

CADANGAN TATAAMALAN INDUSTRI BAHARU:

TATAAMALAN INDUSTRI PENGURUSAN
RISIKO KKP

*INDUSTRY CODE OF PRACTICE (ICOP) ON OSH
RISK MANAGEMENT*



Bahagian Dasar Antarabangsa
dan Pembangunan Penyelidikan,
Jabatan Keselamatan dan Kesihatan
Pekerjaan, Malaysia

**SERANTA AWAM
ATAS TALIAN**

***ONLINE PUBLIC
ENGAGEMENT***

INTRODUCTION

Purpose of ICOP:

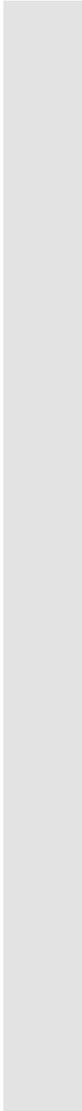
- 1) To establish a uniform method/process in conducting risk assessment and implementing risk management in the workplace
- 2) To assist employer and self employed person in compliance with OSH Risk Management Regulations.
- 3) To replace Guidelines on Hazard Identification, Risk Assessment and Risk Control (HIRARC), 2008

Scope of ICOP:

- All workplaces covered under OSH Act 1994

Enables of ICOP:

- Section 37, AKKP 1994



RINGKASAN TATAAMALAN INDUSTRI

Part 1. Objective and Scope of ICOP

Objective - to provide guidance in compliance with the Occupational Safety and Health (Occupational Safety and Health Risk Management) Regulations.

Scope - apply to all workplaces in relation to OSH risk management under OSH Act 1994.

Part 2. General Requirement

1. Duty of Employer to:

- i. ensure that risk assessment is conducted on risks associated with any activity in the workplace
- ii. ensure that risk assessment is conducted by a risk assessor
- iii. ensure a risk assessor conduct risk assessment in accordance with the manner specified in the ICOP, or any other manner having similar standing
- iv. take immediate action to control the risk so far as is practicable to medium risk level or low risk level before carry out any activity, if the assessment conducted indicates high risk level
- v. take measures to control the risk as recommended by the risk assessor
- vi. require the risk assessor to provide regular updates on implementation of risk control measures and highlight any specific precaution to be taken to reduce or avoid identified risks
- vii. require OSH risk management team updates at every safety and health committee meeting, if such a committee is established, or at the workplace's regular meetings (e.g., new findings, progress of risk control actions)
- viii. verify and approve the risk assessment conducted by the contractor or supplier whose work has been assigned or awarded, and to ensure the contractor or supplier to take action so far as is practicable to avoid, or reduce, the risk that may be posed by their work (e.g., when they work with machines, equipment or hazardous substances)
- ix. ensure that OSH risk management record is available and maintained at the workplace
- x. review the risk assessment (as required by Regulations), and
- xi. monitor and maintain effectiveness of the risk control measures at all times.

Part 2. General Requirement

2. Duty of Appointed person who manage and oversees the area, function or activity where the risks exist, to:

- i. ensure that a risk assessment is conducted and risk control measures are implemented on risks associated with any work activity in his area
- i. approve the risk assessment conducted for his area, and also ensure that the risk level is not rated "High Risk" when approving work to be carried out
- ii. ensure the persons in charge (PIC) implementing the risk control within the timeline
- iii. ensure all work activities have established and implementing SWPs
- iv. ensure that all persons exposed to the risks are communicated on:
 - a) the nature of risks
 - b) any measures or SWPs implemented, and
 - c) the means to minimize or eliminate the risks
- v. ensure that the effectiveness of the risk control measures is monitored
- vi. update the risk assessment form if the risk control measures are inadequate and ineffective after the implementation, by obtaining more information and/or modifying controls
- vii. maintain OSH risk management documentation of control measures and SWP that were implemented.
- v. assist the employer to implement his duty for 1(viii), (ix), (x) and (xi), and
- vi. work together with other appointed person who manage or oversees an administration to specify training necessary for job positions and functions.

He may assign other persons to execute the duties mentioned above but remains accountable for him.

