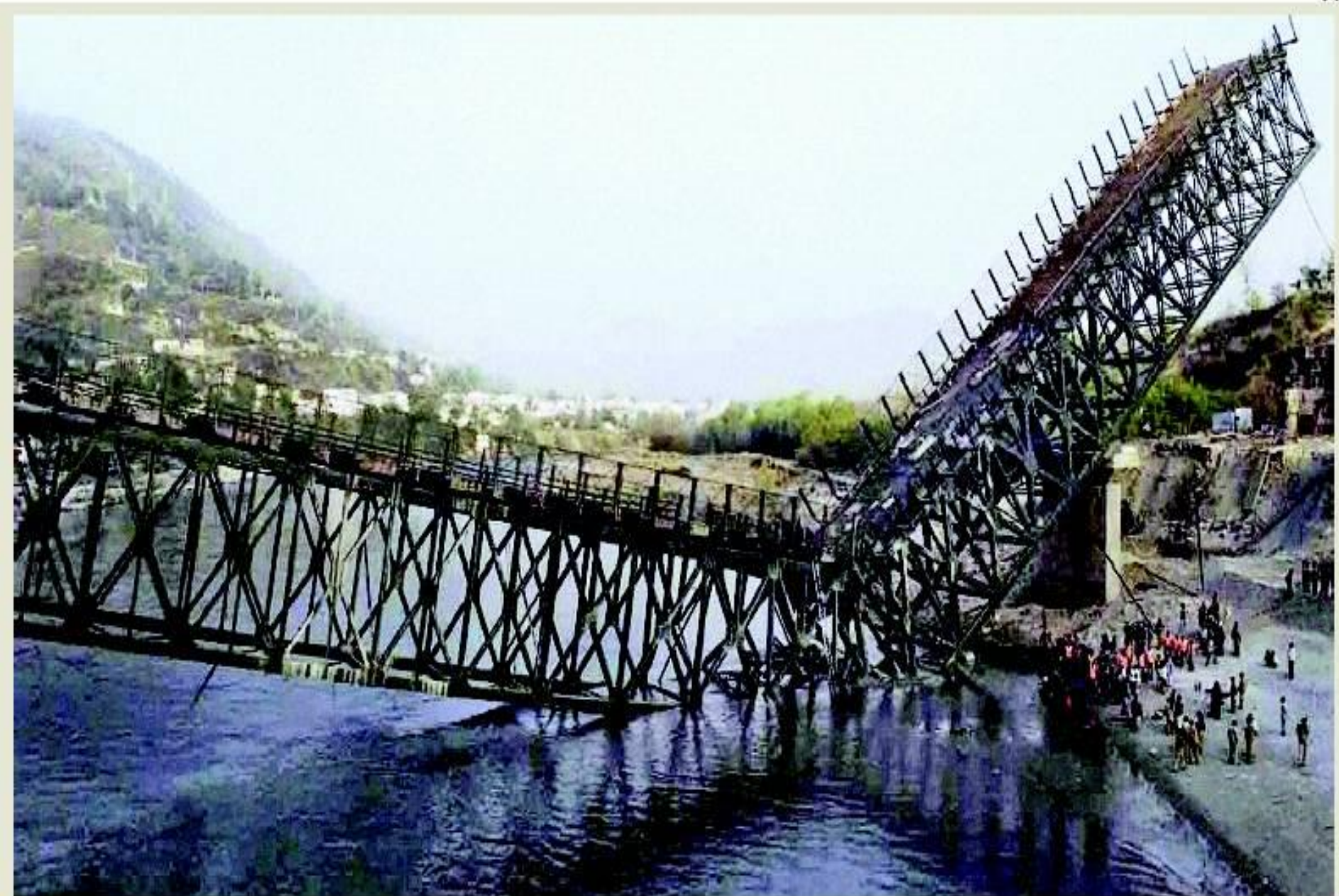
- All - the - '6 - Bodies' - were - 'retrieved' - & - 'efforts' - were - on - to - 'identify' - them, the - 'DM' - said.
- The - 'injureds' - were - been - taken - to - 'Base - Hospital' - in - 'Srinagar - Garhwal', he - said.

6 - 'Dead' - in - 'Uttarakhand - Bridge - Crash'.

- The - 'CM', meanwhile, 'ordered' - an - **'Inquiry'** - into - the - 'Tragedy'.
- "I - am - 'concerned' - over - 'what - happened'. I - have - already - 'ordered' - a - 'Helicopter' (to - 'Oversee' - the - 'Rescue - Operation')," - Mr. Bahuguna - told - 'Reporters' - here. ['PTI'].

6 - 'Dead' - in - 'Uttarakhand - Bridge - Crash'.

PTI



(21) **‘Major - Fire’** - **‘breaks - out’** -
at - an - ‘almost - completed’ -
‘Commercial - Building’ - **in -**
Mumbai’s - ‘BKC’.

‘13th - Jan. - 2012’.

A - 'Major - Fire' - 'breaks - out' - at - a - 'Commercial - Building' - in - Mumbai's - 'Bandra - Kurla - Complex' - ['BKC'].



A - 'Major - Fire' - 'broke - out' - at - an - 'Under - Construction - Building' - on - Friday - afternoon.



'No - Casualties'. 'Dense - Smokes' - 'emanated' - from - 'First - & - Second - Floors' - of - the - 'Building'.



The - 'Fire' - 'broke - out' - in - The - 'Capital - Building' - 'owned - by' - 'Wadhwa - Developers'.

