NSC (Hqs) & NSC- Odisha Chapter Collaborative Training Programme on BBSM

Evolution of
BEHAVIOUR-BASED SAFETY MANAGEMENT

Evolution of Behaviour-Based Safety Management

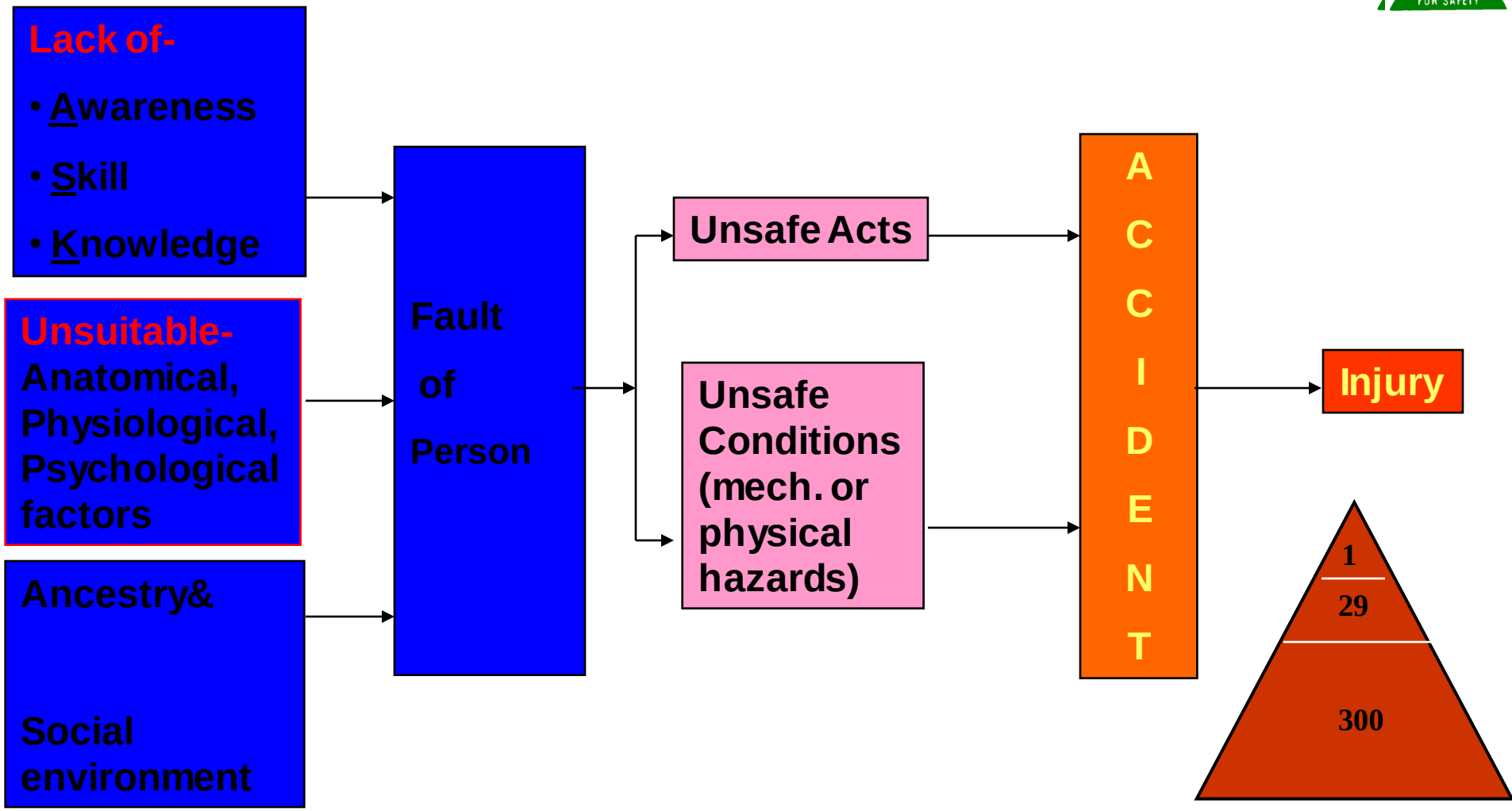
At the end of session participants will be able to:

1. List the 5 factors in accident sequence
2. Explain traditional approach to accident prevention
3. Explain ‘systems approach’ to safety management
4. Understand Behaviour-Based Safety Process
5. List key elements of Total Safety Culture

