



Project Managed Change Program

**JABATAN KERJA RAYA
MALAYSIA**

RISK MANAGEMENT PLAN

**UNIVERSITI PERTAHANAN NASIONAL
MALAYSIA**

Cawangan Pengurusan Projek Kompleks
(PROKOM)
Ibu Pejabat JKR Malaysia

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Summary of **UPNM** Risk Profile

The initial risk process for the UPNM project was conducted through a risk workshop session and discussions and initially 42 risks were identified and evaluated. The information provided has allowed an initial assessment of the project's risk profile to be conducted and a preliminary analysis of the risks identified to be undertaken.

The overall risk profile of the project as it stands would be considered High. This is not unusual at this stage of the project. A significant risk mitigation strategy currently in place for the project is the adoption and implementation of the Partnering model, as many of the identified risks will be resolved by good communications and discussions to develop a common understanding of the requirements required to deliver the successful outcomes of the project.

Initial assessment was conducted against the risks identified as Planning Stage, Procurement Stage, Design Stage, Construction Stage or Handover Stage and sorted into Extreme (29), High (12) and Medium (1). Some of the Extreme and High risks for are shown in Figure 1, and some initial strategies were identified during the workshop, to reduce the likelihood or impact of the risk.

Descriptions of all risks identified are shown in the Risk Register, Appendix A and the initial assessment sheets completed for the Extreme and High risks in Appendix B.

Planning	Procurement	Design	Construction	Handover
Understanding the scope	Increase cost of main material	Delay in design	Limited working time	T & C issues – unavailability of utilities
Confirmation of site location	Wrong method of construction	Lack of human resources	Stringent security procedures	
Lack of involvement of stakeholders	Possible of getting unreliable contractor	Incomprehensive design coordination	Damages to the access road	
Asset transfer is not finalized	Insufficient project budget	Uncertainty of scope	Health & safety Of the students	

Figure 1



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1. INTRODUCTION

The Universiti Pertahanan Nasional Malaysia is the latest university and is set to be a 'boutique university' by the Government. Currently, the university is operating at temporary campus neighboring Sungai Besi Army Camp and Royal Military College. The current enrolment of the university is around 2500 students.

The Ministry Of Higher Education has been entrusted by the government to look into the development of the new campus. Together with the client, The Ministry of Higher Education has identified a piece of land adjacent to the present temporary campus as the site to be developed. The area of the site is around 158 acres and is mostly of hilly terrain.

JKR has been given the task to manage the university project through the letter dated 22 June 2007 sent by the Ministry of Higher Education to the Higher Education Branch of JKR. The project brief has been approved by the Ministry of Higher Education on 4th Dec, 2007.

1.1. Background

Some words on the background to risk management for the project i.e.

There are always risks associated with a project. The purpose of risk management is to ensure levels of risk and uncertainty are effectively managed, so that the project is completed successfully on time and within budget. The risk management process enables stakeholders involved in a project to identify possible risks and the manner in which these risks can be contained and the likely cost of mitigation strategies.

Proper risk management allows the project to prosper through taking and avoiding risks. Good risk management will greatly improve the transparency of how the project operates, providing a roadmap to achieve strategic goals and objectives and reassurance over the management of risks.

Successful management of the Project requires informed, proactive, and timely management of risks. The specific objectives of this risk management plan and approach are:

- Ensure critical risks impacting scope, schedule, budget, business performance, and/or change management are proactively identified, communicated, mitigated, and escalated in a timely manner.
- Facilitate attention to key risks impacting the project and individual teams.
- Produce meaningful information that allows project management to focus efforts on the "right" (e.g., high likelihood and high impact) risks with an effective coordination of effort.
- Ensure appropriate stakeholders are informed and, if applicable, participate in the mitigation.
- Record an audit trail of discussions and mitigation of project risks.

The goal of this Risk Management Plan (RMP) is to proactively identify and address risks early in the project and throughout its lifecycle in order to avoid surprises.



1.2. Purpose

This document describes how the **UPNM** project team will perform the job of managing risks for the project. It defines roles and responsibilities for stakeholders in the risk processes, the risk management activities that will be carried out, the schedule and subsequent budget for risk management activities and subsequently the tools and techniques that will be used.

This RMP presents the process for implementing proactive risk management as part of the overall management of the **UPNM** project. Risk management is a program management tool to assess and mitigate events that might adversely impact the project. Therefore, risk management increases the probability / likelihood of project success.

This RMP will:

- Serve as a basis for identifying alternatives to achieve cost, schedule, and performance goals
- Assist in making decisions on budget and funding priorities
- Provide risk information for milestone decisions
- Allow monitoring the health of the project as it proceeds.

The RMP describes methods for identifying, analyzing, prioritizing, and tracking risk drivers; developing risk-handling plans; and planning for adequate resources to handle risk.

It assigns specific responsibilities for the management of risk and prescribes the documenting, monitoring, and reporting processes to be followed.

1.3. Project Summary

Describe the Project (or where it fits in the program if part of a program) that the risk management plan applies to.

Project Name	:	Cadangan Tambahan Universiti Pertahanan Nasional Malaysia (UPNM), Kuala Lumpur.
Client	:	Kementerian Pengajian Tinggi
End User	:	Universiti Pertahanan Nasional Malaysia
Project Director	:	Ir Mohd. Aminuddin Bin Mohd Amin
Project Manager	:	Mas Abdul Rahman Bin Mas Mohamed
Project Budget	:	RM 85,000,000.00
Scheduled Completion Date	:	31/12/2009

1.3.1. Project Governance

Include the governance structure of the project hereare :

1. PROKOM Director
2. PROKOM Team
3. Project Management Team



1.4. Scope and Context

This RMP identifies the procedures used to manage risk throughout the project. In addition to documenting the approach to risk identification and analysis, the plan covers who is responsible for managing risks, how risks will be tracked throughout the project lifecycle, and how mitigation and contingency plans are developed and implemented.

Risk management starts at the beginning of the project (Initiation Phase) with initial planning and assessing and is carried out at all levels within the project: project, team, and contractor. The risk management process ensures that risks are mitigated at the appropriate level and communicated as appropriate. While this plan provides guidance on managing all levels of risks, the primary focus is on risks at the project level; assuming that similar processes are in effect within the individual teams and contractors that comprise the project.

Risk management is an integral part of overall project planning and management and effective project planning and management requires effective identification and assessment of risks and determining what mitigating actions are required. Managing the effective completion of mitigation actions should be integrated with overall project tasks and assignments.

Risk management also works in concert with issue management. The key difference between issue management and risk management is the element of uncertainty inherent in risks. Uncertain events that could impact the project should be identified and managed through this RMP. Note that risks could lead to identification of issues and issues could drive identification or resolution of risks.

In order to be successful, the principles listed below guide the use and implementation of the overall Risk Management process that is described in detail in Section 2 of this document.

- Decisions will not be revisited once made (unless substantively new facts become available).
- A single owner is assigned responsibility for a risk even if several people work to mitigate it.
- Work and communicate progress on most severe risks first.
- Set realistic due dates and then work to meet the dates.
- Mitigate risks at the appropriate level (i.e., project, team, and contractor).
- Responsible team leads, determine and agree on the risk severity level.
- Document the planned risk mitigation history and actual mitigation of a risk. This documentation serves as a key input to root cause analysis, key learning, metrics, and risk analysis.
- For high impact, unanticipated risks, a 24-hour decision turnaround may be required or as determined by the PM. In such cases, available applicable team members will make the decision.

1.5. Definitions, Acronyms and Abbreviations

UPNM	Universiti Pertahanan Nasional Malaysia
KPT	Kementerian Pengajian Tinggi
SPAN	Suruhanjaya Perkhidmatan Air Negara
EPU	Economic Planning Unit
PD	Project Director
PM	Project Manager
LoA	Letter of Acceptance

Specific risks definitions are shown at Attachment C.

2. RISK MANAGEMENT PROCESS

This section describes the JKR project risk management process and provides an overview of the **UPNM** risk management approach. Risk management is defined as the act or practice of controlling risk and includes risk planning, assessing risk areas, developing risk-handling options, monitoring risks to determine how risks have changed, and documenting the overall risk management program. Figure 1 shows, in general terms, the overall risk management process that has been followed in the **UPNM**. Each of the risk management functions shown in the figure is discussed in the following paragraphs, along with specific procedures for executing them.

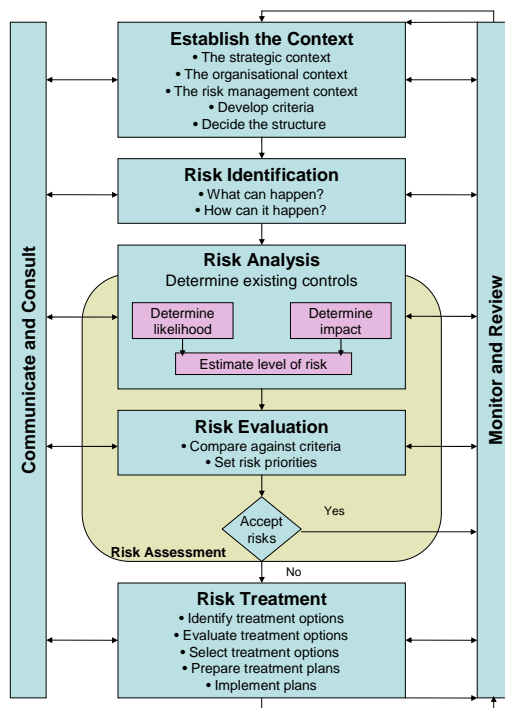


Figure 1: JKR Project Risk Management Process

2.1. Establish the Context

Establishing the context for the **UPNM** consists of the up-front activities necessary to execute a successful risk management program. It is an integral part of normal project planning and management. The planning addresses each of the other risk management functions, resulting in an organized and thorough approach to assess, handle, and monitor risks. It also assigns responsibilities for specific risk management actions and establishes risk reporting and documentation requirements. This RMP serves as the basis for all detailed risk planning, which must be continuous.

2.1.1. Responsibilities

The project manager (or delegate or risk manager if appropriate) is responsible for conducting risk planning, using this RMP as the basis. Planning covers all aspects of risk management to including assessment, handling options, and monitoring of risk mitigation activities. The project



management monitors the planning activities of the team to ensure that they are consistent with this RMP and that appropriate revisions to this plan are made when required to reflect significant changes resulting from the team planning efforts.

Each person involved in the design, production, operation, and support of the project is a part of the risk management process. This involvement is continuous and should be considered a part of the normal management process.

2.1.2. Documentation

This RMP establishes the basic documentation and reporting requirements for the project. Team members should identify any additional requirements that might be needed to effectively manage risk at their level. Any such additional requirements must not conflict with the basic requirements in this RMP.

2.2. Risk Identification

Risk identification is the first step in the assessment process. The basic process involves reviewing the entire [UPNM](#) to determine those critical events that would prevent the project from achieving its objectives. All identified risks were documented in the Risk Register (see Attachment A).

Risks were identified by the team, including the contractors, which allowed the identification of significant concerns earlier than otherwise might be the case and the identification of those events in critical areas that need to be dealt with to avoid adverse consequences/impacts. Likewise, individuals involved in the detailed and day-to-day technical, cost, and scheduling aspects of the project are most aware of the potential problems (risks) that need to be managed.

For the purpose of this assessment, risks were identified in the Post Award stage of the project implementation.

2.2.1. Tools and Techniques

Tools and techniques used in the risk identification and mitigation strategies for this project were as follows:

- Brainstorming, with a facilitator and range of stakeholders
- Interviews with stakeholders
- Scenario, business analysis and event tree modelling.
- Dependency modelling.
- Experience from other projects, metrics and published data norms
- Reviewing project information, including plans, analysis and designs.
- Checklists.

2.2.2. Risk Register

The key output of the risk identification phase is the risk register. The risk register for the project is shown at Attachment A.

Note: At this stage just a list of identified risks would appear in the risk register. The risk register Attachment A has had further analysis applied to the risks.

2.3. Risk Analysis

Risk analysis can be undertaken using similar methods as used for risk identification and is also a continuous process in the same way that risk identification is and the two may often be combined, in a structured way, into one activity.