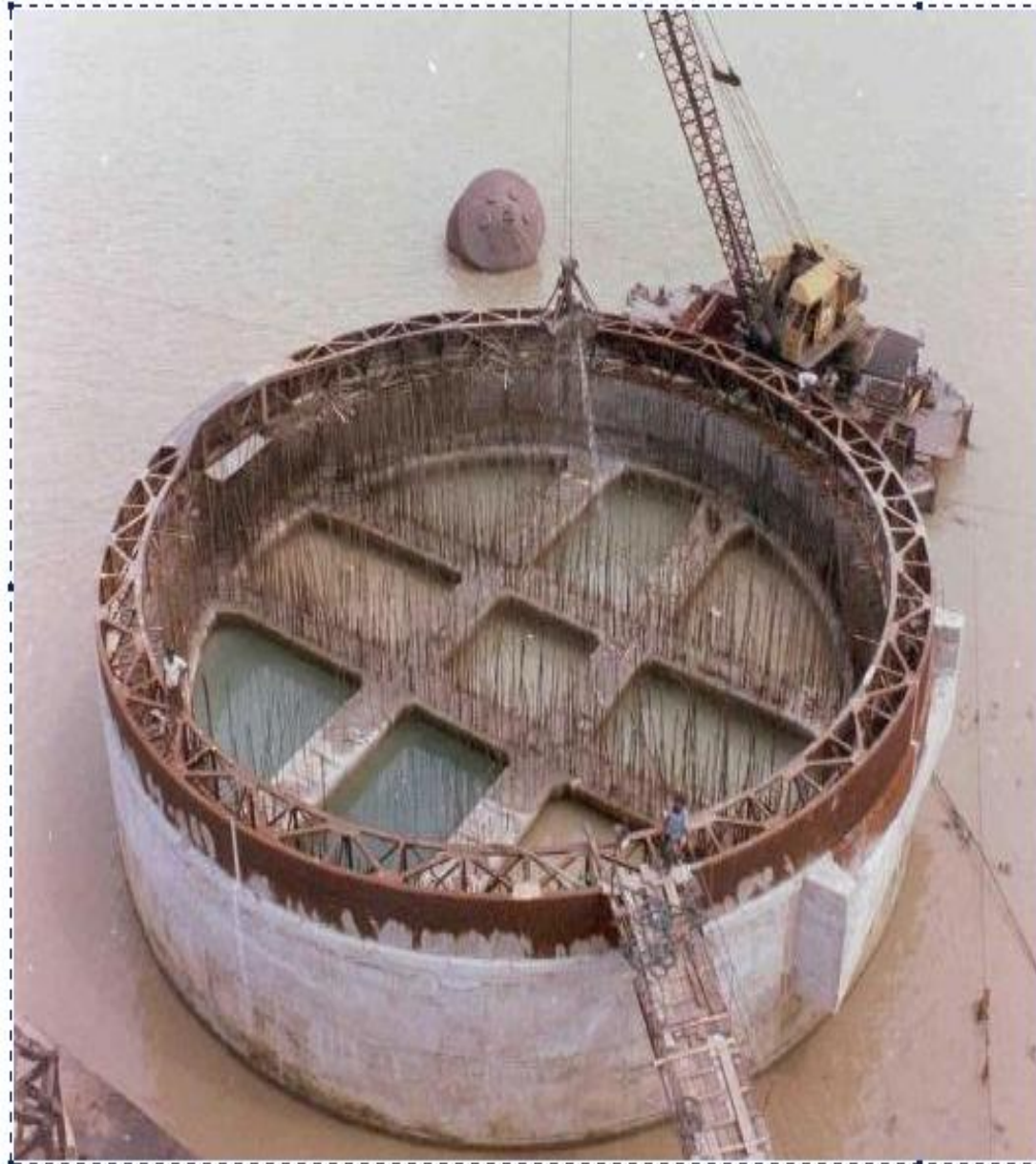


- This - 'Building' - was - 'located' - 'behind' - the - 'ICC - Building'.
- 4 - 'Fire - Tenders' - were - 'rushed' - to - the - 'Spot'.
- The - 'Cause' - of - the - 'Fire' - was - yet - to - be - 'established'.
- '*Fire - Protection*' - at - '*Construction - Sites*' - is - a - '*Highly*' - '*Neglected*' - '*Area*'.

(22) ‘Vidyasagar - Setu - Project’.
['2nd - Hoogaly - Bridge’, Kolkata].

‘Failure’ - of - ‘Specially - Made’ -
‘Climbing - Crane’, during - the - ‘Pylon
- [A - ‘Tall’ - ‘Tower - Like - Structure’ - for -
‘Carrying’ - a - ‘Hanging - Load’ - at - a -
‘Height’] - Construction’, **‘Fracturing’ -
the - ‘Horizontal - Boom’, in - the -
‘Middle’.**

'Project' : 'Construction' - of - 'Vidyasagar - Setu'.



'Sinking' - a - 'Pylon - Caisson'.

'Pylon - under - Construction'.

- ‘Technical - Details’ - of - ‘Vidyasagar - Setu - Project’.

<u>‘Carriages’</u>: -	‘2 - Way’ - with - 3 - ‘General - Purpose - Lanes’ - ‘Each - Way’.
<u>‘Crosses’</u>: -	‘Hooghly - River’, Kolkata.
<u>‘Type’</u> : -	‘Cable - Stayed - Bridge’.
<u>‘Total - Length’</u> : -	‘822.96 - Meters’.
<u>‘Width’</u> : -	‘35 - Meters’.
<u>‘Longest - Span’</u> : -	‘457.2 - Meters’.

'Accident' - during - 'Pylon - Erection'.

Accident during



Pylon erection



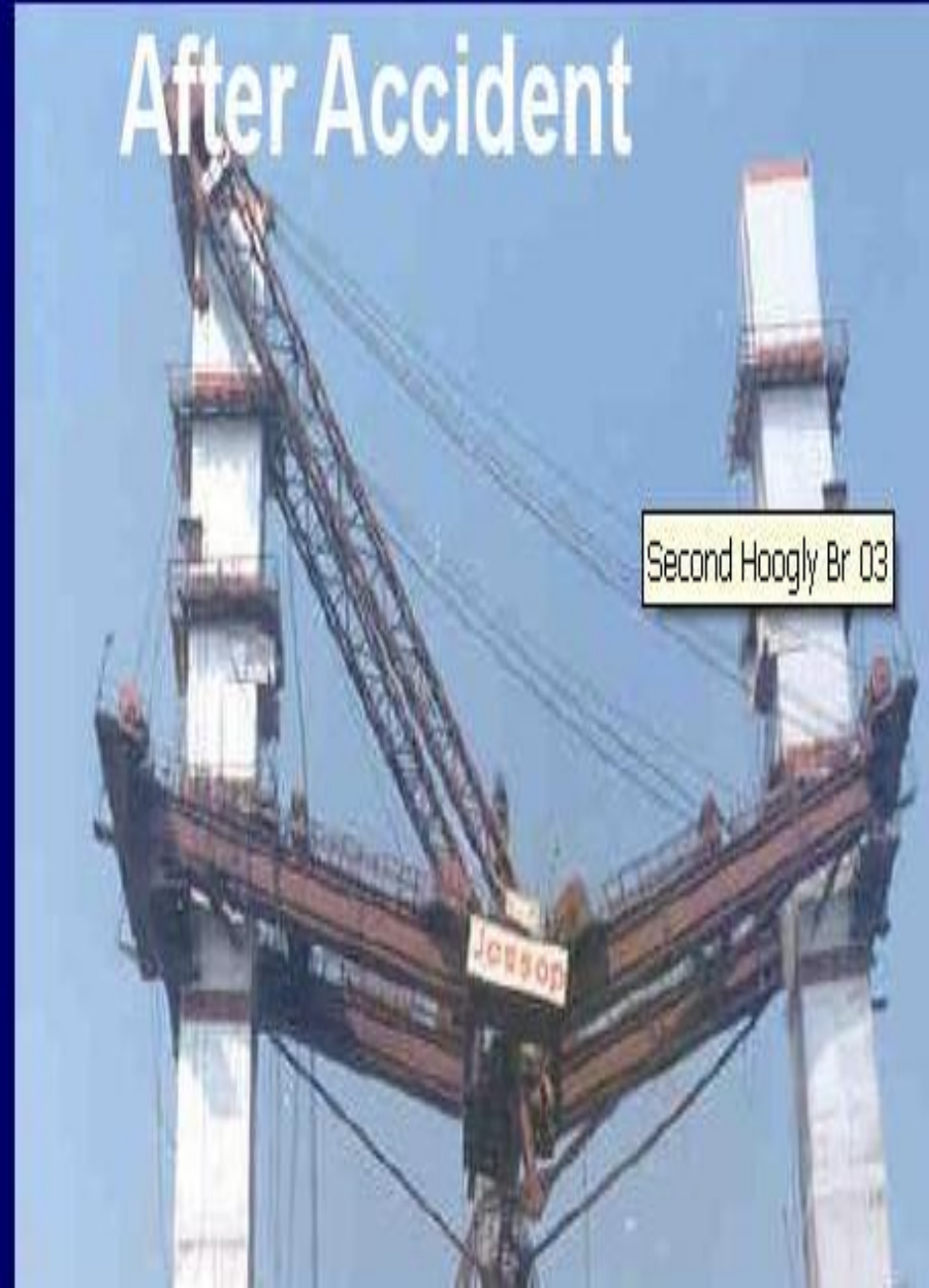
Second Hoogly Br 03

'Accident - during - Pylon - Erection'.

Before Accident



After Accident



'Project': 'Construction - of - Vidyasagar - Setu'.

- **'Erection'** - 'carried - out' - by - a - **'Climbing - Crane'** - 'Specially - Designed' - & - 'Manufactured' - for - the - **'Purpose'**.
- During - **'Erection'**, the - **'Climbing - Crane'** - **'failed'**, the - **'Horizontal - Boom'** - **'fractured'** - in - the - **'middle'**.
- 'Special - Efforts' - were - 'undertaken' - for - 'Removal' - of - the - 'Collapsed - Crane' - & - also - for, **'Manufacturing, Transportation - & - Erection'** - of - a - **'New - Replacement - Crane'**.

'Project: Construction - of - Vidyasagar - Setu'.

- 'Cost - of - Replacement' - of -
'Crane': - 'Rs. - 2 - Crs.'
- 'Project - Delay': - '1 - Year'.
- 'DSU - Cover' - not - 'Opted' - for.

'Vidyasagar - Setu'- 'Present'.



‘Vidyasagar - Setu’ - ‘Present’.



(23) 'IMPACT - DAMAGE'.



'IMPACT - DAMAGE'.



'IMPACT - DAMAGE'.



'IMPACT - DAMAGE'.



Mobile crane overturned on to plant (Anon., 1977n)

(24) 'Tilting' - of - a - 'High - Rise - Building' - under - 'Construction'.



(25) 'Building - under - Construction'.
'Damaged' - due - to - 'Earthquake'.





