Health and Safety
Education and Motivation
4th Atlantic Alliance Conference
Tegernsee, 20th + 21st April 2007

Chair of Mining Engineering / Subsurface Mining
... in brief

- oldest active mining university
- app. 4,900 inscribed students - winter term 2006/2007
- by far the largest mining/geoengineering university in Germany
- 90% students finish within the regular time frame
- 22 Masters studies, five of which consecutive with BSc option
- Bachelor and Masters courses taught in English
- International Cooperation: US, UK, France, Italy, Hungary, Poland, ...
- further education – e.g. Occupational Health and Safety in Mining

Chair of Mining Engineering / Subsurface Mining
Content

- Introduction
- Education and Motivation
- Different Regions
- Advanced Concept
- Summary

Chair of Mining Engineering / Subsurface Mining
Introduction

(Health + Safety) * (Education + Motivation) =

- provide **theoretical** + **practical** knowledge as well as experiences
- cover all aspects
  - **occupational** + **private** sector
  - all life phases
- sustainable internal + external motivation to update, enhance and apply, **knowledge** + **capabilities** continuously
Education and Motivation
Problems often start early …
… and grow with time

Survey amongst pupils:

- not enough sleep
- no or low quality breakfast: hungry, poor nutrition
- drug abuse problems
- tardiness to class because of smoking
- stressed-out
- afraid of violence
- family/peer problems that occupy their thinking
- sick, no only insufficient health care available

… true for adults, too.

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Education and Motivation
Current Situation

- first contact: way to kindergarten/school
- very often: no or only limited additional knowledge is taught at school thereafter
- second contact: driver’s license
- third contact: occupational health and safety at work
- individually: raised awareness and interest when health problems occur
Different Regions
South East Asia

Chair of Mining Engineering / Subsurface Mining
Different Regions
South East Asia

Official Information

- “Beneficial cooperation and solidarity among the national OSH institutions of the ASEAN countries”
- “High capability of national OSH institutions in OSH promotion, training and research”
- “Free flow of OSH information, particularly through utilisation of information and communication technology”
- “Harmonisation of OSH standards and guidelines”
Different Regions
Thailand - Education

- School
- Technique School
- College
- University

But - no specific content is defined,
- no specific programs are taught.
Different Regions
Thailand – Occupational Accidents

<table>
<thead>
<tr>
<th>Type of Severity</th>
<th>1999</th>
<th>2000</th>
<th>2001</th>
<th>2002</th>
<th>2003</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fatalities</td>
<td>611</td>
<td>620</td>
<td>607</td>
<td>650</td>
<td>769</td>
</tr>
<tr>
<td>Permanent total disability</td>
<td>12</td>
<td>16</td>
<td>20</td>
<td>14</td>
<td>14</td>
</tr>
<tr>
<td>Permanent partial disability</td>
<td>3,396</td>
<td>3,516</td>
<td>3,510</td>
<td>3,424</td>
<td>3,470</td>
</tr>
<tr>
<td>Temporary disability over 3 days</td>
<td>50,239</td>
<td>48,338</td>
<td>48,077</td>
<td>49,012</td>
<td>51,656</td>
</tr>
<tr>
<td>Temporary disability up to 3 days</td>
<td>117,739</td>
<td>127,076</td>
<td>137,407</td>
<td>137,879</td>
<td>153,315</td>
</tr>
<tr>
<td>Total</td>
<td>171,997</td>
<td>179,566</td>
<td>189,621</td>
<td>190,979</td>
<td>209,224</td>
</tr>
</tbody>
</table>

