

Risk Assessment & Management

(GEK)

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What is RISK?

Risk = f (Likelihood, Severity {*Hazard*})

What is RISK of drowning?



What is RISK of drowning?

Risk = f (very likely, Major)

Risk = f (likelihood , severity)



Risk = high

What is RISK of drowning?



**Risk = f (Unlikely,
Major)**

**Risk = f (likelihood
, severity)**

Risk = low

What is Risk Assessment?

A tool to

- Identify hazards
- Evaluate risks associated with the hazards
- Determine and prioritize measures / actions to control the hazards

Why perform Risk Assessment?

- Required by Law
 - WSH (Risk Management) Regulations 2006

3. Risk assessment

(1) In every workplace, the employer, self-employed person and principal shall conduct a risk assessment in relation to the safety and health risks posed to any person who may be affected by his undertaking in the workplace.

4. Elimination and control of risk

(1) In every workplace, the employer, self-employed person and principal shall take all reasonably practicable steps to eliminate any foreseeable risk to any person who may be affected by his undertaking in the workplace.

(2) Where it is not reasonably practicable to eliminate the risk, the employer, self-employed person or principal shall implement —

- (a) such reasonably practicable measures to minimise the risk; and
- (b) such safe work procedures to control the risk.

Why perform Risk Assessment?

- Required by Law
- Good for Business
 - Reduce staff absenteeism
 - Save money
 - Enhance reputation

Why perform Risk Assessment?

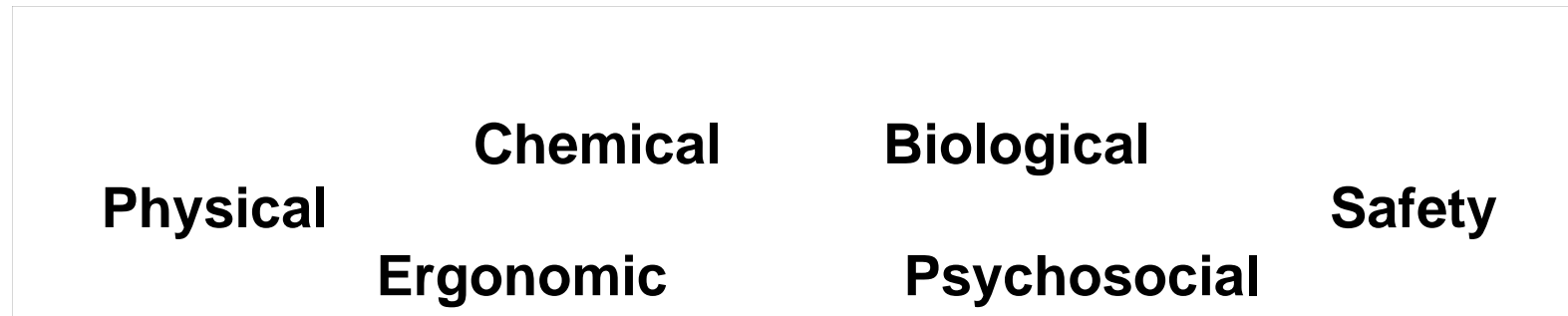
- Required by Law
- Good for Business
- Good for Employees
 - Safer and healthier workplace for all
 - Improve staff morale and motivation

How to do a Risk Assessment?

- Identify – *Hazards*
- Evaluate – *Risk*
- Implement – *Controls*

Hazard Identification

The most important step in any Risk Assessment – hazards can only be controlled if they are identified