(26) Bailey's -

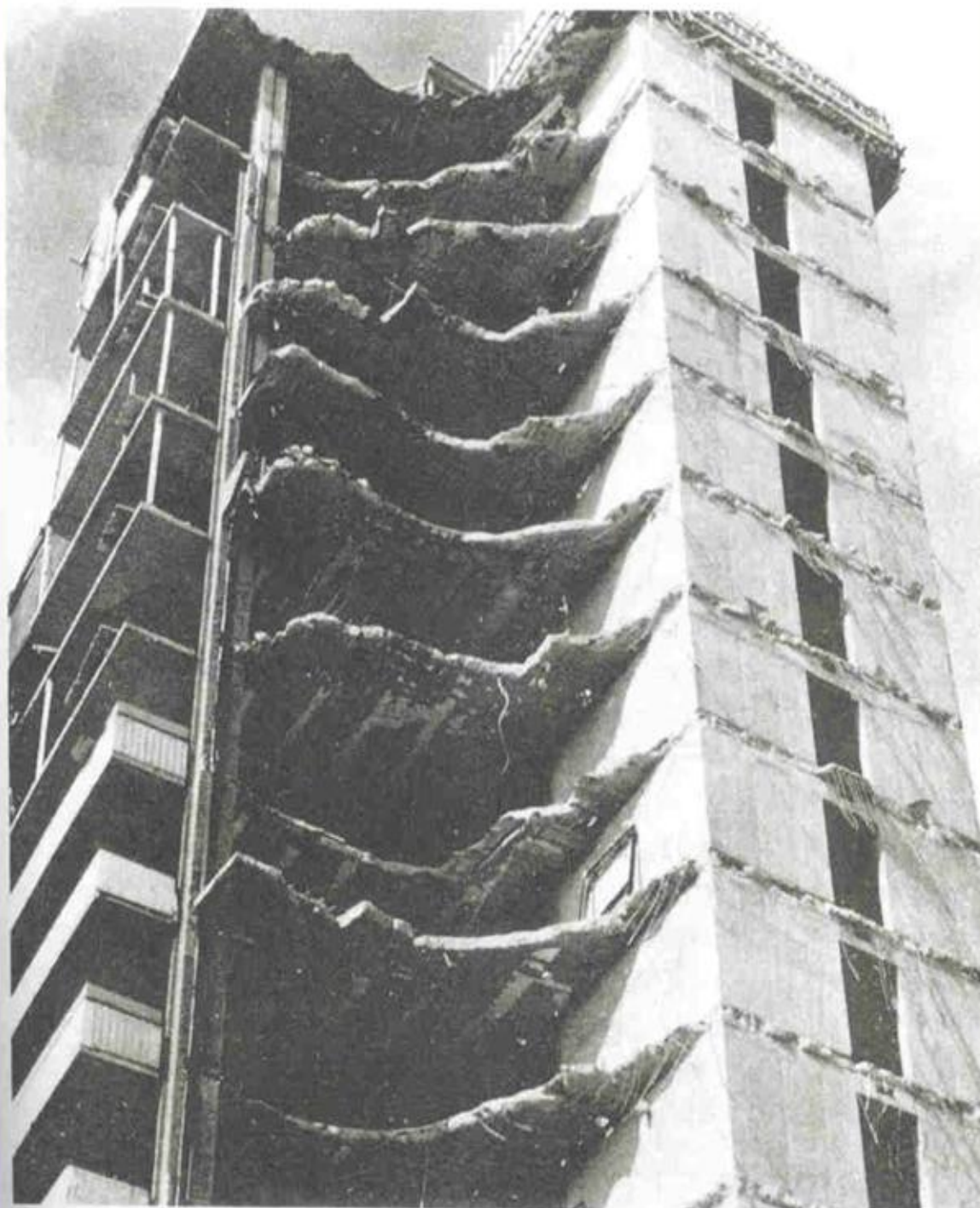


GAMMON

Crossroads -
Collapse.

⊙ Triggered' - by -
'Punching - Shear
- Failure' - at -
'23rd - Floor - Slab'
- due - to - 'Pre -
- Matured -
Removal' - of -
'Formwork' -
Bet. - '22nd - & - 23rd
- Floors'.

Commonwealth Avenue Collapse.



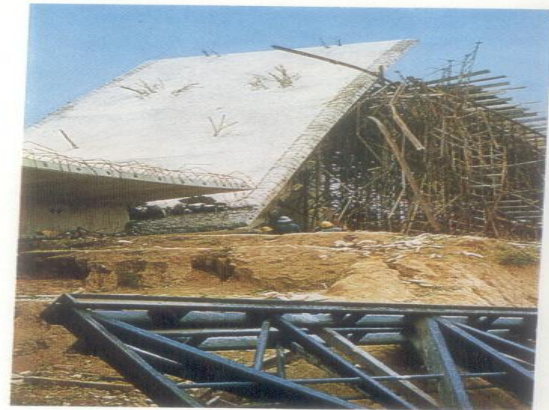
© Punching -
Shear - Failure'
- due - to -
'Combination' -
of - 'Pre -
Matured -
Removal' - of -
'Forms' - with -
'Insufficient -
Concrete -
Strength' - at -
the - 'Time' - of -
'Collapse'.

(27) 'Failures - of - Bridges' - during - 'Construction'.

of Pipe Scaffolding



Total view of the collapsed bridge.



The damage done to the scaffolding frames and the entire structure.

schadenspiegel

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(28) 'Scaffolding - Collapse' - during - 'Bridge - Construction'.



'Claim - & - Loss - Scenario'.

- 'Cause - of - Loss' - **'Failure - of - Scaffolding'** - & - also - 'Sample' - 'collected' - from - 'Broken - Portion' - of - the - 'Bridge' - 'proved' - use - of - 'Bad - & - Non - Specified - Material'.
- 'Loss - Adjustor' - 'assessed' - that - only - '13%' - of - the - 'VAR' - immediately - 'affected', because - of - the - 'Accident / Collapse' - of - the - 'Bridge' - due - to - 'use' - of - 'Defective - Material' - & / or - 'Bad - Workmanship'.
- Also, there - was - **'Underinsurance'** - of - '24 - %'
- The - 'Loss' - was - 'adjusted' - as - app. - **'8.5 - %'** - of - the - **'Total - Loss'** - to - be - 'admissible' - under - the - 'Policy'.

(29) Some - More - 'Accidents' - in - 'Bridge - Construction'.



This span fell.