Project or program risks are analysed to identify the:

- Estimated likelihood that the risk will occur (preferably probability using quantitative methods);
- Estimated impacts of the risk occurring in terms of its cost, schedule, 'quality' and other impacts on the project objectives including its products;
- The most appropriate risk owner; and
- Potential impact of the risk on third parties such as other projects and organisations.

It can also be useful at this stage of the analysis to conduct an initial high level assessment of whether the risk should be managed. There are three cases where a risk may not need managing by a project:

- The likelihood of it happening is extremely small.
- The impacts are insignificant and require no treatment
- The risk belongs outside the project; in this case the outside owners must formally take responsibility for it.

2.3.1. Updated Risk Register

The risk register is updated with the likelihood and impact Information and the consequent risk rating as per Attachment A.

2.4. Risk Evaluation

Typically an analysis or review of the risks associated with a project is made and a decision formed on what risks need treatment and what are their associated priorities. The first action is to sort the analysed risks by classifying them as one of:

- Accepted Risks, risks that are currently acceptable and do not require treatment, but will be kept under review.
- Rejected Risks, risks that are considered non-existent after analysis or of no significance.
- Significant Risks to be treated, these may need prioritisation.

Classification and prioritisation will be against risk criteria in the light of contexts and policies established in the Risk Management Plan.

2.5. Risk Treatments

An initial identification and assessment of measures to modify the identified risks was performed and the preparation of treatments for the risks identified. Risk Owners should also be assigned and may be members of the project team, business or other managers elsewhere in JKR, participating agencies or other stakeholder bodies. They will require an appropriate allocation of resources for their task(s), which may require negotiation by the sponsor depending on their relationship to the project.

Treatments are aimed to either reduce the risk's likelihood or impacts or both. Preparation of treatments requires inputs from stakeholders and coordination with the Project Manager. Normally if there is an unacceptable risk of a treatment failing (or not being found) or when a risk may reach an unacceptable level then a contingency plan must be developed.



2.5.1. Risk Assessment Worksheets

The output of the identification and assessment of the high priority risks is shown at Attachment B. At this stage some implementation measures have been identified (New Risk Treatments) but actions arising from these strategies, should, where possible, be included as activities in the project management plan.

2.6. Risk Monitoring and Reporting

The project manager as overall responsibility for monitoring and managing all aspects of the risk management process, unless the risk management activities have been assigned to a separate risk manager.

To ensure that significant risks are effectively monitored, risk-handling actions should be reflected in integrated project planning and scheduling. Identifying these risk handling actions and events in the context of Work Breakdown Structure (WBS) elements establishes a linkage between them and specific work packages, making it easier to determine the impact of actions on cost, schedule, and performance.

Risk status should be reported on an exception basis at the weekly project status meetings, with a full risk review conducted on a monthly basis.

3. RISK MANAGEMENT ORGANISATION

The risk organisation for the [UPNM](#) is not a separate organisation, but rather risk is integrated into the project's existing structure. A role is typically assigned to a Risk Manager who in turn is the overall coordinator of the project's Risk Management Program.

Note: This role in most projects will be performed by the Project Manager, but depending on the size of the project this role may be performed by a dedicated person.

The Risk Manager is responsible for:

- Maintaining this RMP
- Briefing the PM on the status of project risk
- Tracking efforts to reduce moderate and high risk to acceptable levels
- Providing risk management training
- Facilitating risk assessments
- Preparing risk briefings, reports, and documents required for project reviews and the acquisition milestone decision processes.

The project team is responsible for implementing risk management tasks as per this Plan. This includes the following responsibilities:

- Review and recommend to the Risk Manager changes on the overall risk management approach based on lessons learned
- As directed, update the project risk assessments made during the applicable project phase
- Review and be prepared to justify the risk assessments made and the risk mitigation plans proposed



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- Report risk to the PM, with information to the Risk Manager via the Risk Register or Risk Assessment Forms
- Ensure that risk is a consideration at each project review.

It is also important that the user/owner organisation remains fully involved in the risk management process, and identifies risks associated with future operation of the project deliverable(s).



ATTACHMENT A

RISK REGISTER



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4. RISK REGISTER

Project Title: Universiti Pertahanan Nasional Malaysia UPNM, Sg. Besi, Kuala Lumpur	Date : 16 February 2008
Project No. :	Compiled by :
Project Mgr : Mas Abdul Rahman bin Mas Mohamad	Reviewed by :

CATEGORY OF PROJECT RISK		Likelihood	Impact Rating	Risk Rating	Risk Matrix						
1. Political	9. Contractual	5. Almost certain	V. Severe	E- Extreme risk, immediate action required	LIKELIHOOD	5	H	H	H	E	E
2. Scope	10. Technical	4. Likely	IV. Major	H – High risk, will jeopardize project if not managed		4	M	M	H	E	E
3. Schedule	11. Environmental	3. Possible	III. Moderate	M – Medium risk, will impact time, cost or quality if not managed		3	L	M	M	H	E
4. Financial	12. Suppliers	2. Unlikely	II. Minor	L – Low risk, acceptable project management risk, monitor only		2	L	L	M	H	H
5. Human Resources	13. Industrial relations	1. Rare	I. Insignificant			1	L	L	M	M	H
6. Quality	14. Organizational						I	II	III	IV	V
7. Communications	15. OH & S					IMPACT					
8. Other resources	16. Cultural										

4.1. PLANNING RISKS

Ref No. (WBS)	Risk Event There is a risk that	Category of Risk	Likelihood Rating	Impact Rating	Risk Rating	Treatment Measures	Responsible Party	Action Date
1.	Lack of understanding of the scope by the project team will lead to project deliverables not meeting the satisfaction of clients	2	4	V	E	<ul style="list-style-type: none"> Clients project brief to be submitted to JKR together with Schedule of Accommodation – done on 13/02/08. Define roles and responsibilities of PROKOM and UPNM - Understanding of 	UPNM PROKOM	13/02/08 14/03/08



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Ref No. (WBS)	Risk Event There is a risk that	Category of Risk	Likelihood Rating	Impact Rating	Risk Rating	Treatment Measures	Responsible Party	Action Date
						R&R of UPNM and PROKOM was discussed in progress meetings but not documented. <ul style="list-style-type: none"> Have scheduled status report meetings with the clients which must include at least one of the clients key personnel Official Letter of Appointment to JKR as the project implementer – <i>LoA issued by other party</i> 	PM UPNM	2 nd Tues of the month or (Rev. every other Thursday) 22/02/08
2.	Delay in confirmation of site location would cause Need Statement cannot be finalised and will lead to delay in calling of tender		5	V	E	<ul style="list-style-type: none"> written confirmation on the site for development to be sent to client – <i>done on 25/02/08</i> cost analysis of the proposals was sent to Client on 18/3/08 Written confirmation on existing buildings that can be demolished – <i>done on 25/02/08 but needs to reconfirm due to changes</i> 	PM PM UPNM	25/02/08 18/03/08 25/02/08
3.	Lack of Involvement of stakeholder (Kem Sg Besi Camp Commander) may hinder accessibility Pertukaran dan kurang penglibatan Komander Kem Sungai Besi dan MINDEF akan menyebabkan masalah kelulusan masuk tapak dan masalah membuat keputusan		5	V	E	<ul style="list-style-type: none"> UPNM to initiate meeting with Camp Commander Request for special pass for all parties – written special policy Include Camp Commander in subsequent meetings (Mesyuarat Penyelarasan) Identify Liaison Officer from UPNM (Army Officer with Authority) 	UPNM UPNM PM UPNM	30/04/08 30/04/08 14/03/08 30/03/08
4.	Lack of site information (soil investigation, existing structure, existing services, existing capacity etc) will lead to unreliable / unrealistic proposal by the		4	V	E	<ul style="list-style-type: none"> Appoint IKRAM to carry out Preliminary SI – <i>not necessary as required data is readily available.</i> Include in Need Statement the 	PM, UPNM	18/02/08



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Ref No. (WBS)	Risk Event There is a risk that	Category of Risk	Likelihood Rating	Impact Rating	Risk Rating	Treatment Measures	Responsible Party	Action Date
	tenderer affecting tender evaluation and cost of tender					requirement for consultant to do search data of existing services – <i>done on 4 March 2008</i>	PM	04/03/08
5.	Asset transfer is not finalised (tanah dan bangunan)		5	V	E	<ul style="list-style-type: none"> Discussion between UPNM, MINDEF, KPT and KPTG to obtain endorsement – <i>verbal endorsement given on 13/02/08</i> (New) request for written endorsement from UPNM (New) require for written endorsement from KPTG 	UPNM PM PM	13/02/08 5/03/08 – check semula 21/04/08 – status?
6.	Inadequate main water supply from SYABAS		5	V	E	<ul style="list-style-type: none"> Inquire and verify from SYABAS and JKR Wilayah – <i>verified with JKR Wilayah that water capacity and pressure is adequate.</i> <i>*note: new development for water supply has been taken care of UPNM</i> Inquire from SPAN on the way they handled water issue – <i>not relevant as there is no water shortage as assumed earlier.</i> Inform client of the possible consequences – <i>client responded by undertaking development of new water supply system.</i> UPNM to communicate with SYABAS through EPU – <i>done on 29/03/08</i> Include rain harvesting in building design – <i>included in Needs Statement (4/04/08)</i> 	PM PM PM UPNM PM	30/03/08 30/03/08 7/04/08 29/03/08 04/04/08
7.	Delay in approval from Treasury		3	IV	H	<ul style="list-style-type: none"> UPNM to communicate and follow up continuously with Treasury 	UPNM	After tender submission (1/08/08)



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Ref No. (WBS)	Risk Event There is a risk that	Category of Risk	Likelihood Rating	Impact Rating	Risk Rating	Treatment Measures	Responsible Party	Action Date
						o Stakeholder management with the higher authority	PROKOM and UPNM	After tender submission (1/08/08)
8.	Too many projects to handle (HODT)		4	III	H			
9.	Staff shortage (Project Team)		2	IV	H			
10.	Lack of Commitment of project team		2	V	H			

4.2. PROCUREMENT RISKS

Ref No. (WBS)	Risk Event There is a risk that	Category of Risk	Likelihood Rating	Impact Rating	Risk Rating	Treatment Measures	Responsible Party	Action Date
11.	Increase in cost of main materials will lead to increase of tender cost and may cause tender not awarded		4	V	E	<ul style="list-style-type: none"> o Obtain information on current material price index for realistic estimate – specified for in the contract o Advise client on estimated project cost – <i>sent to client on 18/3/08</i> o Client to apply to EPU for increase in ceiling cost / reduce in scope – <i>not relevant as new project cost estimate is within approved ceiling.</i> 	PM PM	20/03/08 18/02/08
12.	Identify the right method of construction		4	IV	E	o Proposed IBS construction method to be included in Need Statement – <i>done on 4/03/08</i>	PM	04/03/08
13.	There is a risk that an open tender procurement process will cause unreliable contractor to be chosen will lead to project not implemented according to time, cost , quality	6	3	V	E	<ul style="list-style-type: none"> o Suggest selective tender – <i>PD decided to go for open tender.</i> o JKR to have project database (project track record) – <i>is available.</i> 	PD CKUB	15/03/08



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Ref No. (WBS)	Risk Event There is a risk that	Category of Risk	Likelihood Rating	Impact Rating	Risk Rating	Treatment Measures	Responsible Party	Action Date
						<ul style="list-style-type: none"> ○ Call meeting to discuss strategy for evaluation ○ Organize workshop for evaluation of tender 	PM PM	21/4/08 29/5/08
14.	There is a risk that too many tenderers to evaluate will cause longer time to do technical evaluation that will lead to delay in awarding contract	3	4	IV	E	<ul style="list-style-type: none"> ○ On job Training – <i>to be undertaken by others as a long term mitigation action</i> ○ Mentoring and coaching – <i>to be undertaken by others as a long term mitigation action</i> ○ Optimize existing expertise and resources – <i>request HODT to assign experienced personnel to the evaluation team</i> ○ Selective Tender– <i>PD decided to go for open tender.</i> 	SBU directors / Specialist Director SBU directors / Specialist Director PD PD	Continuous activity Continuous activity 21/4/08 15/03/08
15.	There is a risk that limited human resources to evaluate too many tender documents will lead to delay in awarding the contract.	5	4	IV	E	<ul style="list-style-type: none"> ○ On job Training – <i>to be undertaken by others as a long term mitigation action</i> ○ Mentoring and coaching– <i>to be undertaken by others as a long term mitigation action</i> ○ Optimize existing expertise and resources– <i>request HODT to assign experienced personnel to the evaluation team</i> ○ <i>(new) strategize evaluation process taking into account the available human resources</i> ○ Selective Tender– <i>PD decided to go for</i> 	SBU directors / Specialist Director SBU directors / Specialist Director PD PM / QS PD	Continuous activity Continuous activity 23/05/08 23/0508 15/3/08



