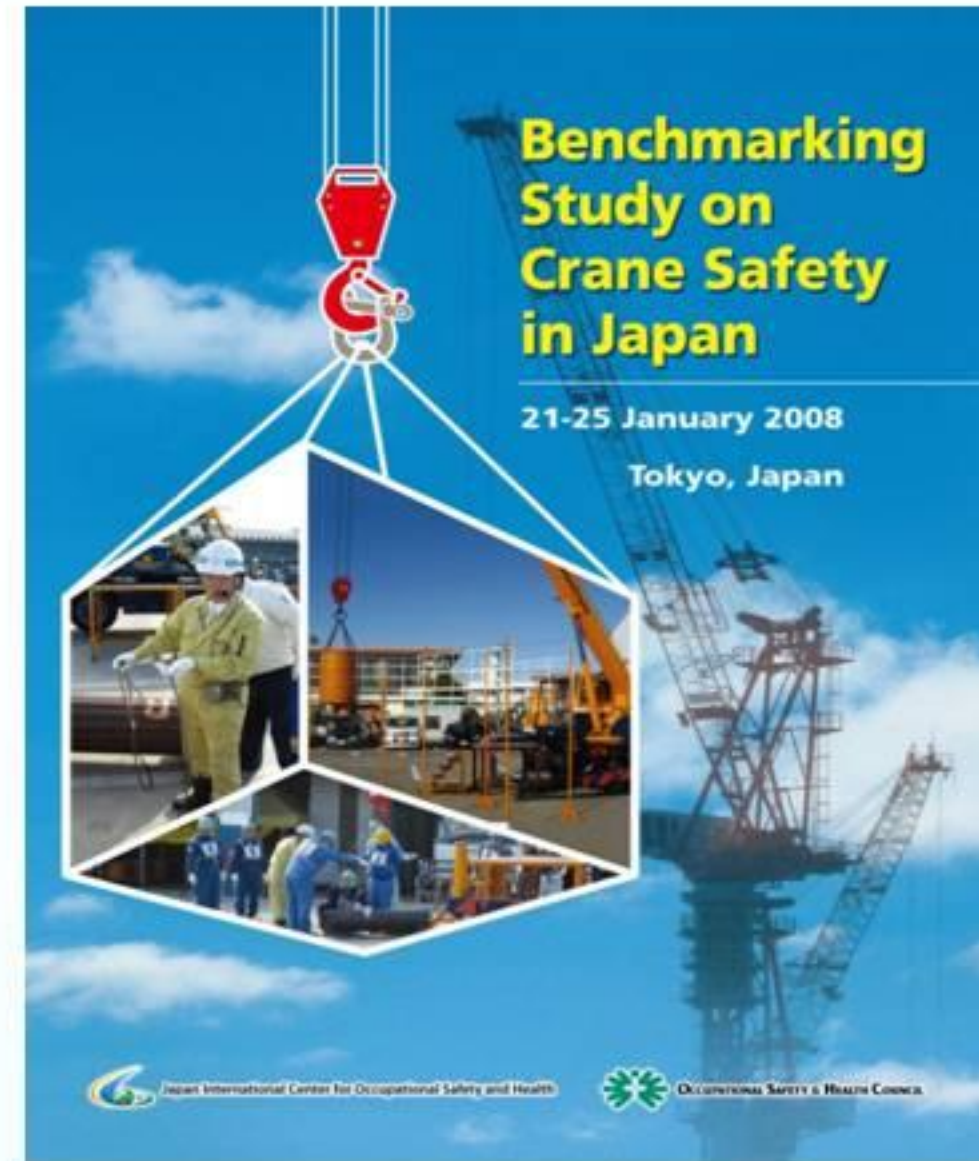




# Sharing on Benchmarking Study on Crane Safety in Japan (21-25 Jan 08)

Jimmy CHUNG





## Study Mission on Crane Safety

- **Co-organizers**



**Japan Crane  
Association (JCA)**



**(JICOSH)**







## Study Mission on Crane Safety

- **22 participants in total** from **Hong Kong** and **Macau**.
- They are coming from governmental bodies, construction industry, and educational institutions etc.



