The Safety and Health Management System "Effectiveness"

Guide to a good night's sleep

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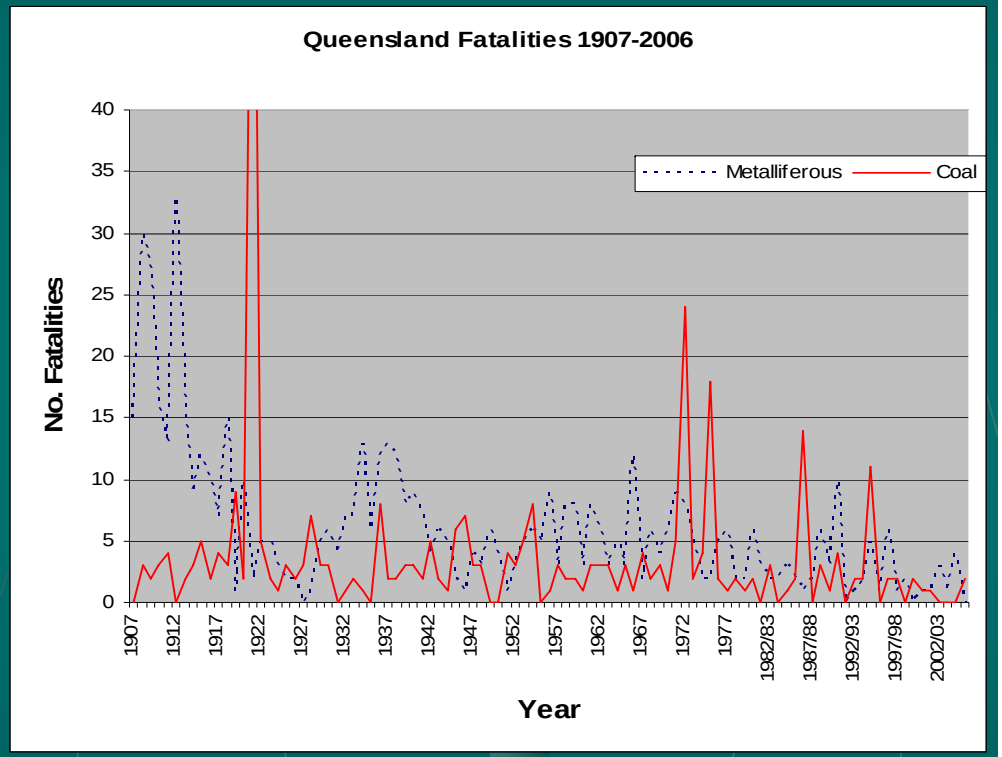
Historical Impact of Fatalities

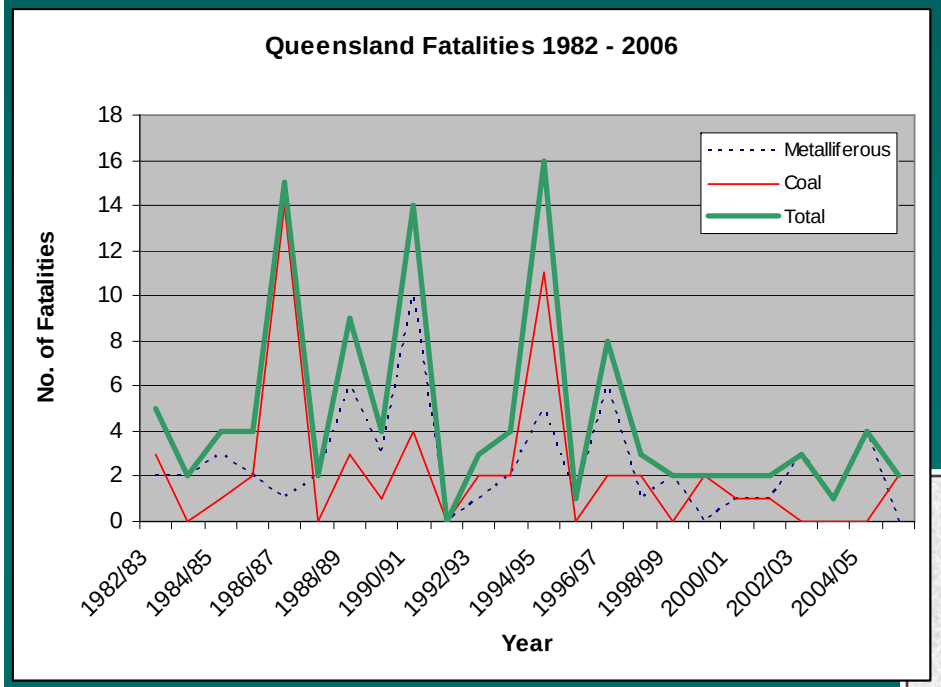
- 958 Mining Fatalities in Qld since 1907
- 366 in Coal
- 592 in Metalliferous mines, quarries and trenches
- These deaths lack a sense of purpose
- Community un-accepting and angry
- Mining industry must be accountable if we are to have community backing

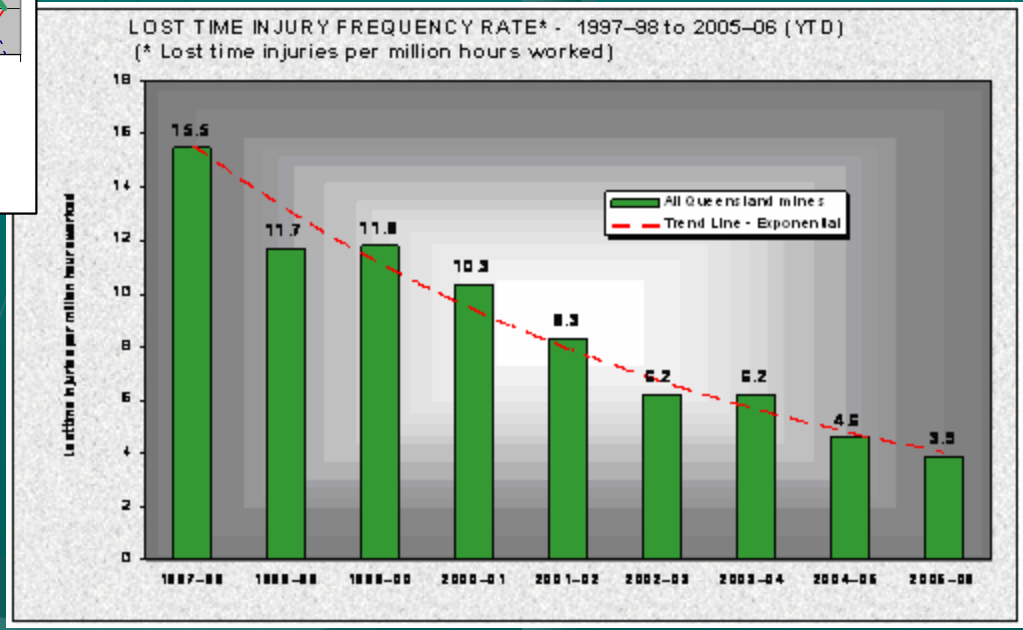
Historical Impact of Fatalities

- 1921 Mount Mulligan
  – 77 men died
- 1972 Box Flat No.7 Colliery
  – 18 men died
- 1975 Kianga No 1 Mine
  – 13 men died
- 1986 Moura No 4 Mine
  – 12 men died
- 1994 Moura No. 2 Mine
  – 11 men died