Part 2. General Requirement

3. Duty of Appointed Person **who manage and oversees the administration,** to:

- i. specify safety and health responsibilities in the job descriptions of employees, and ensure that these responsibilities are effectively communicated to all employees
- ii. ensure that all new employees are given appropriate and sufficient orientation, and OSH training to equip them with the relevant knowledge, skills and abilities to succeed in their positions
- iii. support the employer to ensure that risk assessment, risk control measures and SWPs are effectively communicated to all employees
- iv. ensure that OSH training and other related OSH risk management records are documented, and
- v. implement programs that support and maintain employees' safety, health and wellbeing.

Part 2. General Requirement

4. Duty of Risk Assessor to:

- i. assist the employer to ensure that the risk assessment forms is prepared in accordance with this ICOP
- ii. obtain approval from the employer or the appointed person for the implementation of risk control measures
- iii. highlight any specific precaution to be taken to eliminate or reduce risks to the employer, and
- iv. provide regular updates on the appropriate risk control measures implemented, preferably monthly but not more than three months.

5. Duty of Employee to:

- i. adhere to the measures stated in the risk assessment, and
- ii. report to their superior any incident so that prompt action can be taken to address them for the purpose of reviewing risk assessment.

Part 3. OSH Risk Management

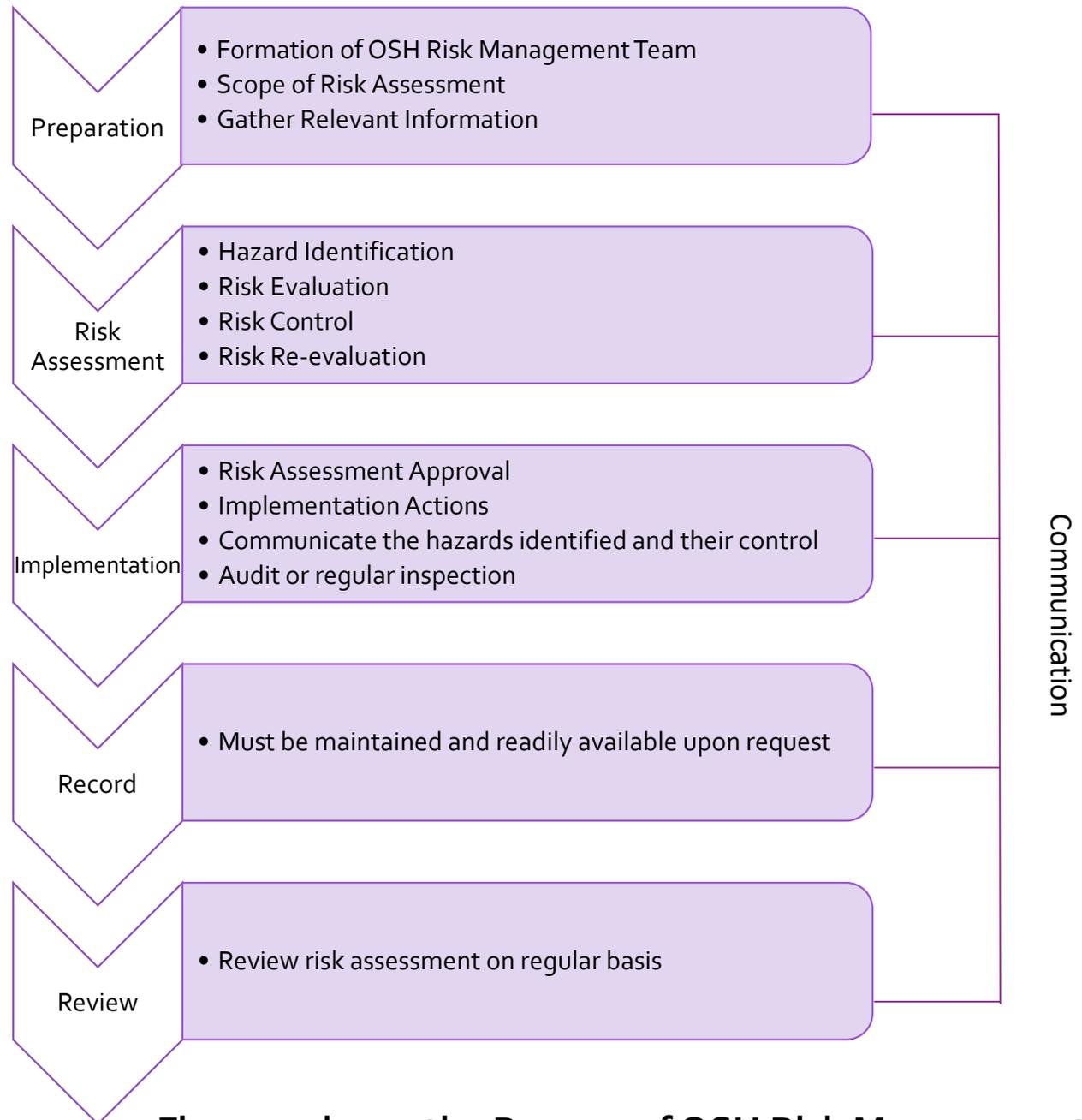


Figure 1 shows the Process of OSH Risk Management

Part 4. Preparation

1. Formation of OSH Risk Management Team (OSH RM Team)

1. OSH RM Team appointed by employer
2. Consist of Risk Assessor (Team Leader) and Team Members
3. Risk Assessor - competent
 - i. knowledge on OSH risk management, OSH legislation
 - ii. skills on risk assessment techniques, and
 - iii. experiences on process and work activities
4. Team Members -
 - i. have appropriate knowledge and experience of the work to be assessed, and
 - ii. be multi-disciplinary, diverse with representation from major stakeholders of all the workplace functions.

