



جامعة الجميع الذكية
EVERYONE'S SMART UNIVERSITY

Everyone's Smart University

Project (Spring 2021)

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Section

Master

Date

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Course Code

(PMG510)

Project Risk Management

Instructions:

- آخر موعد للتسليم هو يوم السبت 2021-05-08 في تمام الساعة ٩ مساءً.
- الإجابة متاحة باللغة الإنجليزية أو اللغة العربية مع مراعاة أن تكون المصطلحات العلمية باللغة الانجليزية.
- يتم تسليم المشروع في صيغة ملف pdf مع الالتزام نموذج الجامعة ولن تقبل أي مستندات أخرى.
- يجب مراعاة أقسام البحث الرئيسية (مقدمة Introduction، دراسات علمية سابقة Literature Review، طريقة البحث Methodology، النتائج والمناقشة Results and Discussion، وأخيراً المراجع References. وإن كان هناك ملحقات Appendices يتم إضافتها)
- يجب الالتزام بـ Theme موحد كما يلي:
- حجم الخط 12.
- نوع الخط Arial.
- لون الخط أسود.
- المسافة بين الأسطر line spacing 1.5
- عدد صفحات البحث (لا يقل عن ثلاث صفحات ولا يزيد عن ست صفحات).

Instructor's Name: Eng. Mosaab M. Hamed

Project:

Risk Identification and Analysis (Based on the project you chose in APM)

The objective of this report is to identify project risks, prepare a risk probability matrix, and carry out an analysis of selected risks. Referring to the project you select in **Advanced projects management APM course**, your task is to prepare a risk management plan that identifies potential risks in **the selected stage of the project** and identify risk management strategies.

From the course content and readings, you know that the overall purpose of risk planning is to anticipate possible risk events and be ready to take appropriate action when risk events occur—to eliminate or reduce negative impacts on the project.

You may wish to begin this exercise with a brainstorming about potential risks to get candidate risks “on the table” for consideration. And then identify and refine that wording for risks that have some realistic chance of occurring in this stage. For example, potential weather problems present a real obstacle to completing field data collection by the planned completion date. It is also an issue that the project manager will ultimately have to plan for, as opposed to other issues such as a major disaster (e.g., your office burning down), is not a high-enough probability event that requires much time in planning. As described below, you will select several of the identified risks and carry out a risk analysis.

You will use the distilled list of risks to make a risk probability/impact matrix. The matrix will have at least three categories (high/medium/low) for probability and impact.

Remember that it is important to name risks effectively—use words that describe the risk event and point to the impact on the project (e.g., “injury of field technician disrupts data installation work”).

After completion of the risk matrix, document a risk analysis for the selected risks. This detailed documentation for that selected risk will include:

- a description of the risk and potential impacts (schedule, quality of work, cost, etc.) on the project.
- indicators or triggers that would be monitored to help identify the risk as early as possible.
- specific risk response strategies to take.

Using probability and impact matrix calculate the **Expected Monetary Value (EMV)** for all risks that have the impact in terms of cost \$\$.

Best of luck...

المشروع:

التعرف على المخاطر وتحليلها (بحث مبني على مشروعك الذي اخترته في مادة ادارة المشاريع المتقدمة)

الغرض من هذا التقرير هو التعرف على المخاطر المحيطة بالمرحلة التي تختارها المرحلة من مراحل مشروعك (نفس المرحلة التي اخترت التطرق لها في مشروعك لمادة إدارة المشاريع المتقدمة Advanced project management) حيث أن مهمتك هي تحضير خطة متكاملة لإدارة المخاطر تشمل التعريف بالمخاطر المحتملة التي تحيط بتلك المرحلة وتحضير مصفوفة احتمالية المخاطر ومن ثم القيام بالتحليل لهذه المخاطر المختارة وتحديد استراتيجيات ادارة المخاطر المناسبة لكل خطر على حدة.

من محتويات المقرر والمصادر الأخرى المتاحة أصبحت تعلم الان أن الغرض العام لمرحلة التخطيط للمخاطر هي توقع أحداث المخاطر المحتملة والتجهز لاتخاذ ردة الفعل المناسبة عند وقوع الخطر – لمنع أو تقليل الآثار السلبية على المشروع.

