BEHAVIOUR BASED SAFETY

By

V. Narasimhan

Conducted by

Institution of Safety Engineers (India)

www.iseindia.in

Institution of Safety Engineers (India)

Welcome

in Free Webinar Session

on

"Behaviour Based Safety"

on

11 Oct. 2021, 3:00 PM to 4:15 PM

ISE (India)

INSTITUTION OF SAFETY ENGINEERS (INDIA)

Behaviour Based Safety Management

About us

Institution of Safety Engineers (India) is Non - Profitable organization set up in year 2012 under ZJEW Trust, Govt. Reg. No. 5240 and working with objective to prevent accident, protect environment & minimize losses during disaster. Institution of safety engineers (India) imparting safety, health, environment & quality related training to needy & provide similar services to industries, organization, institution to achieve zero harm.

MEMBERSHIP SERVICES

JOURNAL PUBLICATION

SAFETY HEALTH ENVIRONMENT RELATED TRAINING & SERVICES

ISEI AWARD

OUR SPEAKER

Mr. V. Narsimhan: Expert in Process Safety Management and Chemical Engineering & Senior Member of Institution of Safety Engineers (India)

Miss Tamanna Afroz : B.Tech, PDIS, SMISE Co-ordinator, Institution of Safety Engineers (India)

1. • Lesson 1
   • INTRODUCTION
2. • Lesson 2
   • H.W. Heinrich's theory
3. • Lesson 3
   • Behaviour Laws
4. • Lesson 4
   • Principles of Behaviour Safety
5. • Lesson 5
   • ABC Behaviour Model
6. • Lesson 6
   • BBS Strategies
7. • Lesson 7
   • BBS Programme and Cycle
8. • Lesson 8
   • Case Studies

Course Outline

What is BBS?

Behavior-Based Safety refers to the use of applied behaviour analysis models to achieve continuous improvement in safety performance, in-depth research about what works and what doesn't.

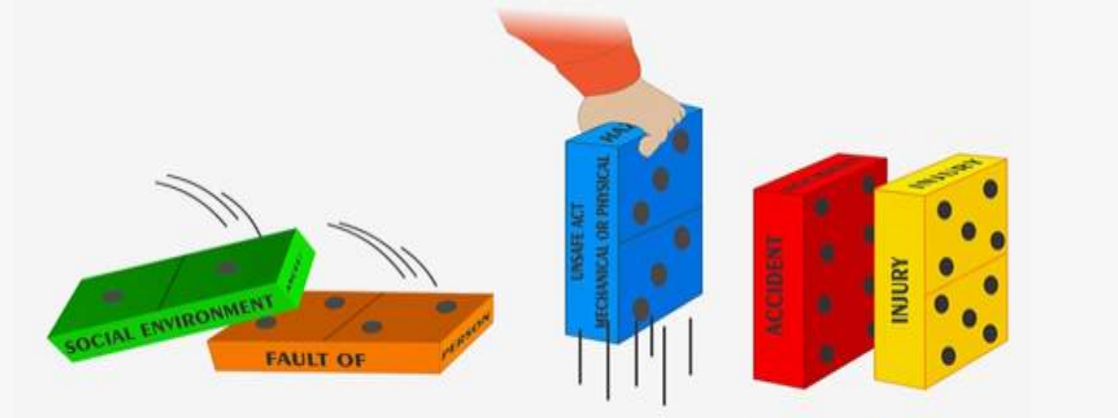
According to Krause, safety programs fail Because they rely too much on antecedents --things that come before behavior -- safety rules, procedures, meetings, and so on.

Why BBS?

Accidents and the related fatalities and injuries are going up

To reduce this trend, change in thought process is required.

More than 90% of the accidents are caused due to unsafe behaviour.