11

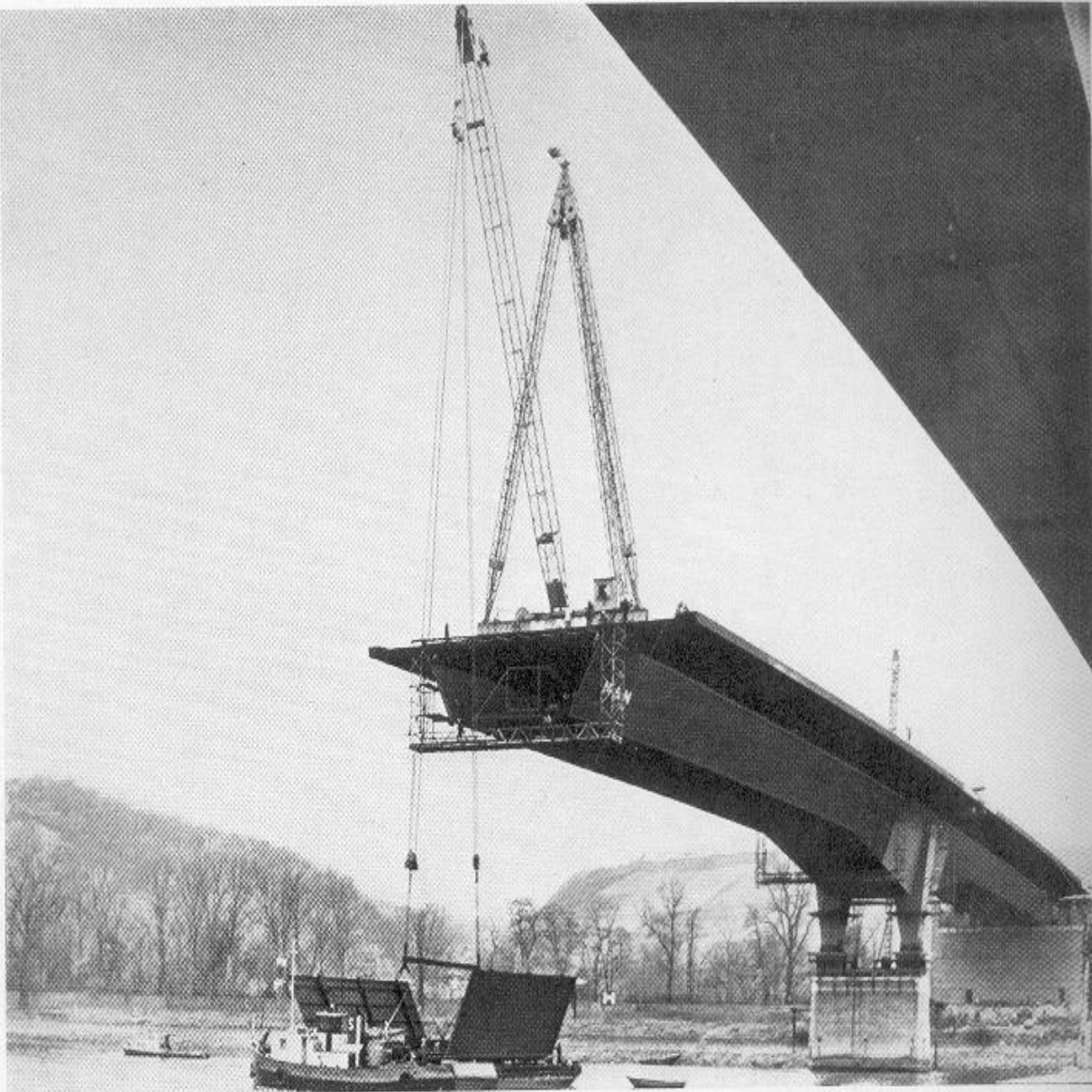
10

This column collapsed.

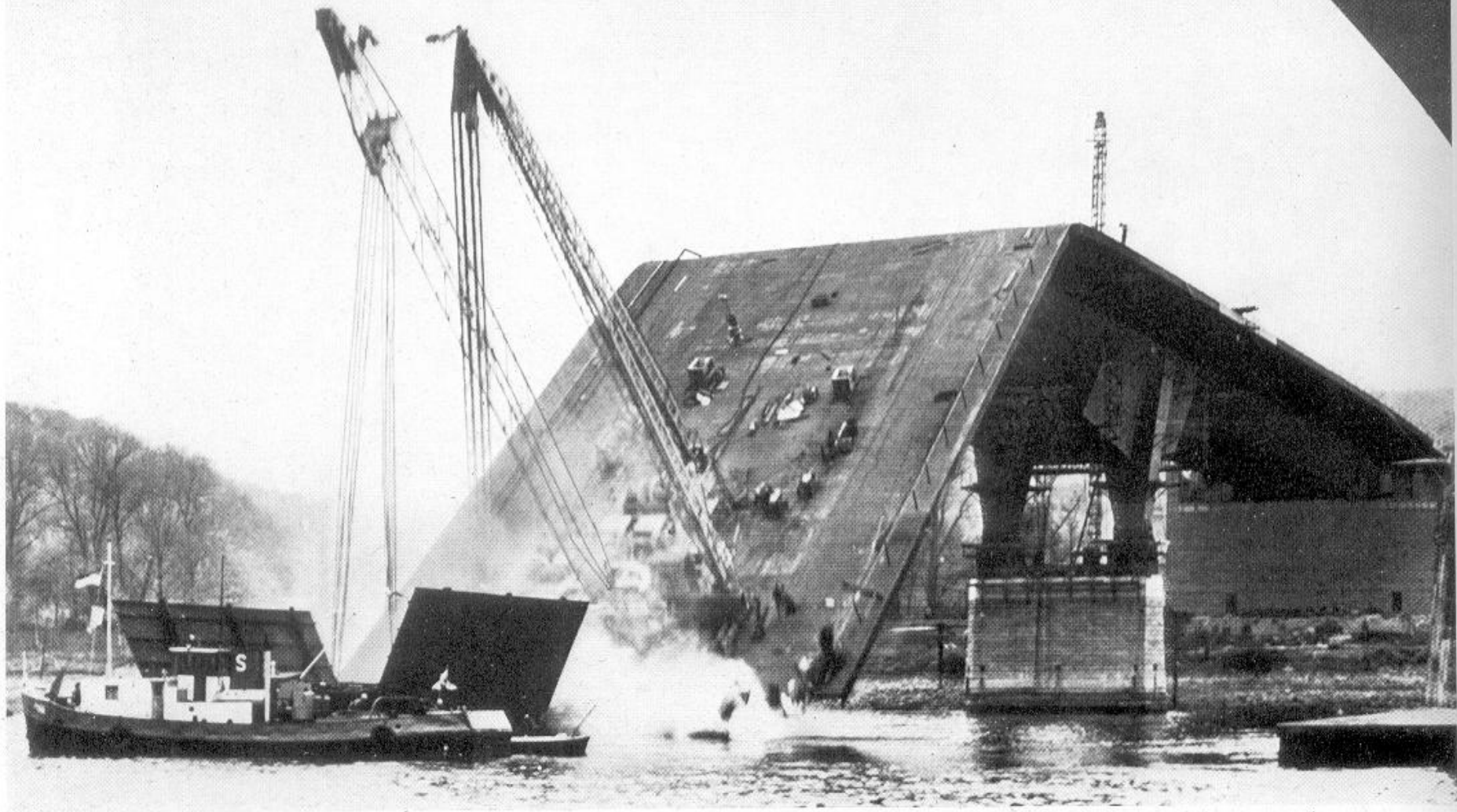
'Section - of - Bridge' - 'Collapsed'.



Lifting operations of the 90 t box-girder section are started.



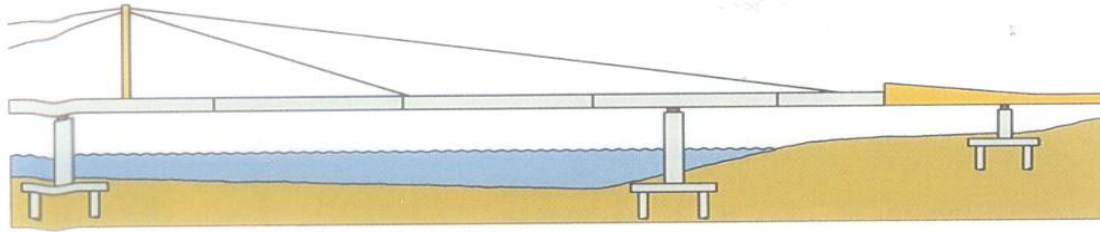
A 50 m long part of the cantilever arm bends and carries along workers and material.



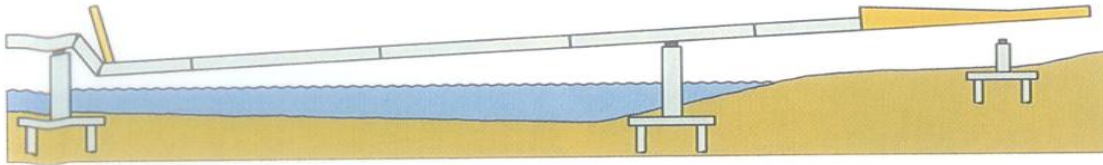
'Salvaging' - the - 'Bridge - Section'.



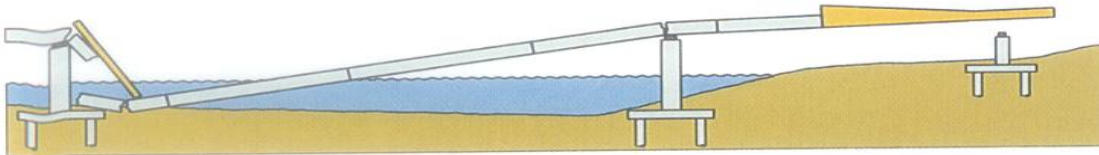
'Sequence - of - Bridge - Failure'.