Industry Trends



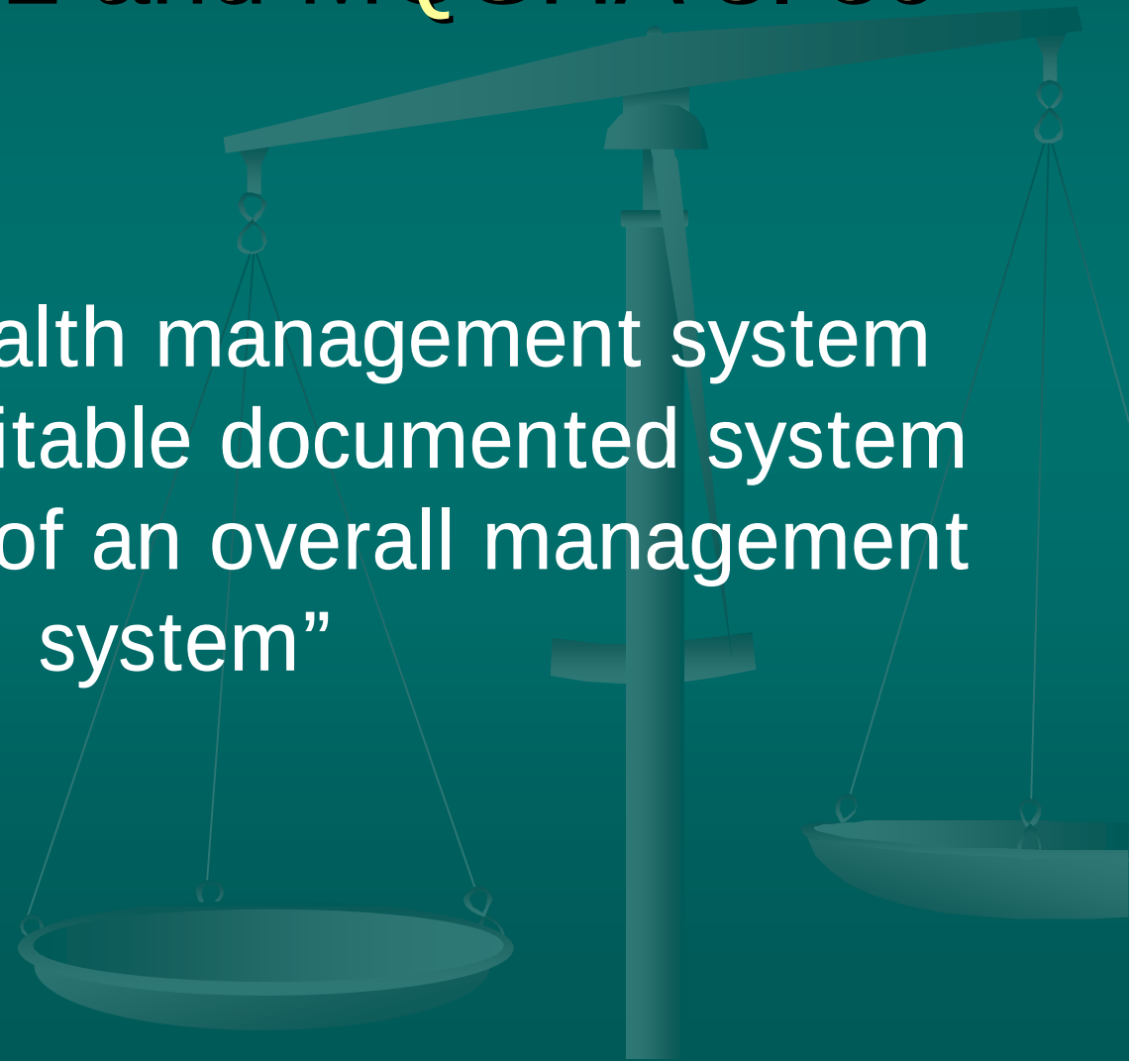


Legislation

- Legislation is the written expression of public policy
- Mining and Quarrying Safety and Health Act 1999 (MQSHA 1999)
- Coal Mining Safety and Health Act 1999 (CMSHA 1999)
- Basic requirement of the legislation is that:

"A person must discharge their safety and health obligation"

What is a System – CMSHA s. 62 and MQSHA s. 59



"A safety and health management system must be an auditable documented system that forms part of an overall management system"

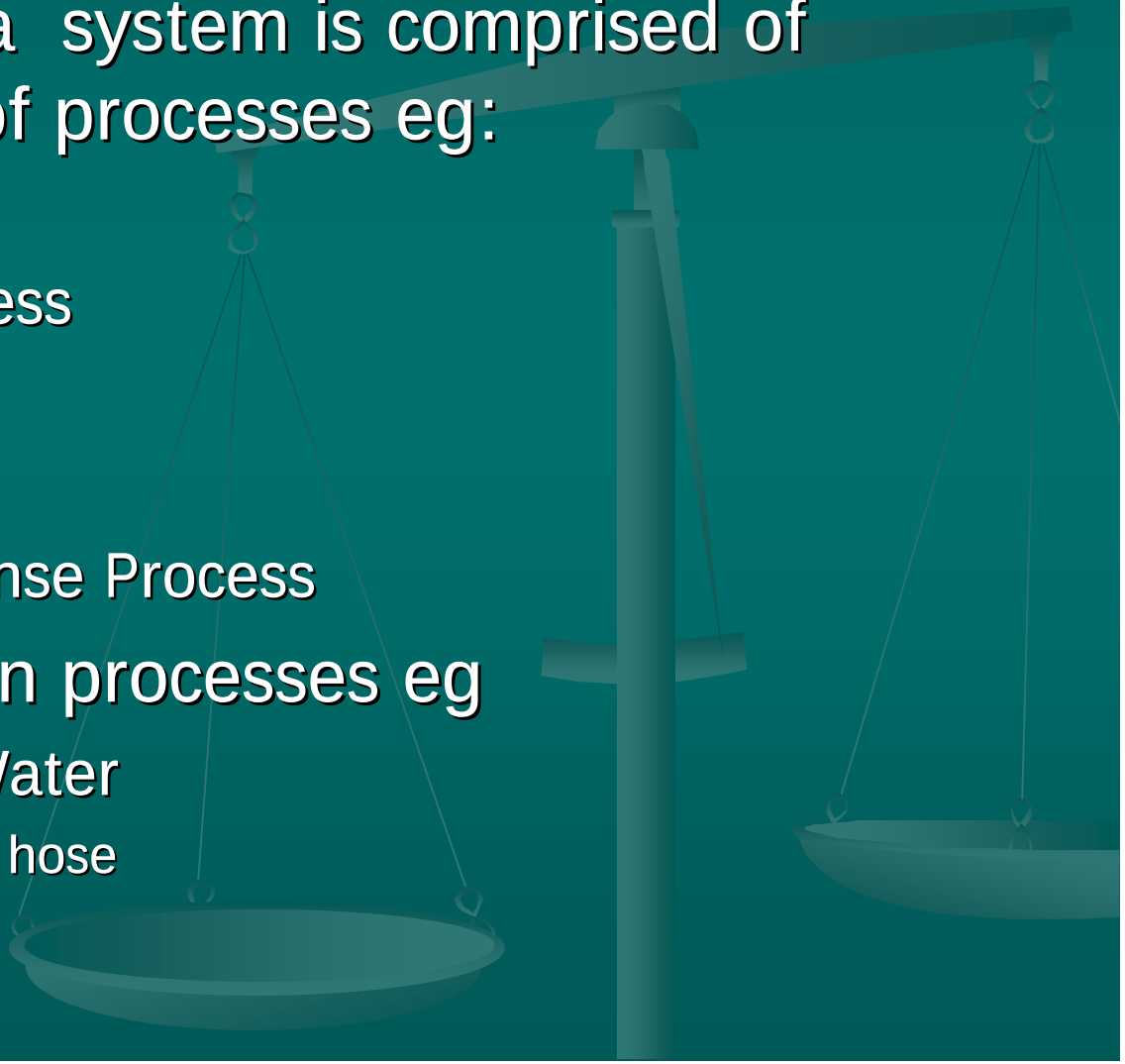
But, what is a System

In functional terms a system is comprised of numerous layers of processes eg:

- Training process
- Maintenance Process
- Mining Process
- Planning Process
- Emergency Response Process

AND processes within processes eg

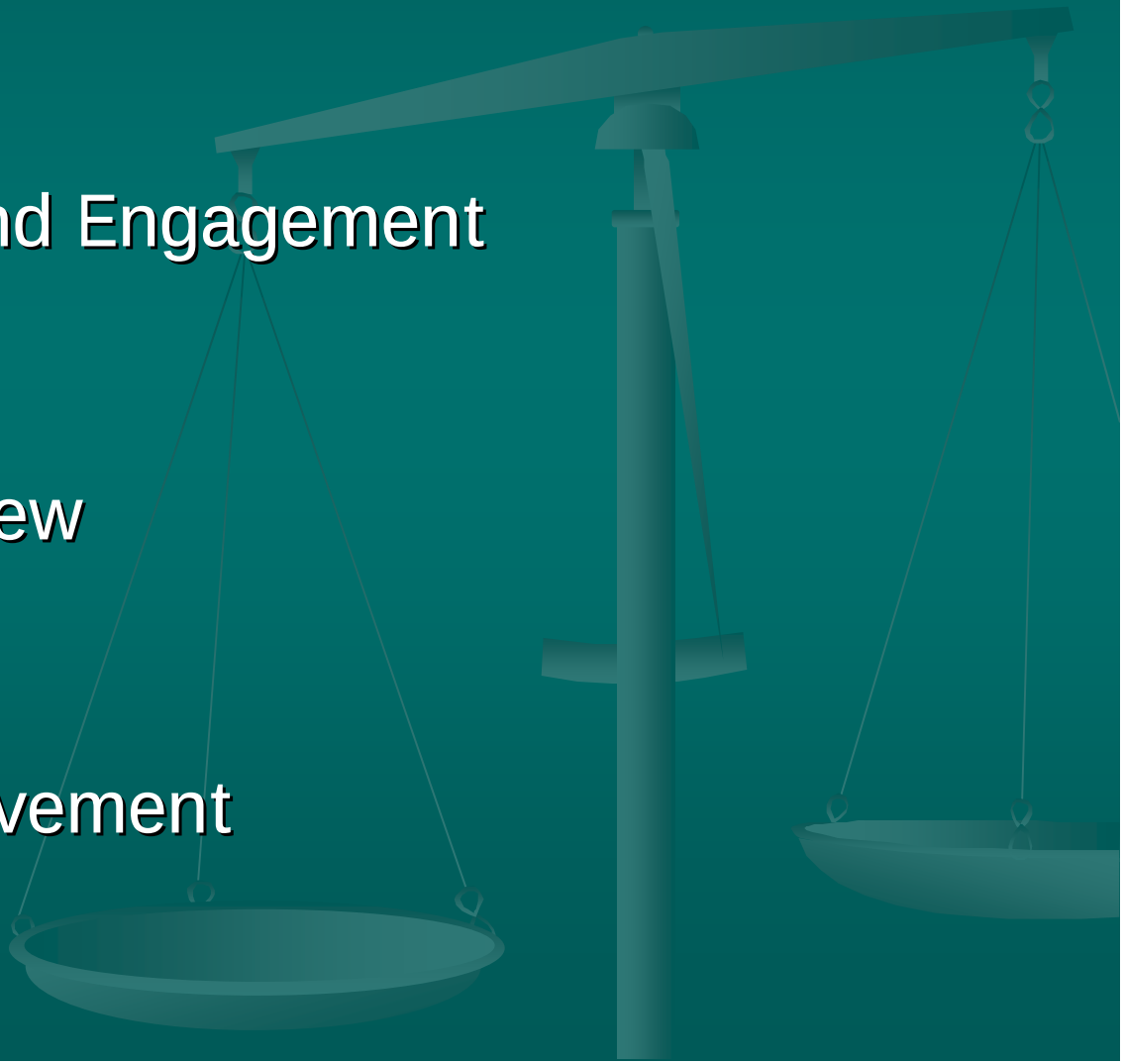
- Pumping out Pit Water
  - Laying out lay-flat hose



