

Chapter 2. Introduction

Evolution of Safety Culture:

Traditionally, attempts to identify the most effective methods for preventing accidents have typically addressed two fundamental issues: Whether or not employees should be provided with the maximum possible protection. Implicitly recognising that the potential for an accident is always present, the first approach is based on the fundamental belief that protecting an individual from the potential for harm, either by statutory means or via physical barriers, is the best way to proceed. The second approach is predicated on the fundamental belief that, if the individual possesses the relevant knowledge and skills, accidents will be avoided. Traditionally, attempts to improve safety in the workplace have addressed these issues via legislation, engineering solutions, safety campaigns or safety training. However, as a result of inquiries investigating large-scale disasters such as Chernobyl, the Kings Cross fire, Piper Alpha, Clapham Junction, etc., more recent moves to improve workplace safety have focused on the concept of an identifiable safety culture.

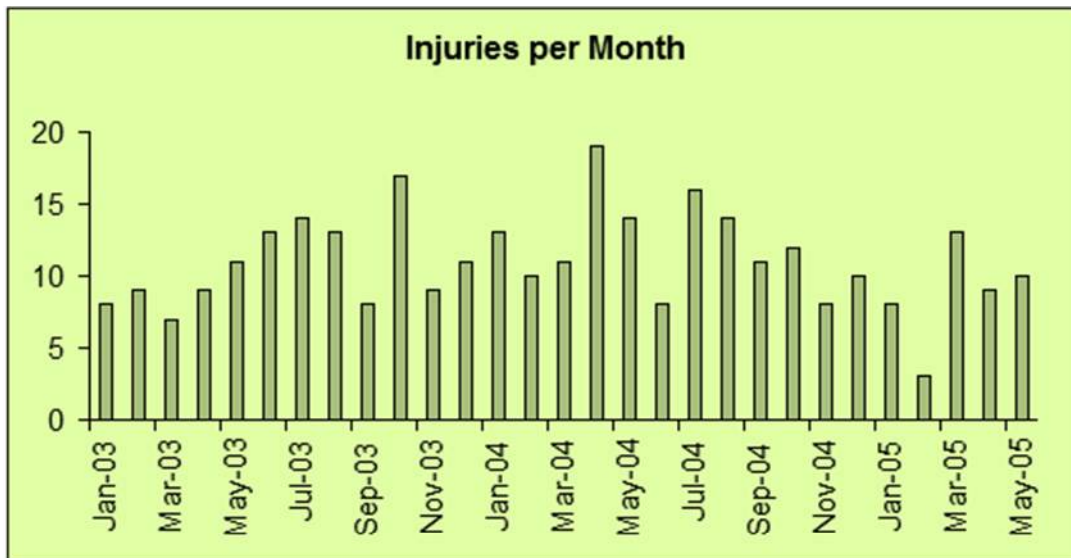
Whilst incorporating all the traditional routes to improve safety, the concept of safety culture goes much further by focusing on whether or not employees should be trained to recognise potentially hazardous situations and take the most appropriate actions.

Organizational Characteristics of good Safety Culture:

In parallel with the development of the accident causation models, researchers attempted to identify certain organizational characteristics thought to distinguish low accident companies from high accident companies. **Conducted in the USA during the early 1960s to the end of the 1970s across a wide variety of industries, this research discovered the following consistent features:**

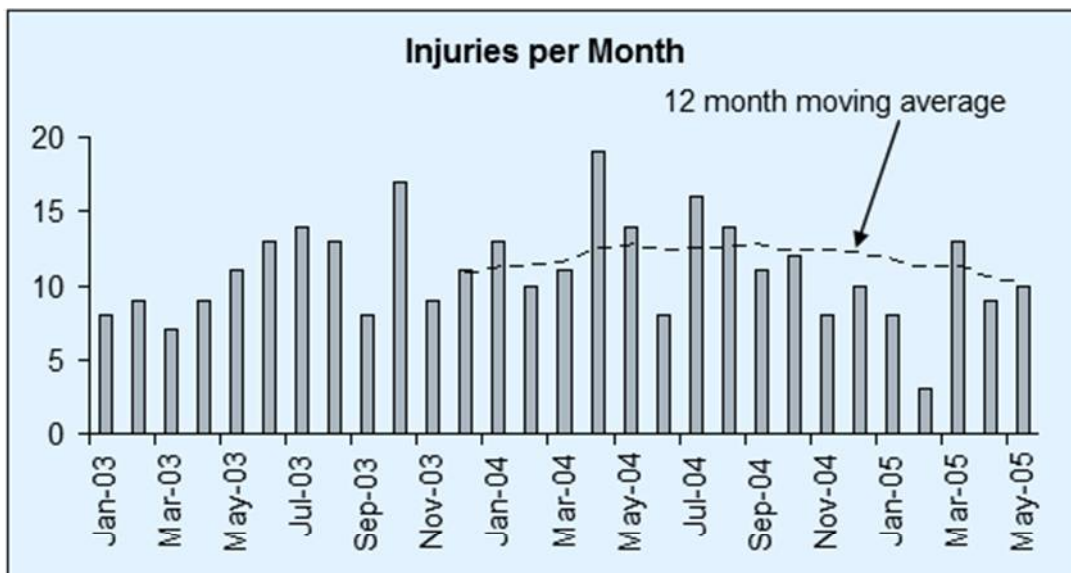
- Strong senior management commitment, leadership and involvement in safety
- Closer contact and better communications between all organisational levels
- Greater hazard control and better housekeeping
- A mature, stable workforce
- Good personnel selection, job placement and promotion procedures
- Good induction and follow-up safety training
- Ongoing safety schemes reinforcing the importance of safety, including 'near miss'
- Reporting

