

HEALTH, SAFETY AND ENVIRONMENT MANAGEMENT FRAMEWORK

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INTRODUCTION



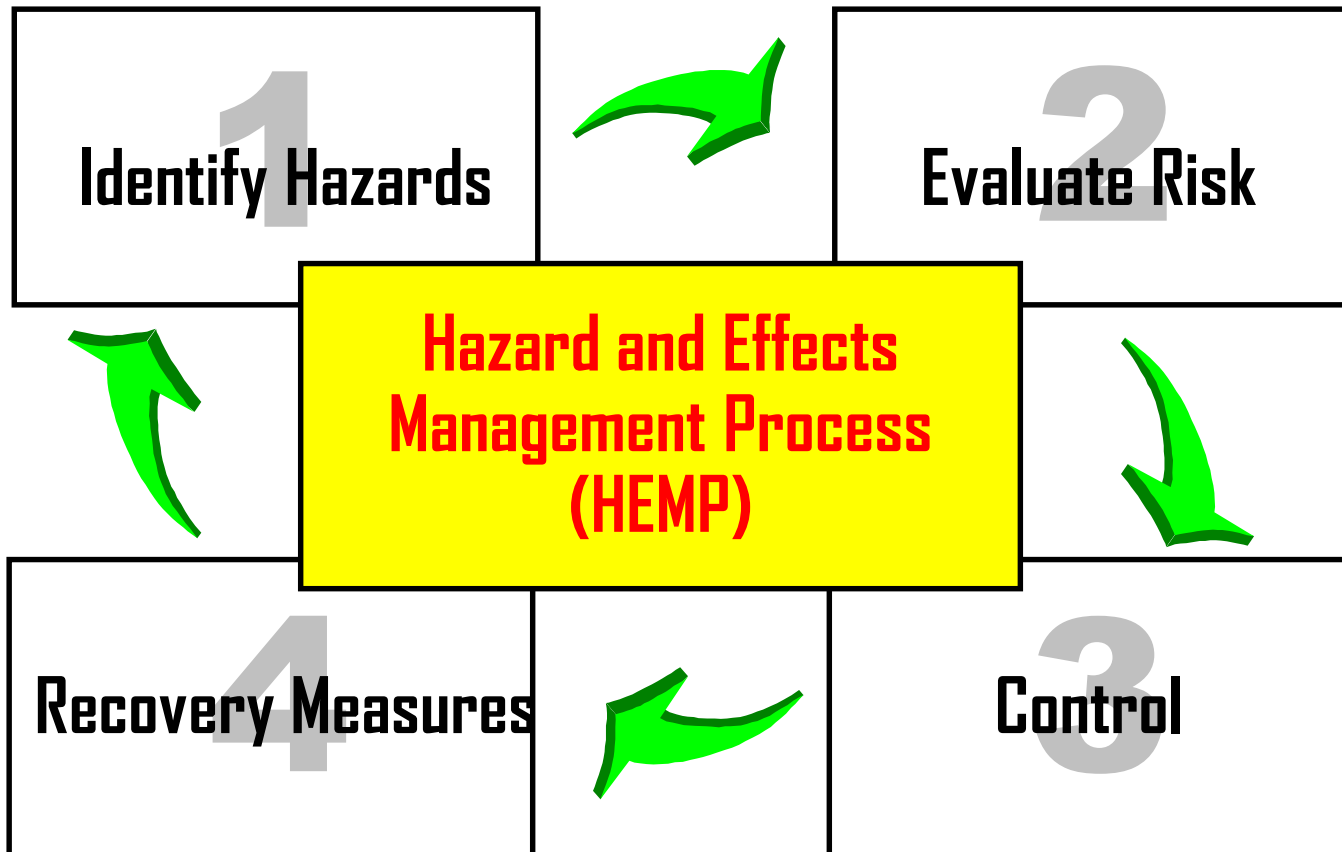
- **Health, Safety & Environment (HSE)** is a **CORE** activity in business operations
- **HSE** is implemented to **Minimize** Operational or Process **RISKS** in an organization
- **Relevance** of HSE Management :
 - Reduces risks on **People**
 - Reduces risks on **Environment**
 - Reduces risks on **Assets**
 - Reduces risks on **Reputation**