System Overlords

The ties that binds:

- Risk Management
- Communication and Engagement
- Responsibilities
- Resources
- Management Review
- Auditing
- Measurement
- Continuous Improvement



Typical Open-cut Operation Processes

Level 0
Core Business Processes – Open-Cut

Land Clearing → Top Soil Removal → Drill and Blast Process → Stripping → Mining → Crushing → Processing

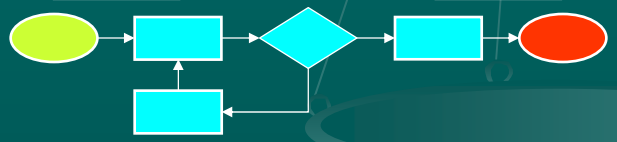
Level 1
Department Level Process

Pump out Pit Water → Prepare Pit Haul Road → Load Coal Haulers → **Haul to ROM** → Dump in ROM → Hauler return to pit

Level 2
Workgroup Level Process

Set up Pit Pump → Lay out lay – flat hose → Start pumping → Monitor pumping

Level 3
Individual Activity Process



Process Commonalities

- People,
- Plant, Equipment and Materials,
- Workplace/work environment, and
- Methods for carrying out the work.

NB: “Clyde Coal” terms these “systems of work”

Plus the ongoing Dynamics:

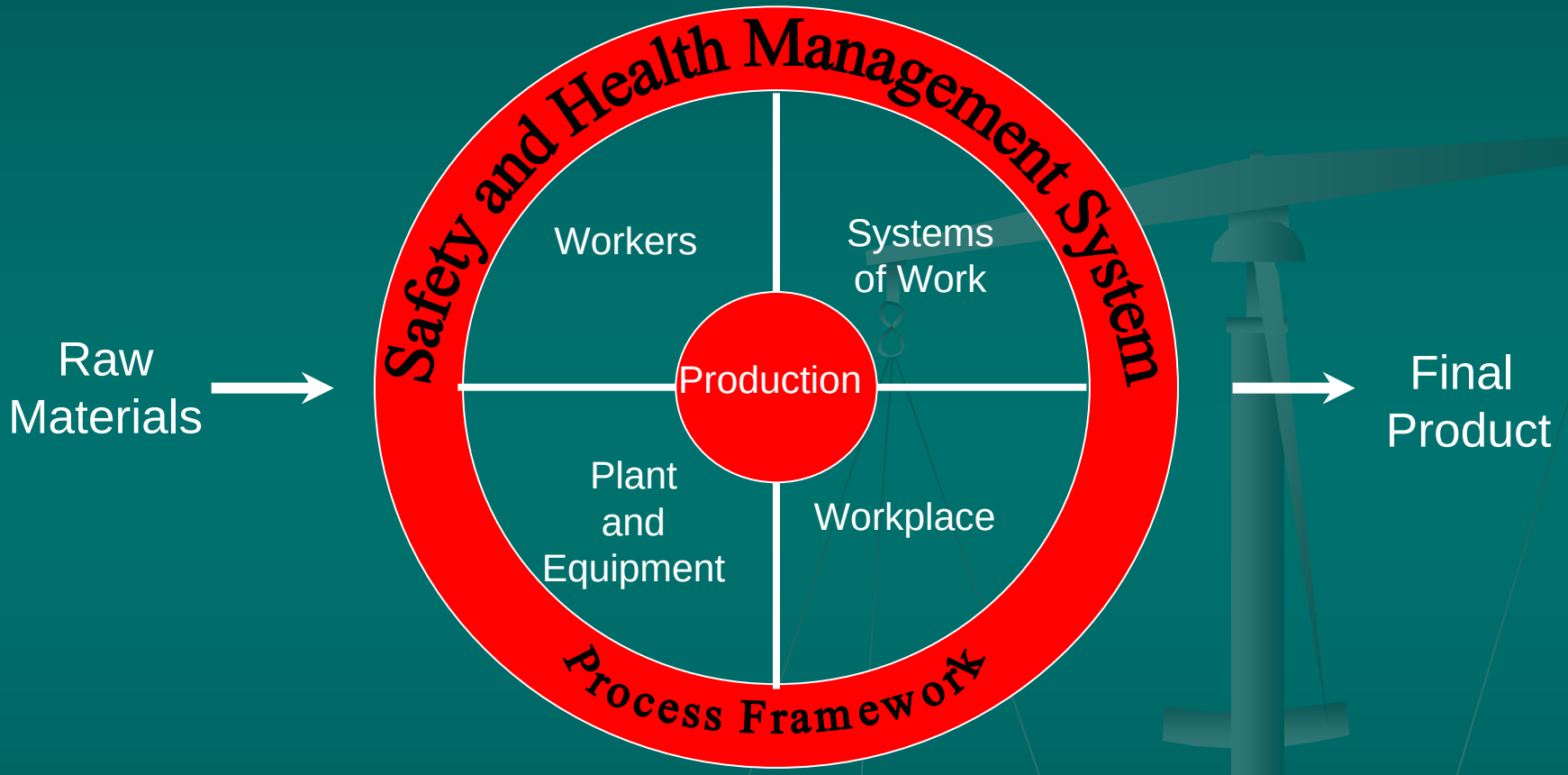
- Working with changing situations both slow and quick
- Causing changing situations
- Variations to proximity to hazards

Need for Dynamic System

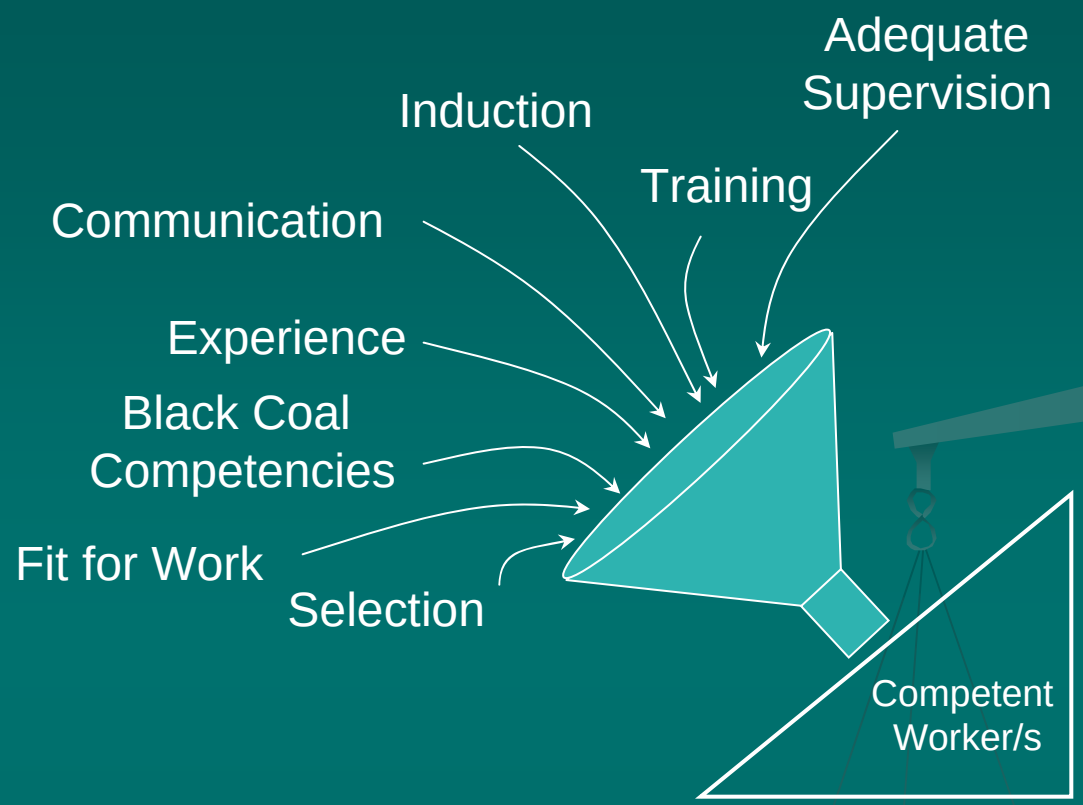
The SHMS needs to be as dynamic as the human system it is intended to manage and control.