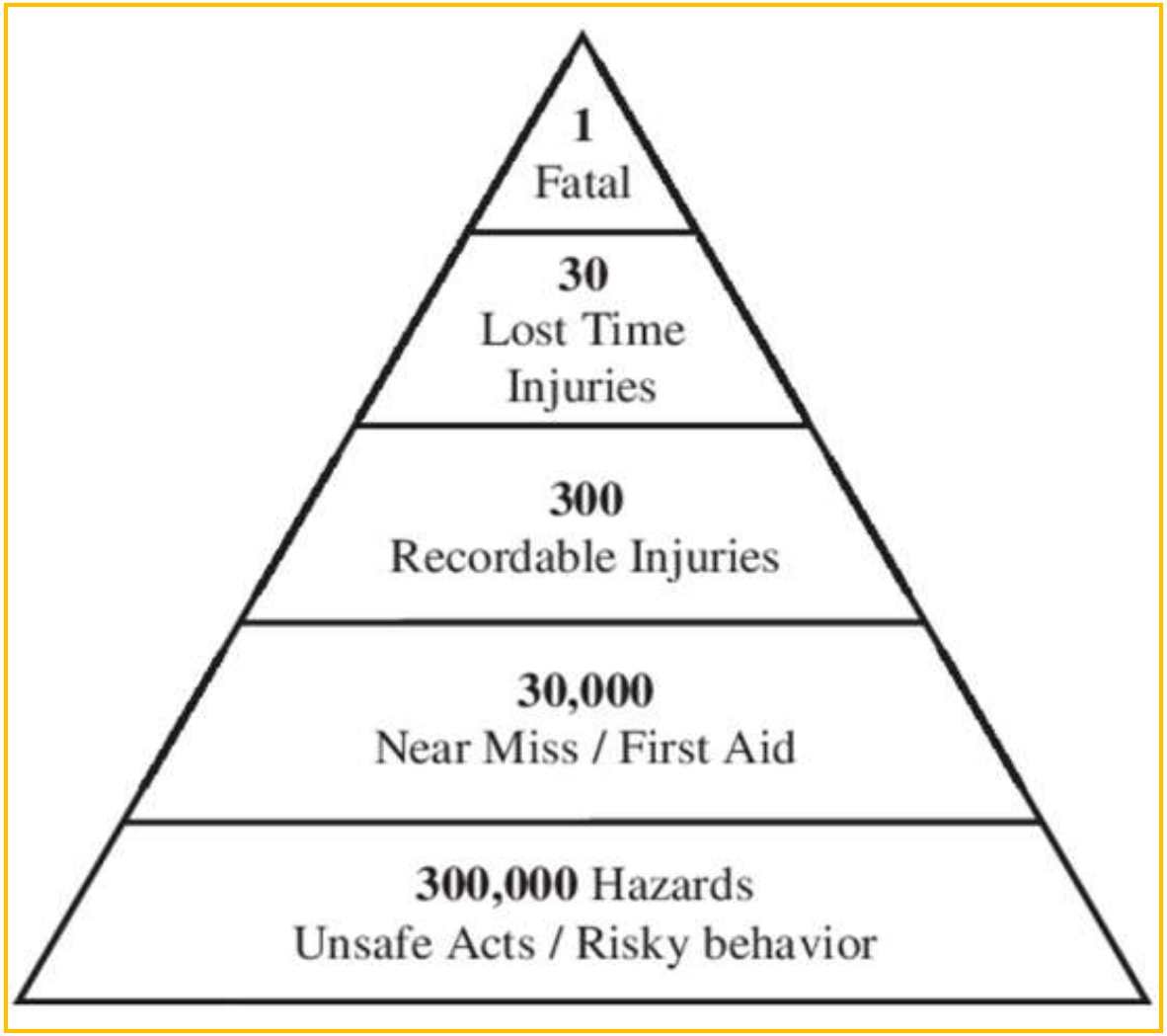


Controlling behaviour prevent orgnisational harm (Accident)

Heinrich's Theory

- Heinrich's theory serves as the basis for the behavior-based safety theory.
- This implies that 85 – 90 % of workplace accidents are caused by unsafe behavior.
- On reviewing numerous accident reports, Heinrich concluded that workers were generally responsible for these accidents, but did not investigate the causes.