Evolution of BBSM: At-Risk Behaviours

Evolution of BBSM: At-Risk Behaviours

Evolution of BBSM: Accident Sequence



The five factors in the accident sequence (H.W. Heinrich)

Evolution of BBSM

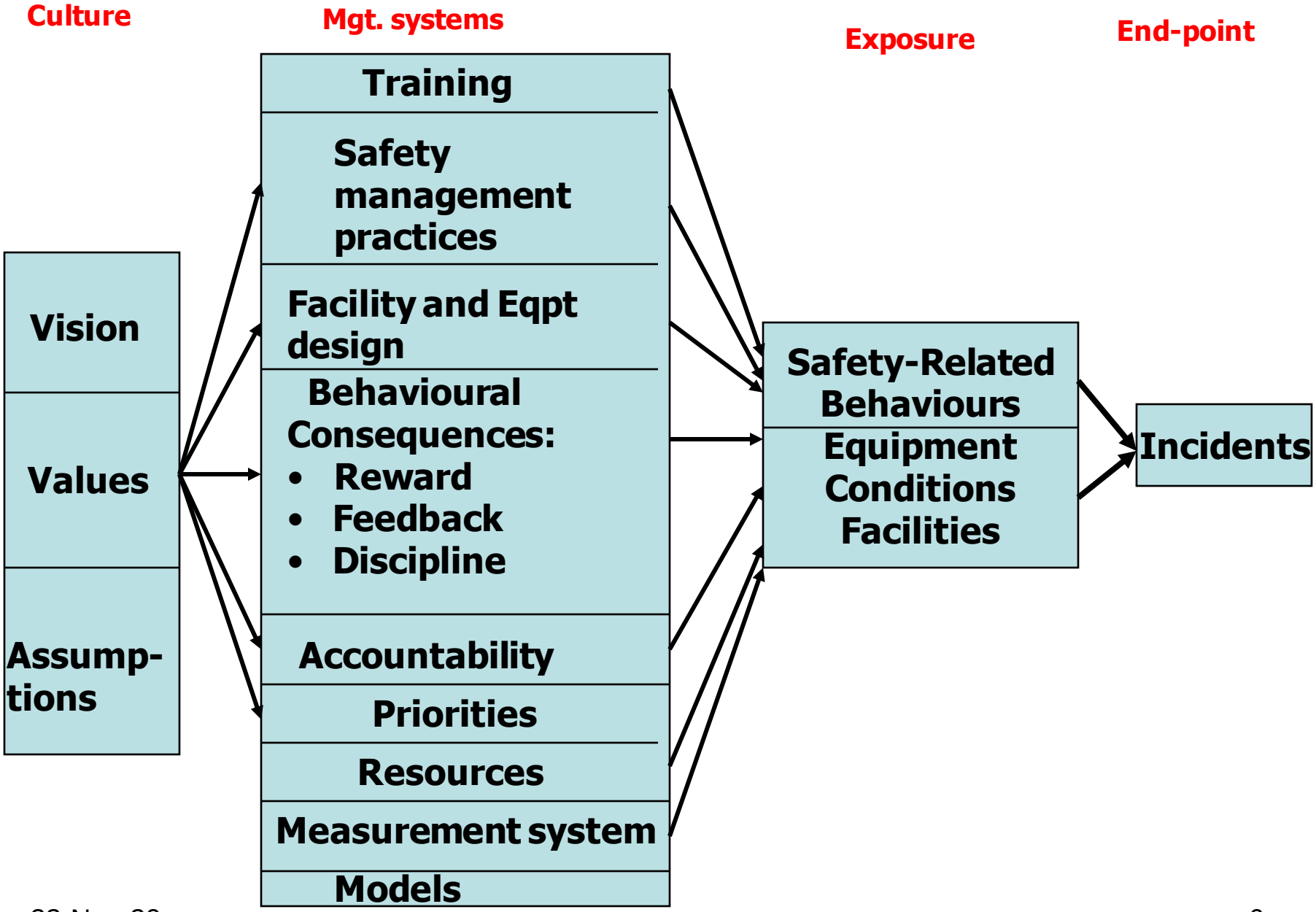


Fig: Incidents are downstream-not upstream

Evolution of BBSM: OSH at Various Levels

- **International level**
  - ILO,WHO, ISO
- **National level**
  - DGFASLI, NSC, BIS, OISD
- **State level**
  - Inspectorate of Factories/DISH
  - Electrical Inspector
  - Pollution Control Board
- **Factory / Establishment**
  - Occupier, Manager
  - Safety Committee
  - Safety Officer
  - Factory Medical Officer