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Ref No. (WBS)	Risk Event There is a risk that	Category of Risk	Likelihood Rating	Impact Rating	Risk Rating	Treatment Measures	Responsible Party	Action Date
						<i>open tender.</i> <ul style="list-style-type: none"> Additional personnel required– <i>not relevant</i> Paid overtime / special allowance for project– <i>not practical</i> Special workshop to do tender evaluation 	PM/HODT	29/05/08
16.	There is a risk that existing project scope is extensive that will cause insufficient project budget will lead to problems in project implementation	4	5	V	E	<ul style="list-style-type: none"> Reduce project scope – <i>done on 17/3/08</i> Request for additional fund – <i>not relevant as new project cost estimate is within approved ceiling.</i> Project phasing – <i>not applicable</i> 	PM/Client PM/Client PM/Client	17/03/08 7/03/08 07/03/08
17.	Contractor being nominated by higher authority		4	IV	E	<ul style="list-style-type: none"> An accepted risk 		
18.	There is a risk that incomprehensive client requirements will cause incomplete Need Statement and will lead to inaccurate tenderers proposal	2	3	IV	H	<ul style="list-style-type: none"> Extensive list of current/future equipment/facilities required by client – <i>done on 4/03/08</i> Special function requirement e.g.; BAS, 24 hours system – <i>included in need statement</i> 	PM PM	04/03/08 07/03/08



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4.3. DESIGN RISKS

Ref No. (WBS)	Risk Event There is a risk that	Category of Risk	Likelihood Rating	Impact Rating	Risk Rating	Treatment Measures	Responsible Party	Action Date
19.	There is a risk that no decision on funding disbursement will cause soil investigation & site profile not conducted and will lead to unsuitable foundation proposal	10	4	IV	E	<ul style="list-style-type: none"> ○ Appoint IKRAM to conduct preliminary soil investigation – <i>not necessary, data readily available</i> ○ Client to conduct preliminary soil investigation – <i>not necessary</i> 	Client	
20.	Design cannot be completed on time due to short time given to Consultant / Contractor resulting in poor functionality & quality of the product	3	5	IV	E	<ul style="list-style-type: none"> ○ To allocate a special design workshop comprises all design discipline (co-ordination) ○ To have more consultants of various services involved in designing. – <i>to ensure relevant consultants are sufficiently employed by Contractor</i> ○ To apply fast track methodology (dry construction) - included in tender document ○ Contractor to appoint competent planner / scheduler - <i>included in tender requirement</i> 	PM / Contractor PM / Contractor PM PM / Contractor	Before construction (27/10/08) 27/06/08 28/04/08 Before const. (27/6/08)
21.	Shortage of human resources in JKR (HODT), will affect the quality of checking & auditing during design & construction stage which lead to low quality of end product.	5	5	V	E	<ul style="list-style-type: none"> ○ To appoint independent checker - <i>included in tender document.</i> ○ To have a special workshop for checking / auditing design 	PM PM	20/03/08 Before construction (27/10/08)
22.	There is a risk that uncertainty of scope during design stage will cause inaccurate design (re-design works) which lead to increase the cost and delay the project completion.	2	3	IV	H	<ul style="list-style-type: none"> ○ To organize workshop with Client, KPT, CPT & Project Team to confirm the scope & requirement – <i>done on 17/3/08</i> ○ Endorsement by Client on the scope (documented) – <i>done on 17/3/08</i> 	PM PM	17/03/08 1703/08



RISK MANAGEMENT PLAN

Ref No. (WBS)	Risk Event There is a risk that	Category of Risk	Likelihood Rating	Impact Rating	Risk Rating	Treatment Measures	Responsible Party	Action Date
						<ul style="list-style-type: none"> To organize partnering workshop 	PM	2 weeks after LA
23.	There is a risk that unclear client's design ideas will cause lack of design concept to be realised and will lead to variety of design proposals	10	3	IV	H	<ul style="list-style-type: none"> Diagrammatic building zoning – <i>done on 28/01/08</i> Conceptual master plan - <i>not done due to unavailability of required data from client</i> Preferred design images – <i>not advisable for design and build project</i> 	PM/HODT/Client PM/HODT/Client	28/01/08 19/03/08
24.	There is a risk that type of procurement (assumed at this stage open tender design & build) will cause incomprehensive design coordination and will lead to delay in project construction.	10	3	IV	H	<ul style="list-style-type: none"> Frequent coordination meeting - <i>ongoing</i> Selective type of procurement – <i>PD decided to go for open tender.</i> Allow clarification before signing of contract 	PM Pengarah Prokom PM/HODT	During project life cycle 15/03/08 Before signing of contract

4.4. CONSTRUCTION RISKS

Ref No. (WBS)	Risk Event There is a risk that	Category of Risk	Likelihood Rating	Impact Rating	Risk Rating	Treatment Measures	Responsible Party	Action Date
25.	There is a risk that limited working time during construction due to army camp policy which could lead to delay and low quality of end product	3	5	V	E	<ul style="list-style-type: none"> Special negotiation with army camp commander <ul style="list-style-type: none"> to consult Pn Mariam / JKR 	PM	Before 28/04/08



RISK MANAGEMENT PLAN

Ref No. (WBS)	Risk Event There is a risk that	Category of Risk	Likelihood Rating	Impact Rating	Risk Rating	Treatment Measures	Responsible Party	Action Date
						<p style="color: blue;">Wilayah for advice</p> <ul style="list-style-type: none"> ○ meeting on neutral ground chaired by TKPKR II ○ UPNM to take the lead ○ To inform the contractor about the restriction in tender document – <i>done during tender briefing on 8/4/08</i> ○ To get involvement of high level influence – <i>Minister of Defence</i> 	<p>UPNM PM</p> <p>Pengarah PROKOM</p>	<p>Before tender (8/04/08)</p> <p>Before construction (27/10/08)</p>
26.	There is a risk that stringent security procedures will prolong the security clearance of the workers and materials which delay the progress of works.	14	5	IV	E	<ul style="list-style-type: none"> ○ To inform the contractor about the restriction in tender document ○ Negotiate with army commander to get priority on processing of security passes ○ To get involvement of high level influence ○ To locate workers kongsi nearest possible to the site and guarded – <i>not agreeable by army (against army policy)</i> ○ To request one UPNM officer (min. ranking of major) to be a liaison officer between project team and army – <i>Prof Mahzom</i> 	<p>PM</p> <p>PM</p> <p>Pengarah PROKOM</p> <p>PM</p>	<p>Before tender</p> <p>Before const.</p> <p>Before const.</p> <p>Before const.</p>
27.	There is a risk that only one access road to the construction site will damage to existing infrastructure which lead to the increase of the project cost		5	IV	E	<ul style="list-style-type: none"> ○ To get involvement of high level influence – <i>UPNM to take a lead in discussion pertaining to this matter. PM to provide information to UPNM (issue of security guard)</i> ○ To provide in the contract certain amount for levy – <i>already covered in contract under standard preliminary items</i> 	<p>UPNM / PM</p> <p>QS</p>	<p>Before construction Before LA (18/09/08)</p> <p>20/03/08</p>



RISK MANAGEMENT PLAN

Ref No. (WBS)	Risk Event There is a risk that	Category of Risk	Likelihood Rating	Impact Rating	Risk Rating	Treatment Measures	Responsible Party	Action Date
						<ul style="list-style-type: none"> To provide contingency for repairing road / infrastructure in the contract – <i>already covered in contract under standard preliminary items. Need to look into Crisis management plan in handling disruption in essential services to the camp</i> To provide alternative road - <i>not practical</i> 	PM / Contractor	Appointment of Contractor (21/08/08)
28.	There is a risk that activities at site will endanger health & safety of the students which lead to delay of construction period		3	V	E	<ul style="list-style-type: none"> Stringent enforcement of ISO 14000 (dust & noise pollution) To appoint full time safety officer - <i>allocated in the contract</i> To erect proper hoarding on site - <i>allocated in the contract</i> To impose IBS system for project - <i>allocated in the contract</i> To appoint sufficient & competent security guard in collaboration with army camp management – to check & verify policy of camp on appointment of external security guard. To provide CCTV & others security system – to advise contractor to provide at their own expense for their own advantages. Make use of I-supervision facilities. 	PM / Contractor PM / Contractor PM / Contractor PM / Contractor PM / Contractor / UPNM PM / Contractor	Before const. Before const. Before const. 20/03/08 Before const. After LA (21/08/08)
29.	There is a risk that using the existing main road as the only access to UPNM worksite will create many problem during construction that may delay the progress of the project and the movement of the users.	9	5	V	E	<ul style="list-style-type: none"> Early submission of proper documentation for passes application – 1 month before (for new staffs / workers, plant & machineries, 	Project manager / Contractor	Immediate (JKR Staffs). After LA (21/08/08) (Contractor)



RISK MANAGEMENT PLAN

Ref No. (WBS)	Risk Event There is a risk that	Category of Risk	Likelihood Rating	Impact Rating	Risk Rating	Treatment Measures	Responsible Party	Action Date
						<ul style="list-style-type: none"> o Ample time must be provided to apply for passes before construction start, date of possession of site should not be lesser than one month after LA. Applicable to all levels. o To have understanding with the client to create a special season pass for construction site. – <i>UPNM to communicate with camp. PM to issue letter to UPNM.</i> o Create a touch and go system / special lane approved by the camp commandant – <i>PM to take up proposal to UPNM.</i> 	Project Manager / Contractor PM / UPNM PM / UPNM	After LA (21/08/08) 21/04/08 17/04/2008
30.	There is a risk that shortage of water due to rapid development will cause insufficient water supply leading to frequent disruption of supply beyond control.	10	5	V	E	<ul style="list-style-type: none"> o To lay new water reticulation system from SYABAS main line including reservoir / elevated water tank to cater for future expansion. – <i>Separate project by UPNM. Water supply during construction sufficient based on studies carried out by JKR Wilayah</i> o Make sure MASMA standard and procedure included in contract. – <i>not relevant to this risk</i> o To do survey mapping of existing water pipeline. 	UPNM Client (UPNM)	Refer to UPNM Refer to UPNM
31.	There is a risk that work will be disrupted due to political and hi-level interference	1	5	V	E	<ul style="list-style-type: none"> o Finalized project scope and endorsed by the client decision maker 	Project manager	Done on 17/03/08



RISK MANAGEMENT PLAN

Ref No. (WBS)	Risk Event There is a risk that	Category of Risk	Likelihood Rating	Impact Rating	Risk Rating	Treatment Measures	Responsible Party	Action Date
	that may result in project delays.					<ul style="list-style-type: none"> One stop centre for decision making – <i>bi-weekly progress meeting</i> Scheduled briefings. Introduction of relationship management example partnering with full involvement of client. – <i>propose awareness program in one of the bi-weekly meeting</i> 	Project manager Project manager Project manager	Bi-weekly Bi-weekly After LA (formal workshop)
32.	There is a risk that unscheduled visit of VVIP and functions will disrupt project schedule.	7	5	V	E	<ul style="list-style-type: none"> Sufficient verbal or written indications given to all respective contractors- require hi-level communication between JKR and the military authority. – <ul style="list-style-type: none"> Identify who are VVIPs (e.g. royalties, ministers, army general, foreign delegate, etc) camp liaison officer To develop communication network with appropriate camp officer to get information on visit through UPNM. Get scheduled visit& function from camp through UPNM 	UPNM / PM	17/04/08 (bi-weekly meeting)
33.	There is a risk that time constraint will affect the overall quality and supervision standard and may hamper customer satisfaction.	10	4	IV	E	<ul style="list-style-type: none"> Setup a dedicated project team to reflect urgency - done Select competent contractor: – <ul style="list-style-type: none"> Pre- workshop meeting To organize workshop for tender 	Pengarah PROKOM PM / QS PM / QS	08/01/08 Before 22/05/08 (date of tender closing)