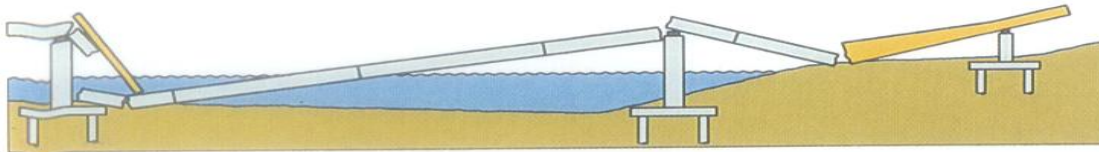
When the loss occurred, the first section (increment) of the bridge deck was already moving over the end span, the launching nose was halfway over the other abutment, and the auxiliary pylon about 6 m behind the first river pier:



there was an explosion-like bang, whereupon the bridge deck on the river span broke between the first river pier and the auxiliary pylon and crashed into the river. As a result, the deck above the end span with the mounted launching nose rose ...



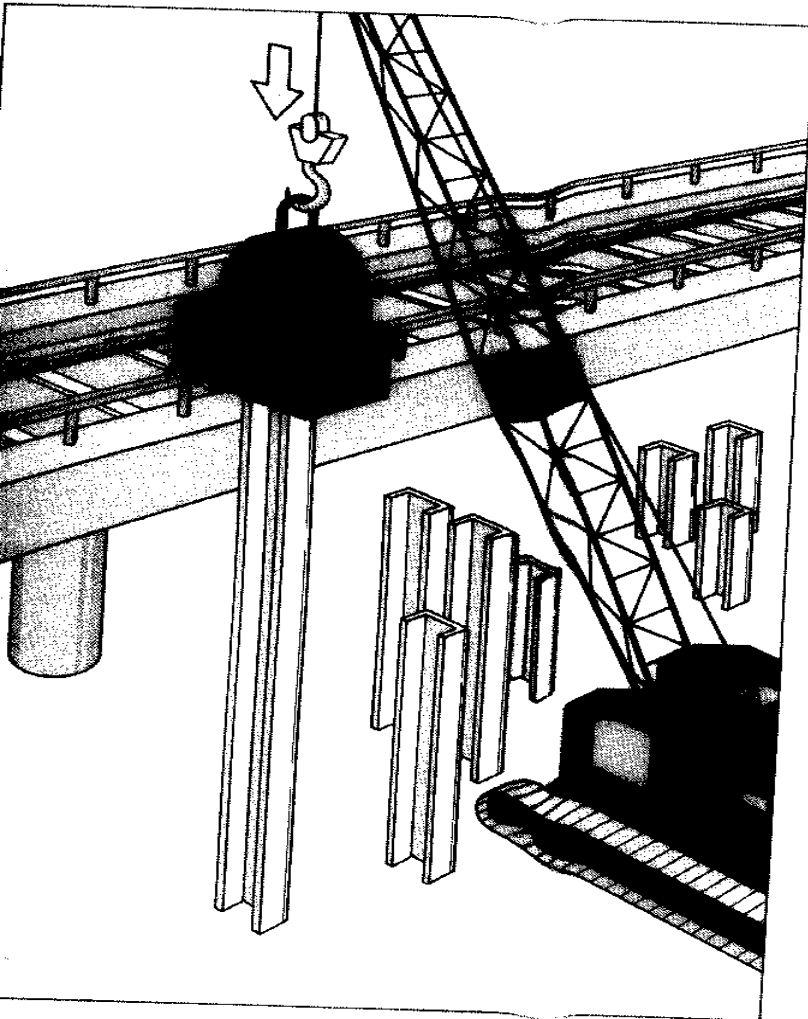
... and, due to its enormous dead weight, buckled over the other river pier.



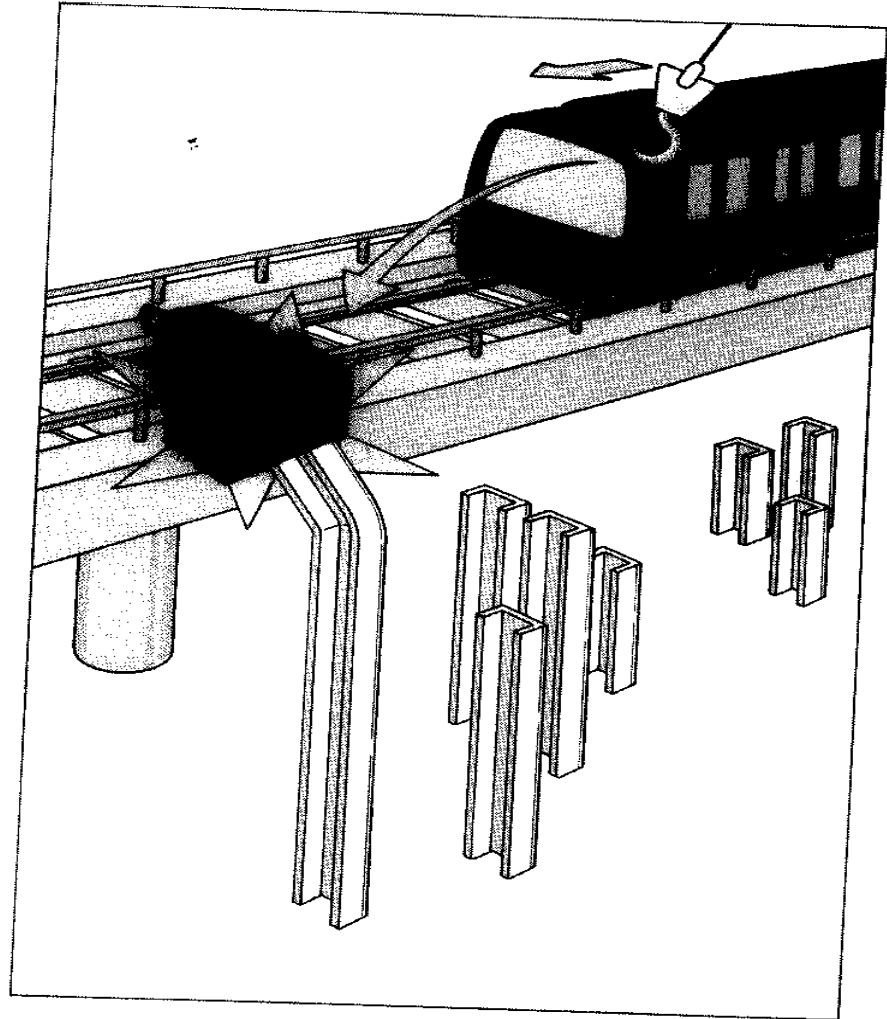
Then the launching nose crashed onto the abutment and was severely deformed in the impact. The pylon skidded along the deck and landed in the river.

(30) 'Pile - Driver - Accident'.

Can - we - 'Imagine' - the - 'Extent' - of - 'Property, Casualty
- & - Liability - Damages'?



tonne pile driver, suspended from a crane, drives
s into the ground.