HSE MANAGEMENT FRAMEWORK



- HSE Management involves Risk Management through :
 - Risk Identification
 - Risk Assessment
 - Risk Control
 - Risk Recovery
- HSE Management involves the Process called Hazards and Effects Management Process (HEMP)
- In any organization HEMP is the Umbrella of ALL HSE Management activities

Hazards and Effects Management Process (HEMP)



ELEMENTS OF RISKS



- **Risk Impact or Consequence :**
 - Is the magnitude (monetary, injury, pollution or damage) a risk can generate if it occurs
- **Risk Likelihood or Frequency :**
 - Is the number of times a risk occurs
- **Risk Level :**
 - Is the degree to which the risk is **Effective** and is **EQUAL** to **Risk Impact** times **Risk Likelihood**
- **Risk Assessment Matrix (RAM) :**
 - Is a **Tool** for reporting, risk ranking and prioritization of resources & actions

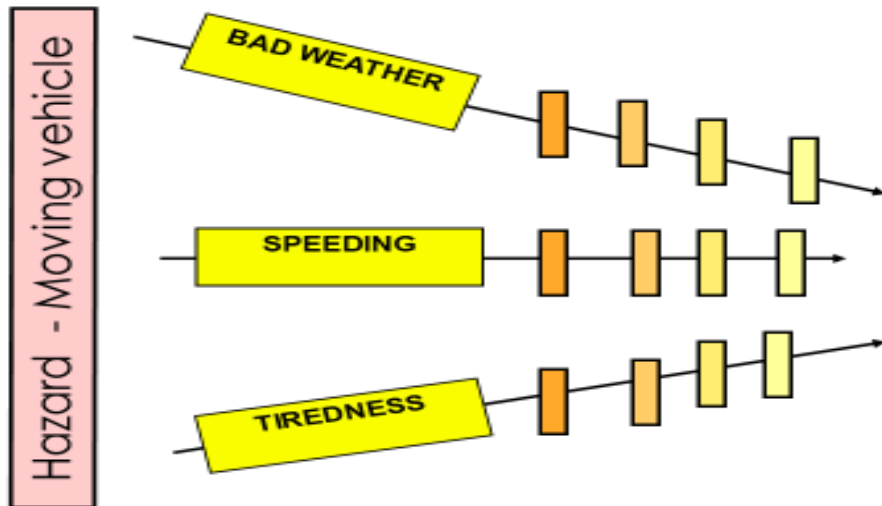
Hazards and Effects Management Process (HEMP)



- **Risk Identification :**
 - What **Hazards** are around
- **Risk Assessment :**
 - What are the potential **Impacts** on People, Environment, Assets and Reputation
 - What is the **Likelihood** of an Risk incident to happen
 - What is the outcome **Level** of Risk
- **Risk Control :**
 - What are the **Controls** needed
 - What is the **Residual** or **Allowable** Level of Risk
- **Risk Recovery :**
 - The Recovery measures needed when a Risk incident happens

Risks Identification

- **Hazard** – The Potential to cause Harm
- **Threat** – Something that Releases a Hazard



Risk Assessment Matrix (RAM)