RISK MANAGEMENT PLAN

Ref No. (WBS)	Risk Event There is a risk that	Category of Risk	Likelihood Rating	Impact Rating	Risk Rating	Treatment Measures	Responsible Party	Action Date
						evaluation		After 22/05/08
34.	There is a risk that time constraint and material price fluctuation may give impact on the overall construction cost and may cause delay and cost increase.	4	5	IV	E	<ul style="list-style-type: none"> ○ Provide a provisional sum to cater for price hike and shortage of material, workers and machinery. – not allowed for D&B contract, will need special approval from Treasury 	Project manager / QS	Before tender
35.	There is a risk that improper coordination between contractor and subcontractors arise due to the number of subcontractors involved in the construction.	14	4	IV	E	<ul style="list-style-type: none"> ○ To get involvement of third parties at the very early planning stage. ○ To blend the whole scope of main infra and main utilities work into one contract, so that in can be handled by one main contractor. – <i>(under one contract)</i> ○ To clarify and determine the zone and jurisdiction area involving all parties with clear documentation. ○ JKR key personnel has to approach right person to get involved and making decision. – <i>not relevant</i> 	Project manager Project manager and UPNM Project manager Pengarah PROKOM	Now not an issue anymore 20/03/08
36.	There is a risk of well being and environmental pollution issues during construction of UPNM.	11	5	IV	E	<ul style="list-style-type: none"> ○ Write warning letter and copy to DOE ○ Specify in the tender, method of piling that should be environmental friendly and 	Project manager Project manager	Before tender 20/03/08



RISK MANAGEMENT PLAN

Ref No. (WBS)	Risk Event There is a risk that	Category of Risk	Likelihood Rating	Impact Rating	Risk Rating	Treatment Measures	Responsible Party	Action Date
						<ul style="list-style-type: none"> meeting the noise hazard level. – specified for in the contract Sedimentation trap to be built and maintain regularly. - specified for in the contract 	Project manager	20/03/08
37.	There is a risk that contractor may use sub-standard materials due to shortage of materials which effect the quality of end product.	8	3	IV	H	<ul style="list-style-type: none"> Close monitoring during construction To provide specification & supported by catalogue of materials during tender submission - specified in the document tender Detail evaluation of tender on material – will be carried out during tender evaluation workshop Contractor to provide alternatives of material during tender submission – provided for in the contractor 	PM / HODT PM / Designer HODT / Project Team Contractor	20/03/08 22/05/08 Tender submission (22/05/08)
38.	If incompetent consultant appointed by contractor then the quality & functionality of design will be effected	5	3	IV	H	<ul style="list-style-type: none"> To make comprehensive evaluation on consultant - do not recommend tender with poor performance consultant To add addendum in pre-bid document to specify criteria for selection – informed tenderer during tender briefing on 08/04/08. To ensure principal engineer having significant involvement in the project till the end To review the consultant performance regularly 	PM / HODT PM / HODT PM PM / HODT	Tender evaluation period (29/05/08 – 16/06/08) 08/04/08 During construction During design & construction (continuous event)
39.	If heavy rain occur then the site will be	11	3	IV	H	<ul style="list-style-type: none"> To design & build a proper drainage 	PM / HODT/	



RISK MANAGEMENT PLAN

Ref No. (WBS)	Risk Event There is a risk that	Category of Risk	Likelihood Rating	Impact Rating	Risk Rating	Treatment Measures	Responsible Party	Action Date
	flooded and delay the completion of project					system in compliance to MASMA o To re-align of existing stream – where necessary depending on final design layout o To comply to EIA requirements – specified in the contract	Contractor PM / Contractor PM / HODT/ Contractor	During construction (Dec 2008 – Apr 2010)
40.	There is a risk that stringent security check may cause delay in executing construction work.	8	5	III	H	o Contractors must take into account the workers accommodation factor when pricing for the contract. – specified in the contract o Ample time must be provided to apply for passes before construction start, date of possession of site should not be lesser than one month after LA. Applicable to all levels.	Project manager Project Manager / Contractor	Before tender (20/03/08) After LA (21/08/08)
41.	There is a risk that the construction materials & equipment may be stolen or damage due to improper storage and handling that could delay the project (refer to risk no. 28)		3	III	M	o To appoint competence workers to handle the materials / equipment o To revise the safety procedures o To appoint sufficient & competent security guard in collaboration with army camp management – to check & verify policy of camp on appointment of external security guard. o To provide CCTV & others security system – <i>to advise contractor to provide at their own expense for their own advantages. Make use of I-supervision facilities.</i>	PM / Contractor PM / Contractor PM / Contractor PM / Contractor / UPNM	Before const. Before const. Before const. After LA (21/08/08)



RISK MANAGEMENT PLAN

4.5. HAND OVER RISKS

Ref No. (WBS)	Risk Event There is a risk that	Category of Risk	Likelihood Rating	Impact Rating	Risk Rating	Treatment Measures	Responsible Party	Action Date
42.	There is a risk that Testing and Commissioning of M&E and water facilities cannot be done due to unavailability of utilities supply and may cause delay in practical completion and handing over. (T&C for STP, air-conditioning, water, electrical supply, telephone, etc)	10	4	IV	E	<ul style="list-style-type: none">Thoroughly study the existing utilities line to determine the supply and demand issue. (TNB, SYABAS, TM, etc)To tender utilities scope of works early so it can be completed before UPNM project dateline to ensure supply. – <i>based on the requirement of respective authorities</i>	Project manager Project manager / Contractor	Immediately After LA (21/08/08)



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ATTACHMENT B

RISK ANALYSIS TEMPLATE



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RISK MANAGEMENT PLAN

Risk Analysis 1

Risk No: 1	Risk Title: understanding of the scope		
Risk Description: There is a risk that lack of understanding of the scope by the project team will lead to project deliverables not meeting the satisfaction of clients			
Risk Nature: Strategic/Operational	Risk Category: Scope	Risk Owner: PM	Business Unit: PROKOM

Risk Factors:	Possible Effects:
<ul style="list-style-type: none"> o ..clients brief not clear o ..communication gap in expressing the scope o .. 	<ul style="list-style-type: none"> o ..design is not detail enough to capture clients intended requirements o ..client not satisfied with the design o ..end products do not fulfill the function

Existing Risk Treatments:	Effectiveness: (H, M, L)
<ul style="list-style-type: none"> o ..Room data workshop held twice o ..Discussion held three times o ..Coordination Meeting held once by PROKOM 	Low Low Medium

New Risk Treatments :	Responsibility:	Deadline:
o Clients project brief to be submitted to JKR together with Schedule Of Accommodation	UPNM	14th Feb 2008
o Define roles and responsibilities of PROKOM and UPNM	PROKOM	26 th Feb 2008
o Have scheduled status report meetings with the clients which must include at least one of the clients key personnel	PM	2nd Tues of the month
o Official Letter of Appointment to JKR as the project implementer	UPNM	22 nd Feb 2008



RISK MANAGEMENT PLAN

Assessed Risk Date Last Review	Inherent Risk (Extreme)		Assessed Risk (Extreme)		Target Risk (Moderate)	
	4	V	4	V	2	III

Risk Analysis 2

Risk No: 2	Risk Title: Confirmation of site location		
Risk Description: Delay in confirmation of site location would cause Need Statement cannot be finalised and will lead to delay in calling of tender			
Risk Nature: Strategic/Operational	Risk Category: Scope	Risk Owner: PM	Business Unit: PROKOM

Risk Factors:	Possible Effects:
<ul style="list-style-type: none"> o ..client unable to make decision o ..written proposal not submitted to client to decide o .. 	<ul style="list-style-type: none"> o ..delay in calling tender o ..no formal decision can be made o ..

Existing Risk Treatments:	Effectiveness: (H, M, L)
<ul style="list-style-type: none"> o ..Coordination meeting o ..Site visit o .. 	Medium Medium

New Risk Treatments :	Responsibility:	Deadline:
o written confirmation on the site for development to be sent to client	PM	26 th Feb 2008
o cost analysis of the proposals	PM	26 th Feb 2008
o Written confirmation on existing buildings that can be demolished	UPNM	26 th Feb 2008



RISK MANAGEMENT PLAN

Assessed Risk Date Last Review	Inherent Risk (Extreme)		Assessed Risk (High)		Target Risk (Moderate)	
	5	V	3	IV	2	III

Risk Analysis3

Risk No: 3	Risk Title: Lack of Involvement of stakeholder (Kem Sg Besi Camp Commander)		
Risk Description: Pertukaran dan kurang penglibatan Komander Kem Sungai Besi dan MINDEF akan menyebabkan masaalah kelulusan masuk tapak dan masaalah membuat keputusan			
Risk Nature: Strategic/Operational	Risk Category: Communication	Risk Owner: UPNM	Business Unit: Pembangunan

Risk Factors:	Possible Effects:
<ul style="list-style-type: none"> ..No communication with the Camp Commander 	<ul style="list-style-type: none"> ..Access to site restricted ..Policy keep on changing ..

Existing Risk Treatments:	Effectiveness: (H, M, L)
<ul style="list-style-type: none"> ..None 	

New Risk Treatments :	Responsibility:	Deadline:
<ul style="list-style-type: none"> UPNM to initiate meeting with Camp Commander Request for special pass for all parties – written special policy Include Camp Commander in subsequent meetings Identify Liaison Officer from UPNM (Army Officer with Authority) 	UPNM UPNM PM UPNM	30 th April 2008 30 th April 2008 30 th Mac 2008



RISK MANAGEMENT PLAN

Assessed Risk Date Last Review	Inherent Risk (Extreme)		Assessed Risk (.....)		Target Risk (High)	
	5	V			3	IV

Risk Analysis 4

Risk No: 4	Risk Title: Lack of site information		
Risk Description: Lack of site information (soil investigation, existing structure, existing services, existing capacity etc) will lead to unreliable/unrealistic proposal by the tenderer affecting tender evaluation and cost of tender			
Risk Nature: Strategic/Operational	Risk Category: Technical	Risk Owner: PM	Business Unit: PROKOM

Risk Factors:	Possible Effects:
<ul style="list-style-type: none"> ..No as built drawing ..survey data not available .. 	<ul style="list-style-type: none"> ..delay in preparation of documentation ..tender documentation not comprehensive ..may incur additional cost and time if contractor are requested to search for data

Existing Risk Treatments:	Effectiveness: (H, M, L)
<ul style="list-style-type: none"> ..communication with client to request for information 	Low

New Risk Treatments :	Responsibility:	Deadline:
<ul style="list-style-type: none"> Appoint IKRAM to carry out Preliminary SI Include in Need Statement the requirement for consultant to do search data of existing services 	PM, UPNM PM	18 th Feb 2008 18 th Feb 2008



RISK MANAGEMENT PLAN

Assessed Risk Date Last Review	Inherent Risk (Extreme)		Assessed Risk (High)		Target Risk (Low)	
	4	V	3	IV	2	II

Risk Analysis 5

Risk No: 5	Risk Title: Asset transfer is not finalised		
Risk Description: Asset transfer is not finalised (land and buildings) will lead to problem in submission to Local Authority and will delay project			
Risk Nature: Strategic/Operational	Risk Category: Other Resources	Risk Owner: UPNM	Business Unit: Pembangunan

Risk Factors:	Possible Effects:
<ul style="list-style-type: none"> o ..client unclear on UPNM boundaries o .. o .. 	<ul style="list-style-type: none"> o ..problem in submission to Local Authorities o ..unable to obtain Development Order to start work o ..

Existing Risk Treatments:	Effectiveness: (H, M, L)
<ul style="list-style-type: none"> o None o .. o .. 	