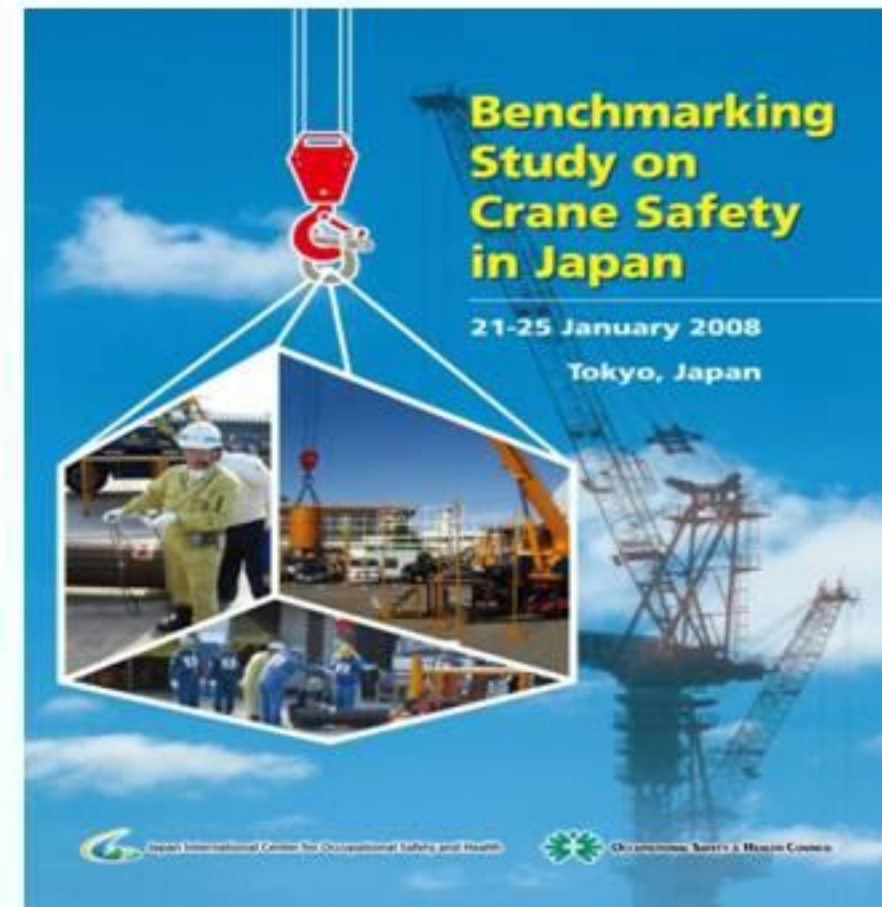




# Study Mission Program

- **21 Jan** – Introduction of crane safety
- **22 Jan** – Mobile crane safety
- **23 Jan** – Sling work safety and practice on mobile crane operation
- **24 Jan** – Visit to OSH-Square and Construction site on crane safety
- **25 Jan** – Tower crane safety

Cantonese and Japanese  
interpretation





# Day 1

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- **Introduction of Crane Safety**

## **Accident statistics on Crane Operations in Jp. (2006)**

- Over 3-days accidents due to cranes, etc
- Occupational fatalities due to cranes, etc
- Comparison of accidents with cranes, etc and all industries.