The requirement for the system to be dynamic cannot be over emphasised. An effective safety and health management system will soon become ineffective if the subsystems cannot detect and repair weaknesses to the existing system or accommodate site changes.

Parts of the system/process



At the 'coal face' the System comes together with people using plant to carry out work in a workplace under Supervision



Questions for the SSE.

Are these system elements or subsystems in place?

A Supervisor needs to be able to rely on these system elements or subsystems to be in place

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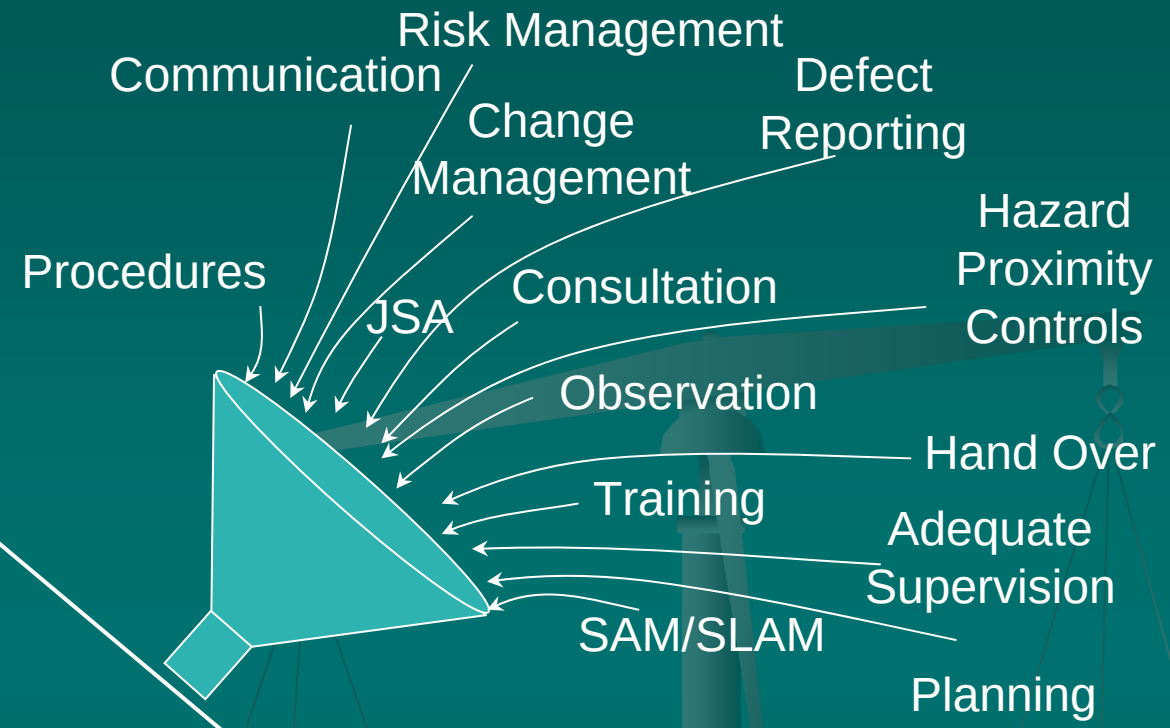

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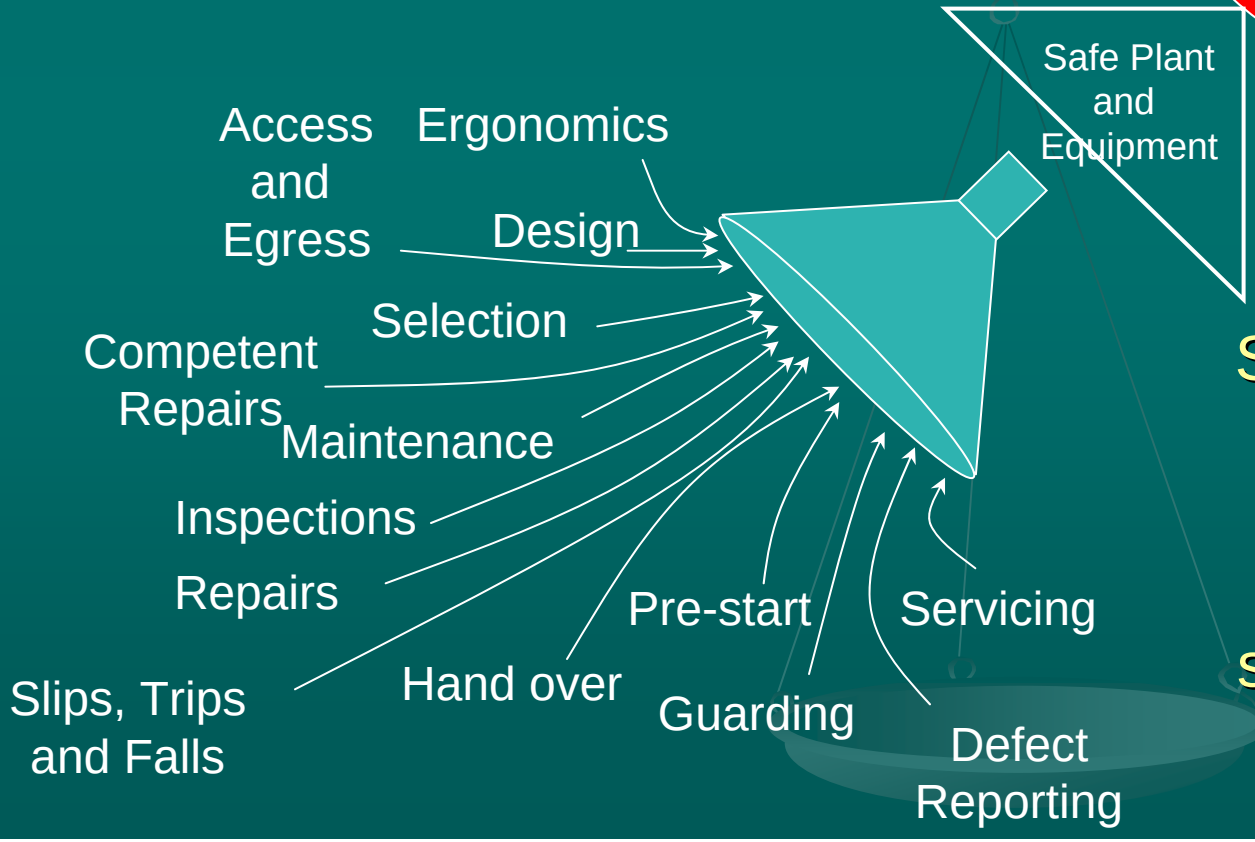

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Questions for the SSE.

Are these system elements or subsystems in place?

Supervisor needs to be able to rely on these system elements or subsystems to be in place

Observations
Inspections
Design
Stability
Planning
Lighting
Housekeeping
Layout
Ventilation
Heights/Depths
Slips, Trips and Falls
Change Management
Communication
Environmental

SSE's Obligation

- A mine can only have one safety and health management system.
- The SSE has an obligation to "*develop and implement a safety and health management system for the mine*".
- The SSE can incorporate/intergrate into his/her SHMS various contractors SHMS, however the status of a contractor's SHMS is not independent or a separate system.
- Some contracts require contractors to provide a Safety Management Plan. The SSE is entitled to accept this plan **however it cannot replace the SSE's SHMS. The SSE must incorporate it into his SHMS.**
- Once a Contractors SMP is approved by the SSE or delegate it becomes part of the Mine's SHMS.

The same system elements and subsystems need to be in place for <u>all</u> mine workers.

Contractor's Obligation

The obligation of the contractor is to ensure "*the provisions of this Act and any applicable safety and health management system are complied with*".

That is, the contractor must comply with the mine's SHMS. The SSE must ensure all workers are performing their duties within the mine's SHMS.

- Basically, the SSE is responsible to ensure the risk to workers is as low as possible.
- A worker, according to legislation, is someone who works at a mine, regardless of who pays the wages.

"worker is an individual who carries out work at a mine and includes—

(a) an employee of the operator; and

(b) a contractor or employee of a contractor."

The SSE can adopt the contractors system, but the SSE must also map and prevent any conflict.

Questions for the insightful SSE!