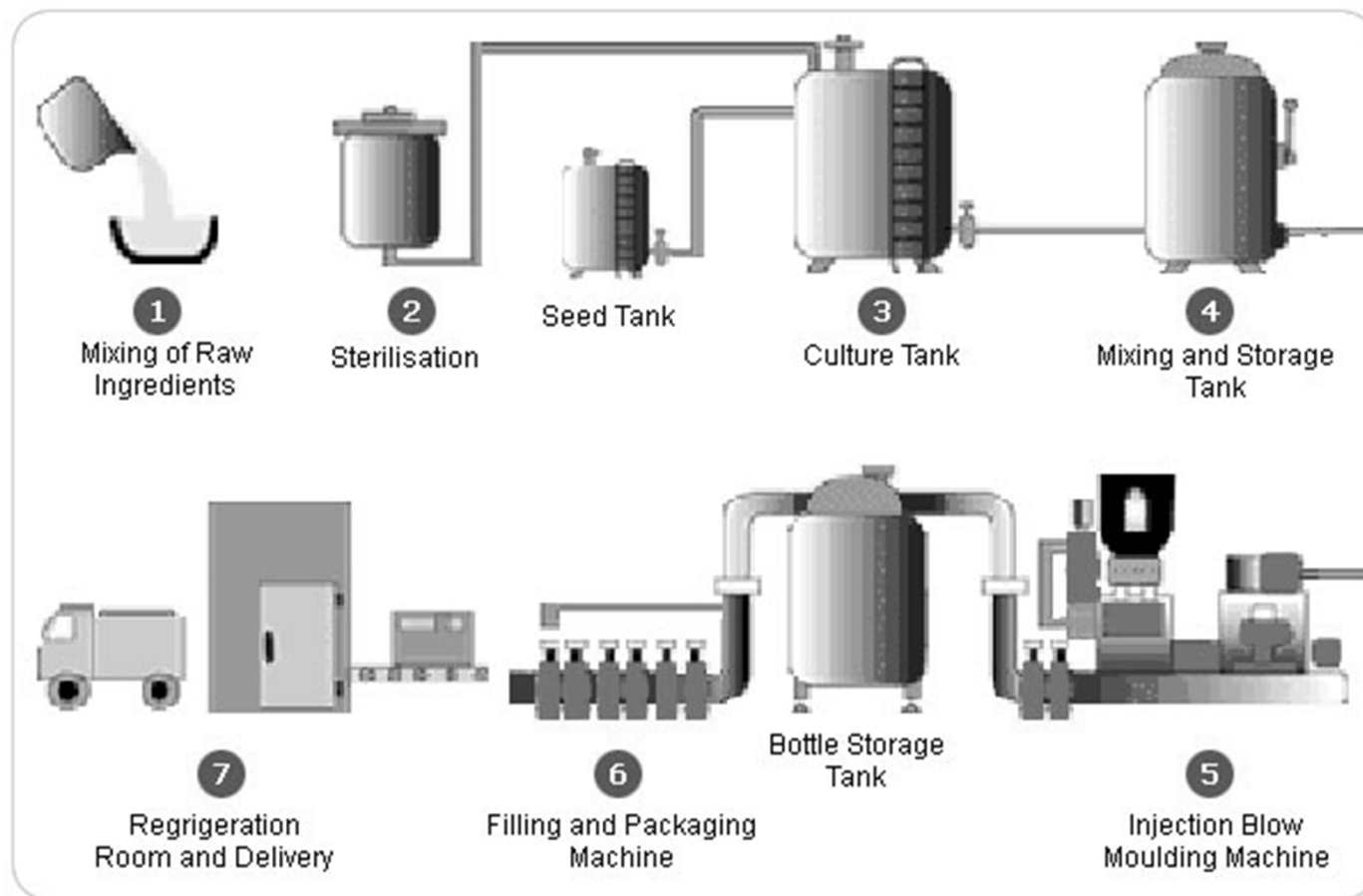
➤ Each task is analysed for potential hazards

2 main approaches:

- Process / activity based
- Trade / occupation based

Hazard Identification

Process based look through the process



Hazard Identification

Trade based
Physical
Occupation



Hazard Identification

2 main approaches:

- Process / activity based
- Trade / occupation based

Chemical

Biol



2 target populations:

- people in the environment
- people going into the environment

Risk Evaluation

Assess **Likelihood**:

- Usually underestimated
- Consider existing controls

Assess **Severity**:

- Injury and ill health
- Other descriptors

Chemical

Biological

Likelihood Severity	Rare (1)	Remote (2)	Occasional (3)	Frequent (4)	Almost Certain (5)
Catastrophic (5)	5	10	15	20	25
Major (4)	4	8	12	16	20
Moderate (3)	3	6	9	12	15
Minor (2)	2	4	6	8	10
Negligible (1)	1	2	3	4	5

Risk Evaluation

NUS Likelihood Categories & Description

Level	Events Frequency
(1) Remote (Unlikely)	Undesired event which may occur but unlikely, once in 5 years
(2) Possible (Possible)	Undesired event which is probable, once in a year
(3) Frequent (Very likely)	Undesired event which probably occur in most circumstances, once or more in a month

Risk Evaluation



NUS Severity Categories & Description

Level	Human (Impact to Physical Being)	Biological Impact	Environmental Damage	Property Damage (\$\$)
(1) Minor (Low)	No Injury or light injury requiring only first aid treatment (MC < 4 days MC)	May not cause human disease, if does, the disease is unlikely to spread to the community and there is usually effective prophylaxis or treatment available;	Reversible	Up to \$5,000
(2) Moderate (Medium)	Any injury/ill health leading to ≥ 4 days MC or ≥ 1 day hospitalisation or leads to temporary disability	Can cause severe human disease, not ordinarily spread by casual contact from one individual to another; it may spread to the community, but there is usually effective prophylaxis or treatment available	Reversible but takes years	\$5,001 to \$50,000
(3) Major (High)	Fatality, permanent Disability or life threatening disease	Can cause lethal human disease, may be readily transmitted from one individual to another, or from animal to human or vice-versa directly or indirectly, or casual contact, it may spread to the community; usually no effective prophylaxis or treatment available	Irreversible	More than \$50,000