## Accident statistics on Crane Operations in Jp.

### Over 3-days accidents due to cranes, etc

3.3 Occupational accidents due to cranes, mobile cranes, derricks, construction lifts, lifts installed at factories, storage house

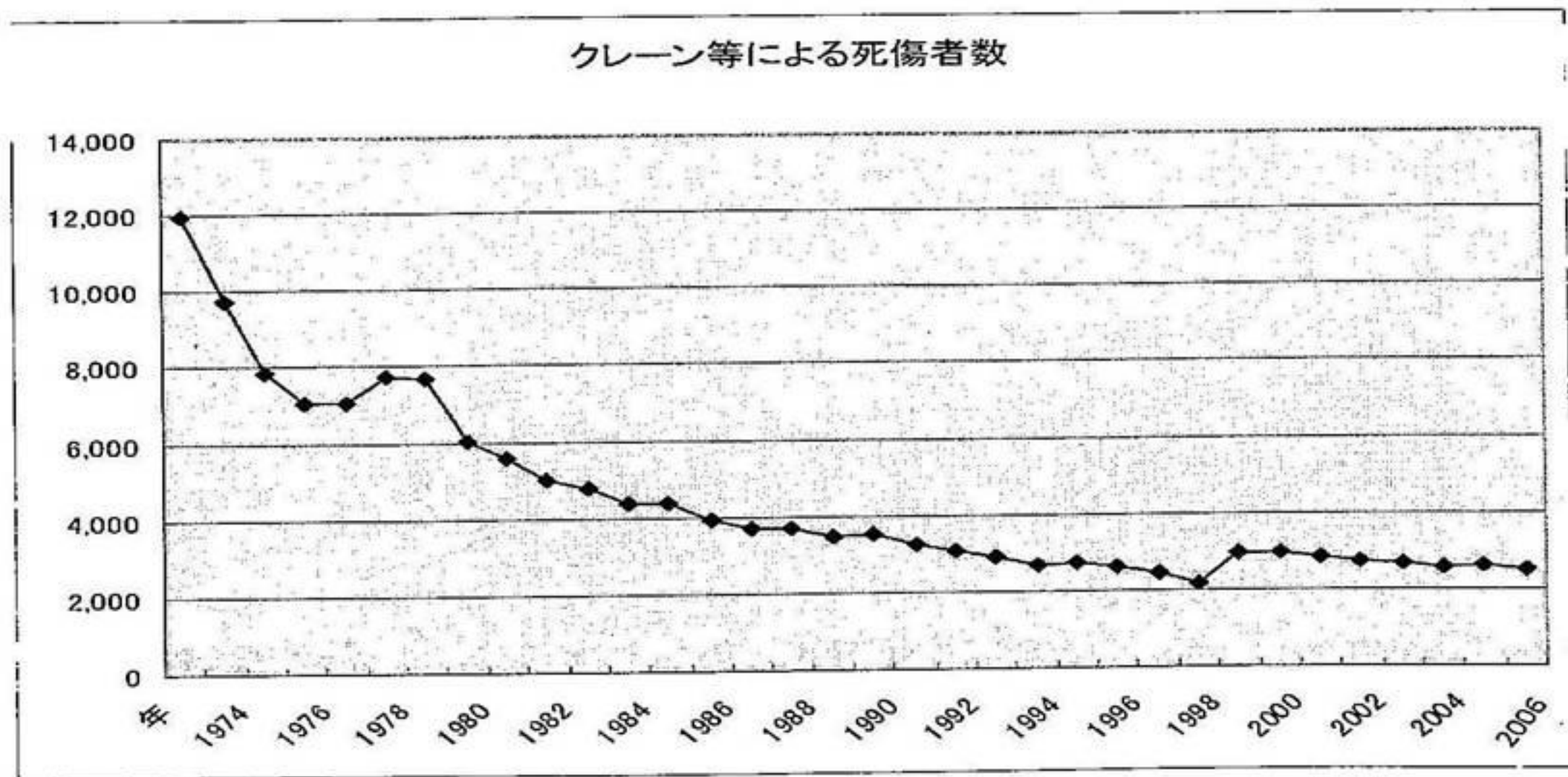


Table 3 Over 3-day accidents due to cranes, etc.





