Developing an Occupational Safety Health in a chemicals company

A best practice
Wahyu Juhana
October-2007
### Indonesia

- **Capital**: Jakarta
- **Area**: 1,919,000 km² (17,000 Islands)
- **Population**: 222 mil. (2005) (300 Nation, 250 Language)
- **Religions**: Moslem 88%, Protestant 5%, Catholic 3% etc.
- **Life Custom**: Musyawarat = Harmony Mind
  - Gotong Royong = Reciprocal Help
- **Weather**: Dry Season (April-September)  
  Rainy Season (October-March)  
  Temp: Avg 27°C  
- **Currency**: Rupiah
- **Import partners**: Japan 18.5%, USA 10.5%, China 8.2%,  
  (Non Oil · Gas 2002), S’pore 7.7% etc.
- **Export partners**: USA 15.8%, Japan 14.3%, S’pore 10.3%,  
  (Non Oil · Gas 2002), China 4.8% etc.
- **Major industires**: Petroleum & Natural Gas, Textiles, Footware,  
  Mining, Cement, Fertilizers, Plywood etc.
- **Natural resources**: Petroleum, Natural Gas, Coal, Tin, Nickel etc.
### General Index Data of Indonesia

<table>
<thead>
<tr>
<th>Index</th>
<th>Unit</th>
<th>2001</th>
<th>2002</th>
<th>2003</th>
<th>2004</th>
<th>2005</th>
<th>2006</th>
</tr>
</thead>
<tbody>
<tr>
<td>Population</td>
<td>Million</td>
<td>209</td>
<td>211</td>
<td>214</td>
<td>217</td>
<td>222</td>
<td>223</td>
</tr>
<tr>
<td>GDP</td>
<td>%</td>
<td>3.3</td>
<td>3.7</td>
<td>4.1</td>
<td>4.0</td>
<td>5.6</td>
<td>3.5</td>
</tr>
<tr>
<td>Inflation Ratio</td>
<td>%</td>
<td>12.6</td>
<td>10.3</td>
<td>5.06</td>
<td>9.0</td>
<td>17.1</td>
<td>4.96</td>
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<tr>
<td>Interest Rate</td>
<td>3 Month(%)</td>
<td>14.0</td>
<td>17.5</td>
<td>8.3</td>
<td>7.0</td>
<td>12.75</td>
<td>14.0</td>
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<tr>
<td>Exchange</td>
<td>VS US$</td>
<td>10,400</td>
<td>8,940</td>
<td>8,500</td>
<td>8,500</td>
<td>9,830</td>
<td>9,300</td>
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<tr>
<td>Rate</td>
<td>VS JP ¥</td>
<td>79.2</td>
<td>75.4</td>
<td>75</td>
<td>75</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
PT.Kao Indonesia Chemicals

- **Location**: Jl. Raya Km. 42 Tambun – Bekasi 17510 (Head Office & Factory)

- **Land Area**: 56,040 m²

- **Establishment**: April 28, 1977

- **Ownership**: Kao Corporation 95%
  Rodamas Co., Ltd. 5%

- **Product**: Surface Active Agent (About 300 kind)
  Specialty Chemicals


- **Responsible Care**: Starting Sept. 2002 (58th member)
Kao Indonesia at the glance

- Staff Strength: 281 persons (permanent)  
  35 persons (sub con)
- Energy use: 3465 KVA (Government Electricity)  
  3 x 350 KVA (Genset for emergency only)  
  Fuel Oil (Solar), ± 220 kL/month  
  (change to Natural Gas from Sept.07)
- Water sources: 554 m³/day (6 deep well)
- Boiler: 3 pcs (Cap. 1.5 ton)
Kao’s Chemical products for Industries

- **Functional Polymers**
  - Polyacrylate
  - Polyester resins
  - Polyurethane
  - Polyamide
  - Furan resin
  - Phenol resin

- **Aroma Chemicals**
  - Natural essential oils
  - Synthetic aroma chemicals
  - Fragrance

- **Surfactant**
  - Anionic surfactant
  - Amphoteric surfactant
  - Cationic surfactant
  - Nonionic surfactant
  - Special surfactant

- **Fat & Oil Derivatives**
  - Fatty acid
  - Fatty alcohol
  - Fatty amines
  - Ester
  - Amide
  - Glycerin