HEINRICH'S PYRAMID



HEINRICH'S THEORY

Five stages

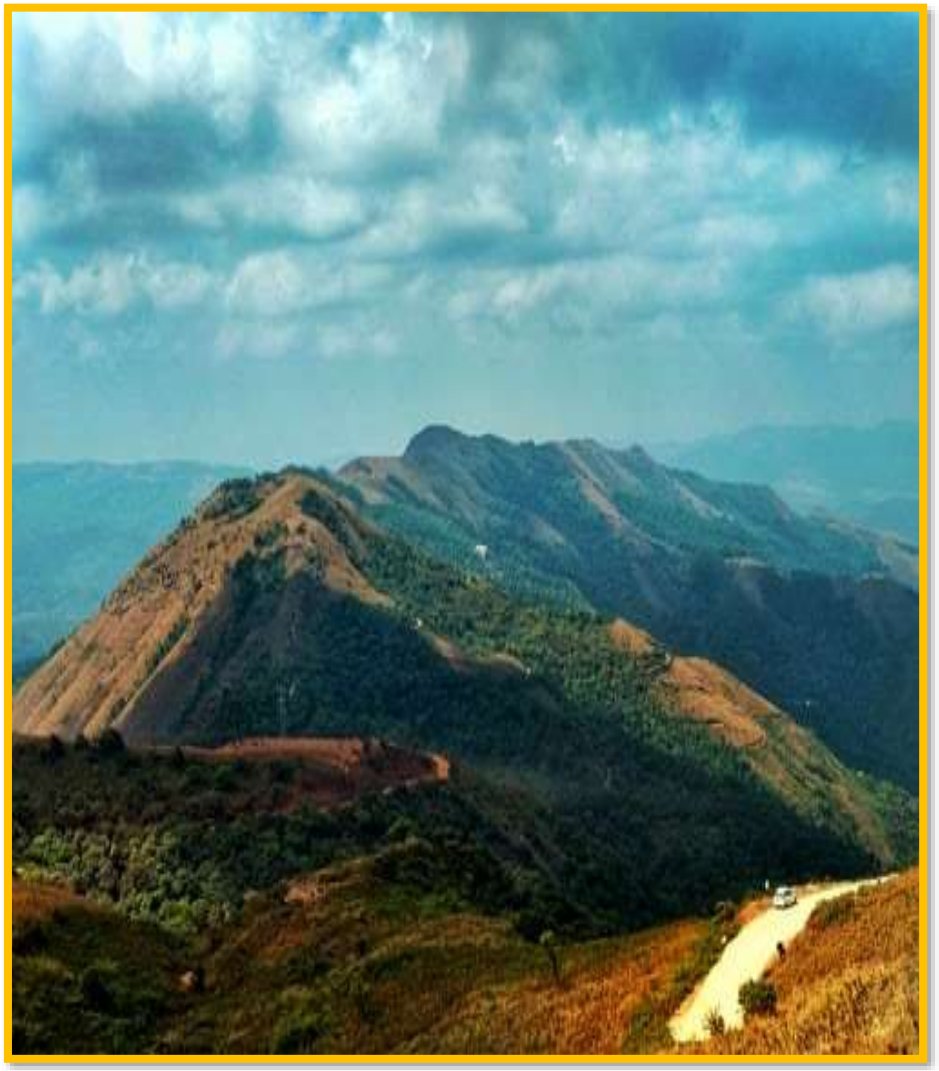
1. Social environment

2. Faults of a person

3. Unsafe act or condition

4. Accident

5. Injury



H.W. Heinrich's theory

1. Unsafe acts of persons result in majority accidents.
2. The person who suffers a disabling injury caused by an unsafe act on an average, narrowly escapes over 300 times from serious accidents as a result of committing the same very act.
3. The four basic motives /reasons for unsafe acts provide a guide selection of appropriate corrective measures.
4. These are improper attitude, lack of knowledge, physical unsuitability and improper mechanical or physical environment

.

H.W. Heinrich's theory (Contd.)

5. Four basic methods are available for preventing accidents: ensuing revision, persuasion, appeal, personal adjustment and discipline.
6. Management has the best opportunity and ability to initiate work of prevention there fore it should assume responsibility.
7. The supervisor is the key main individual in accident prevention. His application of art supervision for the control of work performance is the greatest influence in successful accident representation and taught as a four step formula - Identify the problem find and verify the reasons for the