Below Table shows the actual injuries happened due to unsafe act, this needs to be reviewed seriously to control all kinds of work place injuries by implementing best safe working practices in the organisation.

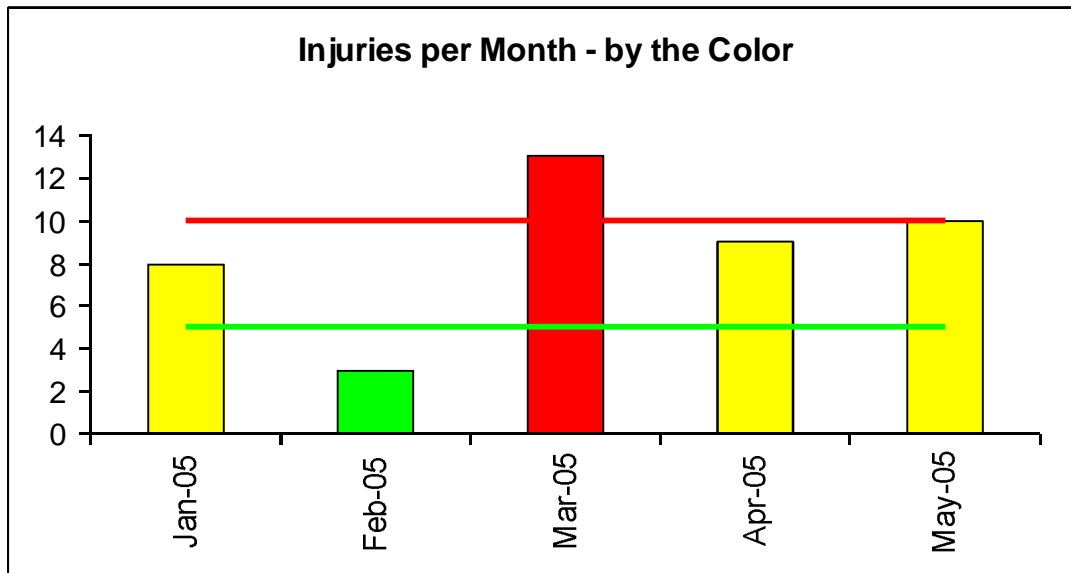


Great improvement July 2004 – February 2005!!!

Alas, something obviously has gone wrong in March. We jumped from 3 injuries to 13. The injury rate increased more than 400%!



Addition of a 12 month moving average shows us we are actually improving! Or are we?



By incorporating the lesson learned from implementing HSE initiatives the other essential features which includes:

- Accepting that the promotion of a safety culture is a long term strategy which requires Sustained effort and interest.
- Adopting a formal health and safety policy, supported by adequate codes of practice and
- Safety standards.
- Stressing that health and safety is equal to other business objectives.
- Thoroughly investigating all accidents and near misses.
- Regularly auditing safety systems to provide information feedback with a view to developing ideas for continuous improvement.

Impact of Safety Culture on Quality:

Organizations revealed that better work methods and reduced absenteeism had contributed to improved organizational performance, while also impacting on product quality. Similarly, construction industry studies have shown that projects driven by safety are more likely to be on schedule and within budget. The safety culture of Shell, for example, was shown to have had a significant effect on the progress and completion of a new natural gas liquid plant at Mossmorran, Scotland. Major investments in safety in the British Steel industry not only resulted in significant reductions in accidents with corresponding increases in productivity, but also led to increasingly positive attitudes about quality and safety.