- **Plastic, Urethane, Rubber**
- **Textile**
- **Agrochemicals**
- **Food**
- **Steel, Metal, Foundry**
- **Lubricant**
- **Pulp & Paper**
- **Construction**
- **Electronics**
- **Information Media**
- **Cosmetic, Toiletry, Perfume**
- **Pharmaceuticals**
- **Pharmaceuticals**
KIC Employees number vs Service Period by January 2007

Average Service Period : 12 years

Total Person [employees]

Total Employee : 276
Topics

- Introduction
- Company Profile
- Master Plan of Improvement
- Fundamental Activities
- Nip bud improvement
- Establish a system
- Discussion & Conclusion
Introduction

• Typical OSH situation in Indonesia:
  – No clear & real commitment in Safety from the top management
  – Safety meaning “cost”
  – Applying safety was only in PPE
  – Not available of clear data about accident
  – Safety is only slogan

• Safety is not an industrial culture

• Multi national company usually have better situation due to they have mandatory to follow their cooperation

• Need all out cooperation to improve the Safety & Health situation
OSH Accident in Indonesia & in Our Company

### Accident Cases in Indonesia

<table>
<thead>
<tr>
<th>Year</th>
<th>2002</th>
<th>2003</th>
<th>2004</th>
<th>2005</th>
<th>2006</th>
<th>2007(Sep)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Regular member employee / Junior employee / Part time employee</td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Number of employee</td>
<td>237</td>
<td>230</td>
<td>237</td>
<td>230</td>
<td>224</td>
<td>224</td>
</tr>
<tr>
<td>2. Total working hours</td>
<td>388,644</td>
<td>585,725</td>
<td>642,628</td>
<td>643,259</td>
<td>691,513</td>
<td>453,999</td>
</tr>
<tr>
<td>3. Number of accident employees with lost day</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>4. Number of accident employees without Lost day</td>
<td>4</td>
<td>8</td>
<td>4</td>
<td>5</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>5. Total number of accident</td>
<td>4</td>
<td>8</td>
<td>4</td>
<td>5</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>6. Total Lost Days</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>7. Total days without accidents</td>
<td>1,321</td>
<td>1,920</td>
<td>1,992</td>
<td>2,326</td>
<td>2,722</td>
<td>2,996</td>
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<tr>
<td>8. Severity rate</td>
<td>0.000</td>
<td>0.000</td>
<td>0.000</td>
<td>0.000</td>
<td>0.000</td>
<td>0.000</td>
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<tr>
<td>10. Frequency rate</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
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</tbody>
</table>

### OSH Accident & its Kind in the Company

<table>
<thead>
<tr>
<th>Year</th>
<th>2003</th>
<th>2004</th>
<th>2005</th>
<th>2006</th>
<th>2007(Sep)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stationary subcontractor / Temporary employee</td>
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</tr>
<tr>
<td>1. Number of employee</td>
<td>0</td>
<td>46</td>
<td>46</td>
<td>35</td>
<td>35</td>
</tr>
<tr>
<td>2. Total working hour</td>
<td>69,638</td>
<td>34,438</td>
<td>129,104</td>
<td>217,759</td>
<td>284,369</td>
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<tr>
<td>3. Number of accident with lost day</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>4. Total lost day</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>5. Frequency rate</td>
<td>0</td>
<td>0</td>
<td>0</td>
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<td>0</td>
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<tr>
<td>6. Severity rate</td>
<td>0</td>
<td>0</td>
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</tbody>
</table>

### Non Stationary subcontractor

<table>
<thead>
<tr>
<th>Year</th>
<th>2003</th>
<th>2004</th>
<th>2005</th>
<th>2006</th>
<th>2007(Sep)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Frequency rate = (Number of accident with lost day / Total working hour) X 1,000,000</td>
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</tr>
<tr>
<td>2. Severity rate = (Total lost day / Total working hour) X 100</td>
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</tr>
<tr>
<td>3. Total days without accident and Total continuity hours without accident mean the greatest figure in that year or continuity</td>
<td></td>
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</tr>
</tbody>
</table>
Basic Consideration for OSH Improvement

Beginning Analysis Situation

• Complexity and risk of Factory become high risk due to some enhancement capacity & technology

• Old Plant need better safety management

• Cultivation of Industrial Culture

• We need better of Occupational Safety & Health
Basic Consideration for OSH Improvement