UNDERSTANDING BEHAVIOR

SAFE BEHAVIOR

Skills, Risk Assessment, Acceptance of Risk or Risk minimisation

UN-SAFE BEHAVIOR

- **Mistake**

  Poor Skills, Poor Risk Assessment, Political issue, Poverty

- **Un Necessary Risk Taking**

  Rejection of risk

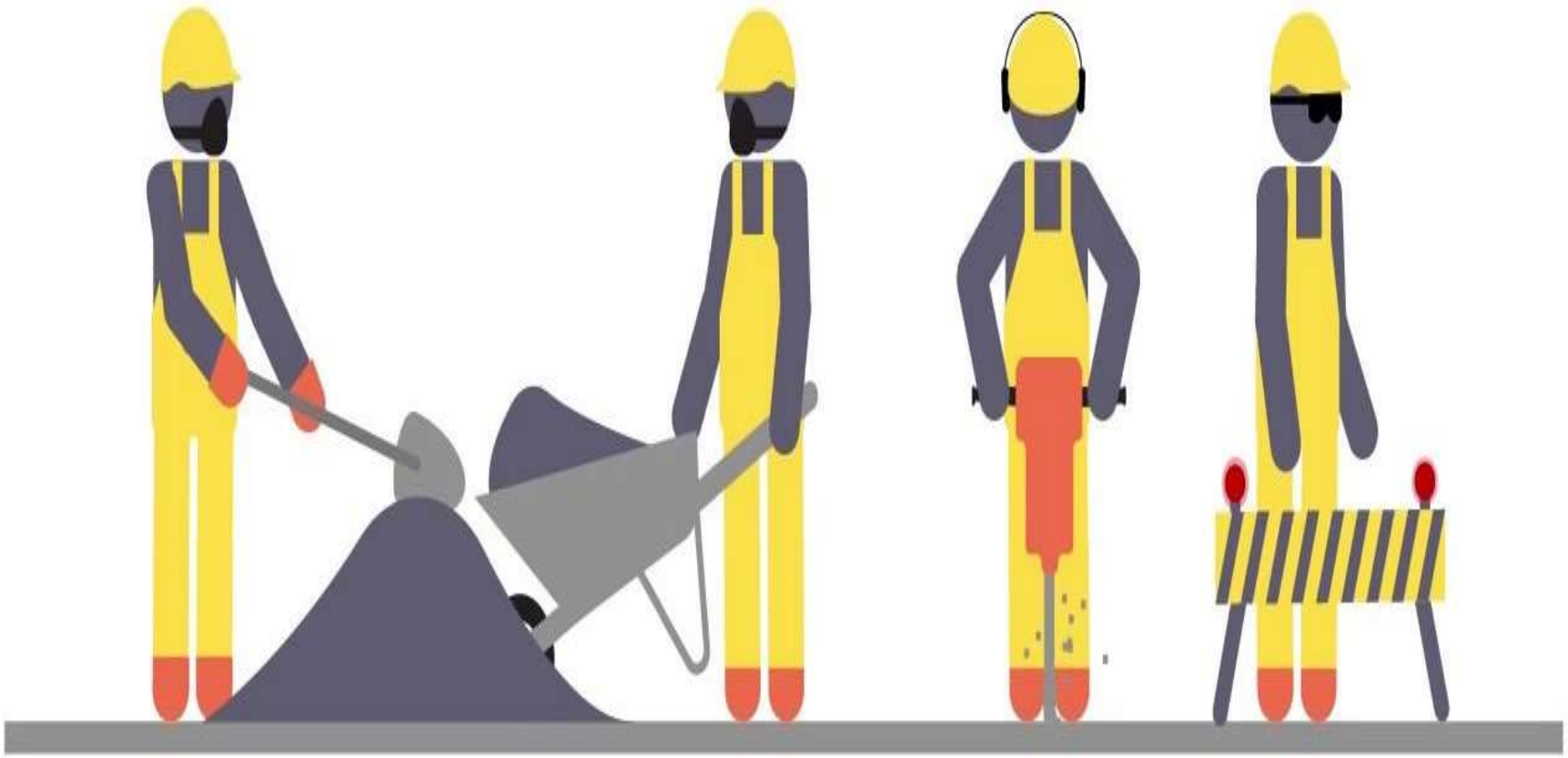
- **Unconscious Risk-Taking**

  Unaware about risk.

RISK (UNSAFE) BEHAVIOUR

RISK (UNSAFE) BEHAVIOUR

SAFE BEHAVIOUR



Behaviour Laws

- If the SAFE way is the EASY way, then people will behave SAFELY - behaviour has advantages and becomes habit
- If the SAFE way is DIFFICULT or uncomfortable, then people will be tempted to behave UNSAFELY - behaviour has disadvantages -unsafe becomes habit
- If we really understand the consequence of our actions, it will lead to SAFE behavior

Behaviour Laws

- Behaviours with advantages will be naturally reinforced and become a habit–Behavior has positive consequences
- Behaviours with disadvantages will be given up–Behavior has negative consequences
- Behaviours are influenced by expected outcomes–Behavior consequences need to be clear and important

Principles of Behaviour Safety

1. Fully engage employers to the significance of behavioural safety set standards for all employees, at all levels, with participation of all in safe behaviour.
2. Careless small behaviours lead to the magnitude of accidents and injuries. Targeting specific behaviour and creating a check list approved by all employees for input creates workplace involvement in safe behaviours.
3. Training employees to lead as monitors and active observation and reporting promote employer engagement and compliance.