Impact of Safety Culture on Reliability:

The impact of safety culture on the reliability of technological systems is thought to be indirect via organizational structures and processes: partly because the reliability of complex technical systems (e.g. manufacturing plant) is dependent on the quality of its structural components and sub systems; partly because human reliability is dependent on the variability of human error probabilities; and, partly because of the interaction between them. Nonetheless, reliability has been reported to improve by a factor of three, and sometimes by as much as a factor of ten, when quality improvements are initiated. It is likely, however, that some of these improvements are related to the use of better monitoring and feedback systems, both of which are vital safety culture features, and as a result of streamlining production processes.

Impact of Safety Culture on Profitability:

Although a focus on safety has often been seen as non-productive expenditure demanded by law, it can also contribute to profit by minimizing loss and adding to the capital value of an organisation. For example, construction industry research has shown that an investment of 2.5% of direct labour costs in an effective safety program should, at a conservative estimate, produce a gross saving of 6.5% (4.0% net) of direct labour costs. Similarly, an 82% decrease in lost-time accidents which resulted from a behavioural safety programme saved a manufacturing company an estimated £180,000 to £360,000 in compensation costs in just one year. These figures were considered conservative, as the estimated savings did not reflect those associated with a 55% decrease in minor injuries. In the normal course of events, generating this level of profit might require an extra 30% to 40% of production capacity. As the latter illustrates, the costs of accidents can be considerable. Previous estimates by the Confederation of British Industry (CBI) in 1990 suggested that the minimum non-recoverable cost of each accident was £1,500, whether investigated or not. Similarly, in 1993, based on research in six industries, the Health and Safety Executive's (HSE) Accident Prevention Advisory Unit (APAU) estimated that only £1 in £11 lost as a result of workplace accidents is covered by insurance.

Indeed the typical costs associated with accidents include:

- Lost production caused by:
 - Time away from job by injured person and co-worker(s) in attendance
 - Time spent by first-aider attending injured person
 - Possible downtime of production process

– Possible damage to product, plant and equipment

- Time and costs due to repair of plant and equipment.
- Increased insurance premiums.
- Legal costs.
- Medical expenses.
- Compensation costs to injured employees.
- Absenteeism.
- Lower morale of employees leading to poor performance and productivity.
- Unsatisfactory employee relations.
- Low levels of motivation.

Table 1: Performance Monitoring Indicators:

These reactive indicators will be monitored for reporting purposes.

	Performance Indicator	2000 Actual	2001 actual	2002 actual	2003 actual	2003 target	2004 Actual	2005 Expectation
Health	LTOIF	5.2	2.8	1.9	3.4	1.8	2.5	2.25
	TROIF	16.8	19.1	10.5	9.9	13	5.4	12
Safety	Fatalities	12	0	8	5	0	2	0
	LTIF	0.79	0.37	0.87	0.67	0.45	0.73	0.60
	TRCF	3.5	2.60	3.06	2.56	2.00	3.10	3.10
Road Safety	Fatal Accident Rate	11.5	0.0	9.99	7.07	0	3.24	3.24
	VIAR	14.77	0.86	17.78	12.21	0.89	4.34	4.34
	JMR	2.17	1.89	1.97	2.17	1.57	1.92	1.92
Env.	CEPI **	48	36	28	23	80	68	68
	GWP (mln tonnes CO2 equiv.)				6.08	6.2	6.10	6.10

Table 2: Proactive Indicators:

The main drive is to use these indicators to manage for our HSE Performance.

Mandatory Minimum Proactive Indicators

	PI
1	% Of STOP Tours Made Against Planned.
2	STOP Coverage – % Of Staff/Contractor Staff Trained
3	% Of Employees In Workforce That Have Had A 2-Yearly Medical Within Past Two Years
4	% Of Journey Managers Certified Competent.
5	% Of Journey Managers Trained To New Competence Level(Attended New Workshop)
6	% Of Advisers Who Completed HSE Advisers Propulsion Project
7	% Implementation Of Hand And Finger Injuries Reduction Plan
8	% Completion Of HSE Case Remedial Actions In Target Time

Table3: Recommended Proactive Indicators

	PI
1	Number Of STOP Observations Cascaded As Lateral Learning To Other Teams.
2	% Of Teams And Contractors Adopted New Road Safety Case To Their Operations
3	% Of Fleet Managers Trained
4	% Of Plant Operators Trained
5	% Reduction In Weaker HSE Performers
6	# Of CFC Sources Currently Being Stocked
7	% Of Current Stock Phased Out (By Q1, Q2, Q3, Q4) Per Team And Contractor
8	% Completion Of EIA Remedial Actions In Target Time
9	% Of Assets With Finalized Waste Management Plan.
10	% Implementation Of Waste Management Plan Per Asset
11	% Of Facility HRA's Completed.
12	% Hand And Finger Injuries Reduction Against 2002 Performance
13	# Of Work Related Health Issues Identified By Health Surveillance