Evolution of BBSM: Factories Act

General duties of occupier (Sec. 7-A of the Factories Act, 1948)

(1) Ensure, so far as is reasonably practicable, safety, health and welfare of workers;

(2) a) provide & maintain plant and systems of work- safe and without risk to health

b) make arrangements for safe use, handling, storage and transport of articles and substances

c) provide information, instruction, training and supervision to ensure safety and health

d) maintain all places of work in a safe condition and means of access to and egress from…

e) provide, or monitor working environment

(3) Prepare & Revise written statement of Health & Safety Policy of workers

Evolution of BBSM: Factories Act

Obligation of workers (Sec. 111 of the Factories Act, 1948)

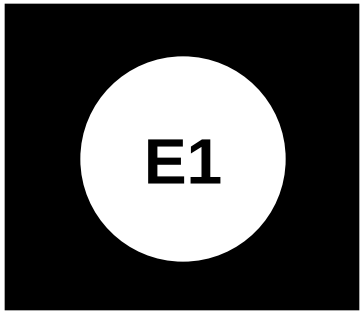
(1) No worker in a factory –

a) shall willfully interfere with or misuse any appliance, convenience or other thing provided in a factory for the purpose of securing health, safety and welfare of workers therein;

b) shall willfully and without reasonable cause do anything likely to endanger himself or others; and

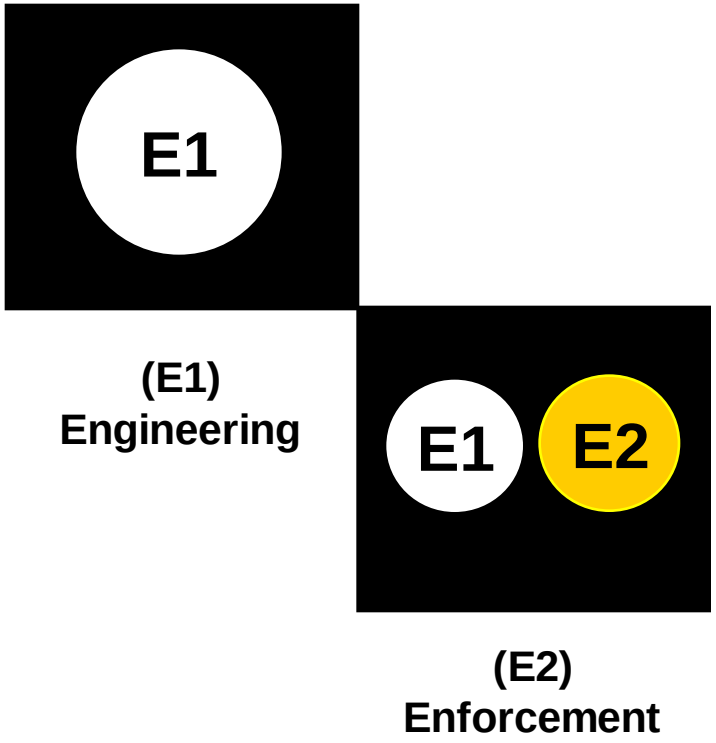
c) shall willfully neglect to make use of any appliance or other thing provided in the factory for the purpose of securing the health and safety of the workers therein.