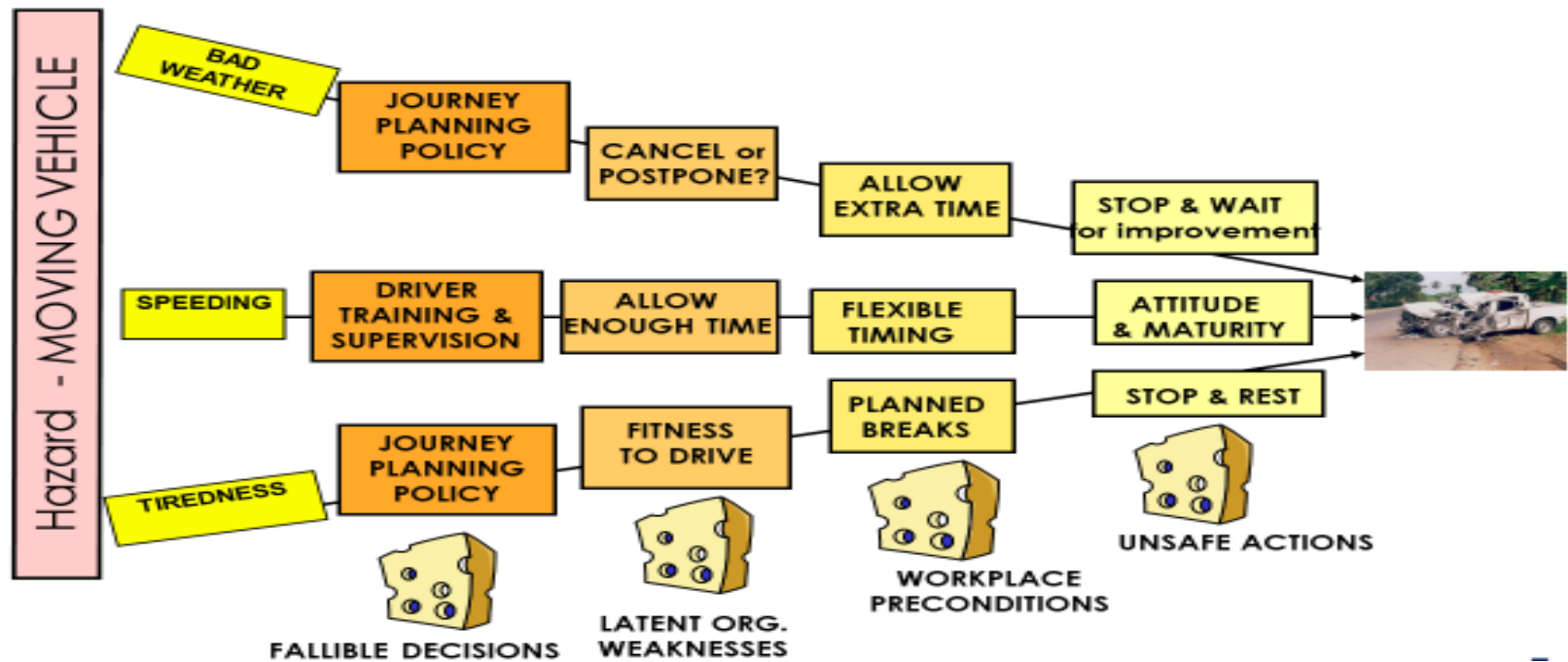
Severity	Consequences				Increasing likelihood				
	People	Assets	Environment	Reputation	A	B	C	D	E
					Never heard of in the Industry	Heard of in the Industry	Has happened in the Organisation or more than once per year in the Industry	Has happened at the Location or more than once per year in the Organisation	Has happened more than once per year at the Location
0	No injury or health effect	No damage	No effect	No impact	Blue	Blue	Blue	Blue	Blue
1	Slight injury or health effect	Slight damage	Slight effect	Slight impact	Blue	Blue	Blue	Blue	Blue
2	Minor injury or health effect	Minor damage	Minor effect	Minor impact	Blue	Blue	Blue	Yellow	Yellow
3	Major injury or health effect	Moderate damage	Moderate effect	Moderate impact	Blue	Blue	Yellow	Yellow	Red
4	PTD or up to 3 fatalities	Major damage	Major effect	Major impact	Blue	Yellow	Yellow	Red	Red
5	More than 3 fatalities	Massive damage	Massive effect	Massive impact	Yellow	Yellow	Red	Red	Red

Risk Assessment Matrix (RAM)

- **RAM** Color Interpretation :
 - **BLUE** – Means manage the Risk for continuous improvement
 - **YELLOW** – Means incorporate Risk measures to control to **ALARP**
 - **RED** – Means incorporate Risk measures to control to **ALARP**
 - **ALARP** – Means As Low As Realistically Possible