Part 4. Preparation

2. Scope of Risk Assessment

1. OSH RM Team to identify a convenient unit (or “Boundary”) for assessing and controlling risks at the workplace.
 - i. dividing a workplace or project into its distinct parts (i.e. departments, divisions or functional areas), and
 - ii. sub-dividing each part into self-contained jobs or areas, each representing the unit for the risk assessment.
2. After determined the boundaries (i.e. departments, divisions or functional areas), identify the **process** and location to be assessed.
3. Classify process in accordance with their similarity, such as -
 - i. geographical or physical areas within/outside premises;
 - ii. stages in production/service process;
 - iii. not too big e.g. building a car;
 - iv. not too small e.g. fixing a nut; or
 - v. defined process e.g. loading, packing, mixing, fixing the door.

Part 4. Preparation

3. Gather Relevant Information

These sources of information may include, but not limited to:

- i. workplace layout plan;
- ii. process or work flowchart;
- iii. list of work activities in the process;
- iv. list of chemicals, machines and/ or tools used;
- v. records of past incidents;
- vi. relevant legislation, ICOP, standard, guidelines or specifications;
- vii. observations and interviews;
- viii. OSH inspection and audit records;
- ix. details of existing risk controls;
- x. feedback from employees, clients, suppliers or other stakeholders;
- xi. Safe Work Procedures (SWPs);
- xii. Safety Data Sheets (SDS);
- xiii. manufacturer's instruction manual;
- xiv. copies of any previous risk assessment that are relevant;
- xv. medical record (e.g., allergy) of employees in the workplace or activity being assessed; and
- xvi. past training records of employees.

Part 5. Risk Assessment

Purposes of Risk Assessment

- i. to identify all the hazards that may cause injury and ill health to employees and others
- ii. to evaluate the identified hazard and determine an appropriate control measures, and
- iii. enable employers to plan, introduce and monitor preventive measures to ensure that the risks are minimised and adequately controlled at all times.