BBSM: Historical Path from Safety Engineering to Safety Culture

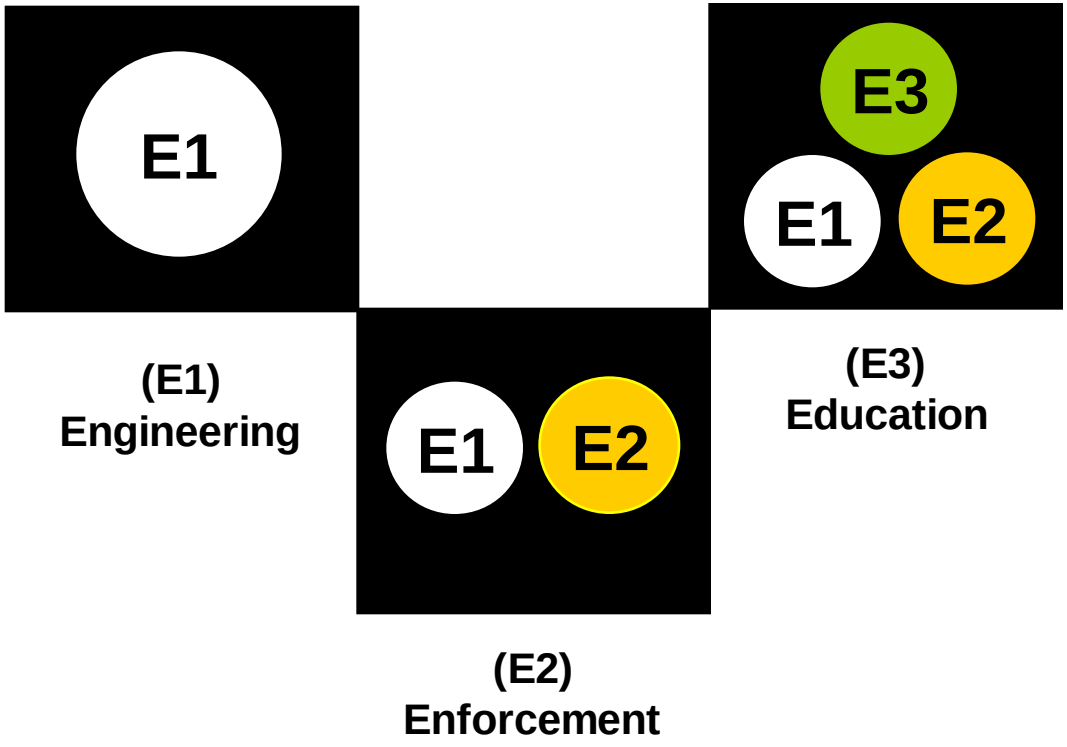


(E1)
Engineering

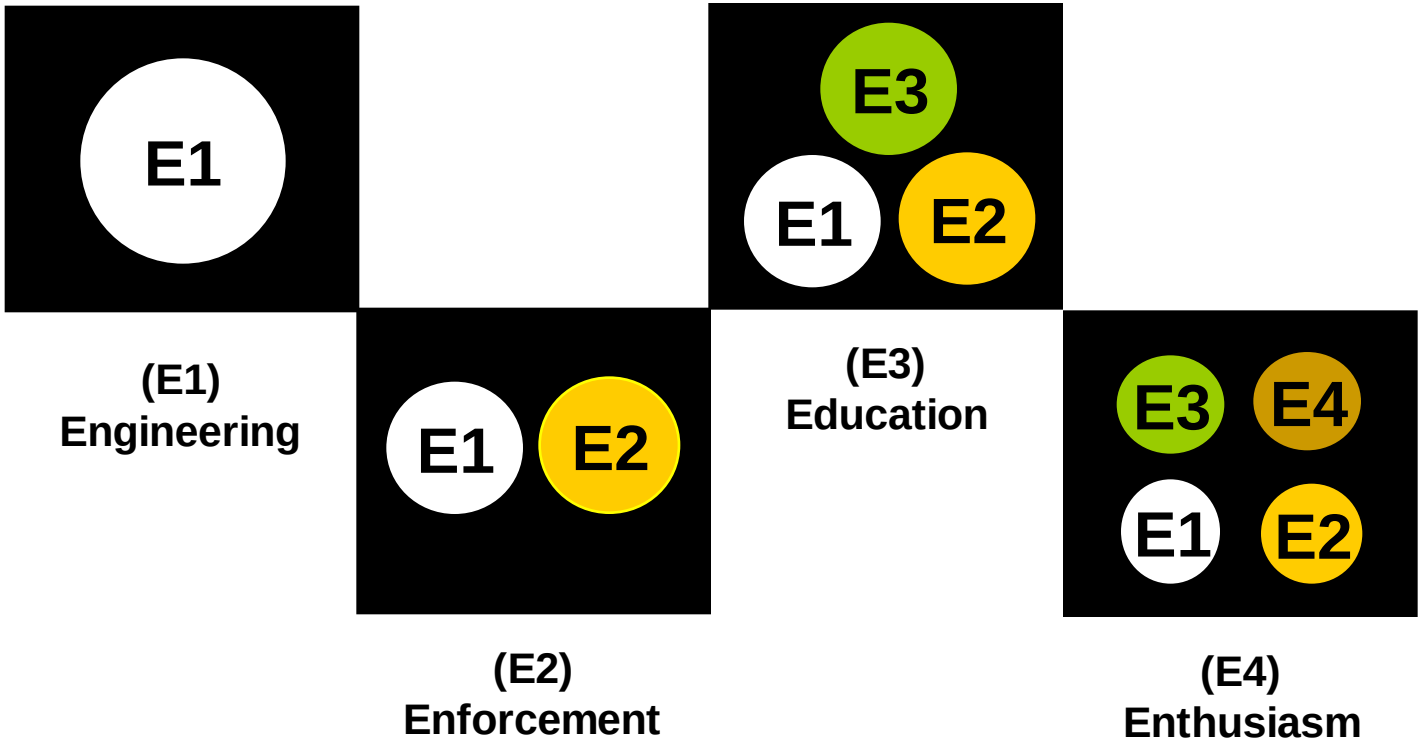
BBSM: Historical Path from Safety Engineering to Safety Culture