New Risk Treatments :	Responsibility:	Deadline:
<ul style="list-style-type: none"> o Discussion between UPNM, MINDEF, KPT and KPTG to obtain endorsement 	UPNM	13 th Feb 2008



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Assessed Risk Date Last Review	Inherent Risk (Extreme)		Assessed Risk (.....)		Target Risk (Medium)	
	5	V			2	III

Risk Analysis 6

Risk No: 6	Risk Title: Inadequate main water supply		
Risk Description: Inadequate main water supply from SYABAS may result in development order not being approved and may render the project not viable to be implemented			
Risk Nature: Strategic/Operational	Risk Category: Technical	Risk Owner: UPNM	Business Unit: Pembangunan

Risk Factors:	Possible Effects:
<ul style="list-style-type: none"> o feasibility study has not been carried out o inadequate information on existing capacity and pressure of water supply o sharing of incoming supply to the camp by new housing development (SPNB) within the camp o new housing development in Sungai Besi area 	<ul style="list-style-type: none"> o ..Development Order may not be approved o ..UPNM cannot operate effectively o ..Not feasible to build and operate additional buildings at present location

Existing Risk Treatments:	Effectiveness: (H, M, L)
o ..None....	

New Risk Treatments :	Responsibility:	Deadline:
o Inquire and verify from SYABAS and JKR Wilayah	PM	30 th Mac 2008
o Inquire from SPNB on the way they handled water issue	PM	30 th Mac 2008



RISK MANAGEMENT PLAN

<ul style="list-style-type: none"> Inform client of the possible consequences UPNM to communicate with SYABAS through EPU Include rain harvesting in building design 	PM UPNM PM	7 th April 2008 15 th Mac 2008 25 th Feb 2008
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Assessed Risk Date Last Review	Inherent Risk (Extreme)		Assessed Risk (.....)		Target Risk (High)	
	5	V			3	IV

Risk Analysis 8

Risk No: 8	Risk Title: approval of the selected contractor		
Risk Description: Delay in getting approval of the selected contractor from Treasury after decision of Tender Board			
Risk Nature: Strategic/Operational	Risk Category: Contractual	Risk Owner: KPKR	Business Unit: PROKOM

Risk Factors:	Possible Effects:
<ul style="list-style-type: none"> ..tender decision is not in line with current policy 	<ul style="list-style-type: none"> .delay in tender award .possible delay in project completion

Existing Risk Treatments:	Effectiveness: (H, M, L)
<ul style="list-style-type: none"> 	



RISK MANAGEMENT PLAN

New Risk Treatments :	Responsibility:	Deadline:
<ul style="list-style-type: none"> ○ UPNM to communicate and follow up continuously with Treasury ○ Stakeholder management with the higher authority 	UPNM PROKOM and UPNM	After tender decision After tender decision

Assessed Risk Date Last Review	Inherent Risk (High)		Assessed Risk (.....)		Target Risk (Medium)	
	3	IV			2	III

Risk Analysis 1

Risk No: 1	Risk Title:		
Risk Description: There is a risk that lack of understanding of the scope by the project team will lead to project deliverables not meeting the satisfaction of clients			
Risk Nature: Strategic/Operational	Risk Category:	Risk Owner:	Business Unit:

Risk Factors:	Possible Effects:
<ul style="list-style-type: none"> ○ ..clients brief not clear ○ ..communication gap in expressing the scope ○ .. 	<ul style="list-style-type: none"> ○ ..design is not detail enough to capture clients intended requirements ○ ..client not satisfied with the design ○ ..end products do not fulfil the function

Existing Risk Treatments:	Effectiveness: (H, M, L)
<ul style="list-style-type: none"> ○ ..Room data workshop held twice ○ ..Discussion held three times ○ ..Coordination Meeting held once by PROKOM 	Low Low Medium



RISK MANAGEMENT PLAN

New Risk Treatments :	Responsibility:	Deadline:
<ul style="list-style-type: none"> ○ Clients project brief to be submitted to JKR together with Schedule Of Accommodation ○ Define roles and responsibilities of PROKOM and UPNM ○ Have scheduled status report meetings with the clients which must include at least one of the clients key personnel ○ Official Letter of Appointment to JKR as the project implementor 	UPNM PROKOM PM UPNM	14th Feb 2008 26 th Feb 2008 2nd Tues of the month 22 nd Feb 2008

Assessed Risk Date Last Review	Inherent Risk (Extreme)		Assessed Risk (Extreme)		Target Risk (Moderate)	
	4	V	4	V	2	III

Risk Analysis 11

Risk No: 11	Risk Title: Increase in cost of main materials		
Risk Description: Increase in cost of main materials will lead to increase of tender cost and may cause tender not awarded			
Risk Nature: Strategic/Operational	Risk Category: Financial	Risk Owner: UPNM	Business Unit: Pembangunan

Risk Factors:	Possible Effects:
<ul style="list-style-type: none"> ○ ..global increase in price of raw material ○ ..excessive demand due to many projects launched in RMK9 ○ .. 	<ul style="list-style-type: none"> ○ ..tender cost increase exceeding approved budget ○ ..delay in award of contract ○ ..scope reduction / development in phases

Existing Risk Treatments:	Effectiveness: (H, M, L)
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RISK MANAGEMENT PLAN

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New Risk Treatments :	Responsibility:	Deadline:
o obtain information on current material price index for realistic estimate	PM	18 th Feb 2008
o advise client on estimated project cost	PM	18 th Feb 2008
o client to apply to EPU for increase in ceiling cost / reduce in scope	UPNM	

Assessed Risk Date Last Review	Inherent Risk (Extreme)		Assessed Risk (.....)		Target Risk (Medium)	
	4	V			3	III

Risk Analysis 12

Risk No: 12	Risk Title: Wrong method of construction		
Risk Description: There is a risk that wrong method of construction is used			
Risk Nature: Strategic/Operational	Risk Category: Technical	Risk Owner: PM	Business Unit: PROKOM

Risk Factors:	Possible Effects:
<ul style="list-style-type: none"> o ..project team member not aware of site constraints o ..project team member not sensitive of time constraints o .. 	<ul style="list-style-type: none"> o disturbance to operation of existing UPNM o unable to complete project on time o security and material problem o storage problem on site due to site constraint

Existing Risk Treatments:	Effectiveness: (H, M, L)
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RISK MANAGEMENT PLAN

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New Risk Treatments :	Responsibility:	Deadline:
○ Proposed IBS construction method to be included in Need Statement	PM	21 st Feb 2008
○		

Assessed Risk Date Last Review	Inherent Risk (Extreme)		Assessed Risk (.....)		Target Risk (Low)	
	4	IV			2	II

Risk Analysis 13

Risk No: 13	Risk Title: Possibility of getting unreliable contractor		
Risk Description: There is a risk that an open tender procurement process will cause unreliable contractor to be chosen and will lead to project not implemented according to time, cost and quality			
Risk Nature: Strategic/Operational	Risk Category: 6	Risk Owner: PM	Business Unit:

Risk Factors:	Possible Effects:
<ul style="list-style-type: none"> ○ Time constraint to evaluate the tender ○ Inaccurate information given by contractor ○ Unclear tender evaluation criteria ○ Political interference 	<ul style="list-style-type: none"> ○ No thorough evaluation ○ Incompetent personnel to carried out the job/not enough resources ○ Unreliable contractor ○ Tender board overruled or counter propose



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Existing Risk Treatments:	Effectiveness: (H, M, L)
o Endorsement on financial strength and experience of contractor	M
o Registration from PKK / CIDB	M
o Individual evaluation checklist for every discipline	M
o Pre-Qualification	H

New Risk Treatments :	Responsibility:	Deadline:
o Suggest selective procurement	PD	Before 21 st Feb 2008
o JKR to have project database (project track record)	ICT team	
o Proper coordination during tender evaluation	PM	During tender evaluation process

Assessed Risk Date Last Review	Inherent Risk (Extreme)		Assessed Risk (Extreme)		Target Risk (Medium)	
	3	V	3	V	2	III

Risk Analysis 14

Risk No: 14	Risk Title: Technical evaluation process not meeting dateline		
Risk Description: There is a risk that too many tender document to be evaluated will cause longer time to do technical evaluation and will lead to delay in awarding contract			
Risk Nature: Strategic/Operational	Risk Category: 3	Risk Owner: HODT	Business Unit:

Risk Factors:	Possible Effects:
o Time constraint	o Incomprehensive evaluation
o Too many tender document	o Pressure to evaluator



RISK MANAGEMENT PLAN

<ul style="list-style-type: none"> o Inexperience personnel o Inadequate human resources o Too many projects in hand 	<ul style="list-style-type: none"> o Less commitment o Lack of focus
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Existing Risk Treatments:	Effectiveness: (H, M, L)
o Design & Build Guideline	L

New Risk Treatments :	Responsibility:	Deadline:
<ul style="list-style-type: none"> o On job Training o Mentoring and coaching o Optimise existing expertise and resources o Selective Tender 	SBU directors / Specialist Director SBU directors / Specialist Director CPK PM / Client	Project period Project period Before tender evaluation process 21 st Feb 2008

Assessed Risk Date Last Review	Inherent Risk (E)		Assessed Risk (E)		Target Risk (H)	
	4	IV	4	IV	2	IV

Risk Analysis 15

Risk No: 15	Risk Title: Constraint of human resources to do evaluation		
Risk Description: There is a risk that too many tender documents to be evaluated will cause constraint of human resources to do evaluation will lead to delay in awarding the contract.			
Risk Nature: Strategic/Operational	Risk Category: 5	Risk Owner: HODT	Business Unit:



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Risk Factors:	Possible Effects:
<ul style="list-style-type: none"> Too many tender documents to be evaluate Inexperience personnel Too many projects in hand 	<ul style="list-style-type: none"> Delay in recommendation Incomprehensive evaluation

Existing Risk Treatments:	Effectiveness: (H, M, L)
<ul style="list-style-type: none"> Overtime 	L

New Risk Treatments :	Responsibility:	Deadline:
<ul style="list-style-type: none"> On job Training Mentoring and coaching Optimise existing expertise and resources Selective Tender Additional personnel required Paid overtime / special allowance for project Special workshop to do tender evaluation 	SBU directors / Specialist Director SBU directors / Specialist Director CPK PM / Client CPK CPK PM/HODT/Client	Project period Project period Before tender evaluation process 21 st Feb 2008 During tender evaluation

Assessed Risk Date Last Review	Inherent Risk (E)		Assessed Risk (E)		Target Risk (L)	
	4	IV	4	IV	2	II



RISK MANAGEMENT PLAN

Risk Analysis 16

Risk No: 16	Risk Title: Insufficient project budget		
Risk Description: There is a risk that existing project scope is extensive that will cause insufficient project budget will lead to problems in project implementation			
Risk Nature: Strategic/Operational	Risk Category: 4	Risk Owner: PM / Client	Business Unit:

Risk Factors:	Possible Effects:
<ul style="list-style-type: none">o Extensive scopeo Current material price fluctuationo Insufficient allocationo Changes in client's requirements	<ul style="list-style-type: none">o Cost overruno Project implementation will be delayed

Existing Risk Treatments:	Effectiveness: (H, M, L)
<ul style="list-style-type: none">o	

New Risk Treatments :	Responsibility:	Deadline:
<ul style="list-style-type: none">o Reduce project scopeo Request for additional fundo Project phasing	PM/Client PM/Client PM/Client	Before 25 th Feb 2008 Before 25 th Feb 2008 Before 25 th Feb 2008

Assessed Risk Date Last Review	Inherent Risk (E)		Assessed Risk (...)		Target Risk (M)	
	5	IV			2	III



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Risk Analysis 18

Risk No: 18	Risk Title: Incomplete need statement		
Risk Description: There is a risk that incomprehensive client requirements will cause incomplete Need Statement and will lead to inaccurate tenderers proposal			
Risk Nature: Strategic/Operational	Risk Category: 2	Risk Owner: PM/Client	Business Unit:

Risk Factors:	Possible Effects:
<ul style="list-style-type: none"> o Lack of information from client o Misinterpretation of client requirements o Less interaction and coordination between client and project team o Client unsure of their needs 	<ul style="list-style-type: none"> o Tenderer's proposal not meeting government requirements o Wide range of tenderers proposal o Proposal that may be overprice or under price