## Accident statistics on Crane Operations in Jp.

### Occupational fatalities due to cranes, etc

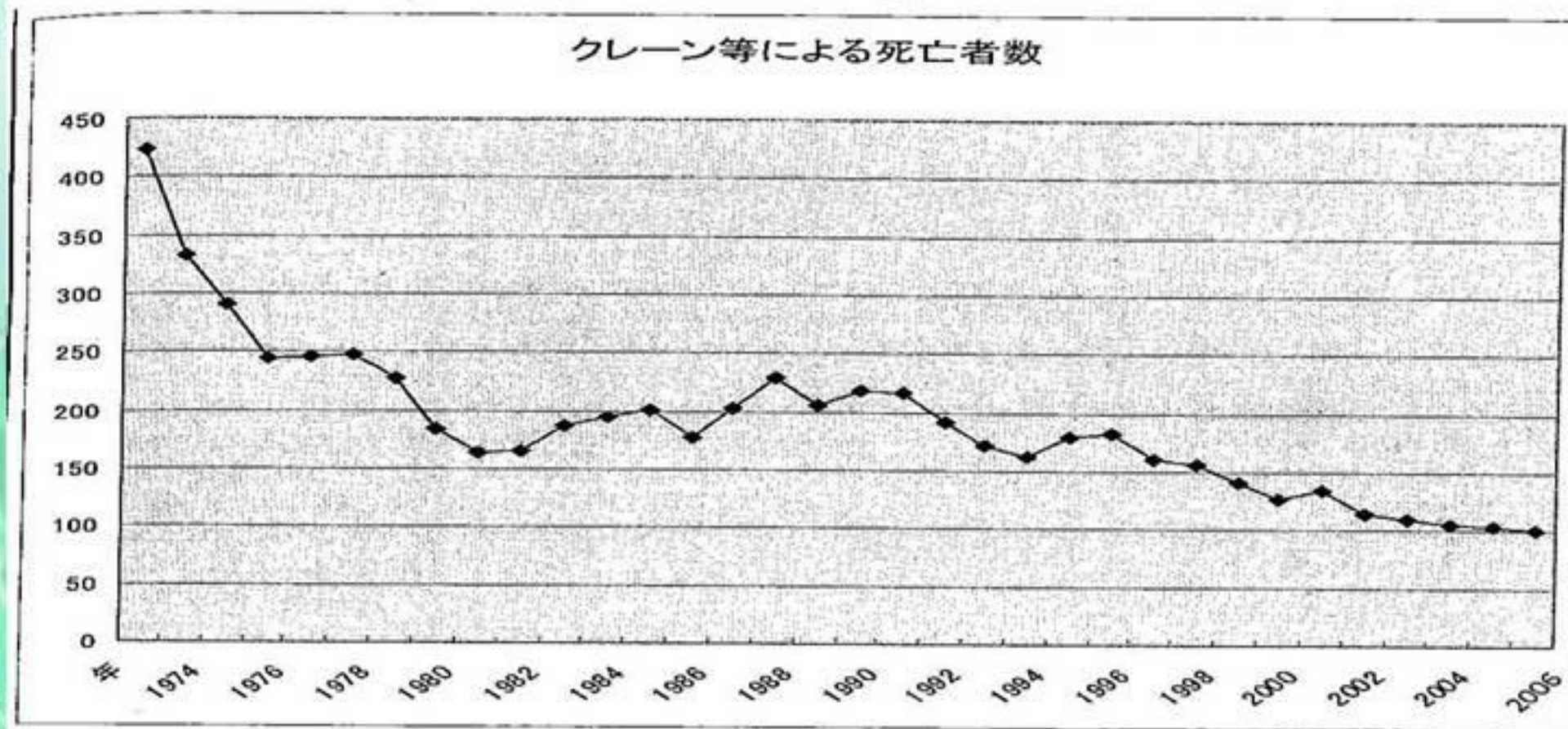


Table 4 Occupational fatalities due to cranes, etc.



## Accident statistics on Crane Operations in Jp.

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Comparison of accidents with cranes, etc and all industries.