- Has the site process for performing tasks (Risk Assessments; Procedures)?
- Are the persons adequately trained and assessed as having the knowledge, understanding and skill to carry out the required processes (Training and Competency)?
- Are the processes adequately supervised (Supervision)?
- Is there adequate time and resources to perform the work (Resources)?
- Is the workplace safe? For example, equipment / electrical / hazardous substances and dangerous goods / ground conditions / vehicle interaction (Fit for Purpose)?
- Are you adequately prepared with resources and facilities for reasonably foreseeable emergencies (Emergency Response)?
- Have you taken into account the human factors?

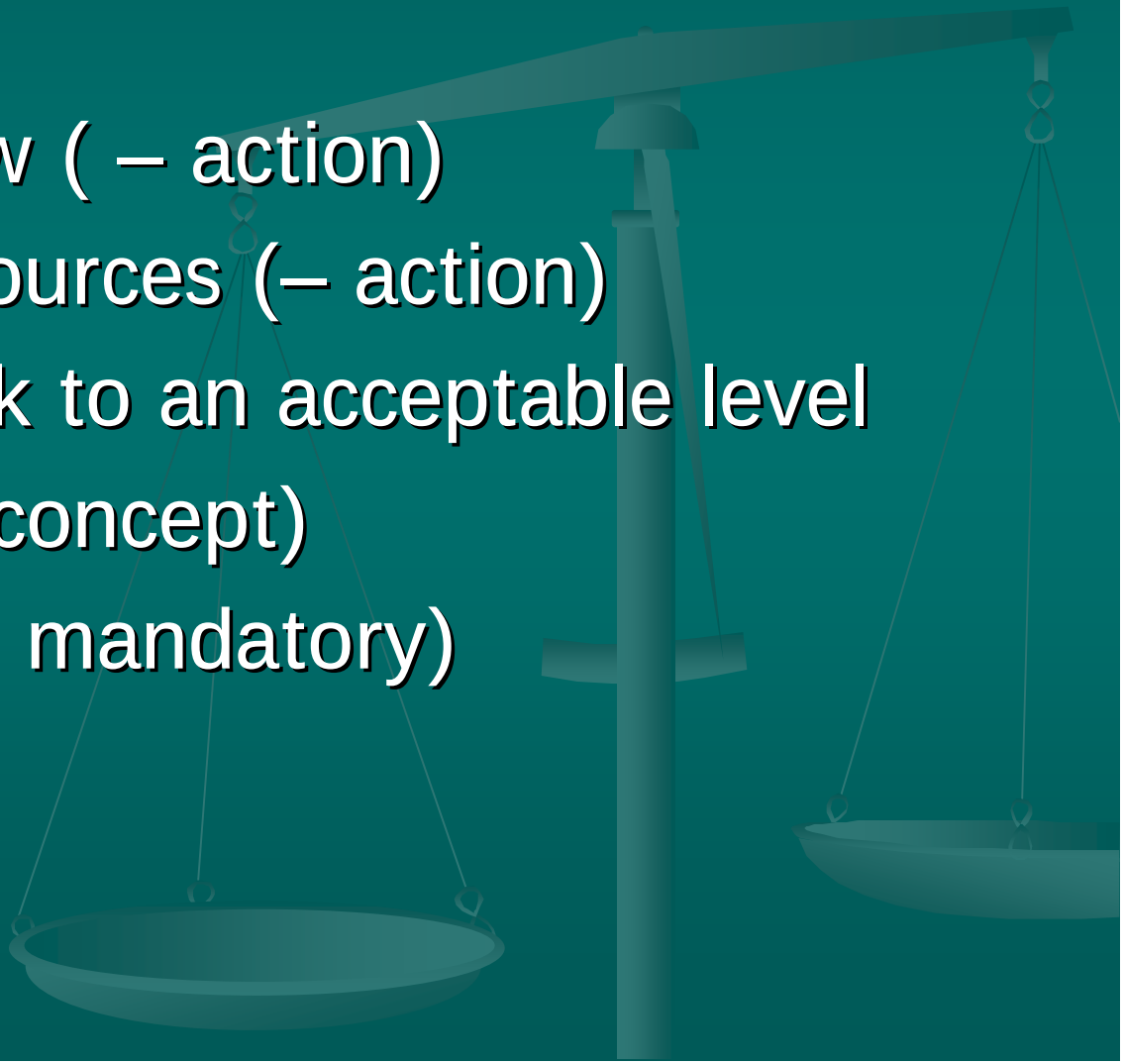
Operators Obligations

"the mine operator has the obligation to review the SSE's safety and health management system and determine whether it is implemented and working effectively and if necessary require any corrective action to be taken to make it effective."

It is for the operator:

1. "*To audit and review the effectiveness and implementation of the safety and health management system to ensure the risks to persons from coal mining operations is at an acceptable level;*
2. *To provide adequate resources to ensure the effectiveness and implementation of the safety and health management system".*

Linchpins of Effective SHMS from an Operator Perspective



- Audit and review (– action)
- Provision of resources (– action)
- Reduction of risk to an acceptable level (– statutory concept)
- Ensure (- action mandatory)

Frontline Supervisors

The Frontline Supervisor supports the Safety and Health Management System at the coal face through giving instructions to mine workers

Instructing for Safety

- Discuss the workers ability/competency/experience to carry out the activity
- Discuss the area to be worked in
- Discuss the plant/equipment/tools used
- Discuss the materials/consumables to be used
- Discuss the methods to be used to carry out the work
- Ensure the work methods have been risk assessed

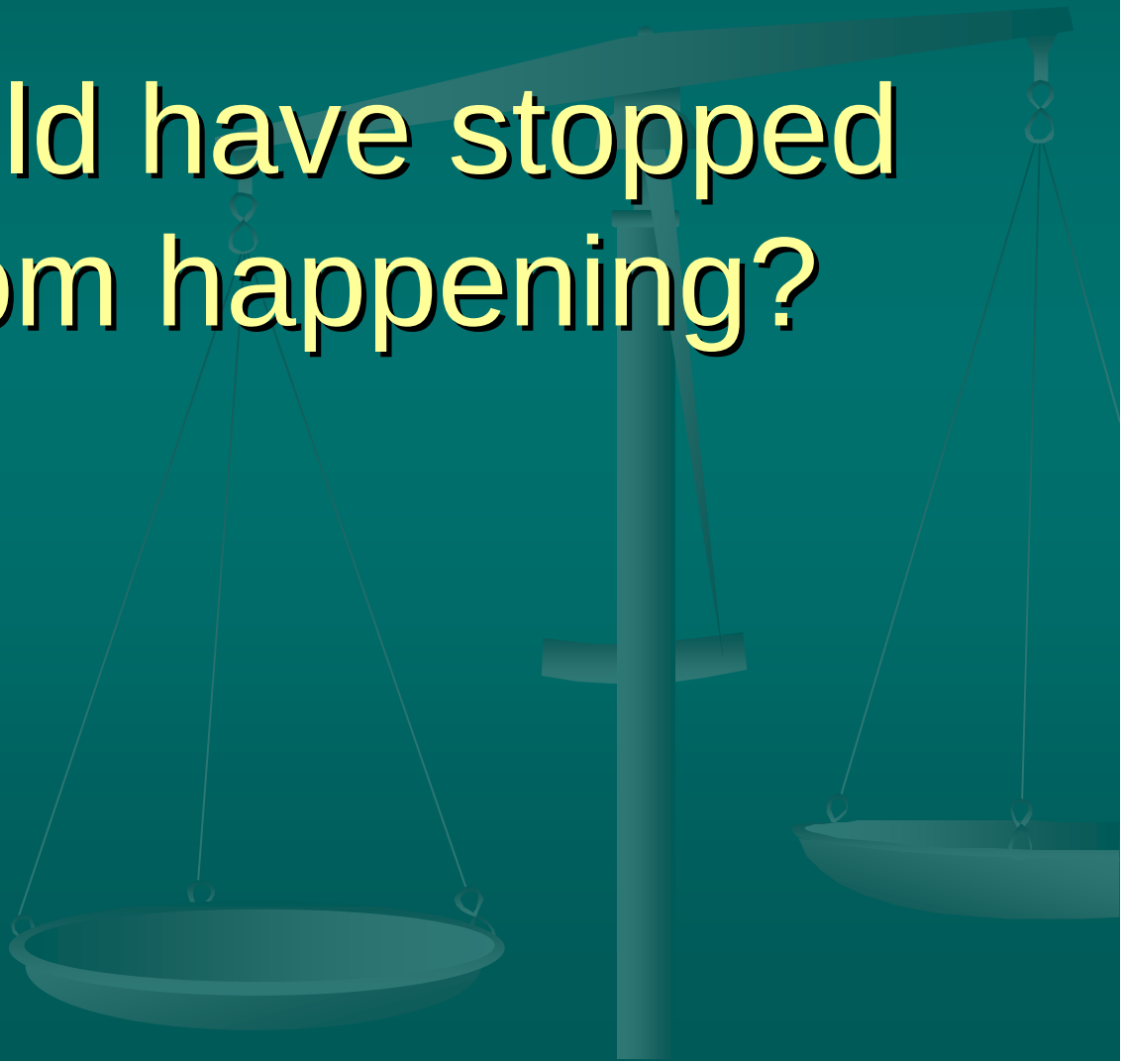
Frontline Supervisors contd.