Existing Risk Treatments:	Effectiveness: (H, M, L)
o Room data workshop	M
o <i>Garis panduan penyediaan brif projek</i>	M
o Schedule of Accommodation	M
o Coordination meeting with client	M

New Risk Treatments :	Responsibility:	Deadline:
o Extensive list of current/future equipment/facilities required by client	PM	Before 25 th Feb 2008
o Special function requirement e.g.; BAS, 24 hours system	PM	Before 25 th Feb 2008

Assessed Risk Date Last Review	Inherent Risk (H)	Assessed Risk (H)	Target Risk (M)
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	3	IV	2	IV	2	III
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Risk Analysis 19

Risk No: 19	Risk Title: None/inadequate site investigation & site profile conducted		
Risk Description: There is a risk that no decision on funding disbursement will cause soil investigation & site profile not conducted and will lead to unsuitable foundation proposal.			
Risk Nature: Strategic/Operational	Risk Category: 10	Risk Owner: PM	Business Unit:

Risk Factors:	Possible Effects:
<ul style="list-style-type: none"> Time constraint Late confirmation on site and building location Lack of communication on financial between stakeholders 	<ul style="list-style-type: none"> Unsuitable foundation proposal Cost overrun due to uneconomical foundation proposal Delay in issuance of tender documents

Existing Risk Treatments:	Effectiveness: (H, M, L)
<ul style="list-style-type: none"> Secondary soil data from existing surrounding buildings 	L

New Risk Treatments :	Responsibility:	Deadline:
<ul style="list-style-type: none"> Appoint IKRAM to conduct preliminary soil investigation Client to conduct preliminary soil investigation 	PM/HODT Client	Before 25 th Feb 2008

Assessed Risk Date Last Review	Inherent Risk (E)		Assessed Risk (E)		Target Risk (M)	
	4	IV	4	IV	1	IV



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Risk Analysis 20

Risk No: 20	Risk Title: Delay in design		
Risk Description: Design cannot be completed on time due to short time given to Consultant / Contractor resulting in poor functionality & quality of the product			
Risk Nature: Strategic/Operational	Risk Category: 3 (Schedule)	Risk Owner: HODT	Business Unit: PROKOM

Risk Factors:	Possible Effects:
<ul style="list-style-type: none">○ Short time allocated by Client to complete the project○○	<ul style="list-style-type: none">○ Project delay○ Not properly design○ Poor functionality & quality of the product

Existing Risk Treatments:	Effectiveness: (H, M, L)
<ul style="list-style-type: none">○○	

New Risk Treatments :	Responsibility:	Deadline:
<ul style="list-style-type: none">○ To allocate a special design workshop comprises all design disipline○ To have more consultants of various services involved in designing.	PM PM	Before construction



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○ To apply fast track methodology	PM	Before construction
○ Contractor to appoint certified planner	PM / Contractor	

Assessed Risk Date Last Review	Inherent Risk (Extreme)		Assessed Risk (.....)		Target Risk (Medium)	
	5 (Almost Certain)	IV (Severe)			3 (Possible)	III (Moderate)



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Risk Analysis 21

Risk No: 21	Risk Title: Lack of human resources (JKR)		
Risk Description: Shortage of human resources in JKR (HODT), will affect the quality of checking & auditing during design & construction stage which lead to low quality of end product.			
Risk Nature: Strategic/Operational	Risk Category: 5 (Human Resources)	Risk Owner: HODT	Business Unit: PROKOM

Risk Factors:	Possible Effects:
<ul style="list-style-type: none"> o Lack of experience / trained designers (JKR) o Too many projects to handle 	<ul style="list-style-type: none"> o Poor quality in auditing o Poor product quality

Existing Risk Treatments:	Effectiveness: (H, M, L)
<ul style="list-style-type: none"> o o 	

New Risk Treatments :	Responsibility:	Deadline:
<ul style="list-style-type: none"> o To appoint independent checker o To have a special workshop for checking / auditing design 	PM	Before LA
	PM	Before construction

Assessed Risk Date Last Review	Inherent Risk (Extreme)		Assessed Risk (.....)		Target Risk (Medium)	
	5 (Almost Certain)	V (Severe)			3 (Possible)	III (Moderate)



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Risk Analysis 22

Risk No: 22	Risk Title: Uncertainty of scope		
Risk Description: There is a risk that uncertainty of scope during design stage will cause inaccurate design (re-design works) which lead to increase the cost and delay the project completion.			
Risk Nature: Strategic/Operational	Risk Category: 2 (Scope)	Risk Owner: PM & HODT	Business Unit: PROKOM

Risk Factors:	Possible Effects:
<ul style="list-style-type: none">○ Changes of scope○ Uncertainties of faculty building location○ Uncertainties of services (e.g. ICT, water, electricity, etc)	<ul style="list-style-type: none">○ Inaccurate design (re-design works)○ Delay in design○ Cost increase○ Delay in construction

Existing Risk Treatments:	Effectiveness: (H, M, L)
<ul style="list-style-type: none">○○	

New Risk Treatments :	Responsibility:	Deadline:
<ul style="list-style-type: none">○ To organise workshop with all parties involved to confirm the scope & requirement○ Endorsement by Client on the scope (documented)○ To organise partnering workshop	PM PM PM	Before Tender Before Tender Before Tender

Assessed Risk	Inherent Risk	Assessed Risk	Target Risk
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Date Last Review	(High)		(.....)		(Low)	
	3 (Possible)	IV (Major)			2 (Unlikely)	II (Minor)

Risk Analysis 23

Risk No: 23	Risk Title: Lack of design concept to be realised		
Risk Description: There is a risk that unclear client's design ideas will cause lack of design concept to be realised and will lead to variety of design proposals			
Risk Nature: Strategic/Operational	Risk Category: 10	Risk Owner: PM/HODT	Business Unit:

Risk Factors:	Possible Effects:
<ul style="list-style-type: none"> o No client's masterplan o Client do not have expertise o No preferred design images o Building zoning concept not specified 	<ul style="list-style-type: none"> o Variety of design proposal o Difficulty in assessing the design proposal o Client may be unsatisfied with the recommended design proposal o Proposals may not meet client's functional requirements

Existing Risk Treatments:	Effectiveness: (H, M, L)
<ul style="list-style-type: none"> o Concept statement 	L

New Risk Treatments :	Responsibility:	Deadline:
<ul style="list-style-type: none"> o Diagrammatic building zoning o Conceptual master plan o Preferred design images 	PM/HODT/Client PM/HODT/Client PM/HODT/Client	Before 25 th Feb 2008 Before 25 th Feb 2008 Before 25 th Feb 2008



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Assessed Risk Date Last Review	Inherent Risk (H)		Assessed Risk (H)		Target Risk (L)	
	3	IV	3	IV	1	III

Risk Analysis 24

Risk No: 24	Risk Title: Incomprehensive design coordination		
Risk Description: There is a risk that type of procurement will cause incomprehensive design coordination and will lead to delay in project construction.			
Risk Nature: Strategic/Operational	Risk Category: 10	Risk Owner: PM/HODT	Business Unit:

Risk Factors:	Possible Effects:
<ul style="list-style-type: none"> Time constraint No earlier interaction with tenderers Incompetent consultants appointed Lack of communication between consultants & contractor 	<ul style="list-style-type: none"> Delay in project construction Jeopardise quality of design and construction Unsafe design Discrepancies in designs Problems during construction Incurred extra cost and time

Existing Risk Treatments:	Effectiveness: (H, M, L)
<ul style="list-style-type: none"> Clarification meeting 	M



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New Risk Treatments :	Responsibility:	Deadline:
<ul style="list-style-type: none"> o Frequent coordination meeting o Selective type of procurement o Allow clarification before award 	PM PM/Client PM/HODT	During project implementation Before 25 th Feb 2008 Before contract award

Assessed Risk Date Last Review	Inherent Risk (H)		Assessed Risk (H)		Target Risk (M)	
	3	IV	3	IV	2	III

Risk Analysis 25

Risk No: 25	Risk Title: Limited working time during construction		
Risk Description: There is a risk that limited working time during construction due to army camp policy which could lead to delay and low quality of end product			
Risk Nature: Strategic/Operational	Risk Category: 3 (Schedule)	Risk Owner: Project Team	Business Unit: PROKOM

Risk Factors:	Possible Effects:
<ul style="list-style-type: none"> o Army camp policy 	<ul style="list-style-type: none"> o Delay in project completion (EOT) o Poor quality end product o Increase in cost

Existing Risk Treatments:	Effectiveness: (H, M, L)
<ul style="list-style-type: none"> o o 	



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New Risk Treatments :	Responsibility:	Deadline:
○ Special negotiation with army camp commander	PM	Before construction
○ To inform the contractor about the restriction in tender document	PM	Before tender
○ To get involvement of high level influence	Pengarah PROKOM	Before construction

Assessed Risk Date Last Review	Inherent Risk (Extreme)		Assessed Risk (.....)		Target Risk (Medium)	
	5 (Almost Certain)	V (Severe)			3 (Possible)	III (Moderate)



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Risk Analysis 26

Risk No: 26	Risk Title: Security procedures		
Risk Description: There is a risk that stringent security procedures will prolong the security clearance of the workers and materials which delay the progress of works.			
Risk Nature: Strategic/Operational	Risk Category: 14 (Organisational)	Risk Owner: Project Team	Business Unit: PROKOM

Risk Factors:	Possible Effects:
<ul style="list-style-type: none"> o Army camp policy o Employment of foreign workers o 	<ul style="list-style-type: none"> o Delay in project completion (EOT) o Poor quality end product o Increase in cost o Security clearance & processing of the access pass is time consuming

Existing Risk Treatments:		Effectiveness: (H, M, L)	
<ul style="list-style-type: none"> o o 			
New Risk Treatments :		Responsibility:	Deadline:
<ul style="list-style-type: none"> o To inform the contractor about the restriction in tender document o Negotiate with army commander to get priority on processing of security passes o To get involvement of high level influence o To locate workers kongsi nearest possible to the site and guarded o To request one army officer (min. ranking of major) to be a liaison officer between project team and army 		PM PM Pengarah PROKOM PM PM	Before tender Before construction Before construction Before construction Before construction
Assessed Risk	Inherent Risk	Assessed Risk	Target Risk



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Date Last Review	(Extreme)		(.....)		(Medium)	
	5 (Almost Certain)	IV (Major)			3 (Possible)	III (Moderate)

Risk Analysis 27

Risk No: 27	Risk Title: Damage to the access road		
Risk Description: There is a risk that only one access road to the construction site will damage to existing infrastructure which lead to the increase of the project cost			
Risk Nature: Strategic/Operational	Risk Category:	Risk Owner:	Business Unit:

Risk Factors:	Possible Effects:
<ul style="list-style-type: none"> ○ Only one access road (through army camp) – Protocol road ○ Frequent closure of access road due to ceremonial function ○ 	<ul style="list-style-type: none"> ○ Increase in project cost due to possibility damages existing services / infra ○ Relationship between stakeholders might be affected ○ Pollution ○ Repetitive repair works

Existing Risk Treatments:	Effectiveness: (H, M, L)
<ul style="list-style-type: none"> ○ ○ 	

New Risk Treatments :	Responsibility:	Deadline:
<ul style="list-style-type: none"> ○ To get involvement of high level influence ○ To provide in the contract certain amount for levy 	Pengarah PROKOM	Before construction



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○ To provide contingency for repairing road / infrastructure in the contract		
○ To provide alternative road		

Assessed Risk Date Last Review	Inherent Risk (Extreme)		Assessed Risk (.....)		Target Risk (Medium)	
	5 (Almost Certain)	IV (Major)			3 (Possible)	III (Moderate)



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Risk Analysis 28

Risk No: 28	Risk Title: Health & safety of the students		
Risk Description: There is a risk that activities at site will endanger health & safety of the students which lead to delay of construction period			
Risk Nature: Strategic/Operational	Risk Category: 14 (Organisational)	Risk Owner: PM	Business Unit: PROKOM

Risk Factors:	Possible Effects:
<ul style="list-style-type: none"> Students still occupied the premise Construction site near the hostel & faculty Construction workers mingle around 	<ul style="list-style-type: none"> Environmental issue - Noise & pollution Safety Sexual harrassment Delay to the project Relationship between stakeholders will be affected
Existing Risk Treatments:	Effectiveness: (H, M, L)
<ul style="list-style-type: none"> 	