Part 5. Risk Assessment

1. Hazard Identification

1. OSH RM Team to determine the most appropriate way(s) of identifying hazards. These include brain-storming, systematic process reviews (such as HAZOP), Process Hazard Analysis (PHA), Job Safety Analysis (JSA), Job Hazard Analysis (JHA), job observation, workplace inspection, exposure monitoring record, interview workers etc.
2. When conducting hazard identification process, the OSH RM Team to take into account, but not be limited to:
 - i. how work is organized, social factor, leadership and culture in the workplace
 - ii. routine and non-routine activities
 - iii. past relevant incidents
 - iv. potential emergency situations
 - v. people
 - vi. actual or proposed changes in workplace
 - vii. changes in knowledge and information about hazards

Part 5. Risk Assessment

Step of Hazard Identification

1. Select a **process** and place it in the “**Risk Assessment Form**” (see **Appendix 1**) for assessment.
2. Break down **process** into its **work-activities** to facilitate the identification of all foreseeable hazards associated with the work. These work-activities constitute the different steps that make up the process .
3. For each work-activities, identify the potential hazard(s) and write down in the “**Hazard**” column. List each hazard in a separate row in the table.
4. For each identified hazard:
 - i. select appropriate category of hazard and write down in “**Category of Hazard**” column; and
 - ii. identify event and consequence and write down in “**Event and Consequence**” column.

Part 5. Risk Assessment

2. Risk Evaluation

Risk Evaluation - Likelihood of an Occurrence

Table 1 - A guide to likelihood rating

Likelihood	Description	Rating
Most likely	The most likely result of the hazard/event being realized	5
Possible	Has a good chance of occurring and is not unusual	4
Conceivable	Might be occur at sometimes in future	3
Remote	Has not been known to occur after many years.	2
Inconceivable	Is practically impossible and has never occurred	1

Part 5. Risk Assessment

Risk Evaluation - Likelihood of an Occurrence

Table 2 - Factors to Consider When Selecting Likelihood Rating

Likelihood	Description	Rating	Factors
Most likely	The most likely result of the hazard/event being realized	5	Factor to consider: <ol style="list-style-type: none"> 1. Past accident record (self-workplace) – Had occurred before. or 2. Direct proximity to hazard. 3. Continuous exposure to particular hazard. 4. Almost certain frequency of exposure. or 5. No existing control measure.

Part 5. Risk Assessment

Risk Evaluation - Likelihood of an Occurrence

Table 2 - Factors to Consider When Selecting Likelihood Rating

Likelihood	Description	Rating	Factors
Possible	Has a good chance of occurring and is not unusual	4	Factor to consider: <ol style="list-style-type: none"> 1. Past accident record (self-workplace) – Never happen, near miss accident had occurred before. or 2. In-direct but very closed to hazard. 3. Prolong duration of exposure to particular hazard. 4. Routine job require frequent exposure. or 5. Insufficient existing control measure. or 6. No knowledge and awareness on hazard. 7. No experience on activity at all.

Part 5. Risk Assessment

Risk Evaluation - Likelihood of an Occurrence

Table 2 - Factors to Consider When Selecting Likelihood Rating

Likelihood	Description	Rating	Factors
Conceivable	Might be occur at sometimes in future	3	Factor to consider: <ol style="list-style-type: none"> 1. Past accident record (self-workplace) – No Record of accident but happen in other similar activities / industries. or 2. In-direct but not too closed to hazard 3. Intermittent exposure to particular hazard. 4. Low frequency of exposure or 5. Minimum existing control measure or 6. Knowledgeable and awareness on hazard. 7. Less experience on activity or 8. Unsafe working environment (Poor Housekeeping / weather)

Part 5. Risk Assessment

Risk Evaluation - Likelihood of an Occurrence

Table 2 - Factors to Consider When Selecting Likelihood Rating

Likelihood	Description	Rating	Factors
Remote	Has not been known to occur after many years.	2	Factor to consider: <ol style="list-style-type: none"> 1. Past accident record (self-workplace) – No record and never been reported anywhere or 2. Safe distance to hazard. 3. Low exposure to particular hazard. 4. Non routine job requires frequent exposure. or 5. Necessary existing control measure in place. or 6. Proper induction and on job training are provided on the related hazard. 7. Good experience on activity. or 8. Safe working environment (Excellent housekeeping / weather).