BBSM: Historical Path from Safety Engineering to Safety Culture



BBSM: Historical Path from Safety Engineering to Safety Culture



Evolution of BBSM: Traditional Approach

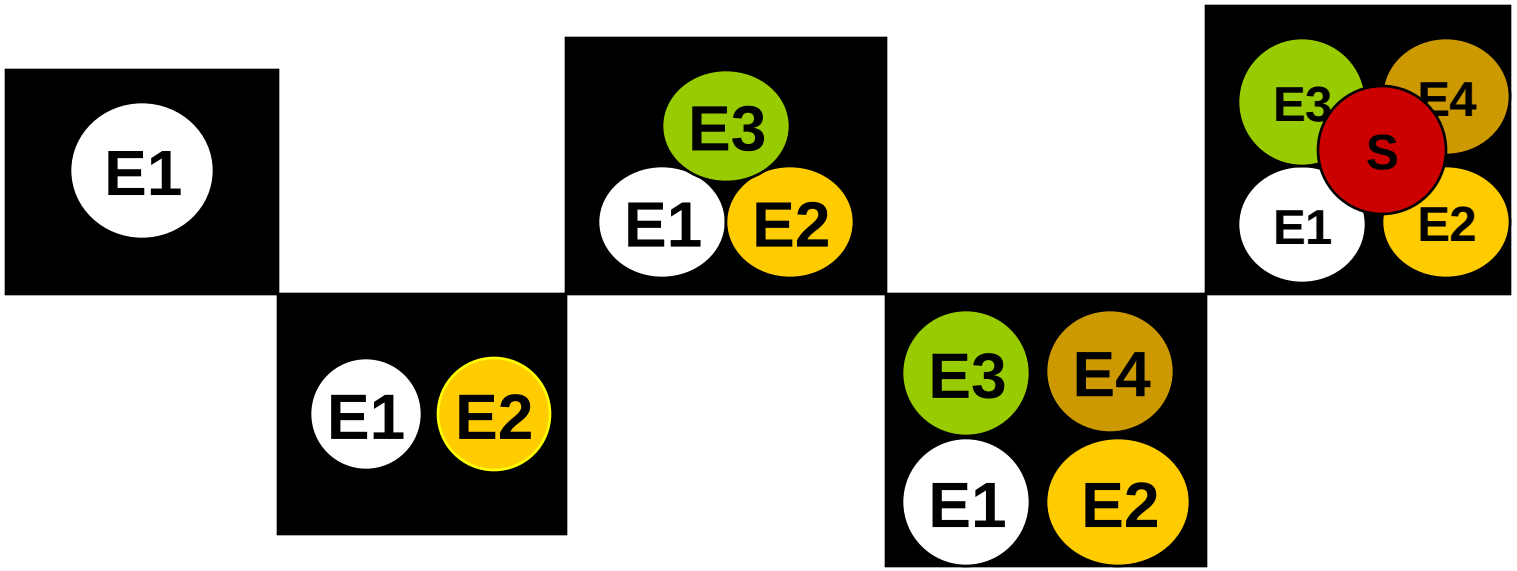
- Inspector of Factories
- Inspector of Boilers
- Electrical Inspector
- State PCB Officials
- PESO

Evolution of BBSM:
Traditional Approach & Systems Approach

Accident Prevention

- Traditional Approach (4 Es)
  - Engineering
  - Enforcement
  - Education
  - Enthusiasm
- **Systems Approach**
  - **IS 18001 : OHSMS**