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Different Regions

Thailand – Occ. Injuries + Fatalities

<table>
<thead>
<tr>
<th></th>
<th>1999</th>
<th>2000</th>
<th>2001</th>
<th>2002</th>
<th>2003</th>
</tr>
</thead>
<tbody>
<tr>
<td>Workers under WCF</td>
<td>5,321,872</td>
<td>5,417,041</td>
<td>5,544,436</td>
<td>6,541,105</td>
<td>7,214,548</td>
</tr>
<tr>
<td>Number of injuries</td>
<td>171,997</td>
<td>179,566</td>
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<td>611</td>
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<td>650</td>
<td>769</td>
</tr>
<tr>
<td>Accident rate/1,000 workers</td>
<td>32.30</td>
<td>33.15</td>
<td>34.20</td>
<td>29.20</td>
<td>29.00</td>
</tr>
<tr>
<td>Fatality/100,000 workers</td>
<td>11.48</td>
<td>11.44</td>
<td>10.94</td>
<td>9.94</td>
<td>10.66</td>
</tr>
</tbody>
</table>
### Different Regions

**Thailand – Occ. Illnesses (2003)**

<table>
<thead>
<tr>
<th>Illnesses caused by</th>
<th>Number of cases</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lifting heavy load</td>
<td>7,071</td>
</tr>
<tr>
<td>Bad posture</td>
<td>1,613</td>
</tr>
<tr>
<td>Contacting hazardous chemicals</td>
<td>3,762</td>
</tr>
<tr>
<td>Allergic to substances</td>
<td>661</td>
</tr>
<tr>
<td>Occupational diseases</td>
<td>127</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>13,234</strong></td>
</tr>
</tbody>
</table>
Different Regions
Thailand - HSE-Regulations

- Labor Protection Act, 1972
- Hazardous Substances Act, 1992
- Factory Act, 1992
- Public Health Act, 1992
- The Enhancement and Conservation of the National Environmental Quality Act, 1992
- TIS 18004 - Occupational Health and Safety Management System: Technical Guides on Implementing OHS-MS, 2005

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Different Regions
Russia – Education at School
Different Regions
Russia - Education at Universities

Courses:

– 280102 - Safety in production (БТПиП)
– 280101 - Occupational Health and Safety (БЖвТ)
– 280200 - Environmental Protections (ЗОС)
Different Regions
Russia – Occupational Health and Safety

Health Protection System
(Охрана труда - ОТ)

– supports occupational health and safety
– includes law, social and economic aspects (governmental standards - ГОСТ Р ССБТ)
– additional company specific standards may be added (ОСТ ССБТ)
Different Regions
Russia – Further Education

“… work safety (Техника безопасности - ТБ) is a catalogue of countermeasures, which are implemented in production to increase health and safe working conditions …”

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Different Regions
Russia – State Supervision

GOSTECHNADSOR
(ГОСТЕХНАДЗОР) –
governmental technical supervisory

GOSGORTECHNADSOR
(ГОСГОРТЕХНАДЗОР) –
governmental mining technical supervisory

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Different Regions - Russia
Employer's Liability Insurance Ass.

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Western Countries
Kindergarten

- Road Safety
- Health
- Hygiene
Western Countries
Health Management at School

A Coordinated School Health Program

- Family and Community Involvement in School Health
- School-site Health Promotion for Staff
- Healthy School Environment
- School Counseling, Psychological, and Social Services
- School Health Services
- School Nutrition Services
- Physical Education
- Comprehensive School Health Education

First trends towards Safety Management Systems extending into non-work related areas

Colorado connection for Health and Safety

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Ireland

Road Safety Education (RSE)

Example for positive development:

– prior 1999: No nationally or regionally structured RSE system in place at pre-school/kindergarten level
– Road Safety Education (RSE) since 1999 – at school and pre school level
– since 2007: new subject
  “Social Personal and Health Education (SPHE)”
Western Countries University Education

only taught at some universities
not even part of many chemical and other engineering programs
mostly theoretical contents

Mine Rescuing Course at BBG training centre, Leipzig

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Western Countries
Systematic Continuous Education

set-up in different countries
well accepted by motivated employees
difficult to reach non-motivated employees
Advanced Concept

- start to implement HSEQ as early as possible
- provide knowledge when children are eager to learn – e.g. at primary and secondary school
- no gaps – continuous education throughout life (similar to OHSAS 18001)
- cover all aspects and areas of life
- re-new / enhance motivation
Summary

Continuous Education

Motivation

Research

monitor work and living conditions systematically
Which questions do you have?

Glückauf!