Risk Evaluation - Likelihood of an Occurrence

Table 2 - Factors to Consider When Selecting Likelihood Rating

Likelihood	Description	Rating	Factors
Inconceivable	Is practically impossible and has never occurred	1	<p>Factor to consider:</p> <ol style="list-style-type: none"> 1. Past accident record (self-workplace) – No record and unforeseeable risk. or 2. Remote distance from hazard. 3. Impossible exposure. 4. Job scope not involved with the exposure of hazard. or 5. Adequate existing control measure and well maintain. or 6. Proper induction and on job training, refresher training and assessment are provided on the related hazard to the workers. 7. Competence on hazard and process activity. 8. Expert with the activity. or 9. Safe working environment is part of organization management system or 10. Safe design of workplaces / system of work / process.

Part 5. Risk Assessment

Part 5. Risk Assessment

Step of Risk Evaluation - Likelihood Rating

1. Taking the existing risk controls into consideration, the OSH RM team has to rate the likelihood the hazard may cause injury or ill health.
2. When estimating likelihood, the highest possible rating of likelihood should be selected. OSH RM team to consider the following factors, but not limited to:
 - i. past accident record
 - ii. proximity to a hazard
 - iii. frequency and duration of exposure to a hazard
 - iv. personal/ human factors who performs the task
 - v. machinery or task history
 - vi. workplace environment
 - vii. reliability of safety features
 - viii. possibility to defeat or circumvent protective measure
 - ix. ability to maintain protective measure, or
 - x. personal/ human medical factors
3. Guidance given in **Table 1** and **Table 2** to be used to consider the justification of likelihood before rating the likelihood (**L**).
4. Write down the justification for each selected likelihood rating in "**Justification for Likelihood**" column in the **Risk Assessment Form**.

Part 5. Risk Assessment

Risk Evaluation - Severity of Hazard

Table 3 - A guide to severity rating

Severity	Description	Rating
Catastrophic	Death, numerous serious bodily injuries, multiple serious bodily injuries or numerous life threatening occupational disease (include occupational cancers).	5
Major	Serious bodily injuries (Refer to Appendix 2– List of Serious Bodily Injuries) or life threatening occupational diseases (include occupational cancers).	4
Moderate	Injury involving non-permanent disability or ill health requiring medical treatment (includes lacerations/ deep cut, burns, sprains, minor fractures, dermatitis and work-related upper limb disorders) which prevents the person from following his normal occupation job for more than four calendar days.	3
Minor	Injury or ill health requiring first-aid only (includes minor cuts and bruises, irritation, ill health with temporary discomfort).	2
Negligible	Negligible injury.	1

Part 5. Risk Assessment

Step of Risk Evaluation - Severity Rating

1. Taking the existing risk controls into consideration, the OSH RM team has to rate the severity of the possible injury or ill health.
2. The guidance given in **Table 3** should be used when selecting the rating of severity (**S**).

Part 5. Risk Assessment

Risk Matrix Number (RMN)

The RMN is obtained by multiplying the values of severity and likelihood rating (values in the "L" and "S" columns of the risk assessment form), that is, **RMN = L x S.**

Part 5. Risk Assessment

Risk Matrix

Table 4 - Common 5 x 5 risk matrix with numeric ratings

Likelihood \ Severity	Inconceivable (1)	Remote (2)	Conceivable (3)	Possible (4)	Most likely (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

Part 5. Risk Assessment

Risk Matrix

Likelihood \ Severity	Inconceivable (1)	Remote (2)	Conceivable (3)	Possible (4)	Most likely (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

- (i) If the likelihood is "inconceivable" or "remote", but the severity is "catastrophic", or
- (ii) if the likelihood is "remote" or "conceivable", but the severity is "major"

the risk assessor should alert the employer, and write down specific precaution in "remark" column in Risk Assessment Form

Part 5. Risk Assessment

Existing Controls

1. Existing controls are control measures that are already in place.
2. Evaluation of severity (S) and likelihood (L) should be made on the assumption that existing controls are in place.
3. Existing controls that do not influence likelihood or severity should not be taken into account when evaluating likelihood or severity.