Evolution of BBS Management & Total Safety Culture



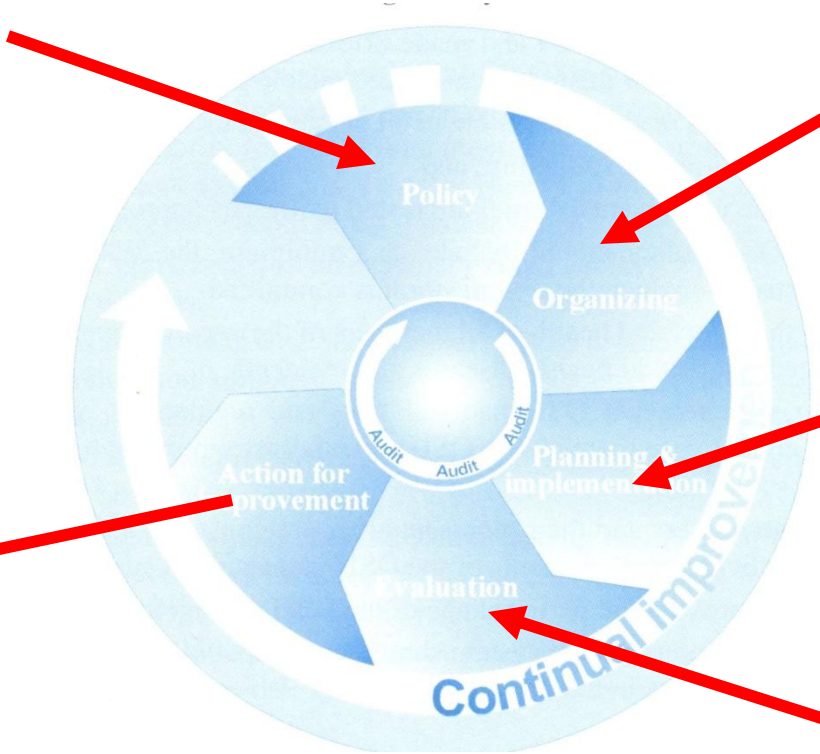
(E1) Engineering **(E2) Enforcement** **(E3) Education** **(E4) Enthusiasm** **(S) Systems**

Historical path from safety engg. to BBS

Evolution of BBSM:
Traditional Approach & Systems Approach

HS policy,

Workers' participation



Responsibility & accountability, Competence & training OHSMS Documentation

Initial review; System planning, devt. & implementation; OSH objectives; Hazard prevention.

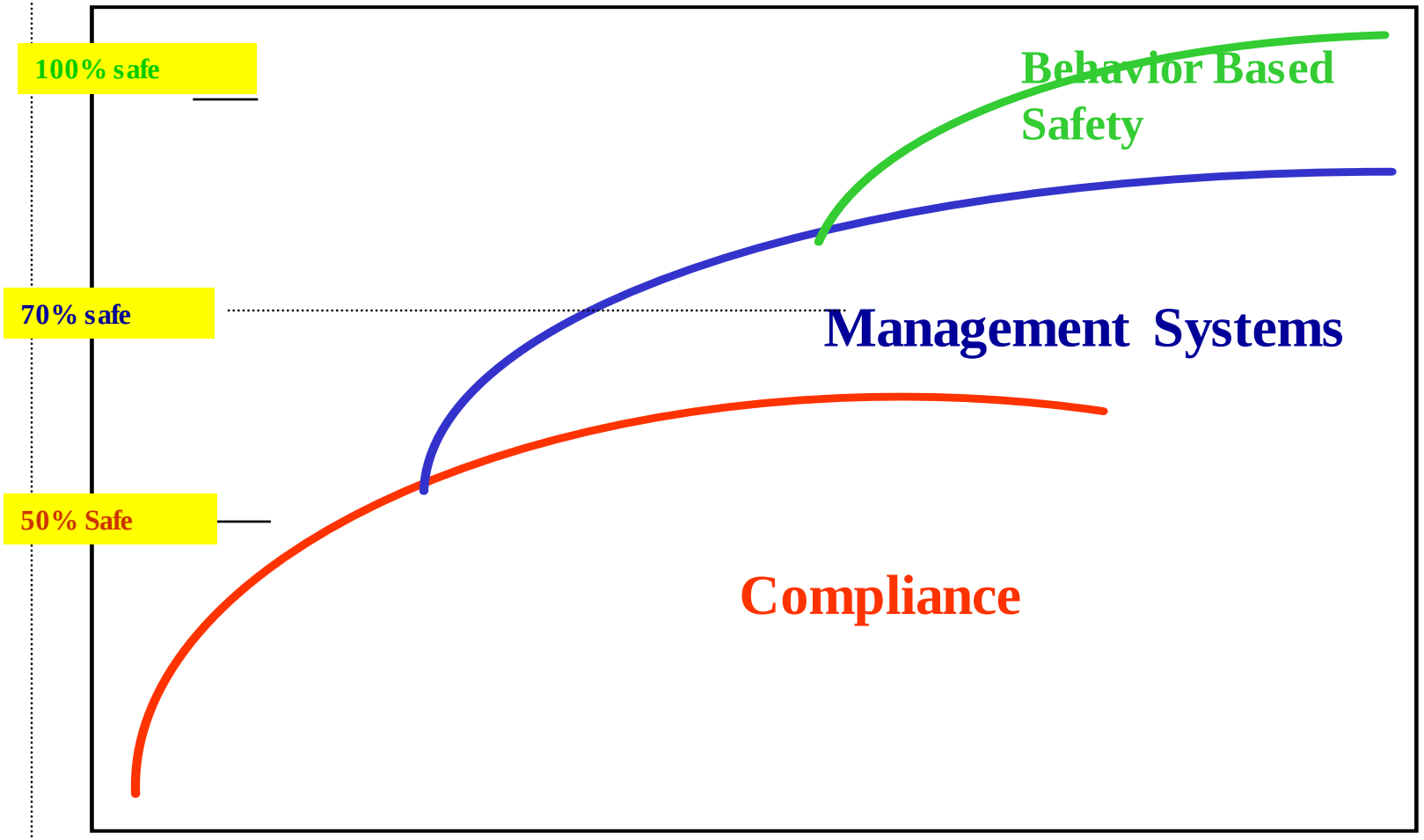
Performance monitor-ing & measurement; Incident investigation; Audit; Mgt. review.