قد تحبذ بداية هذا البحث بعصف ذهني عن ماهية المخاطر التي قد تحيط بتلك المرحلة من مراحل مشروعك, وذلك للحصول على قائمة بتلك المخاطر. ومن ثم تحديد وتصفية هذه القائمة للوصول إلى قائمة مختصرة بالمخاطر التي لها فرصة واقعية أكبر في الحدوث. على سبيل المثال: المشاكل الجوية المتوقعة والتي تمثل عقبة حقيقية أمام اكتمال جمع البيانات من المواقع في أو قبل الوقت المحدد، هذه تعتبر مشكلة على مدير المشاريع أن يضعها في الحسبان. من ناحية أخرى، فإن المخاطر غير الواقعية مثل الكوارث الطبيعية والأعاصير (تلك التي تسبب حريقاً بمكتبك وفقدان الأوراق المهمة) ليست لها احتمالية وقوع عالية وبالتالي لاتستدعي تضيق الكثير من الوقت في التخطيط لها. كما سيتبين لك، ستقوم باختيار عدة مخاطر من تلك التي قمت بالتعرف عليها لتحليلها.

ستقوم باستخدام هذه القائمة المختصرة لعمل مصفوفة المخاطر (الاحتمالية/الأثر). المصفوفة ستحتوي على الأقل على ثلاث تصنيفات (عالي/متوسط/منخفض) للإحتمالية والأثر.

لاتنس استخدام أسماء تصف طبيعة المخاطر بصورة فعالة – قم باستخدام كلمات تصف الحادثة الخطرة وتشير الى أثرها على المشروع (مثل: إصابة أحد الفنيين في الموقع مما يؤثر على أعمال التركيب).

بعد انتهاءك من مصفوفة المخاطر، قم بتوثيق تحليلك للمخاطر المختارة. هذا التسجيل المفصل للمخاطر يجب أن يتضمن:

- وصف للخطر واثاره المحتملة (الجدولة، جودة العمل، التكلفة، الخ)
- المؤشرات والمحفزات التي يجب مراقبتها للمساعدة في التعرف على هذا الخطر قبل وقوعه
- تفصيل للاستجابة المقترحة للتصدي لهذا الخطر

باستخدام مصفوفة الاحتمالات والتأثير ، احسب **القيمة النقدية المتوقعة (EMV)** لجميع المخاطر التي لها تأثير من حيث التكلفة \$\$.

مع تمنياتي بالتوفيق..

Risk Identification and Analysis

Introduction

The COVID-19 crisis that occurred on a global scale has produced notable additions and alternations in the social world and business exercises. Several enterprises and operations, if practicable, have been transferred digitally or remotely. Conventional mass infrastructure development/construction industry, yet, is not on the table. Expressly, including the innovations of covered construction and inadequate airing, the tunnel building profession is at inclusive uncertainty of disease expanse and contamination, contrasted with other building designs (Kangari, 1988). Since one of the most significant motors to excite commercial improvement, infrastructure development schemes are crucial for continuation. Following the severest pandemic administration orders in China, tunnel building throughout the epidemic finds multiple risks, in summation to the common risks recognized. However, insufficient considerations have been applied to this particular program of what are the uncertainties of coronavirus and how they influence tunnel building designs. By investigating twelve subway development schemes in China, this risk identification and analysis report proposes to examine the individual hazards and consequences carried out by the COVID-19 outbreak in the underground structure building profession and the procedures fostered by the project management units in acknowledgment of the uncertainty and result (Li, Al-Hussein, Lei, & Ajweh, 2013). The analytical conclusions improve the investigations of hazard description and evaluation of development plans and contribute potential probabilities to tunnel development supervision as the COVID-19 epidemic proceeds alongside .

Selected Project Background & Risk Origination

COVID-19 has generated striking impacts on each phase of everyday survival and commercial projects, involving the performance of the mass building development sector. Among them, tunnel or underground pipe or subway building schemes were constrained to extra difficult objections from the disease for their hallmarks of caged building, inadequate air-conditioning circumstances, and/or obscure position. This report concentrates on the development aspect of tunnel designs possessing the point that it needs the extra fast dedication of activated workers, supplies, and tools. These constituents are undeviatingly beaten by the coronavirus plague and the inter-relevant stay-at-home order .