- Long or mid term program
- Organization propulsion
- Make a management commitment: Put 3 responsibilities (Quality, OSH & Environment) in a one term
- Basic activities propulsion: 5 S, Suggestion scheme, Discussion in a SHE Committee Meeting
- Yearly base program
- Up date Rules & regulation adoption
- Facilities improvement by top down & bottom up
- Applying OSH investment in a high range
Developing Items

1. Planning and Analysis
2. Competency & Organization Building
3. Basic Activities Re-socialization & Implementation

Facilities of Safety
Process Safety & Technical Enhancement
System of Management (OSHAS 18001)
# Master Plan of Occupational Safety & Health Management Improvement

<table>
<thead>
<tr>
<th>No.</th>
<th>Step</th>
<th>Year =&gt;</th>
<th>2002</th>
<th>2003</th>
<th>2004</th>
<th>2005</th>
<th>2006</th>
<th>2007</th>
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</thead>
<tbody>
<tr>
<td>1</td>
<td>Management Commitment refreshment &amp; Development</td>
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<tr>
<td>2</td>
<td>Organization Propulsion (Include Committee Building)</td>
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<tr>
<td>3</td>
<td>Competency In Management of OSH</td>
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<tr>
<td>4</td>
<td>Rules &amp; Procedure Improvement</td>
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<tr>
<td>5</td>
<td>Basic Activities Training &amp; Implementation</td>
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<td>5</td>
<td>5S Activity in Plant, Suggestion Scheme (Include Hiyari, Hatto Memo, etc)</td>
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<tr>
<td>6</td>
<td>Total Productivity Maintenance</td>
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<tr>
<td>7</td>
<td>Problem Solving for Supervisor up</td>
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<tr>
<td>6</td>
<td>Safety Facilities Improvement</td>
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<tr>
<td>7</td>
<td>Technical &amp; Process Safety</td>
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<td>8</td>
<td>Audit (by Corporate and Internal)</td>
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<tr>
<td>9</td>
<td>System Management (OHSAS 18001)</td>
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<tr>
<td>10</td>
<td>Next challenge: Behavioral Safety</td>
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</tbody>
</table>

**Legend:**
- **Yellow**: Planning
- **Arrows**: Actual
Building Commitment in OSH & Environment as Investment Index

Major Project:
- 2005 ~ 2006: ISO 14000
- 2006 ~ 2007: OHSAS 18001

In OHSAS 18001:
We have written and complete policy of OHS
Fundamental Activities Re-launching (5S)

Customer complaint, Accident, Trouble, Pollution

Top down
Advanced all activities & systems
Small Group Activities
Task force
Projects

Bottom up

Fundamentals

SEIKETSU
Systemizing
Standardizes

SEIRI
Clearing-up
Examine

SEITON
Putting in order
Prioritizing

SEISO
Cleaning
Inspection

SITSUKE
Discipline
Rewarding
Recognition

• Remove all the unnecessary
• Following the rule
• Good communication

Advanced 5S Activity
The fundamentals for Continuous all activity for maintaining and improvement

4M4E
Finding out grass-route of trouble

TOC
Solving conflicts problem

Fundamentals

Customer satisfaction, Accident, Trouble, Pollution
Sample 5S Activity in Labo & Office

Before

After
Sample of 5 S Activity in Production (2004)

- Belt conveyor after filling
- Roll conveyor for setting in carton box
- Weight check
- Sealer
- Leak check
- Final check
- Palleting

<table>
<thead>
<tr>
<th>KIC</th>
<th>Total control Contractor</th>
<th>3 seal Contractor</th>
<th>2 palleting Contractor</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Total QC. (Girl)</td>
<td>3 check seal / leak (Boy)</td>
<td>2 making box</td>
</tr>
<tr>
<td>1</td>
<td>Jumbo bag transfer</td>
<td>4 filling and check weight</td>
<td>1 feed from Jumbo bag</td>
</tr>
<tr>
<td>1</td>
<td>making box</td>
<td>3 charge in carton box</td>
<td>1 closing the box</td>
</tr>
<tr>
<td>3</td>
<td></td>
<td>14</td>
<td>6</td>
</tr>
</tbody>
</table>
Establish an OSH System

Schedule

( Jan ~ Mar 2007)