Principles of Behaviour Safety

4. Historical review of previous injuries and accident data driven results for decision making.
5. Improvement intervention through a systematic observation by employees with regular meetings and brain storming will cultivate continuity of safety based behaviour.
6. Provide evolutions to employees or individual practices and safety behaviour.
7. Key leadership commitment is important to provide mentioning and examples for employees to commit the idea of working in an environment dedicated to safe behaviour.

Take a short cut

Nothing

You were lucky

You will do it the same way again (Habit)

HOW LONG WILL LUCK LAST?

Accident/Injury/ Disease

You learned the hard way

Next time do it differently (Correct way)

WILL YOU GET A NEXT TIME?

EXPERIENCE

&

BEHAVIOUR

ABC Behaviour Model

A → B → C

(Antecedent) (Behaviour) (Consequence)

Antecedents

Antecedents are preexisting sensory or intellectual input that trigger behaviors and influence decision-making

- Can be tangible/concrete or intangible/abstract
- Only as powerful as the consequences that support them

Antecedents

- Training
- Manuals
- Standard Operating Procedures
- Feedback

Behaviour

Behaviour refers to acts or actions by individuals that can be observed by others. In other words, behaviour is what a person does or says.

- Must be observable, measurable
- Any time, any where, by any body

Behaviour

- **Observable Behaviour** : Which can be observed while carrying out work in the factory, control rooms and offices etc.
- **Underlying Factor** is related to conditions and work processes that may be “root Causes” of observable behaviour

Examples -

✓ How well facilities or systems are designed for people’s use

✓ Clarity of management’s expectations to follow procedures

✓ The effectiveness of the risk assessments in understanding and managing hazards/risks

Consequence

A consequence is simply what happens to the performer as a result of the behavior.

A consequence can be:

Positive or negative: Does the consequence help or hurt from the performer's point of view?

Immediate or future: When will the consequence occur?

Certain or uncertain: What's the probability that the performer will experience the consequence