Classification of Risk Level—Risk Matrix

1. Compare the RMN against the Risk Matrix in **Table 4**.
2. Risk controls must be implemented so that the risk levels are not in the red zone (**“High Risk”**) before work commences.
3. Additional risk controls should be implemented till:
 - i. risk level in the yellow zone (**“Medium Risk”**) are already tolerable, or
 - ii. risk level is in the green zone (**“Low Risk”**)

Part 5. Risk Assessment

Action for Risk Level

Table 5 - Recommended action for risk level

RISK LEVEL	RISK ACCEPTABILITY	ACTION
15 – 25 (HIGH)	NOT ACCEPTABLE	A HIGH risk requires immediate action to control the risk so far as is practicable to medium or low risk level before carry out any activity. There should not be any interim risk control measures. Risk control measures should not be solely dependent on PPE. Actions taken must be documented on the risk assessment form including date for completion.
5 - 12 (MEDIUM)	TOLERABLE	A MEDIUM risk requires a plan to controlling the hazard and applies temporary measure such as giving appropriate instructions to employees or PPE if required.
1 – 4 (LOW)	ACCEPTABLE	A risk identified as LOW may be considered as acceptable and further reduction may not be necessary.

Part 6. Risk Control

3. Risk Control

General Principle of Prevention

1. An employer to apply the general **Principles Of Prevention** as specified in **Appendix 3** when implementing risk control.
2. An employer to implement safe work procedures for every activity to control the risk (see **Appendix 4** for **SWPs**).

Additional Risk Controls

1. Check the risk level (or RMN) for acceptability. If the risk level is “High” or RMN is in the “High” zone, the risk should be reduced to a “Medium” or “Low” level by **additional risk controls** before carry out any activity.
2. When considering additional risk controls to avoid or reduce risk, general principles of prevention should be applied.

Part 7. Risk Re- evaluation

4. Risk Re- evaluation with Additional Risk Controls

1. When additional risk control(s) have been decided, re-rate the severity, likelihood and RMN values and write down in the "L", "S" and "RMN" columns in the "Risk Re-Evaluation" section of the **Risk Assessment Form**.
2. The re-evaluated RMN should:
 - i. preferably be kept within the **Medium Risk** (Yellow) zone or **Low Risk** (Green) zone, where feasible; and
 - ii. not be HIGHER than the initial RMN.

In order to maintain the residual risk, risk assessor should highlight specific precaution to the employer in "remark" column in **Risk Assessment Form**.

Part 8. Implementation

Risk Assessment Approval

Completed risk assessment forms to be approved by the appointed person of the area, function or activity where the risk is being assessed.

Implementation Actions

1. The appointed person (**who manage and oversees the area, function or activity where the risks exist**) to:
 - i. implement so far as is practicable the recommended additional risk control immediately or in specific timeline.
 - ii. ensure that a plan is prepared to implement the measures. The plan should include a timeline and the names of the persons in charge (PIC).
 - iii. ensure that the plan is monitored regularly until all the measures are implemented.
 - iv. ensure that all persons exposed to the risks are communicated on the nature of risks and any measures or SWP implemented.
 - v. ensure that regular inspections and audits are carried out to make sure that risk control measures have been implemented and are functioning effectively.
 - vi. ensure that before perform any work, an observation by any means is carried out to make sure all control measures are in place and no associated hazard exposed to the employee.

Part 8. Implementation

Implementation Actions

2. After the implementation of additional risk controls, the **“Existing Risk Control”** and **“Additional Risk Control”** columns of the risk assessment form have to be updated during review.
3. As part of continual improvement, this ICOP recommends that workplace hazards be monitored regularly till:
 - i. the risk level of the hazard is relatively low (“green zone” of the risk matrix);
 - ii. the remaining risks of the hazard are residual in nature; or
 - iii. all appropriate measures have been taken to mitigate the risk.

Part 9. Review

Review of Risk Assessment

Risk assessment to be reviewed:

- i. upon any incident to any person as a result of exposure to a hazard in the place of work
- ii. when there is any significant change in work process, practices or procedures
- iii. when new information on hazard is made known, or
- iv. when directed by the Director General

Note: “Significant change” in the work process, practices or procedures means changes that may affect the risk decisions and the adequacy of control measures.

Part 10. Communication

Communication, Consultation and Participation

1. Communication, consultation and participation with external and internal stakeholders, including all functions and levels within the workplace, shall take place during all stages of the OSH risk management process.
2. All employees or other person not being his employee at the workplace to be communicated on the risks they face and the risk control measures available to manage those risks.
3. Communication can take various forms (such as meetings, employee dialogues, trainings, notice boards and various electronic means) for different groups within the workplace.
4. Effective consultation is seeking view between stakeholders in decision making.
5. Effective participation involve two-way dialogues between stakeholders in decision making.