The risk skeleton grown by (Zhou, 2015) is chosen in this investigation to search the particular hazards caused via the COVID-19 scourge. In the selected skeleton, the risk determinants involve workers, tools/engines, supplies, arrangements, and Progress in the Civil Engineering context. These constituents are shortly kicked through the outbreak and create definite risks that are enough complex from the common examples. Additionally, problems linked to risk agents including location circumstances, workers' abilities and presence, supplies distribution/transportation, and machine fault would appear in scheme damage or loss, and calendar disturbs.

Risk Management Approach

A case study method is selected in this report to investigate the uncertainty of novel coronavirus and its magnetism forces on tunnel structure development. The schemes chosen in this report are established on the subsequent standards: (1) the problem is concerned to the conventional tunnel building scheme; (2) the state should stay in the development method throughout the COVID-19 plague; lastly (3) the situation should describe the specific consequences of the corona-plague. By following this pattern built on three pillars, we explored the construction management through mining the data, available on the internet, using the search queries of “*tunnel construction*” and “*COVID-19 influence on construction units*” and observed that there were twelve conventional subway building designs that reached the conditions. About 5 to 6 different tunnel construction schemes have been explored to support this report and narrate clearly the risks showing dominancy if risk management strategies are with weak stems (Zhao, Hwang, & Phng, 2013). The developmental sites were traced in distinctive areas of region China, showing a broad impression of Coronavirus on the building activity.

Risk Identification

Workers' Unavailability and Returning to Remote Locations

These were the persistent, constant, and primary uncertainties that were recorded in each construction site. Virtually all circumstances in this report declared that their continuation of building activity was blocked by the struggles of operators moving back because of the COVID-19 sealing order. Aside from the severest work side sealing orders in the Hubei region, conveyance in between territories and towns in China was too broadly eliminated to limit the scope of the attack. The project administrator from investigating location 2 declared that “many of our protection system teams were from China; they were pressed by the sealing order and dissolution of aviation and railroads.” The influence on investigation location 7 was even extra severe. The construction superintendent revived that “above thirty-percent of our operators were from Hubei region; they were incapable of moving to performance because of severe lockdown procedures and enduring sealing limit; our scheme calendar was suspended for approximately three months by later”.

Shortage of Construction Material and Supply

Separate from preventing the activated operators' presence and approachability, the COVID-19 restriction orders similarly interrupted the transportation of building elements. Directors of various schemes accused regarding the deficiency of construction supplies and infection stopping substances. As it can be seen in investigating location 4, supervisors stated that construction stock deficiency because of inadequate bearing aptitude of transporters was the principal obstacle confronted by the development scheme. The construction calendar from location 5 was further hindered by the deficiency of stocks and limited transportation of construction corporeality. The stock deficit difficulties for location 9 were even extra critical. The construction manager revived that "regional or nearby stores and warehouses were locked; the stock of pharmaceutical stuff and sustenance supplies were notably unequal by that background." The obscure area of tunnel building schemes executed the stock and transfer of supplies extra challenging because of the blocked transportation in the countryside at that time .

Rear Supply of Essential Equipment and Machinery

Comparable to supply deficiencies, development schemes were confronted with inappropriate tools, stock, and distribution, because of interruption of composition by device providers and shipping. However, engine uncertainties were not generally proclaimed by the managers throughout examining different construction sites across China. Exclusively, construction location 5 declared that their building plan was postponed because of slowed transportation of tools and machines. The roots extended on the characteristics of shaft structure, of which devices and machines, including buffer devices, were placed at the initial scheme of the building activity. When the building production started, renovations and modifications of extended devices and instruments would be limitedly expected. Yet, for the designs, in the beginning, the pause in tools and automaton transportation and settings would considerably hinder the development schedule .

Insufficient Disease Prevention Procedures

The procedure risks reinforced by the COVID-19 plague were changed from the conventional tunnel building systems but associated with the disease restriction systems and schedule communication designs. As maintained by the disease restriction order in China, each construction location should match the necessary conditions involving disease restriction methods, supplies, and particular standards before they could implement for performance continuation.

Coronavirus defense had grown the superiority problem, and a management crew on disease interception and restriction was appointed in each scheme through the plague. Building designs that missed to coincide with the pandemic overriding model/basis would be sealed by the executive authorities. The disease limitation in tunnel building designs was severer, as they were supporting more inclusive uncertainty of infection counterpane having to inadequate air-conditioning qualifications in the caged construction location (Khodeir & Mohamed, 2015). Hence, several models and acknowledgment procedures were affirmed by the scheme partners intending to hunt an immediate operation continuation .