Consequence

- Recognition
- Rewards
- Punishment
- +/- Reinforcement

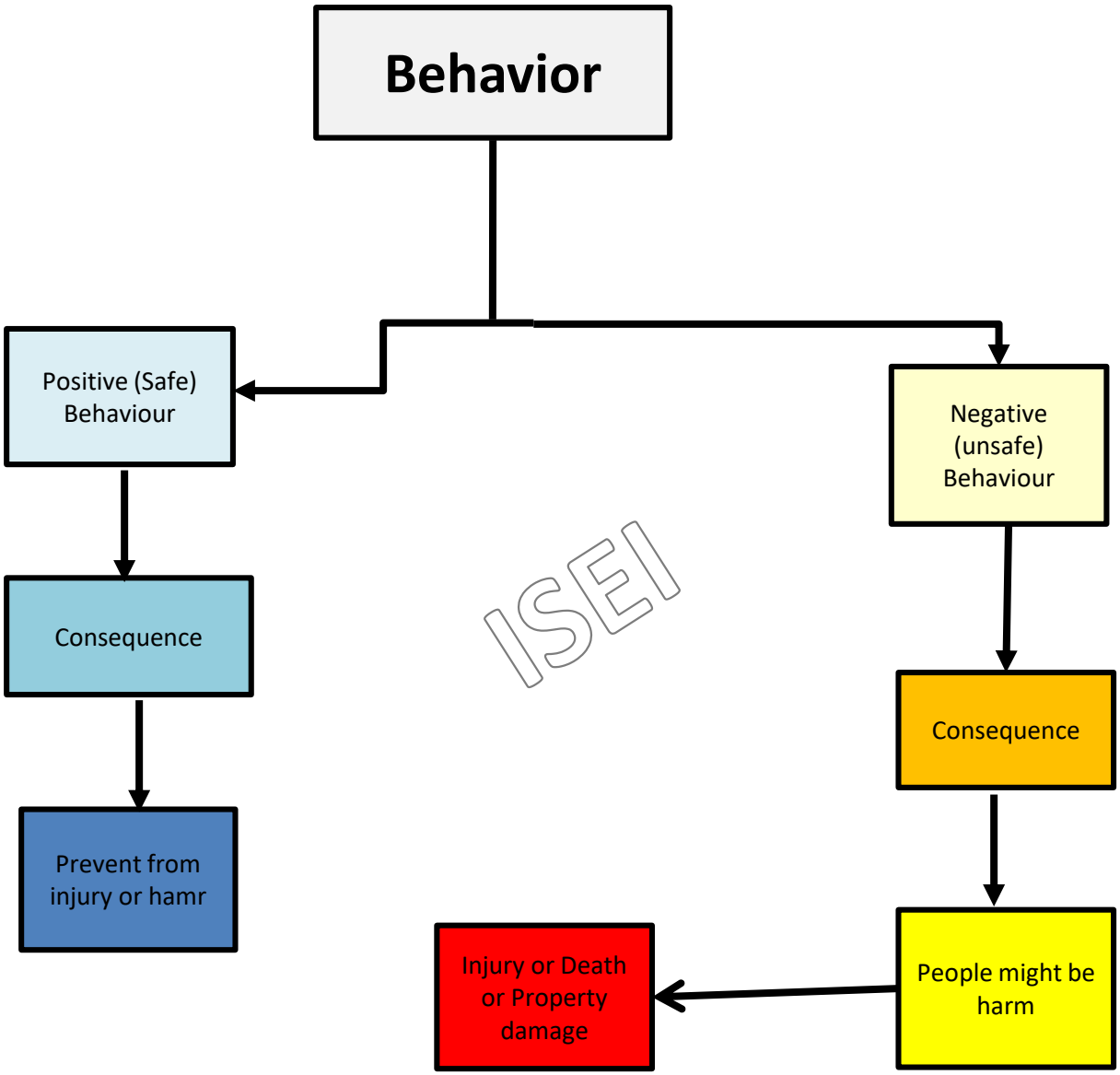
Consequence

Positive, Immediate and Certain (PIC) consequences are the most Effective consequence for maintaining or increasing Performance.

Performance

Performance is composed of a number, or series, of behaviours directed toward some outcome or goal.

HOW BBS HELP TO MINIMISE OR REDUCE RISK OR PREVENT ORGANISATIONAL HARM



BBS Strategies

- Reinforce / create positive consequences for Safe Behaviours
- Remove negative consequences of desired / Safe behaviours
- Clarify and Influence perception of potential consequences.
- Create negative consequences for unsafe Behaviour

Traditional Safety Management

- Relies primarily on Strategy #1. Emphasis on antecedents to influence behavior
- Motivation - avoid negative consequences.
- Occasional negative reinforcement - discipline and loss of rewards.

Contemporary Behavior Based Safety Management

- Relies primarily on Strategies #2 and #3. Emphasis on consequences to influence behaviour. Does not attempt to measure (but does not ignore) attitudes because it's very complex.
- Motivation. Receive positive consequences
- Frequent positive reinforcement - frequent recognition and occasional reward.

Dan Petersen's Three Basic Strategies to Influence Behaviour

1. To change attitudes in the belief that our behavior is consistent with our attitudes.
2. To build a psychological climate in which people will choose to behave as we wish, since that behaviour helps to satisfy their current needs (We call this motivation)
3. To modify behaviour through the systematic use of reinforcement following behaviour to influence future behaviour

BBS Programme and Cycle

Before starting the BBS program, we tackle any concerns and address any flaws and weakness in current Occupational Health and Safety approaches .

Subsequently we start tracing employers and management to enable them to execute behavioural observations and create self reliance.

BBS Programme

Behavioural observation skills and self reliance by observing behaviour in couples consisting of a Manager and employee. Together they observe other employees and establish + ve dialogues to motivate employees to take the right behavioural decisions. By stimulating such reliance among the work force ,this program enable +ve results on quality and process improvements as well.

BBS Programme

- Pinpoint safe behaviours
- Communicate safe behaviours
- Make behaviour observations
- Provide Feedback

Workplace Observations

- To create / Maintain a safe workplace through positive dialogue between observers & the observed BY
- Recognition of safe behaviour
- Reciprocal openness and trust (confidence, candor, honesty)
- Cooperative learning
- Shared identification of hazards and safe(r) work methods

The Safety Improvement Process

1. **Identify critical problem behaviours**. These become action items to work on.
2. **Identify root causes**. The "basic things" that need to be fixed to eliminate the problem.
3. **Generate potential actions**. Think of as many solutions as possible.
4. **Evaluate possible actions**. Choose those that are most productive.
5. **Develop an action plan**. To carry out the chosen solutions.
6. **Implement the action plan**. Carry it the change. Limit variables.
7. **Conduct follow up.** Problem solved? Measure and evaluate.