	All industries	Cranes, etc.	Comparison
Fatalities	1,472	100	6.79%
Over 3-day	121,378	2,493	2.05%





## Accident statistics on Crane Operations in Jp.

### Fatal cases by type of accident & type of crane, etc. (2004)

	<b>Cranes</b>	<b>M. Crane</b>	<b>Lifts</b>	<b>Gondolas</b>	<b>Total</b>
Fall of lifted load, etc.	15	22	2	-	39
Hit by lifted load, etc.	2	1	-	-	3
Caught in / between	19	15	9	-	43
Fall from height	2	4	1	2	9
Collapse or turn-over	2	3	-	-	5
Electric shock, others	1	-	-	-	1
<b>Total</b>	<b>41</b>	<b>45</b>	<b>12</b>	<b>2</b>	<b>100</b>



# Day 1

- **Introduction of Crane Safety**

**Accident cases study:** structure failure, overloading, incorrect use of outrigger and adverse weather etc.

Tower crane base  
plucked-out







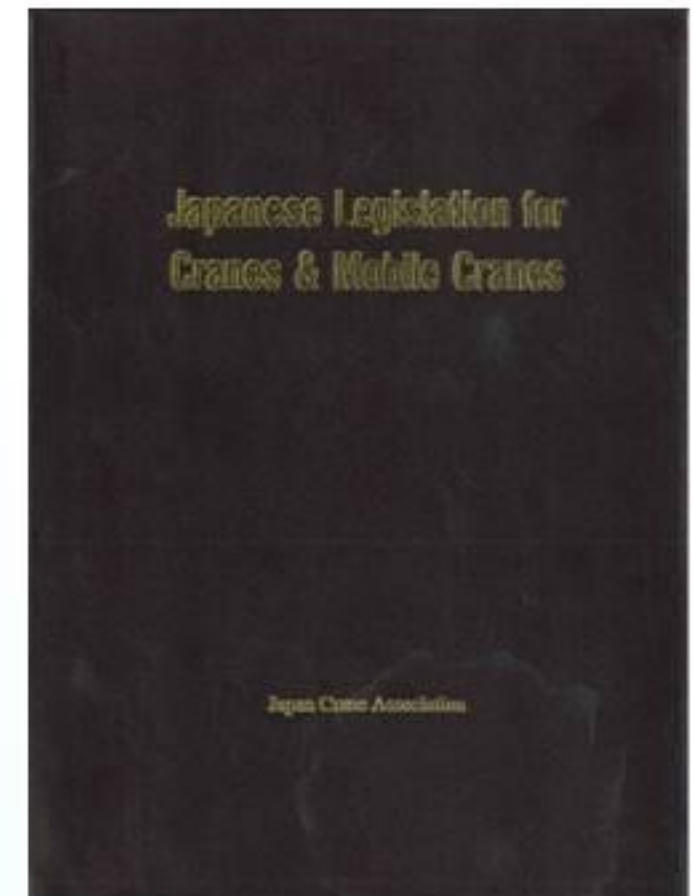
# Day 1

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- **Introduction of Crane Safety**

## **General introduction to Japanese Legislation for Crane & Mobile Crane**

- Manufacturing & Installation
- Use and Operation
- Periodical Self Inspection (Users)
- Regular Inspection (Inspection Agency)
- Sling Operation
- Safety Training (License, Skill, Special)





# Day 1

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- **Introduction of Crane Safety**

## Safety Training

- License holder (crane and mobile crane operators having the lifting capacity of more than 5 tons, etc). The license exam include paper test and skill test
- Workers who completed a skill training course (such as, mobile crane of 1-5 tons)
- Workers who completed special education (such as, suspension load less than 1 ton of sling work, mobile crane of less than 1 ton, etc.)





# Day 1

- **Introduction of Crane Safety**

Promotion of crane safety by **JCA** (Established in 1963).