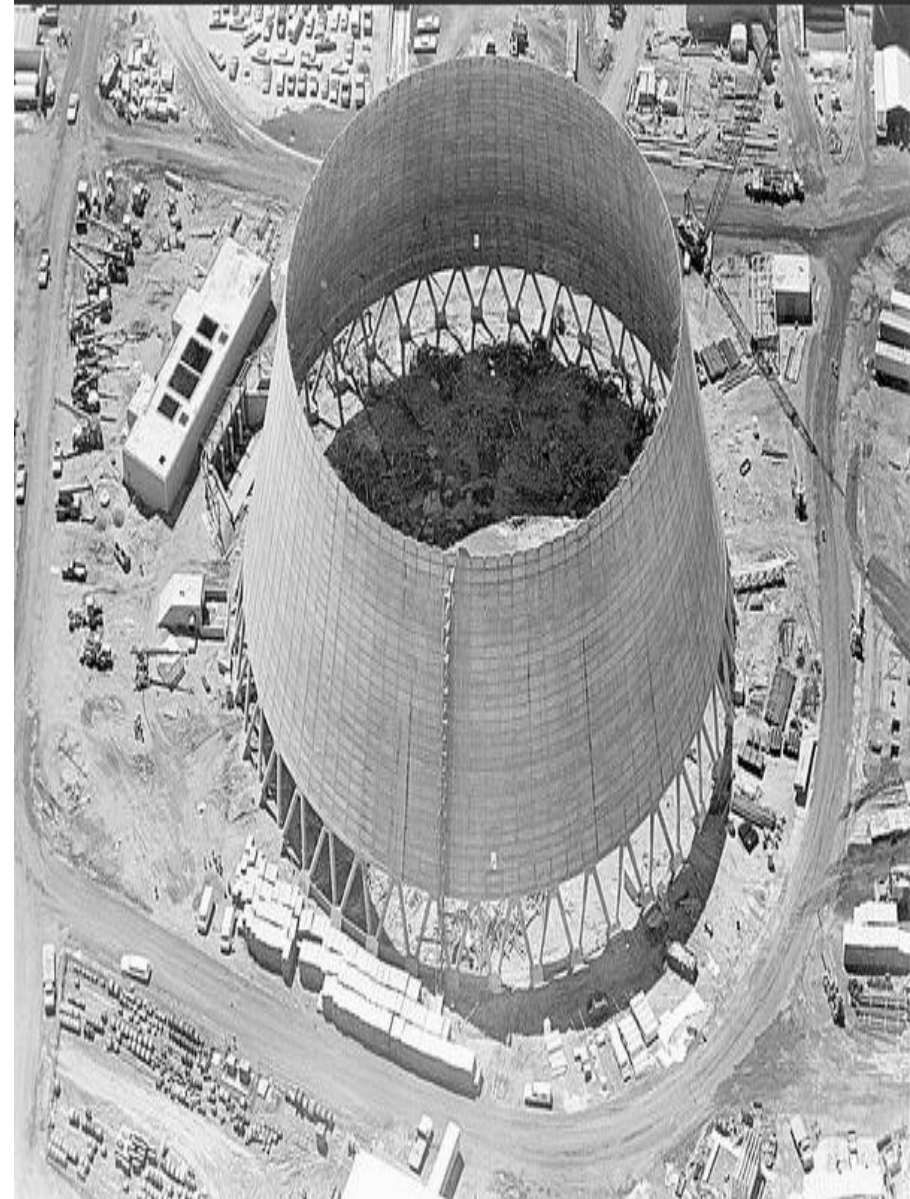
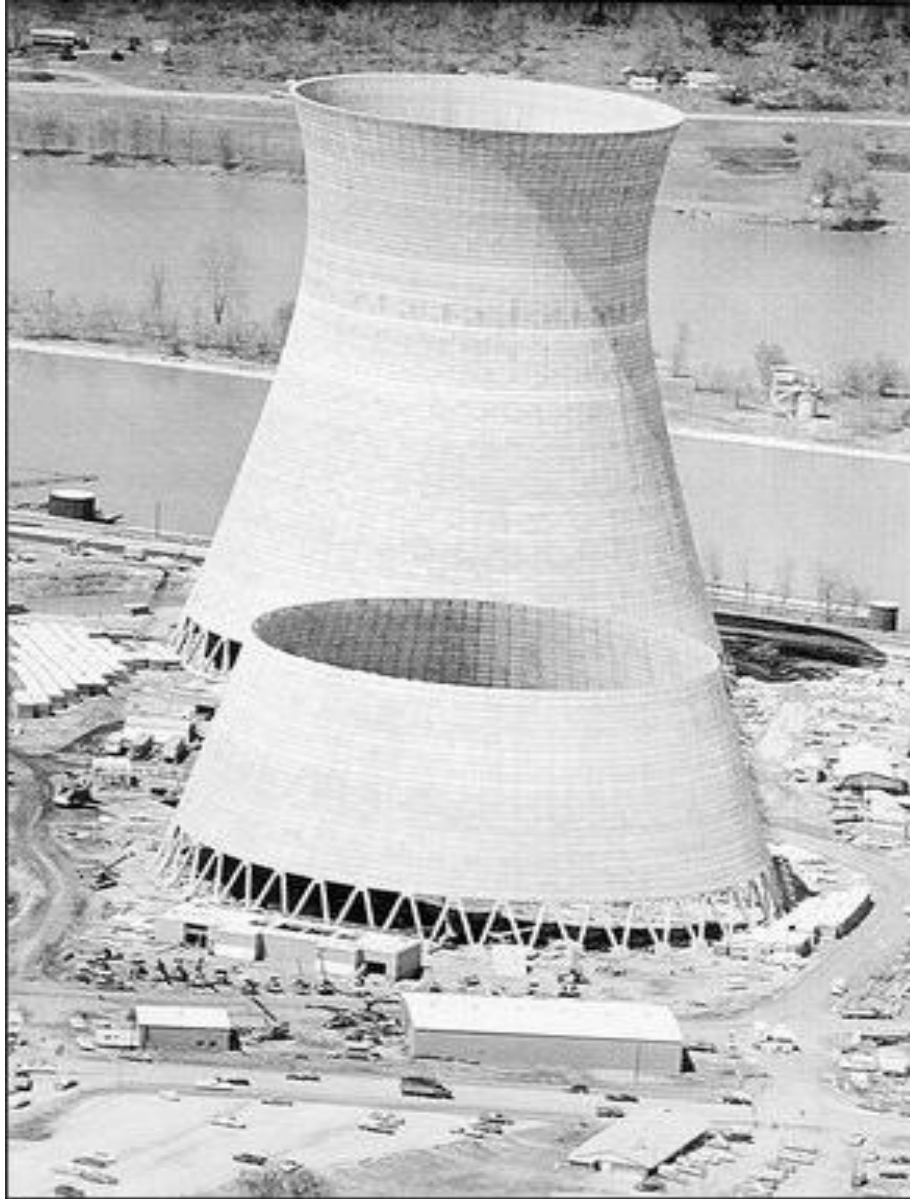


The pile driver came off the hook of the crane, the
pile buckled towards the railway line, and the pile
driver on

(31) 'Cooling - Tower - Collapse' - during - 'Construction'
- in - a - 'Power - Plant'.



‘Cooling - Tower - Collapse’ - during - ‘Construction’
- in - a - ‘Power - Plant’.



‘Cooling - Tower - Collapse’ - during - **‘Construction’**
- in - a - **‘Power - Plant’**. - **‘51 - Killed’**.



(32)'Nhava - Sheva - Silos',
'Tower - Crane - Collapse'.



'Tower - Crane - Collapse' - during - 'Erection'.



'Tower - Crane - Collapse' - during - 'Erection'.



(33) Construction - Risks - of - Flyovers'.

‘Sion - Flyover’, Mumbai.

‘Constructed’ - under - ‘Heavy - Traffic - Conditions’.



‘Sion - Flyover’, Mumbai

‘Constructed’ - under - ‘Heavy - Traffic - Conditions’.