BEHAVIOUR BASED RISK EVALUATION METHOD

I Identification of

S Safety related

E Error of human through

I Inspection or investigation or information collection

(To identify People Behaviou

Identify BBS through ISEI Method

Identification of Safety related error of human through inspection or investigation or other sources to identify behaviour of employees and ensure adequate measure to prevent risk behaviour

BEHAVIOUR BASED SAFETY

- Identify Cause of Negative Behavior
- Develop Action Plan
- Discuss with Management
- Implement it effectively
- Checking & reviewing

BEHAVIOUR BASED SAFETY DEVELOP MEATHOD AMONG ORGANISATION EMPLOYEES

BEHAVIOUR BASED SAFETY

- Identify Cause of Negative Behavior
- Develop Action Plan
- Discuss with Management
- Implement it effectively
- Checking & reviewing

BEAPI METHOD

BE: Behaviour Evaluation

Select the **element** as per nature of organization and identify **sub-element** of each element and check their compliance status. Few Elements related to behavior of people are:

- ❑ Work method & position (Behavioral)
- ❑ PPE uses (Behavioral)
- ❑ Safety Rules, Regulation Compliance (Behavioural)
- ❑ Tools & equipments (Behavioural)
- ❑ Housekeeping Compliance (Behavioural)
- ❑ Participation in Safety Program such as Training, meeting etc. (Behavioural)
- ❑ Hygiene & Welfare Amenity and their Proper utilization (Behavioural)

We can categorise compliance status of sub element wise as per below method

N.A ☐ Complied ☐ Under Progress ☐ Not-Complied ☐

Health monitoring & Counseling of employees help to identify Behaviour.

AP: Action Plan Preparation

I: Implement to action plan

B: Behavior

E: Evaluation

A: Action Plan

P: Preparation

I: Implement to action Plan

Sample BBS Observation Checklist

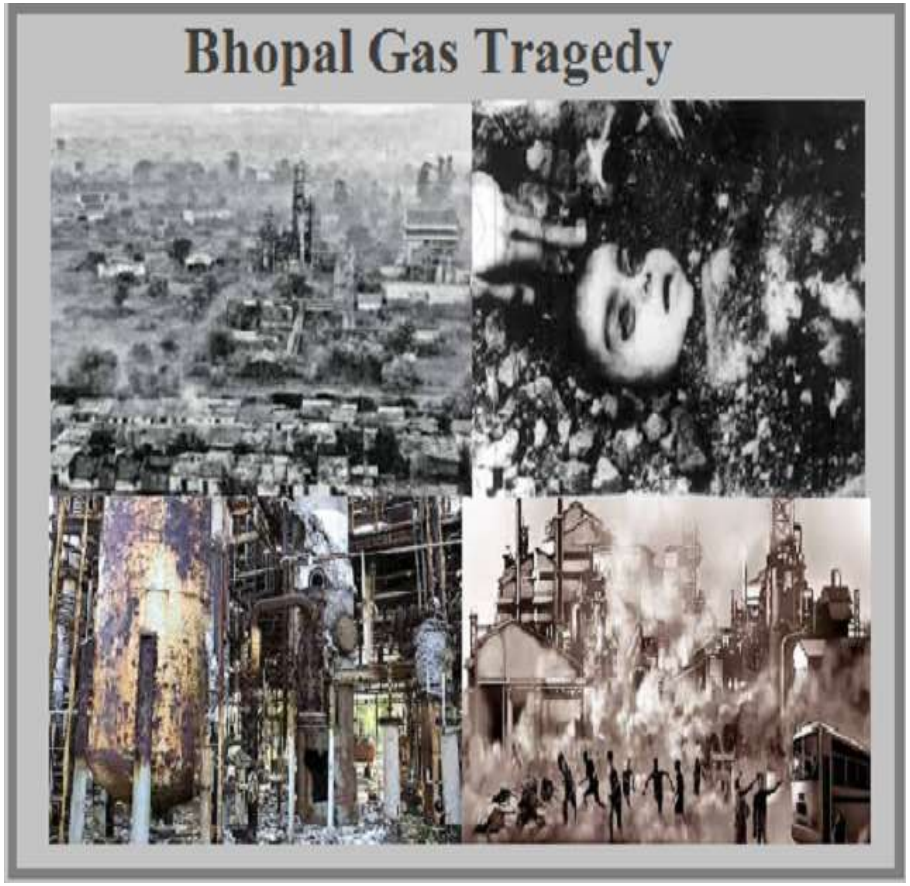
Ergonomics	Safe	Risk	NA
Body mechanics			
Body posture & position			
Adequate force used			
Pushing, pulling, reaching			
Lifting & lowering techniques			
Eyes on path & work			
Body and/or hands in right position			
Personal Protective Equipment (PPE)	**Safe**	**Risk**	**NA**
Hand protection			
Fall protection			
Eye & face			
Respirator, dust mask			
Hearing protection			
Correct & complete PPE			
Proper use of PPE			
PPE in good condition			
Tools & Equipment	**Safe**	**Risk**	**NA**
Tools used properly & in good condition			
Tools, equipment, supplies in designated area			
Tools & equipment – correct selection, use			
Mobile equipment			
Guards, barriers & warnings			
Motorized equipment			
Environment & Work Areas	**Safe**	**Risk**	**NA**
Housekeeping			
Walking surfaces			
Working surfaces			
Area clean & free of obstacles or slip, trip, fall hazards			
Walkways, fire equipment, emergency access routes clear of obstructions			
Contact with temperature			
Contact with rotating equipment			
Contact with sharp edges			
Caught between, pinch point			
Tool slippage			
Walking under suspended loads			
Confined space			
Driver safety			
Electrical safety			