Risk Evaluation



NUS Risk Matrix

<div>Likelihood</div> <div>Severity</div>	Remote (1)	Occasional (2)	Frequent (3)
	1	2	3
	2	4	6
	3	6	9

Risk Evaluation

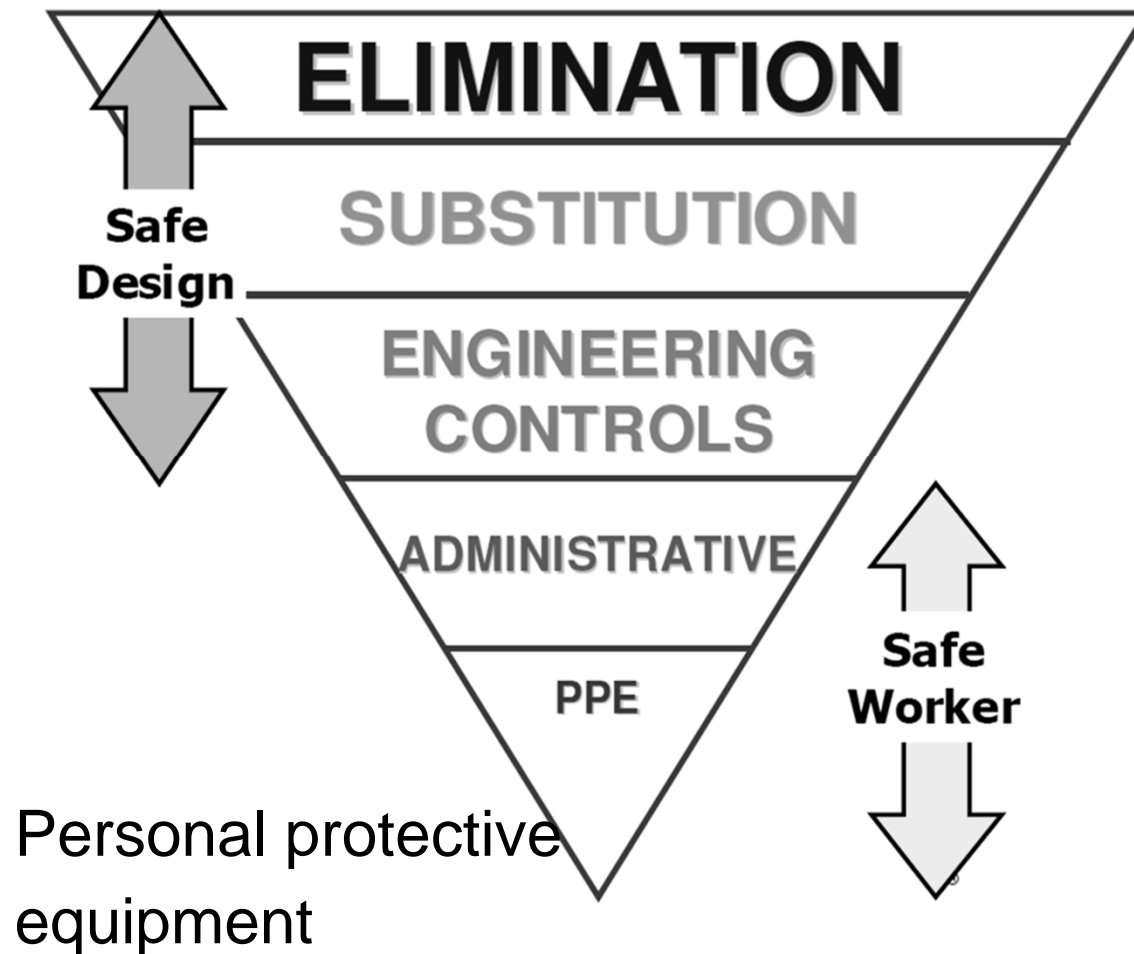


NUS Action for Risk Levels

Risk Score	Risk Level	Acceptability of Risk	Recommended Actions
<3	Low Risk	Acceptable	No additional risk control measures required. To continue to monitor to ensure risk do not escalate to higher level.
3 – 4	Medium Risk	Moderately Acceptable	Acceptable to carry out the work activity; however, task need to be reviewed to bring risk level to <u>As Low As Reasonably Practicable</u> . Interim control measures such as administrative controls can be implemented. Supervisory oversight required.
>4	High Risk	Not Acceptable	<u>Job must not be carried out</u> until risk level is brought to at least medium risk level. Risk controls should not be overly dependant on personal protective equipment. Controls measures should focus on Elimination, substitution and engineering controls. Immediate Management intervention required to ensure risk being brought down to at least medium level before work can be commenced.

Risk Control

Hierarchy of Controls



Risk Control