‘Sion - Flyover’, Mumbai

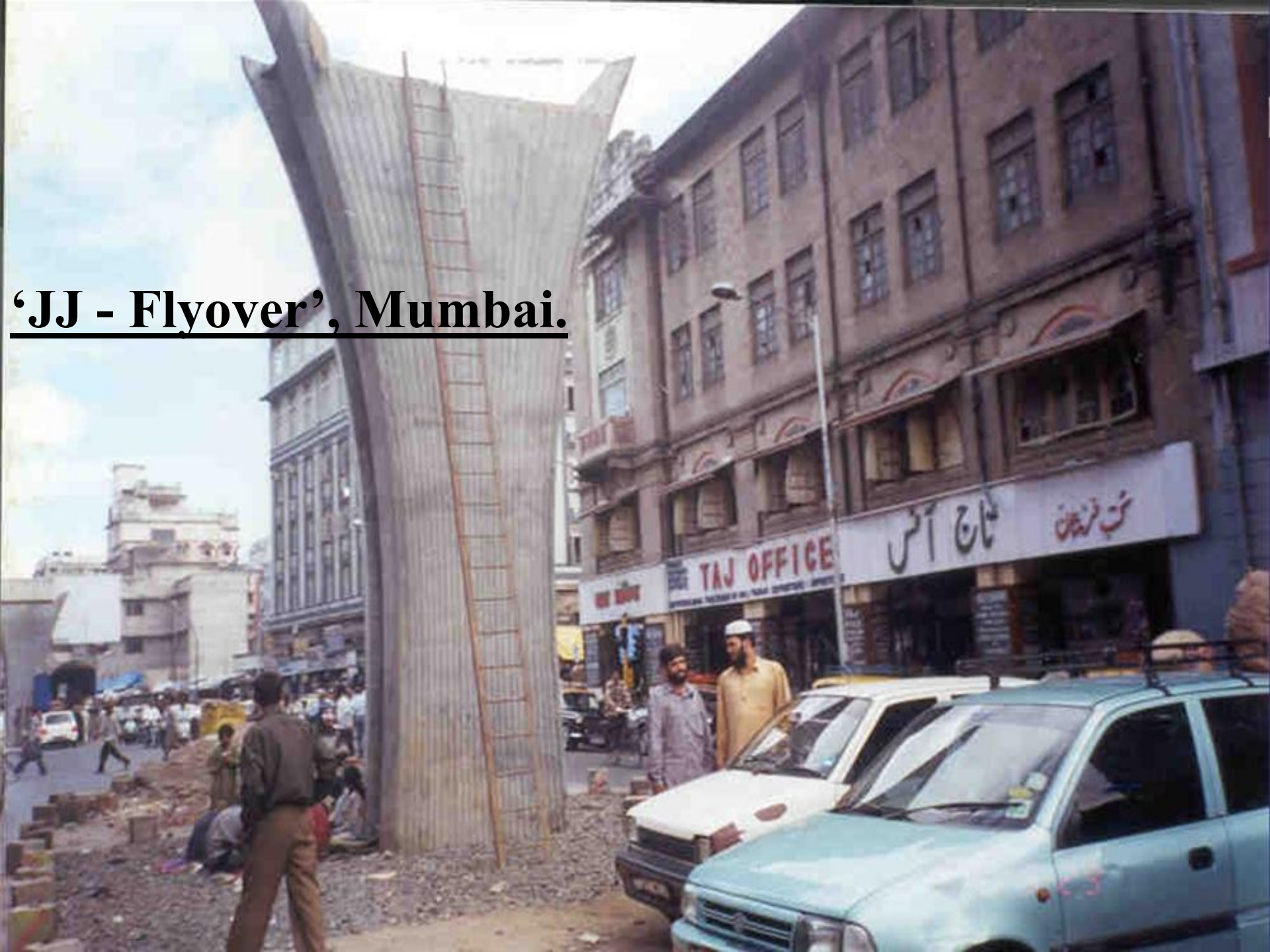
‘Constructed’ - under - ‘Heavy - Traffic - Conditions’.





‘JJ - Flyover’, Mumbai.

'JJ - Flyover', Mumbai.





‘JJ - Flyover’, Mumbai,
‘Underground - Utilities’.



‘JJ - Flyover’, Mumbai.

‘Underground - Utilities’.



'JJ - Hospital - Viaduct', Mumbai.

■ बिहारमध्ये शनिवारी हरदिया येथे नॅशनल हायवेवरील पूल कोसळला आणि खच्चून सामान भरलेला ट्रक असा 'उभा' झाला.

Collapse of a bridge.

Hardia, Bihar

22nd Dec. 2007.



(35) 'Running' - '8 - Lane' - '40 -
Years - Old' - 'Continuous - Steel -
Struss - Arc - Bridge' - 'Collapsed' -
in - 'Minneapolis', 'U.S.A'.

- '6.05 - P.M.', '13 - Killed' - & - '145 -
Injured' - on - '1st - August - 2007'.

• 'Bridge - Collapse' - an - 'Un - Insurable
- Peril'? : -









'Interstate - 35W - Freeway - Bridge' - over - 'Mississippi - River' - after - it - 'collapsed' - in - 'Minneapolis', as - **Emergency - Crews** - 'gather'.



'Interstate - 35W - Freeway - Bridge' - over - 'Mississippi - River' - after - it -



'Interstate - 35W - Freeway - Bridge' - over - 'Mississippi - River' - after - it - 'collapsed' - in - 'Minneapolis', as - 'Emergency - Crews' - 'gather'.

‘Cause’ : - ‘Flaw’ - in - the - ‘Design’.

- ‘Steel - Gusset - Plates’ [‘Thick - Sheets’ - of - ‘Steel’ - that - are - ‘used’ - to - ‘connect’ - ‘Beams - & - Girders’ - to - ‘Columns’ - or - to - ‘connect’ - ‘Truss - Members’.] : - which - ‘bound’ - ‘Key - Parts’ - of - the - ‘Bridge - Structure’ - ‘together’ - were - not - ‘Large - Enough’.
- ‘Additional - Weight’ - ‘placed’ - on - the - ‘Bridge’ - due - to - ‘Concrete - Resurfacing’ - of - ‘4 - Lanes’ - & - ‘Concerned - Construction - Equipment’ - ‘caused’ - these - ‘Plates’ - to - ‘Buckle’, & - the - ‘Entire - Bridge’ - ‘collapsed’, ‘breaking’ - into - ‘3 - Pieces’ - & - ‘killing - 13’.
- Thus : - ‘Cause’ : - ‘Design - Defect’.
- ‘Reinstatement - Period’ : - ‘13 - Months’.

The - '10 - Very - Common - Reasons' - of - 'Structural - Collapses' - are : -

- (1) 'Earthquakes'.
- (2) 'Fires'.
- (3) 'Train - Crashes'.
- (4) 'Boat - Impacts'.
- (5) 'Floods'.
- (6) 'Construction - Accidents'.
- (7) 'Manufacturing - Defects'.
- (8) 'Design - Defects'.
- (9) 'Poor - Maintenance'.
- (10) 'Odd - Occurrences'.

‘Conclusion’.

- ‘Risk - Management’ - of - ‘Large - Infrastructure - Projects’ - is - a - ‘Very - Complex - & - Specialized - Job’, ‘constantly’ - ‘challenged’ - by - the - ‘Modern - & - Developing - Technology’.
- To - ‘develop’ - ‘Competent - Practicing - Risk - Managers’ - to - ‘successfully’ - ‘handle’ - & - ‘complete’ - such - ‘Large - Infrastructure - Projects’ - ‘both’ - for - the - ‘Insured’ - & - the - ‘Insurer’ - is - therefore - the - ‘Need’ - of - the - ‘Hour’.

‘Conclusion’ ..contd..

- To - ‘assess’ - the - ‘PMLs’ - [both - ‘P.D.’ - as - well - as - ‘BI’] - & - the - **‘Third - Party - Liability - Exposures’** - ‘associated’ - with - the - **‘Large - Infrastructure - Projects’** - is - a - ‘Another - Challenge’, for - **both** - the - ‘Insured’ - as - well - - as - the - ‘Insurer’.
- While, ‘converting’ - from - **‘Project - Insurance - Phase’** - to - **‘Operational - Insurance - Phase’**, in - a - **‘Seamless - Manner’**, ‘Importance’ - of - **‘Civil - Engineering - Completed - Risks’** [‘CECR’] - Policies’ - also - ‘needs’ - to - be - ‘Realized’ - & - ‘Practiced’.

‘Conclusion’ ..contd..

- ‘Adverse - Financial - Repercussions’ - ‘arising’ - out - of - the - ‘Delays’ - in - the - ‘Executions’ - of - the - ‘Large - Infrastructure - Projects’ - will - not - only - lead - to - ‘Cost - & - Time - Over - Runs’, but - can - also - have - ‘Other - Critical - Effects’ - on - the - ‘Social, Political, Economical, National - & - International - Fronts’.
- ‘Risk - Management’ - is - therefore - ‘more - vital’ - for - such - ‘Large - Infrastructure - Projects’.

'Future' - of - 'Risk - Management'.