- Discuss interaction with other nearby activities
- Discuss hold points:
  - Changing the work method mid-activity eg if you need to change the work method stop and call me and we will re-do the risk assessment
  - Change over time during the shift eg change to lighting conditions
  - Other activities coming into proximity eg people, plant
  - Coming into proximity to other hazards eg driving toward another vehicle

Key to a good nights sleep

- Ensure you have enough competent supervisors.
- Ensure they know how to instruct and are able to place hold points in the instruction in the event of change, so that workers are less likely to make a change to the method of carry out the work in ‘mid-stream’ without re-viewing the risk assessment and/or documented work method.
- Ensure the system elements which the supervisor relies on to be in place, are in place and effective/working;
- Have supervisor/worker feedback sub-systems in place to allow improvement, and
- Have emergency response capability.

What would have stopped these from happening?

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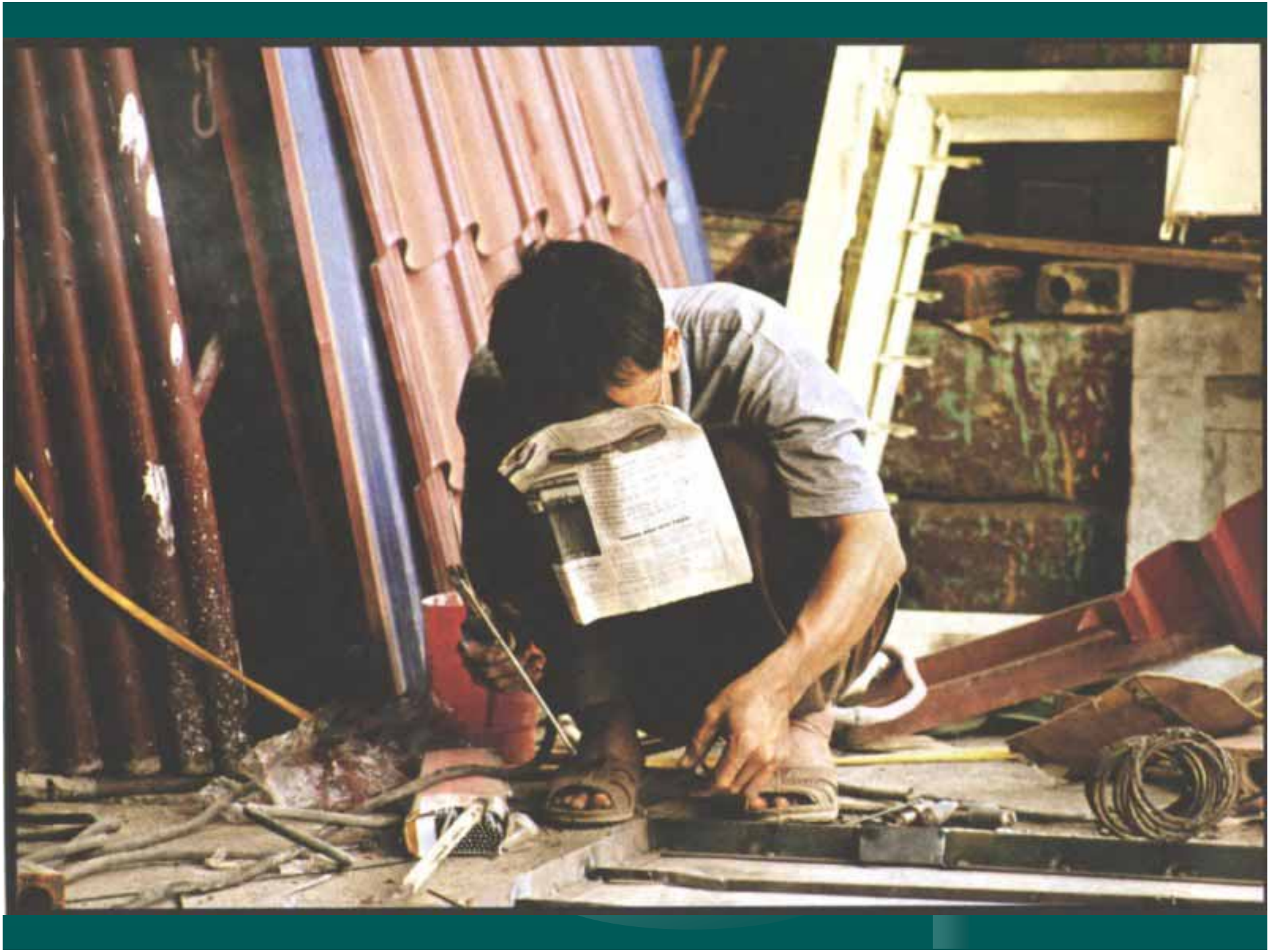
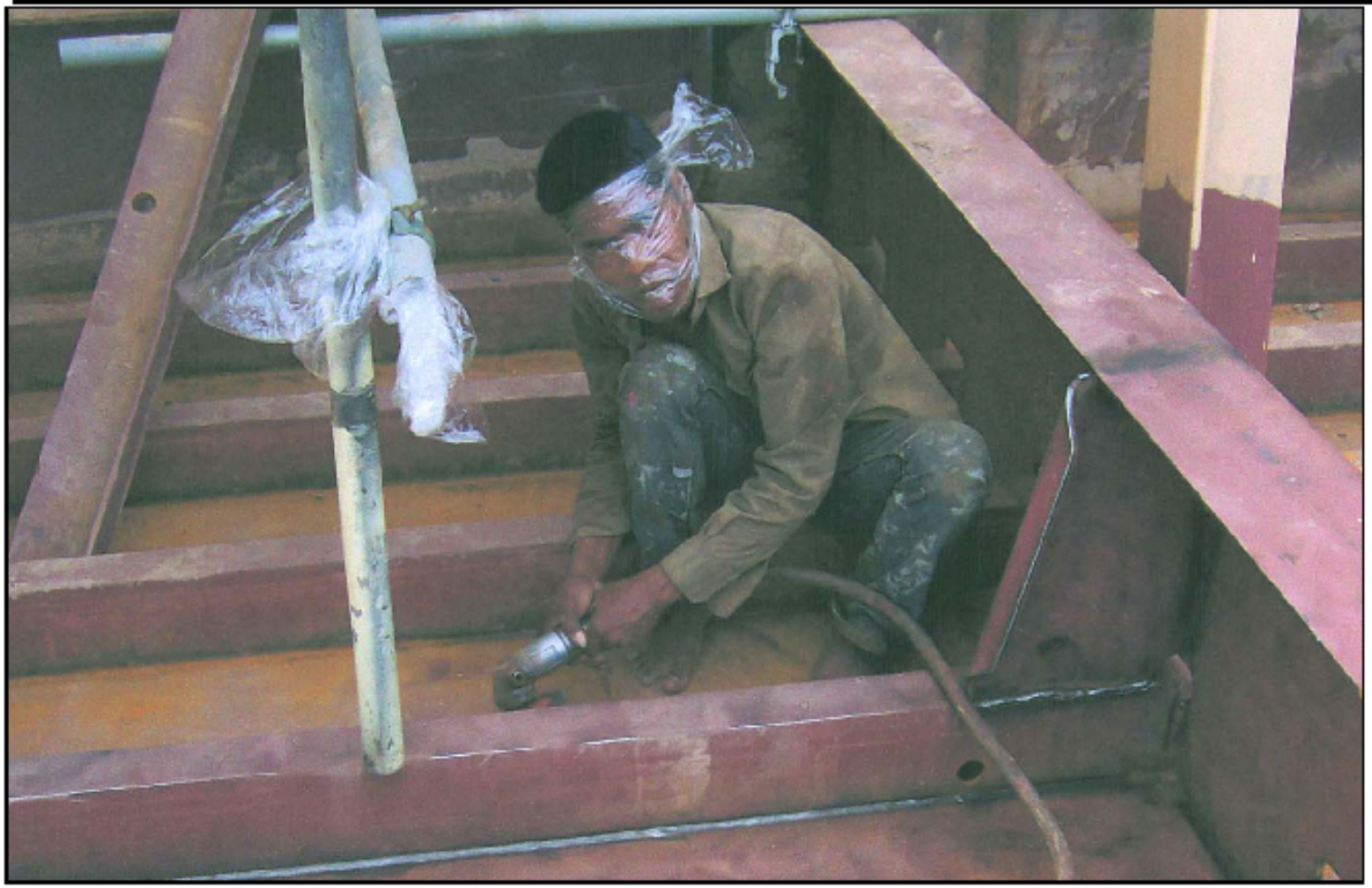