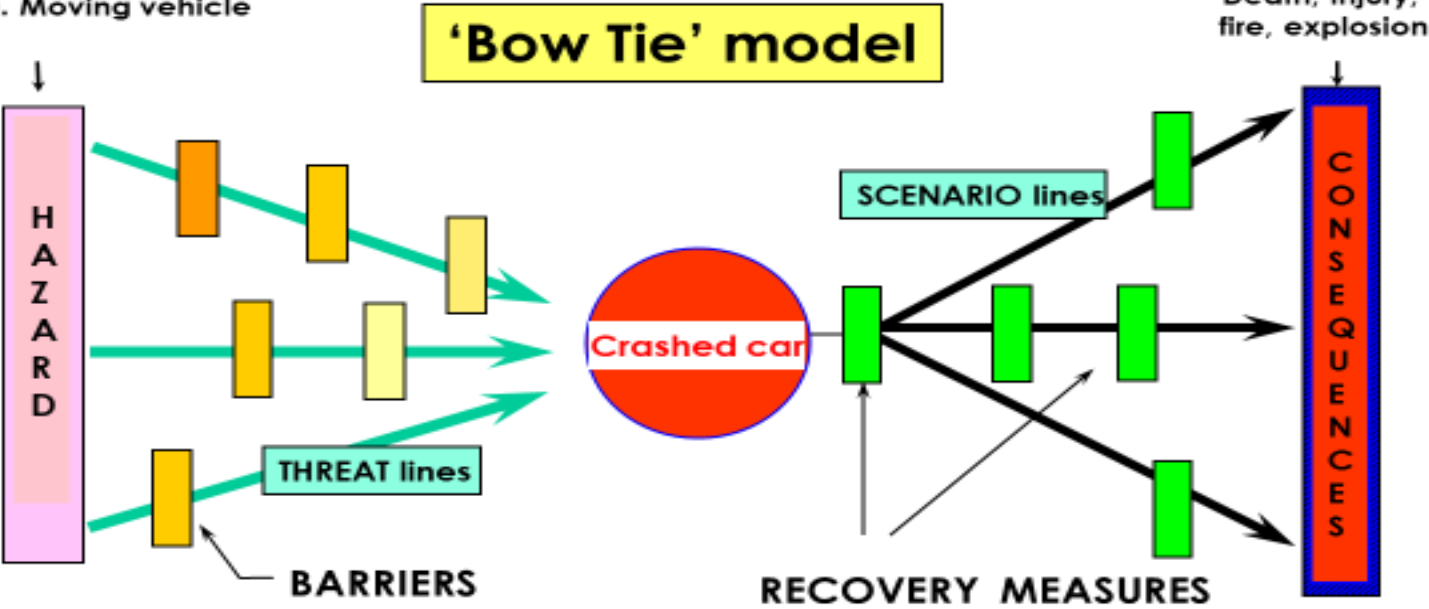
Risk Control

Control - something that stops a **THREAT** from releasing the **HAZARD**



RISK ANALYSIS AND ACTION PLAN

E.g. Moving vehicle



(preventative measures,
maintaining integrity)

(reactive measures,
emergency activities)

Risk Analysis - Example

Risk Activity - Walking on Stairs

STEP 1 - IDENTIFY HAZARDS and their potential consequences/impacts

HAZARD	THREAT	TOP EVENT CONSEQUENCES (worst-case scenarios)
a) HEIGHT (FALLING) b) Muscular problems	Slip / trip	Top event: Fall Consequence: Serious Injury

Managing Risk - Example

STEP 2 – Assess the RISK

Severity	Consequences				Increasing likelihood				
	People	Assets	Environment	Reputation	A	B	C	D	E
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Managing Risk - Example

STEP 3 - ESTABLISH Controls/Barriers

(A) List possible controls

Operation

- hold the handrail
- don't use mobile phone on stairs
- keep one hand free
- use harness, crash helmet and body armor

Maintenance

- keep stairs clean, clear of obstacles; inspect annually
- ensure effective maintenance management

Design

- max 40 degrees; landing every 15 steps
- provide a convenient handrail
- ensure no doors open directly on to small landings
- non-slip surface; edge well-marked; good Lighting
- eliminate all stairs...only allow elevators

Construction

- inspect to ensure necessary build quality

Managing Risk - Example

STEP 3 - SELECT Controls/Barriers

(B) Select Controls necessary for ALARP

Operation

- hold the handrail
- don't use mobile phone on stairs
- keep one hand free
- use harness, crash helmet and body armor



Maintenance

- keep stairs clean, clear of obstacles; inspect annually
- ensure effective maintenance management



Design

- max 40 degrees; landing every 15 steps
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