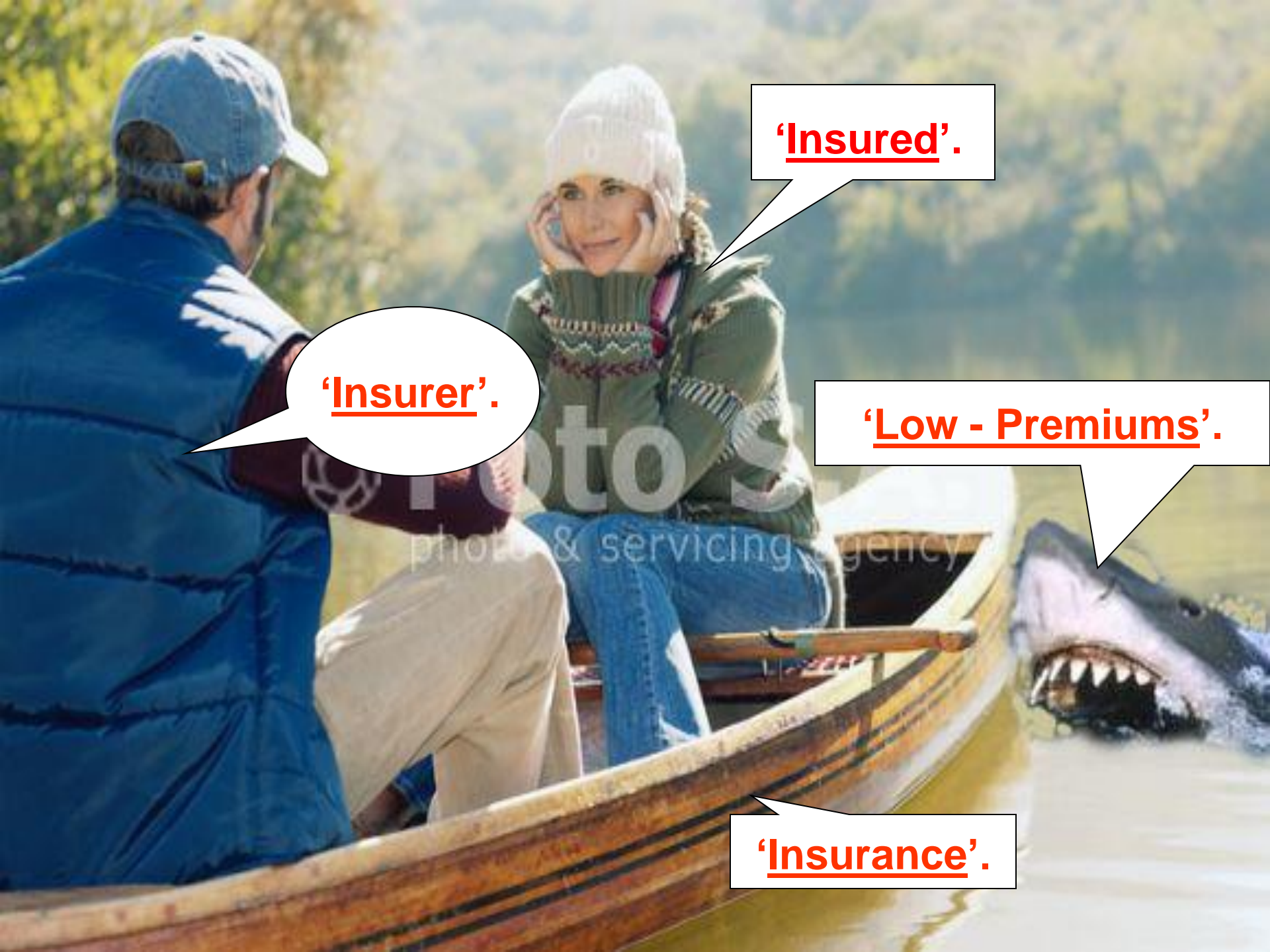
- 'Lowering' - the - 'Premiums' - & - 'neglecting' - the - 'RM - Process' - itself - is - a - 'Risk'.
- Can - we - think - of - reinvesting - 'Premium - Savings' - in - 'Risk - Management - Budgets'?
- 'Need' - for - a - Technical - Body - in - place - of - 'LPA / TAC' - at - the - 'National - Level'.
- 'IRDA' - to - look - into - this - 'Deficiency' - on - 'Priority'.



'Insured'.

'Insurer'.

'Insurance'.



'Insured'.

'Insurer'.

'Low - Premiums'.

'Insurance'.

photo & servicing agency



'Insured'.

'Risk - Manager'.

'Insurer'.

'Low - Premiums'.



'Insurer'.



'Insured'.

‘Different - Insurance - Policies’.



‘Risk -
Manager’.

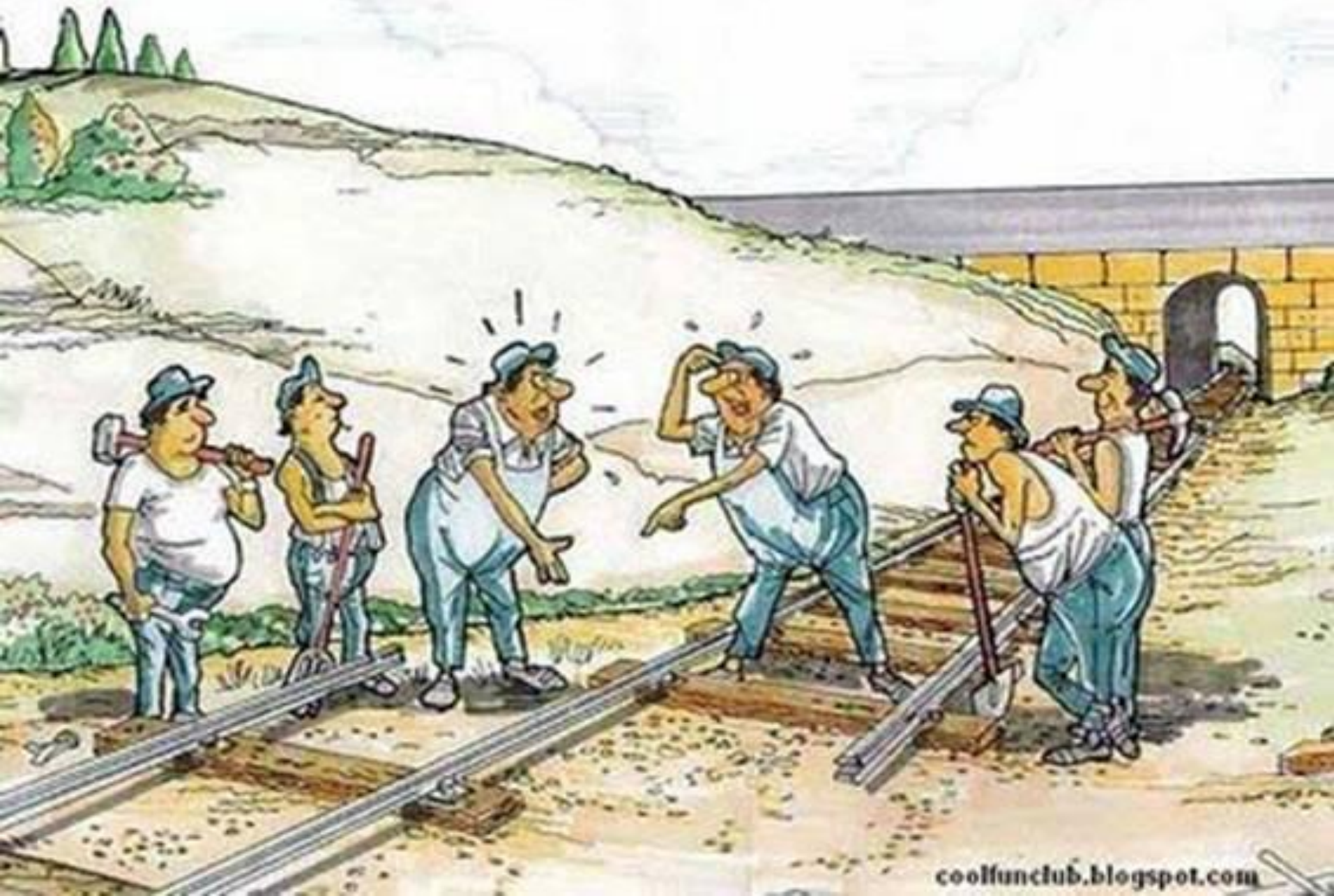


If, ‘used’ - properly, he - can - ‘win’ - ‘Games’
- for - you.

- **“It's - not - whether**
- you - get - ‘knocked - down’.
- It's - whether -
you - get - up - again”.

- *Vince Lombardi.*

Team Work



'Thank - You' !!!