Safety Soapbox

Absolute Shocker of the Week



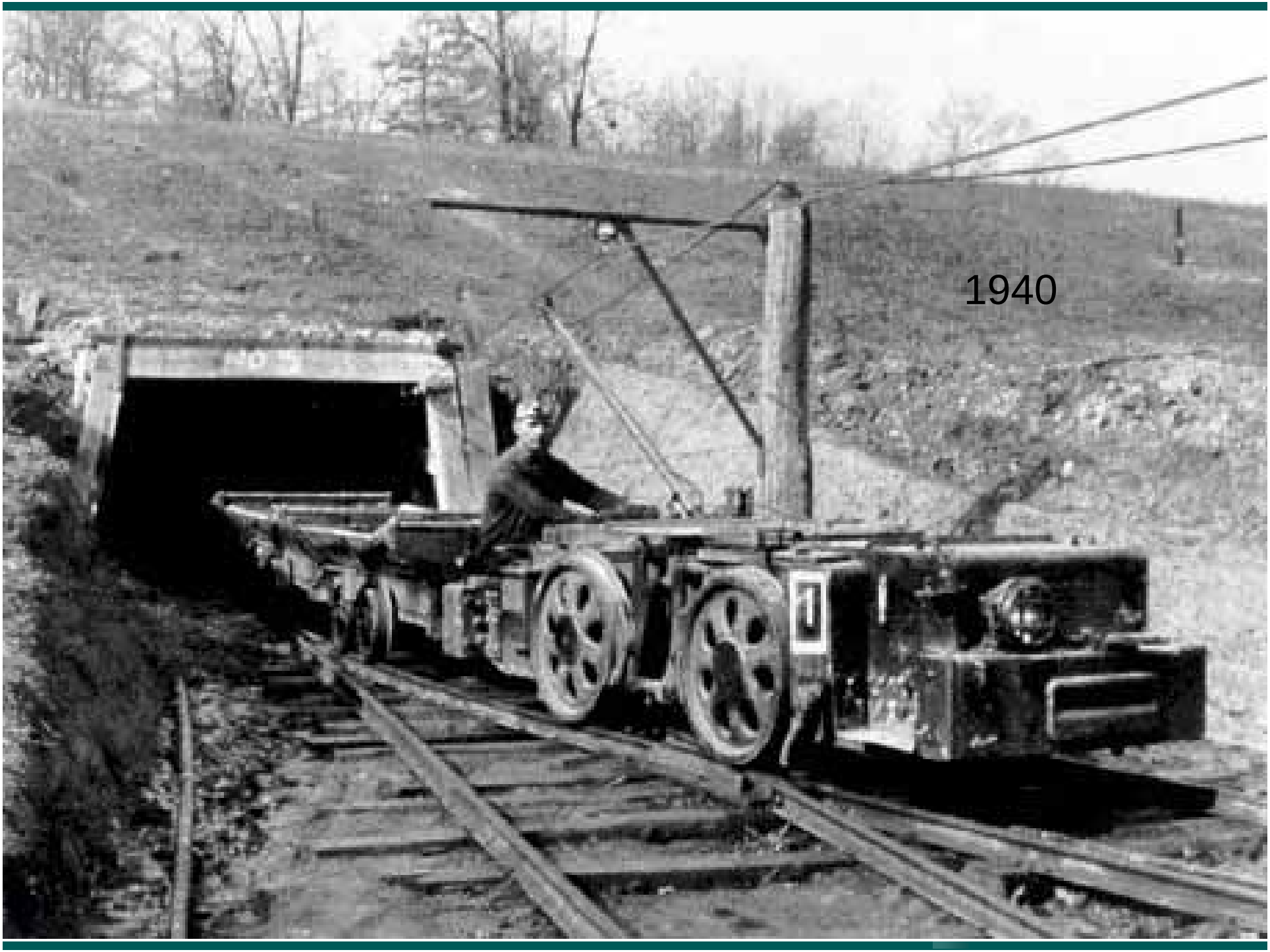
2 March 2007

We have improved

Black miner loading coal circa 1910.

1920

1921 Mines Rescue

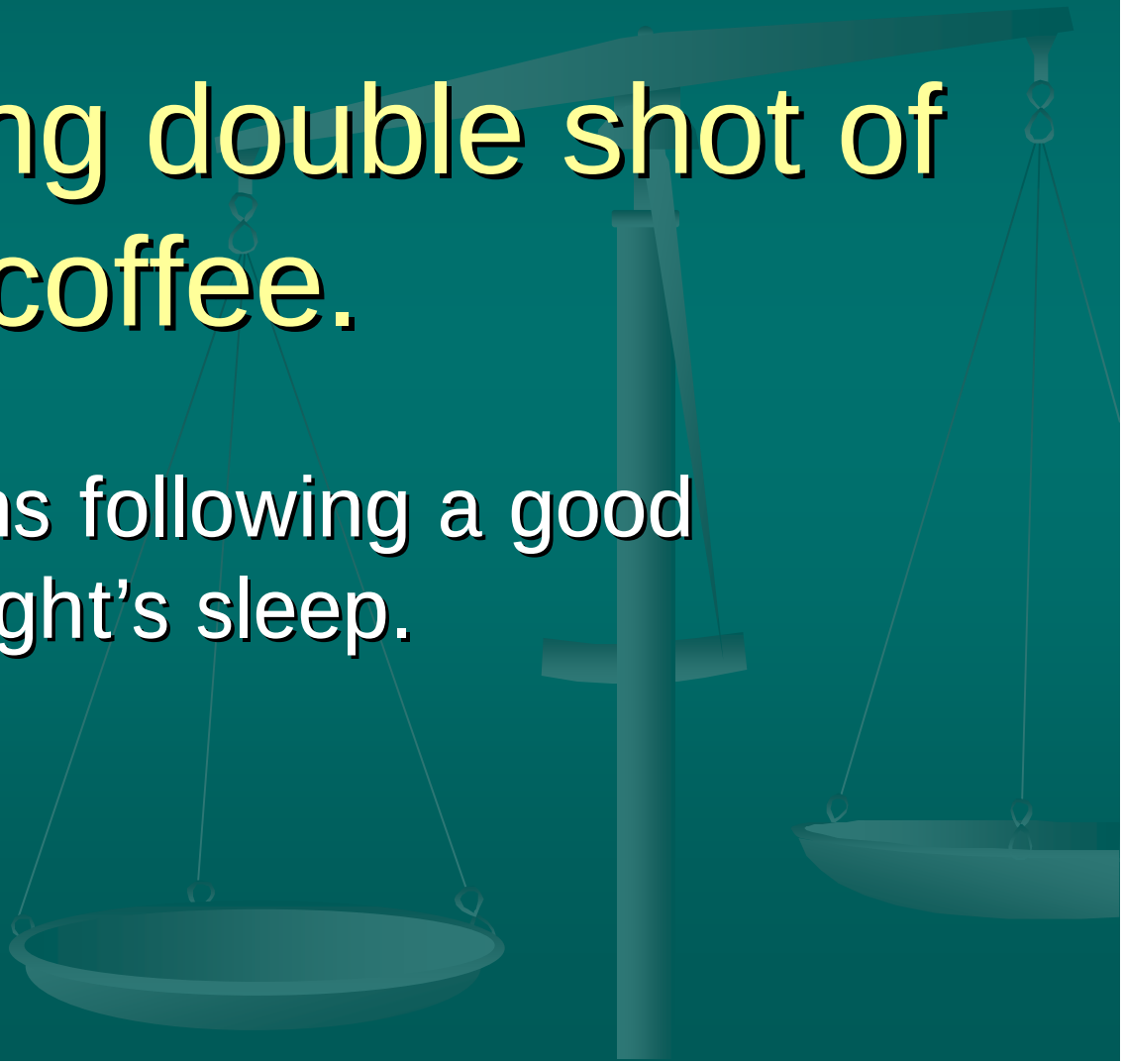

1940

Kianga Mine - DW21 Scrapers and D9 - 1961

Marion Type 8900 Dragline—130 c.y. Bucket, 275' Boom, 18,000 A.C. h.p., 13,239,000 lbs. Working Weight

The morning double shot of coffee.

Reflections following a good night's sleep.



Shelf Life of Controls

- What is the shelf life of the controls. eg. engineering controls have a shelf life of how often they need to be maintained.
- Administration controls have a very short shelf life, and are dependent on individuals not being prepared to take the risk or not make mistakes.
- Need to be aware of normalisation – people accept risks if it has been like that “forever”.