Part 11. Record

1. Employer or self-employed person shall —
 - i. maintain OSH risk management record includes a record of any risk assessment conducted and any risk control or safe work procedure implemented, and
 - ii. make available a record of any risk assessment for examination upon request by the Director General.
2. OSH risk management record can be documented in any format and media, and from any source.

Part 12. Training for Risk Assessor

Employer or self-employed person shall ensure appointed risk assessor attend training for conducting risk assessment. The scope of training should include:

- i. OSH Legislation
- ii. OSH risk management system
- iii. Hazard identification
- iv. Risk evaluation and risk re-evaluation
- v. Risk control, and
- vi. OSH risk management record

Appendix 1 – Risk Assessment Form

Department		Risk Assessor		Approved by		RA Reference No:
Process		RM Team Member 1		Signature		
Location		RM Team Member 2		Name		
Assessment Date/Review Date*		RM Team Member 3		Designation		
Last Assessment		RM Team Member 4		Date		

No	HAZARD IDENTIFICATION							RISK EVALUATION						RISK CONTROL	RISK RE-EVALUATION			REMARK	
	Work Activity	Hazard	Category of Hazard					Event and Consequences	Existing Risk Control (if any)	Justification of likelihood	Likelihood (L)	Severity (S)	RMN	Additional Risk Control	Likelihood (L)	Severity (S)	RMN		PIC (due date)
			Physical	Chemical	Biological	Ergonomic	Psychosocial												

Appendix 2 – Serious Bodily Injury

1. Emasculation
2. Permanent privation of the sight of either eye
3. Permanent privation of the hearing of either ear
4. Privation of any member or joint
5. Destruction or permanent impairing of the powers of any member or joint
6. Permanent disfiguration of the head or face
7. Fracture or dislocation of the bone
8. Loss of consciousness from lack of oxygen
9. Loss of consciousness or acute illness from absorption, inhalation or ingestion of any substance, which requires treatment by a registered medical practitioner
10. Any case of acute ill health where there is a reason to believe that this resulted from occupational exposure to isolated pathogen or infected material
11. Any other work related injury or burns which results in the person injured being admitted immediately into hospital for more than 24 hours

Appendix 3 – Principles of Prevention

1. avoiding risks
2. evaluating the risks which cannot be avoided
3. controlling the risks at source
4. adapting the work to the individual, especially as regards the design of place of construction work, the choice of work equipment and the choice of working and production methods, with a view, in particular, to alleviating monotonous work and work at a predetermined work-rate and to reducing their effect on health
5. adapting to technical progress
6. replacing the dangerous by the non-dangerous or the less dangerous
7. developing a coherent overall prevention policy which covers technology, organisation of work, working conditions, social relationships and the influence of factors relating to the working environment
8. giving collective protective measures priority over individual protective measures, and
9. giving appropriate instructions to employees

Appendix 4 – Safe Work Procedure

Arising from the Risk Assessment, SWPs should be established and implemented for work which may pose safety and health risks. The SWPs should include safety precautions to be taken in the course of work and during emergencies, as well as responsibilities of persons involved and provision of PPE. The implementation of the SWPs should be monitored regularly, and the SWPs reviewed periodically to ensure their effectiveness.

Safe Work Procedures must include, but not limited to:

- i. Title;
- ii. Content;
- iii. Scope;
- iv. Abbreviation;
- v. Roles and responsibilities;
- vi. Procedure (before, during, after) and emergency situation;
- vii. References (Act, Regulations, Code of Practices, Guidelines, etc.);
- viii. Necessary personal protective equipment;
- ix. Required training;
- x. Control measures identified in the risk assessment; and
- xi. Appendix (e.g. inspection checklist/form, permit to work, process flow chart, related drawing, etc.)

An example of a task that requires the development of a safe work procedure is confined space entry. Individuals who must work within confined spaces must ensure that safe work procedures are developed and followed to maximize life safety.

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