New Risk Treatments :			Responsibility:	Deadline:
<ul style="list-style-type: none">○ Stringent enforcement of ISO 14000○ To appoint full time safety officer○ To erect proper hoarding on site○ To impose IBS system for project○ To appoint sufficient security guard in collaboration with army camp management○ To provide CCTV & others security system			PM / Contractor	Before construction
			PM / Contractor	Before construction
			PM / Contractor	Before construction
			PM / Contractor	Before Tender
			PM / Contractor	Before construction
			PM / Contractor	Before construction
Assessed Risk	Inherent Risk	Assessed Risk	Target Risk	



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Date Last Review	(Extreme)		(.....)		(Low)	
	5 (Almost Certain)	IV (Major)			2 (Unlikely)	II (Minor)

Risk Analysis 29

Risk No: 29	Risk Title: Access road.				
Risk Description: There is a risk that using the existing main road as the only access to UPNM worksite will create many problem during construction that may delay the progress of the project and the movement of the users.					
Risk Nature: Strategic/Operational	Risk Category: 9		Risk Owner: Pengarah		Business Unit: PROKOM
Risk Factors:			Possible Effects:		
<ul style="list-style-type: none">No possibility of new access road to be built during construction.Increasing workload at the entrance checkpoint.			<ul style="list-style-type: none">Damages to existing road and its furniture.Traffic congestion and flow issues.Cleanliness issue.Safety issues.Maintenance and repair cost increase to the client.Frequent and proper mitigation need to be in placed.Traffic flow delay in entering the camp and the site.Create insufficient car parking space at checkpoint.More time required to issue passes.		
Existing Risk Treatments:					Effectiveness: (H, M, L)
<ul style="list-style-type: none">Issue daily passes to legal certified workers...					L
New Risk Treatments :			Responsibility:		Deadline:
<ul style="list-style-type: none">Early submission of proper documentation for passes application – 1 month before			Project manager		Before tender



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<ul style="list-style-type: none"> o Ample time must be provided to apply for passes before construction start, date of possession of site should not be lesser than one month after LA. Applicable to all levels. o To have understanding with the client to create a special season pass for construction site. o Create a touch and go system / special lane approved by the camp commandant. 				Project Manager	Before award
				Pengarah PROKOM	Start now
				Pengarah PROKOM	Start now
Assessed Risk Date Last Review	Inherent Risk (Extreme)		Assessed Risk (Extreme)		Target Risk (Medium)
	5 (Almost Certain)	V (Severe)	5 (Almost Certain)	V (Severe)	3 (Possible) III (Moderate)



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Risk Analysis 30

Risk No: 30	Risk Title: Insufficient water supply		
Risk Description: There is a risk that shortage of water due to rapid development will cause insufficient water supply leading to frequent disruption of supply beyond control.			
Risk Nature: Strategic	Risk Category: 10	Risk Owner: Project manager	Business Unit: PROKOM

Risk Factors:	Possible Effects:
<ul style="list-style-type: none"> Existing supply was designed for the old development and RMC and not meant to cater for future development. Unavailability of existing water reticulation drawing. 	<ul style="list-style-type: none"> Shortage of water become worse, demand exceeds supply. Project cannot function as planned. Reflects bad image and reputation of UPNM and JKR. Disruption of supply to community of the camp due to construction usage. More time required to detect and solve broken pipe problem. Frequent damages of existing pipelines.

Existing Risk Treatments:	Effectiveness: (H, M, L)
<ul style="list-style-type: none"> Army water tank to supply water to the community. Alternate schedule of water supply between RMC and quarters. JKR to provide standby staff to monitor water level. 	L L M

New Risk Treatments :	Responsibility:	Deadline:
<ul style="list-style-type: none"> To lay new water reticulation system from SYABAS main line including reservoir / elevated water tank to cater for future expansion. Make sure MASMA standard and procedure included in contract. To do survey mapping of existing water pipeline. 	Project manager Project Manager Client	Before tender Before tender Before site possession



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Assessed Risk Date Last Review	Inherent Risk (E)		Assessed Risk (E)		Target Risk (M)	
	5	V	5	V	3	III

Risk Analysis 31

Risk No: 31	Risk Title: Hi-level interference		
Risk Description: There is a risk that work will be disrupted due to political and hi-level interference that may result in project delays.			
Risk Nature: Strategic	Risk Category: 1	Risk Owner: Project manager	Business Unit: PROKOM

Risk Factors:	Possible Effects:
<ul style="list-style-type: none"> o Unforeseen and multi-level decision maker o .. o .. 	<ul style="list-style-type: none"> o Unscheduled visits o Frequent scope changes. o Increase in costs o Delay in completion.

Existing Risk Treatments:	Effectiveness: (H, M, L)
<ul style="list-style-type: none"> o Frequent meeting on finalization of the scope of work with the client. o Every meeting must be properly minute and circulated. o .. 	H H H

New Risk Treatments :	Responsibility:	Deadline:
<ul style="list-style-type: none"> o Finalized project scope and endorsed by the client decision maker o One stop centre for decision making 	Project manager Project manager	Before tender Before tender



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o Schedule briefings.	Project manager	Before tender
o Introduction of relationship management example partnering with full involvement of client.	Project manager	Before tender

Assessed Risk Date Last Review	Inherent Risk (E)		Assessed Risk (E)		Target Risk (M)	
	5	V	4	IV	3	III

Risk Analysis 32

Risk No: 32	Risk Title: VVIP visits and functions		
Risk Description: There is a risk that unscheduled visit of VVIP and functions will disrupt project schedule.			
Risk Nature: Strategic	Risk Category: 7	Risk Owner: Pengarah	Business Unit: PROKOM

Risk Factors:	Possible Effects:
<ul style="list-style-type: none">o Site is located in the army camp.o All year round military protocol function.o International and internal delegates frequent visits.o The only access road.o Ad-hoc visits and programs.	<ul style="list-style-type: none">o Work disruption will take place due to construction vehicle not given permission to enter for at least a week to accommodate the functions and visits.o .o ..

Existing Risk Treatments:	Effectiveness: (H, M, L)
<ul style="list-style-type: none">o Pre-plan major function is circulated around.o ..	L



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○ ..	
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New Risk Treatments :	Responsibility:	Deadline:
<ul style="list-style-type: none"> ○ Sufficient verbal or written indications given to all respective contractors- require hi-level communication between JKR and the military authority. ○ 	Pengarah PROKOM & UPNM	Now

Assessed Risk Date Last Review	Inherent Risk (E)		Assessed Risk (E)		Target Risk (M)	
	5	V	5	V	3	III

Risk Analysis 33

Risk No: 33	Risk Title: Quality and supervision standard		
Risk Description: There is a risk that time constraint will affect the overall quality and supervision standard and may hamper customer satisfaction.			
Risk Nature: Operational	Risk Category: 10	Risk Owner: Project manager	Business Unit: PROKOM

Risk Factors:	Possible Effects:
<ul style="list-style-type: none"> ○ Short construction duration. ○ Reclassified the level of project to show the urgency 	<ul style="list-style-type: none"> ○ Low quality finishing and supervision ○ Project delay ○ Dissatisfied client



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	o Commitment from decision maker is lower
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Existing Risk Treatments:	Effectiveness: (H, M, L)
o To do quality auditing at site on regular basis.	M
o ..	

New Risk Treatments :	Responsibility:	Deadline:
o Setup a dedicated project team to reflect urgency.	Pengarah PROKOM	Before award
o		

Assessed Risk Date Last Review	Inherent Risk (E)		Assessed Risk (E)		Target Risk (M)	
	4	IV	4	IV	3	III

Risk Analysis 34

Risk No: 34	Risk Title: UPNM - Construction		
Risk Description: There is a risk that time constraint and material price fluctuation may give impact on the overall construction cost and may cause delay and cost increase.			
Risk Nature: Operational	Risk Category: 4	Risk Owner: Project manager	Business Unit: PROKOM

Risk Factors:	Possible Effects:
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<ul style="list-style-type: none"> Time constraint. Unpredicted increasing in cost of material due to world market influence. No provision for VOP in contract. RMK-9 project and 5 corridors development will be taking place at the same time. Shortage of material, workers and machinery. 	<ul style="list-style-type: none"> Budget burst. Contractor may slow down work or stop work. Low quality of work. Substandard materials used in project.
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Existing Risk Treatments:	Effectiveness: (H, M, L)
<ul style="list-style-type: none"> 	

New Risk Treatments :	Responsibility:	Deadline:
<ul style="list-style-type: none"> Provide a provisional sum to cater for price hike and shortage of material, workers and machinery. .. 	Project manager	Before tender

Assessed Risk Date Last Review	Inherent Risk (E)		Assessed Risk (E)		Target Risk (M)	
	5	IV	5	IV	3	III

Risk Analysis 35

Risk No: 35	Risk Title: Poor coordination
Risk Description: There is a risk that improper coordination between contractors and sub-contractors arise due to the number of sub-contractors	



RISK MANAGEMENT PLAN

involved in the construction.			
Risk Nature: Operational	Risk Category: 14	Risk Owner: Project manager	Business Unit: PROKOM

Risk Factors:	Possible Effects:
<ul style="list-style-type: none"> ○ Separated scope and jurisdiction of work between main infra and buildings contractors. ○ Ineffective involvement of third parties (TNB, TM, SYABAS) ○ Unclear jurisdiction of area responsibility between JKR, army camp and third parties. ○ Differences in decision making involving hi-level management between UPNM and the army camp. 	<ul style="list-style-type: none"> ○ Pin point thing fault effect to other parties. ○ Delay of work. ○ Late decision making. ○ New surprises information being revealed. ○

Existing Risk Treatments:	Effectiveness: (H, M, L)	
<ul style="list-style-type: none"> ○ .. ○ .. 		
New Risk Treatments :	Responsibility:	Dateline:
<ul style="list-style-type: none"> ○ To get involvement of third parties at the very early planning stage. ○ To blend the whole scope of main infra and main utilities work into one contract, so that in can be handled by one main contractor. ○ To clarify and determine the zone and jurisdiction area involving all parties with clear documentation. ○ JKR key personnel has to approach right person to get involved and making decision. 	Project manager Project manager and UPNM Prtoject manager Pengarah PROKOM	Now Now Now Now

Assessed Risk Date Last Review	Inherent Risk (E)	Assessed Risk (E)	Target Risk (M)
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	4	IV	4	IV	3	III
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Risk Analysis 36

Risk No: 36	Risk Title: Environmental issues		
Risk Description: There is a risk of well being and environmental pollution issues during construction of UPNM.			
Risk Nature: Operational	Risk Category: 11	Risk Owner: Project manager	Business Unit: PROKOM

Risk Factors:	Possible Effects:
<ul style="list-style-type: none"> ○ Pollution ○ Sedimentation build up in the existing irrigation system. ○ .. ○ .. 	<ul style="list-style-type: none"> ○ Dust, flying debris, sedimentation clogging, noise, erosions. ○ flash flood to the surrounding area, RMC and the campus. ○ Disturbance and hazards to the students and surrounding community. ○ Increment of cleaning and maintenance cost to the client.

Existing Risk Treatments:	Effectiveness: (H, M, L)
<ul style="list-style-type: none"> ○ Written warning. ○ .. ○ .. 	L

New Risk Treatments :	Responsibility:	Deadline:
<ul style="list-style-type: none"> ○ Written warning and impose penalty fees to be executed as part of contract. (has to be clarified in tender document) ○ Specify in the tender, method of piling that should be environmental friendly and meeting the noise hazard level. 	Project manager	Before tender
	Project manager	Before tender



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○ Sedimentation trap to be built and maintain regularly.	Project manager	Before tender
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Assessed Risk Date Last Review	Inherent Risk (E)		Assessed Risk (E)		Target Risk (M)	
	5	IV	5	IV	3	III

Risk Analysis 37

Risk No: 37	Risk Title: Sub-standard materials		
Risk Description: There is a risk that contractor may use sub-standard materials due to shortage of materials which effect the quality of end product.			
Risk Nature: Strategic/Operational	Risk Category: 8 (Other Resources)	Risk Owner:	Business Unit:

Risk Factors:	Possible Effects:
<ul style="list-style-type: none"> ○ Shortage of material due to RMK9 projects implemented at the same time ○ Price increase ○ Under price quoted by the contractor 	<ul style="list-style-type: none"> ○ Low quality of end product ○ Unsatisfied Client / Customer ○ JKR image will be affected

Existing Risk Treatments:	Effectiveness: (H, M, L)
○ ..	