Socially raised Barriers for Workers to Not Get Entertained in Sealed Construction Areas

Adding to the common environmental uncertainties, including governmental, commercial, cultural, technological, sociological, and constitutional, the explicit surroundings prospects confronted by tunnel building throughout the Coronavirus epidemic were linked to cultural influence and federal disease inhibition force. For cultural influence, construction locations 4 and 9 were common symbols to illustrate. With the 4th location in the queue, when the tunnel building operation was engineered to continue in the middle of Feb, the occupants nearby the development locality were frustrated about the operators' relocating behind. Over that situation, the entire community was facing intense anxiety of disease extent, notably in the farmland areas where the subway development plans were identified. Community citizens were more traditional regarding the plague. They flat immediately molded their paths, hindered the entrance for outside inhabitants, and were not permitted to access the construction locations. Being detailed in location 9 construction, "the ways to the building section were prevented by cities and communities around because of the severest precautionary degrees. Operators were powerless to restore their duties to the tunnel building place while supplies could not be given in ".

Expected Monetary Value (EMV) For All Risks

Risk	Probability	Impact(USD)	EMV(Impact*Probability)
Workers' Unavailability	%15	10000-	1500-
Shortage of Construction Material	%30	20000	6000
Rear Supply of Essential Equipment	%40	15000-	6000-
Insufficient Disease Prevention	%10	10000-	1000-
Socially raised Barriers for Workers	%60	5000-	3000-
		20000-	5500-

Analysis of Selected Risks

The Peculiarities of Tunnel Development/Building Risks Linked with Epidemic

The analysis in this report highlighted the particular hazards conducted by the explosion of the infectious disease. Significant risks are associated with the complications confronted by the subway building schemes in courses of place convenience, operator presence, deficiency of building supplies and hindered shipping. Yet, these objections are not attributed to the arrangement of the operation business (including, worker abilities and potential), place circumstances including ways and area, and equipment transportation, which have been known in earlier investigations. The background causes of these workers and supply deficiency difficulties are the collapse of Chinese conventional season celebration with the disease explosion and the interruptions of operator's dislocation from common sites to remote area job following the governmental disease restriction order. Aside from mine, subways, underground pipes building designs, the stock string was additionally influenced by the national closedown. These challenges could be answered by linking the convenience cleft between operators and their duty locations when the disease is under restriction to the greatest extent. Degrees including authorized vans and ships, separate vehicles, or flying adjustments are proper to support the immediate recovery of operators from their primary difficulty .

Strategic Analysis of Selected Risks

RISK TYPE	RISK DETAILS	CONCERNED STRATEGIES
WORKERS	Inaccessibility of workers to continue work after resuming back from their hometowns.	Authorized transportation and Aviation assistance Choose and qualify new operators Tackle varied functions
SUPPLY	Deficiency of essential, construction material and limitation in transportation means due to strictest lockdown policy	Interact with providers Ask support from provincial authorities Communicate with shipping community

TOOLS	Unavailability of machinery, equipment, construction tools, and disease preventing models.	Communicate with mechanical providers and shipping branch
PROCEDURES	Inappropriate and insufficient methods to conduct precautionary measures and design accordingly the working schedules .	Preparation of disease inhibition Coronavirus laboratory examination on workers' health and quarantine procedures Advance tracing of construction side workers' health Disease blocking elements and devices
SOCIAL	Influence of community anxiety outcomes over workers operations and blockage of workers entrance to construction site due to the peril that it could stimulate the disease spread.	Interaction with regional citizens Ask support from provincial jurisdiction Make quarantine rest-points Continue operational position further apart from communities Install disease interception management

Conclusion

This report provides the foundation of learning by supplementing the risk sections of underground development and acknowledgment approaches from the viewpoint of a worldwide epidemic. The particular risks carried to subway development schemes are linked to the challenges of position convenience and operator presence, deficiency of building supplies, and pressed shipping because of the lockdown order. Following the precise epidemic conditions, the extent of maintenance in project administration, stock transportation directors, and government involvement administration enhanced more extensive, and provincial authority is serving as a more substantial power in tunnel design superintendence .

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