- Planning and Analysis
  - Jan~Feb

- Training
  - Jan~Mar

- Documentation
  - Jan~Mar

- Implementation
  - April

- Internal Audit & Pre-Assessment
  - July ~ August

- Certification
  - September

- Maintenance
  - July ~ August
## Actual Implementation OHSAS 18001 Project

<table>
<thead>
<tr>
<th>No.</th>
<th>Activities</th>
<th>February</th>
<th>March</th>
<th>April</th>
<th>May</th>
<th>June</th>
<th>July</th>
<th>Aug</th>
<th>Sept</th>
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<tbody>
<tr>
<td>1</td>
<td>Organization Forming</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td></td>
<td></td>
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<td>2</td>
<td>Regular Meeting</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td></td>
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<tr>
<td>3</td>
<td>Kick Off Meeting</td>
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<td>4</td>
<td>Preliminary Study by Specific Team</td>
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<tr>
<td>5</td>
<td>Gap study by Specific Team</td>
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<tr>
<td>6</td>
<td>Awareness, Documentation &amp; Internal Audit Training of OHSAS 18001 and Integration of System by SGS</td>
<td></td>
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<td>7</td>
<td>Awareness Training of OHSAS 18001 to All of employees by Department Team</td>
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<td>8</td>
<td>Design and Develop System</td>
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<tr>
<td>9</td>
<td>Hazard Identification, Evaluation &amp; Risk Control</td>
<td>1</td>
<td>2</td>
<td>3</td>
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<tr>
<td>10</td>
<td>Objectives &amp; Target, Program Preparation</td>
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<td>11</td>
<td>Law Compliance Study</td>
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<tr>
<td>12</td>
<td>Review the documents and Approval</td>
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<tr>
<td>13</td>
<td>Field study to another company (if needed)</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td></td>
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<tr>
<td>14</td>
<td>Start Implementation</td>
<td></td>
<td></td>
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<tr>
<td>15</td>
<td>Plant Improvement related to implementation</td>
<td></td>
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<td>16</td>
<td>Review the implementation</td>
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<td></td>
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<tr>
<td>17</td>
<td>Internal Audit</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td></td>
<td></td>
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<td></td>
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<tr>
<td>18</td>
<td>Corrective and Preventive Action from Internal Audit Process</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td></td>
<td></td>
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<tr>
<td>19</td>
<td>Management Review</td>
<td></td>
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<tr>
<td>20</td>
<td>Pre-Audit by Certification Body (SGS)</td>
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<td>Corrective and Preventive Action from Certification Body's Pre-Audit Process</td>
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<td></td>
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<td></td>
</tr>
<tr>
<td>22</td>
<td>Final Audit by Certification Body</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>23</td>
<td>Corrective and Preventive Action from Certification Body's Audit Process</td>
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</table>
Recent Status

Quality, Safety, Health & Environment policy

The Kao Way

Following The Kao Way spirit, We aimed to be a global manufacturer of surfactant and specialty chemicals with Quality, Safety, Health and Environment policy statement:

- Satisfy Customers Needs and gain their Trust through Quality and Continual Improvement
- Keep and good practices of our environment and occupational safety and health in whole of company & employee activities

To promote the above policy, The company will strive to operate our business activity with criteria as follow:

- Prompt response to satisfy customers’ needs.
- Comply with all relevant statutory and all regulatory requirements of quality, occupational safety, health & environment regulations and other requirements in Republic of Indonesia.
- Commitment in prevention of pollution, incident, accident, and works diseases
- Company will do conservation with implementing 4 R (Reduce, Reuse, Recycle and Recovery practices to conserve the sources)
- Communicate this policy to all person who working for or on behalf of the company (staff, vendor, contractor, etc) and available to public.
Some of Sample Progress in Chemicals Management
Use MSDS & Labeling, a Special Warehouse for dangerous material.
Chemicals Safety Handling: Setting partition or dike in Tank Area

Remarks: General storage tank, flammable / combustible liquids tank
Chemicals Safety Handling: GHS Regulation

Storage & Delivery: Use GHS label
Conclusion & Next Challenge

• In our cases, re-launching of basic activities give a huge contribute for all improvement items, including OSH

• Management Hazard of Chemicals training will make some trigger for improve OHS Implementation

• Next Challenge : Behavioral Safety or make self improvement through culture change
Thank You very much