Sample BBS Observation Checklist

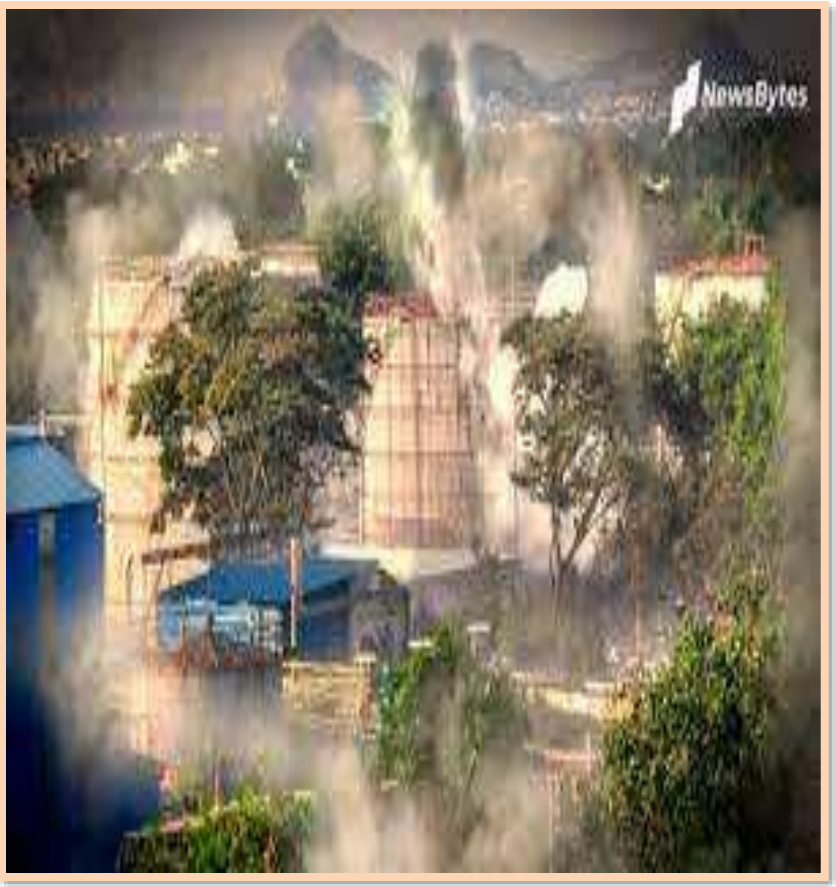
Harmful substances & environments			
Hazardous materials labelled, used & stored properly			
Procedures	**Safe**	**Risk**	**NA**
Procedures available & up-to-date			
Workers aware of procedure			
Procedure followed properly			
Lock Out Tag Out	**Safe**	**Risk**	**NA**
Energy sources identified			
Correct use of lock			
Correct use of tag			
LOTO procedures understood & available			
Fall Protection	**Safe**	**Risk**	**NA**
Correct fall arrest equipment			
Correct use of fall arrest equipment			
Fall arrest equipment condition			
Fall arrest line correct anchor point			
Use of correct ladder, lift or scaffolding			
Correct use of ladder, lift or scaffolding			
Correct fall protection barriers			
Chemical Use	**Safe**	**Risk**	**NA**
Correct use			
Correct storage & labeling			
Mixing safely			
Correct disposal			
Adequate & working ventilation			

Case Study

BHOPAL TRAGEDY



L G GAS ACCIDENT



Behaviour Based Safety

Any Question

BEHAVIOUR BASED SAFETY

THANK YOU!

FOR MORE DETAILS VISIT - WWW.ISEINDIA.IN

OR MAIL - INFO@ISEINDIA.IN

CALL +91-6266474225, +91-8720831773