Preventive & corrective action, Continual improvement.

Fig: Elements of the OHS Management System

Ref: ILO-OSH 2001 Guidelines on OSHMS

Evolution of BBSM:
Traditional Approach & Systems Approach
The Road to World Class EHS Performance



Freq. & Incidence Rates of Injuries in Factories

Year	Injuries	Freq. rate	Incidence rate
1971	NA	NA	75.67
1976	NA	NA	61.54
1981	NA	NA	71.75
1986	NA	NA	49.31
1996	60 328 (907)	3.87 (0.06)	16.61
1997	53 260 (901)	3.31 (0.06)	NA
1998	57 789 (862)	2.83 (0.04)	NA
1999	NA	NA	NA
2000	23 490 (486)	3.52 (0.07)	12.93 (0.22)
2001	27 737 (627)	3.17 (0.07)	8.48 (0.19)
2002	19 913 (540)	4.75 (0.13)	5.98 (0.16)
2003	15 907 (525)	2.41 (0.08)	3.21 (0.10)
2004	14 458 (562)	1.28 (0.05)	2.13 (0.08)
2005	14 163 (613)	1.21 (0.05)	1.97 (0.09)
2006	18 844 (1 068)	1.34 (0.08)	2.28 (0.13)
2007	14 469 (821)	1.64 (0.09)	1.81 (0.10)

Source: Pocket Books of Labour Statistics, Labour Bureau, Min. of Labour, Govt. of India

Evolution of BBSM: Systems Approach

1. Robens Report, UK (1972): a shift from industry-specific regulations to framework legislation
2. The Factories Act, 1948 & the Rules: a shift from 'prescriptive' approach to 'self-regulation' approach
3. ILO Convention, 1981 (No. 155): emphasised importance of tripartite participation in the implementation of OSH at national and enterprise levels
4. "Plan-Do-Check-Act" Deming Cycle
5. Business management models to ensure rapid response to business fluctuations through continuous performance evaluation
6. ISO stds. for quality and the environment management