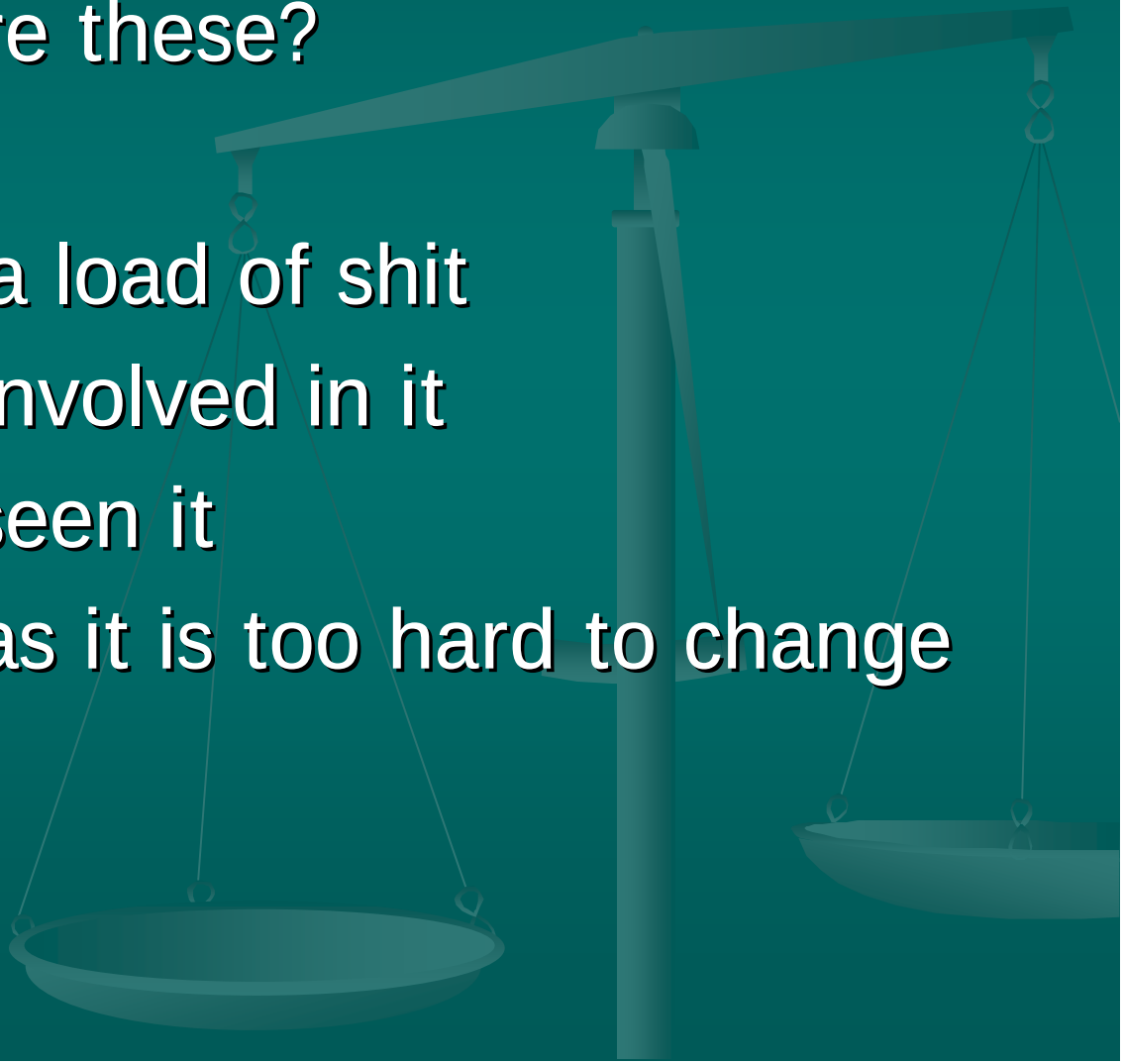
Procedures – Why aren't they always followed?

- Some procedures are too complicated for the worker - written for legal reasons rather than practical communication.
- Large procedures are often not read and/or absorbed by the workforce - they assume the identity of a door stop.
- Copying procedures from other mines without completing a risk assessment for your our own mine. Procedures need to individualise for your own mine, ensure that all the risks and controls you have come up with are incorporated into the procedure.

The Excuses

Whose excuses are these?

- They think it is a load of shit
- They were not involved in it
- They have not seen it
- Don’t follow it, as it is too hard to change it.



The Human Condition

"Everyone, and that includes you and me, is sometimes careless, complacent, overconfident and stubborn. At times, each of us becomes distracted, inattentive, bored and fatigued. We occasionally take chances, we misinterpret and we misread. These are completely human characteristics."

AL CHAPANIS

Ownership

- Get the appropriate people involved, and get their ownership.
- Break down the safety and health management system, and ask the people who are in charge of the sections how they are going to achieve the objectives of the SHMS.
- Do not limit this to the management level, but include the supervisor of the shop floor, foreman level, etc.
- Give them ownership of how they are going to do be effective and make them accountable.

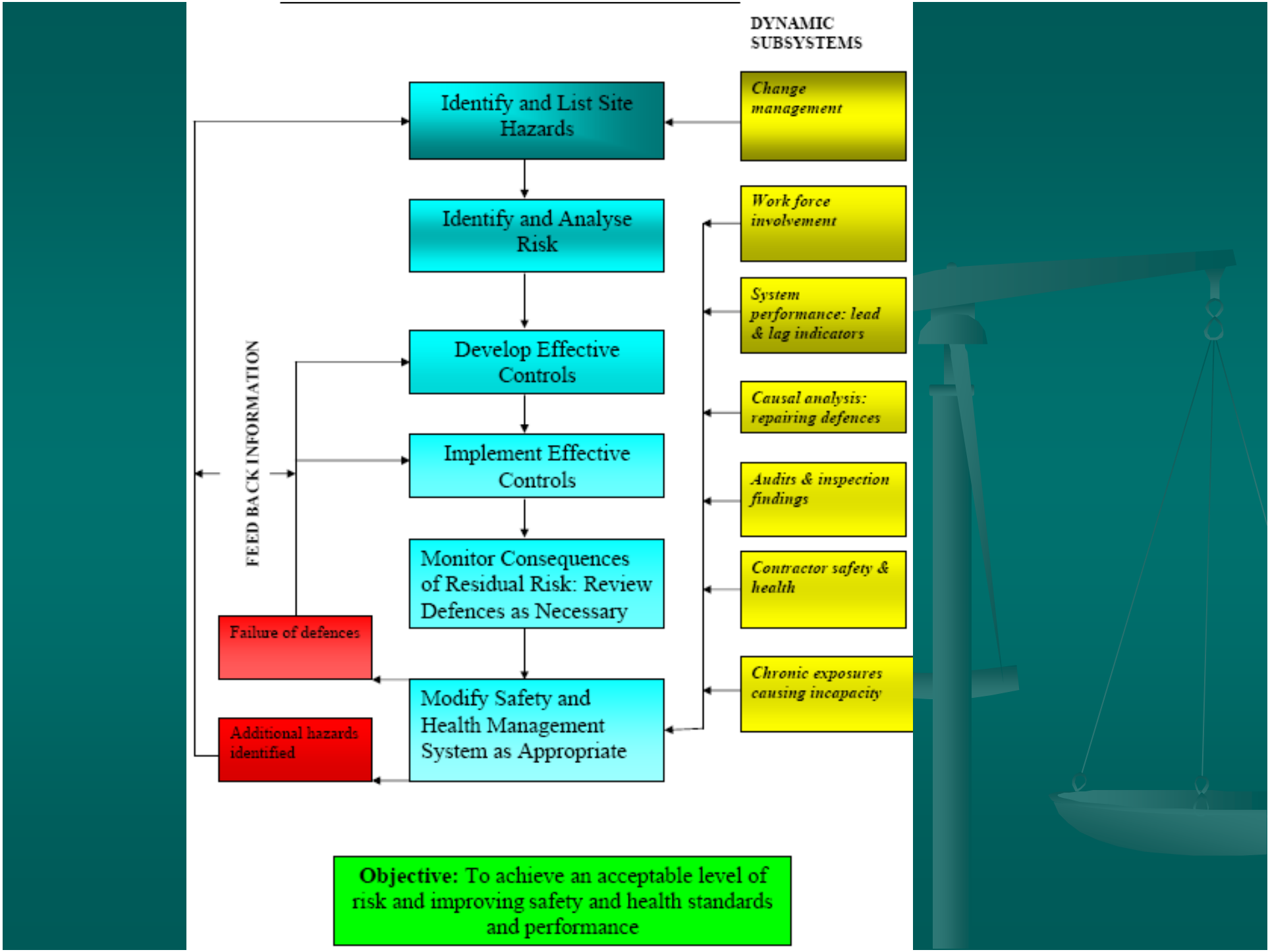
SHMS Subsystems

- Change management;
- Workforce involvement;
- System performance: lead and lag indicators;
- Casual analysis: repairing defences;
- Audit and inspection findings;
- Contractor safety and health;
- Chronic exposure causing incapacity.

Industry's Role

It is the Operators safety obligation to review the effectiveness of the SSE's Safety and Health Management System!

How can the SSE develop and implement an effective SHMS and how can the Operator review it for effectiveness unless the industry has a clear vision of what an effective SHMS looks and feels like?


DYNAMIC SUBSYSTEMS
Identify and List Site Hazards
Identify and Analyse Risk
Develop Effective Controls
Implement Effective Controls
Monitor Consequences of Residual Risk: Review Defences as Necessary
Modify Safety and Health Management System as Appropriate
FEED BACK INFORMATION
Failure of defences
Additional hazards identified
Change management
Work force involvement
System performance: lead & lag indicators
Causal analysis: repairing defences
Audits & inspection findings
Contractor safety & health
Chronic exposures causing incapacity
Objective: To achieve an acceptable level of risk and improving safety and health standards and performance

A Safety and Health Management System

Make an industry defined vision of what constitutes an effective Safety and Health Management System their monument.

“Make safety their monument”