New Risk Treatments :	Responsibility:	Deadline:
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<ul style="list-style-type: none"> ○ Close monitoring during construction ○ To provide evidence on the availability of materials during tender submission ○ Detail evaluation of tender on material ○ Contractor to provide alternatives of material during tender submission ○ 	PM / HODT PM / Designer HODT PM / Contractor	
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Assessed Risk Date Last Review	Inherent Risk (High)		Assessed Risk (.....)		Target Risk (Low)	
	3 (Possible)	IV (Major)			2 (Unlikely)	II (Minor)

Risk Analysis 38

Risk No: 38	Risk Title: Incompetence consultant		
Risk Description: If incompetence consultant appointed by contractor then the quality & functionality of design will be effected			
Risk Nature: Strategic/Operational	Risk Category: 5 (Human Resources)	Risk Owner: PM	Business Unit: PROKOM

Risk Factors:	Possible Effects:
<ul style="list-style-type: none"> ○ Improper selection by contractor ○ No proper system to determine competence consultants' personnel ○ Consultants having many other projects in hand ○ Political interference in appointment of consultant 	<ul style="list-style-type: none"> ○ Low quality in design, supervision and end product ○ Unsatisfied Client / customer ○ Image JKR will be affected

Existing Risk Treatments:	Effectiveness: (H, M, L)
○	



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○	
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New Risk Treatments :	Responsibility:	Deadline:
○ To revise evaluation system of consultant	PM / HODT	Before tender
○ To add addendum in pre-bid document to specify criteria for selection	PM / HODT	Before tender
○ To ensure principal engineer having significant involvement in the project till the end	PM / HODT	Before tender
○ To review the consultant performance regularly	PM / HODT	During design & construction (continuous event)

Assessed Risk Date Last Review	Inherent Risk (High)		Assessed Risk (.....)		Target Risk (Low)	
	3 (Possible)	IV (Major)			2	II



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Risk Analysis 39

Risk No: 39	Risk Title: Severe weather		
Risk Description: If heavy rain occur then the site will be flooded and delay the completion of project			
Risk Nature: Strategic/Operational	Risk Category: 11 (Environmental)	Risk Owner: PM	Business Unit: PROKOM

Risk Factors:	Possible Effects:
<ul style="list-style-type: none">○ Nearby construction activities at the hill top○ Improper drainage system○ Uncontrol falling of trees○	<ul style="list-style-type: none">○ Slope failure in the construction site○ Flash flood○ Delay in construction / fail to meet the completion date○ Disturbance to eco system○ Pollution to the natural water way○

Existing Risk Treatments:	Effectiveness: (H, M, L)
<ul style="list-style-type: none">○ ..○ ..	

New Risk Treatments :	Responsibility:	Deadline:
<ul style="list-style-type: none">○ To build a proper drainage system comply to MASMA○ To re-align of existing stream○ To comply to EIA requirements	PM / HODT PM / Contractor	

Assessed Risk	Inherent Risk	Assessed Risk	Target Risk
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Date Last Review	(High)		(.....)		(Low)	
	3 (Possible)	IV (Major)			2 (Unlikely)	II (Minor)

Risk Analysis 40

Risk No: 40	Risk Title: Stringent security		
Risk Description: There is a risk that stringent security check may cause delay in executing construction work.			
Risk Nature: Operational	Risk Category: 8	Risk Owner: Project manager	Business Unit: PROKOM

Risk Factors:	Possible Effects:
<ul style="list-style-type: none"> Three levels of check up by Police, Risik and Interpol. No workers should be allowed to stay in the camp. No squatters and workers cabin within site area. 	<ul style="list-style-type: none"> Longer duration of permit to be issued. Logistics, mobilization and accommodation issues for the workers. ..

Existing Risk Treatments:	Effectiveness: (H, M, L)
<ul style="list-style-type: none"> Issuance of daily pass for approved workers. 	M

New Risk Treatments :	Responsibility:	Deadline:
<ul style="list-style-type: none"> Contractors must take into account the workers accommodation factor when 	Project manager	Before tender



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pricing for the contract. ○ Ample time must be provided to apply for passes before construction start, date of possession of site should not be lesser than one month after LA. Applicable to all levels.		
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Assessed Risk Date Last Review	Inherent Risk (H)		Assessed Risk (H)		Target Risk (M)	
	5	III	5	III	3	III

Risk Analysis 41

Risk No: 41	Risk Title: Security of construction material & equipment		
Risk Description: There is a risk that the construction materials & equipment may be stolen or damage due to improper storage and handling that could delay the project			
Risk Nature: Strategic/Operational	Risk Category: 8	Risk Owner: PM	Business Unit: PROKOM

Risk Factors:	Possible Effects:
○ Improper storage / hoarding ○ Lack of security ○ Lack of safety procedures	○ Stolen of materials / equipment ○ Delay the project ○ Replacement of the material / equipment may not to the specified standard ○ Low quality product

Existing Risk Treatments:	Effectiveness: (H, M, L)
○ .. ○	



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New Risk Treatments :	Responsibility:	Deadline:
<ul style="list-style-type: none"> To appoint competence workers to handle the materials / equipment To revise the safety procedures To employ security guard To provide CCTV 	PM / Contractor PM / Contractor PM / Contractor PM / Contractor	Before construction Before construction Before construction Before construction

Assessed Risk Date Last Review	Inherent Risk (Medium)		Assessed Risk (.....)		Target Risk (Low)	
	3	III			2	II

Risk Analysis 42

Risk No: 42	Risk Title: Testing and Commissioning issues		
Risk Description: There is a risk that Testing and Commissioning of M&E and water facilities cannot be done due to unavailability of utilities supply and may cause delay in practical completion and handing over.			
Risk Nature: Operational	Risk Category: 10	Risk Owner: Project manager	Business Unit: PROKOM

Risk Factors:	Possible Effects:
<ul style="list-style-type: none"> Main utility supply is not exists since it is not considered in the contract. (water, electrical, etc) Involvement of third parties is limited. 	<ul style="list-style-type: none"> Functionality of M&E equipment and system cannot be determined. Final handing over cannot be done. Building cannot be used. Problematic of defect issues cannot be adhered to at the beginning during Defect Liability Period. The risk of issuing CPC might trigger.



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	o Third party cannot solve the problem of supply.
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Existing Risk Treatments:		Effectiveness: (H, M, L)	
o Tapping to existing insufficient supply.		L	
New Risk Treatments :	Responsibility:	Deadline:	
o Thoroughly study the existing utilities line to determine the supply and demand issue.	Project manager	Immediately	
o To tender utilities scope of works early so it can be completed before UPNM project dateline to ensure supply.			

Assessed Risk Date Last Review	Inherent Risk (Extreme)		Assessed Risk (Extreme)		Target Risk (Medium)	
	4 (Likely)	IV (Major)	4 (Likely)	IV (Major)	3 (Possible)	III (Moderate)

Risk Analysis Worksheet Instructions:

1. **Risk No:** Sequential numbering of each risk identified.
2. **Risk Title:** Give the risk a title.
3. **Risk Description:** Provide a brief description of the risk.
4. **Risk nature:** Select one of the following – **Strategic or Operational.**
5. **Risk Category:** Select the appropriate category (Section 3.3) to classify the risk:
6. **Risk Owner:** Person responsible for managing the risk.



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7. **Business Unit:** Provide name of Business Unit, including project name.
8. **Risk factors:** Describe the causes of the risk.
9. **Possible Effects:** Describe the impacts of the risk arising.
10. **Existing Risk Treatments:** Identify all existing risk treatments and controls that are in place and any mitigating factors.
11. **Effectiveness (H,M,L):** Rate the effectiveness of the existing risk treatments as either High (H), Medium (M) or Low (L).
12. **New Risk Treatments:** Identify a range of options or strategies for treating risks.
13. **Responsibility** Specify person who is responsible for the implementation of each future strategy.
14. **Deadline:** Specify a final date when the implementation of the strategy will be completed.
15. **Assessed Risk at Last Review:** Specify date of last assessment and the assessed level/score. If this is the first time the risk has been identified then field is not applicable.
16. **Inherent Risk:** Determine the risk level by applying the risk matrix assuming no Existing Risk Treatments.
17. **Assessed Risk:** Determine the risk level by applying the risk matrix after forming a judgment on the effectiveness of Existing Risk Treatments.
18. **Target Risk:** Advise the target level that will be achieved after implementation of the future strategies. The target risk is the desired risk level after implementation of future strategies. There may be instances where the target risk remains high due to the nature of the activity undertaken. In this case future strategies should be closely monitored and reported.



ATTACHMENT C

DEFINITIONS



RISK MANAGEMENT PLAN

DEFINITIONS

Assumptions List	A record of the assumptions embedded in the project plan. Assumptions that are not validated are potential risks.
Business Case	The document that justifies the need for the system to be delivered by a project, what the business changes will be and the resources required to deliver, operate and dispose of the system. It provides the basis for project funding and may undergo approved revisions during the project
Impact	The outcome of an event expressed in qualitative or quantitative terms (for example, financial or reputational) being a loss, injury, disadvantage or gain
Inherent Risk	A raw risk that is a risk that has no mitigation factors or treatments applied to it.
Monitoring and Accountability	The processes used to manage the Enterprise Risk Management Framework on an on-going basis to reduce risk and take advantage of risk as an opportunity.
Opportunity	The possibility of realizing a favorable outcome and the impact this outcome has on the involved party. Opportunity is positive risk and can be identified and managed in a similar way.
Probability	A qualitative description of the likelihood and/or frequency of a risk occurring.
Residual risk	The degree of risk left after mitigation factors have been identified.
Risk	<p>Risk is anything that may happen that impacts the achievement of an organization's objectives. Risk encompasses the following three dimensions:</p> <ul style="list-style-type: none">• Hazard - preventing an exposure from turning into a loss• Uncertainty - coping with volatility and change; and• Opportunity - harnessing opportunities to one's advantage. <p>Risk is an event having a cause and a impact that could be either positive or negative.</p>
Risk Acceptance	The informed decision to accept the impact and the likelihood of a particular risk.
Risk Analysis	A systematic use of available information to determine how often specified events may occur and the magnitude of their impacts.
Risk Appetite	Risk appetite is the amount of risk, on a broad level, an entity of willing to accept in pursuit of objectives. It reflects that organization's risk management philosophy and, in turn, influences the organization's culture and operating style.
Risk Avoidance	An informed decision not to become involved in a risk situation.
Risk Event	The occurrence of an event, which has the potential to affect the viability of a project.
Risk Management Framework	A formalized process for managing risk on an explicit basis. The framework consists of a risk assessment, response and accountability for the risk and mitigation activities around it.
Risk Manager	The role responsible for operating the project's risk management process and the custodian of the Risk Management Plan and Risk Register
Risk Mitigation	The processes built into the controls environment, such as policies, frameworks, accountabilities etc to lower the residual risk.
Risk Owner	A designated position in an organisation assigned the responsibility



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	for managing a specific risk
Risk Reduction	A selective application of appropriate techniques and management principles to reduce either the likelihood of an occurrence or its impacts, or both.
Risk Register	A record, under formal change control, of all identified risks, their assessment, treatments and outcomes
Risk Retention	Intentionally or unintentionally retaining the responsibility for loss or financial burden or loss within the organization.
Risk Response	The decision to accept, decline, treat or mitigate a risk or share a risk with another party.
Risk Sharing	Sharing the responsibility for the impact of a risk with another party such as through an outsourcing contract or insurance policy.
Strategic Risk	Any risk event which has serious or catastrophic consequence even though the likelihood of occurrence may be quite low
Uncertainty	The gap between the information required to estimate an outcome and the information already possessed by the decision maker