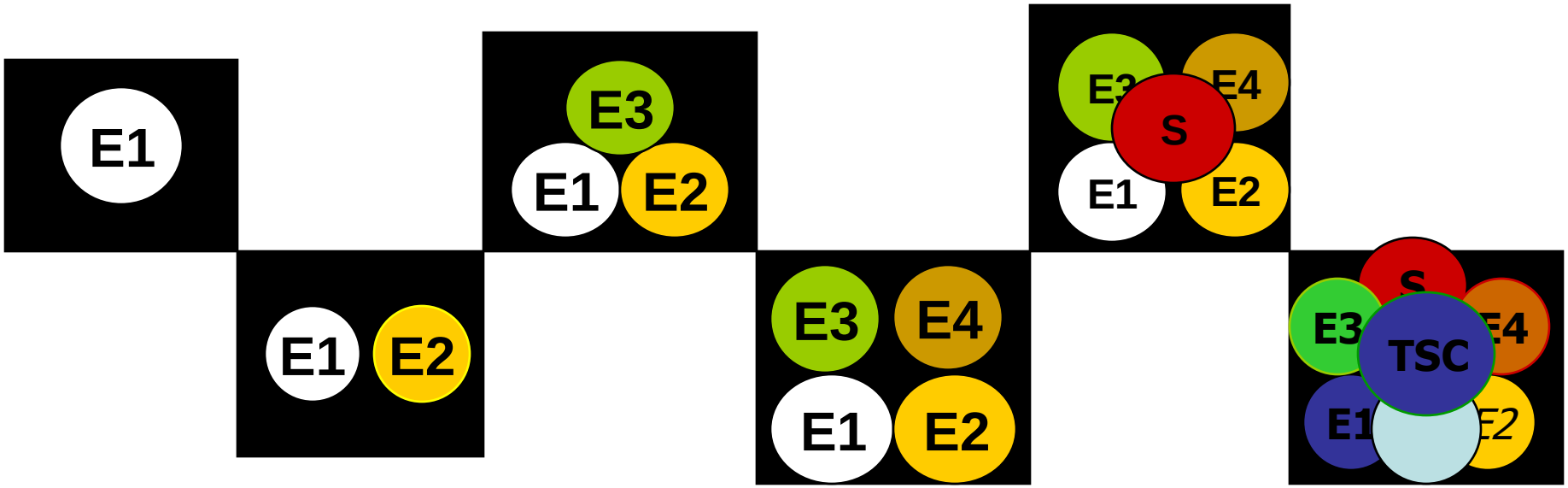
Evolution of BBSM:
Traditional Approach, Systems Approach & BBS

BBS is the application of principles and methods derived from the field of applied behaviour analysis to achieve continuous improvement in industrial safety performance

It is a process of involving employees in observing at-risk behaviour as well as listening verbal response with a view to correcting behaviour by giving feedback so that accidents and injuries are prevented.

Evolution of BBSM & Total Safety Culture

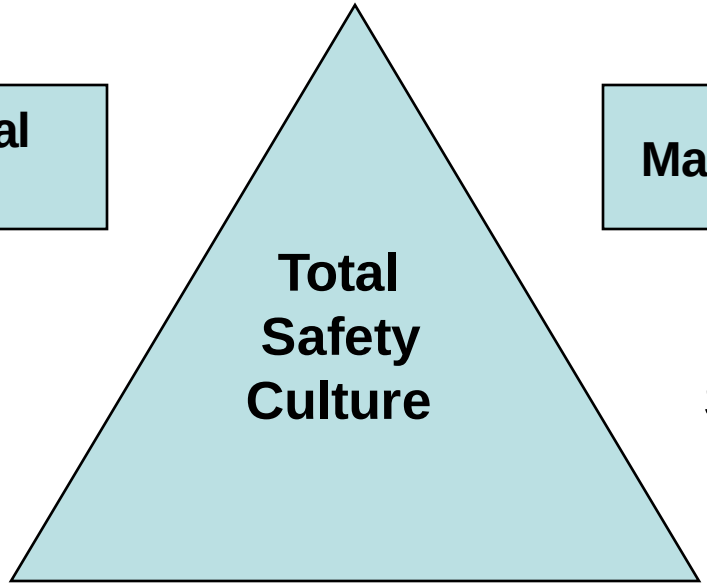
Historical path from safety engg. to Safety Culture



(E1) Engineering | **(E2) Enforcement** | **(E3) Education** | **(E4) Enthusiasm** | **(S) Systems** | **BBS & TSC**

BBS & total safety culture

Evolution of BBSM & Total Safety Culture



Organisational Resources

HS policy, Procedures, Rules & Regs., Mfg. & Mgt. Systems & Techniques, Organisational set up, etc.

Material Resources

Machinery & Eqpt., PPE, Instruments, Space, Tools, Raw Material, Products, Buildings, etc.

People Resources

Psycho-social skills, Working team, Attitudes, Tech. knowledge & skill, Health, Family background, Personality, Group norms & Ethics, etc


THANK YOU