**JCA** is a public corporation approved by the **Ministry of Health, Labour and Welfare**, playing a leading role in improvement of industrial safety through technical survey and research, **training and education**, information dissemination, **inspection and examination**, and providing guidance concerning cranes, mobile cranes, derricks, elevators, gondolas and construction lifts.







# Day 1

- **Introduction of Crane Safety**

For promotion of safety consciousness for accident prevention, **JCA** advocates “**Crane Day**” every year on **30<sup>th</sup> September**, and holds a “**National Crane Safety Conference**” and “**National Competition of Crane Safe Operation**, etc”. every year at which many personnel widely participate across the nation.







## Day 2

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- **Mobile Crane Safety**

- Types of mobile cranes
- Installation
- Inspection
- Safety measures: limitation of jib angle, indication for rated load, use of outriggers, restriction on riding, safety catch etc.



## Day 3

- **Practice on Mobile Crane Operation**  
(Crane Operator Training School)
  - Mobile crane training, gantry crane training and sling work training







# Day 3

## • Sling Work Safety

- Slings equipment
- Slings method
- Safety factor etc



Recommended by Safety Div. Ministry of Health, Labour & Welfare

**Checking table for wire rope slings**

Checking items & its discard criteria for wire rope slings  
Check visually for damages at wire rope & eye parts.  
Compare damages with examples.  
**\*If any item came over discard limit, discard it for prohibiting further use.**

Wire rope part	Check items & examples	Discard criteria
1. Broken wires (Typical Damage)	 Broken wires (Typical Damage)	Construction of wire rope Broken wires (Typical Damage)
2. Worn wires (Typical Damage)	 Worn wires (Typical Damage)	More than 2% reduction in nominal rope diameter
3. Corroded wires (Typical Damage)	 Corroded wires (Typical Damage)	Removable pitting on surface due to corrosion (Note) The strength reduction of extremely rusted rope may be 40 to 50 %
4. Kinks (Typical Damage)	 Kinks (Typical Damage)	Loops are locally shortened or separated (Note) The strength may be reduced by 20 to 40 % according to kinking conditions
5. Weariness (Typical Damage)	 Weariness (Typical Damage)	(1) Extreme weariness (2) If it becomes 4/3 or more
6. Crushed (Typical Damage)	 Crushed (Typical Damage)	(1) Extremely crushed (2) Minimum dia. maximum dia. exceeds by 3/5 or less
7. Bend (Typical Damage)	 Bend (Typical Damage)	Extremely sharp cornered bend
8. Mechanical damage (Typical Damage)	 Mechanical damage (Typical Damage)	Removable mechanical damage

Japan Crane Association







## Day 4

### Visit to **OSH-Square** manned by **Japan Industrial Safety & Health Association**

- Crane Safety
- Working at Height Safety
- Various PPE, etc.







## Day 4

### Visit to **Construction Site** re Crane operation

- Contractor : **Takenaka** Corporation (竹 中工務店)
- Work project : Demolition of old office building and  
Construction of new **Mitsubishi** 34-storeyed office building
- 5 Tower Cranes in use





# Day 4

## Visit to **Construction Site** re Crane Operation

Good examples:

- Planning of safe crane operation
- Designated person in charging of safe crane operation
- Display of crane safety rules and name of person in charge







# Day 4

## Visit to **Construction Site** re Crane Operation

Other good examples:

- Good housekeeping
- Clear of passageway
- Safety helmets storage design







## Day 5

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### Tower Crane Safety

Under the legal requirement, the **employer** shall take following measures as **assembling or dismantling a crane**:

- to **appoint a person** who supervises the work, he shall determine the work procedure, ensure the use of safety belts and safety helmets
- to **prohibit workers** other than those concerning the work to enter the work sites
- **not to place workers** in the crane operation as the danger on performing the work is forecast due to bad weather.





# Conclusion

Through this benchmarking study mission, the mission participants can have experiences sharing with the crane safety professions of Japan via the lectures and site visits that will help to enhance the safety performance of crane operations in the territory.





# Thank You

