Allocation of Risk Factors and its Impact on Construction Projects in Sudan (Khartoum state as a Model)

Submitted in partial fulfilment for the requirements the Master degree (Construction Management)

by:

Diana Victor Gabra Butros

Supervised by:
Dedication

This thesis is dedicated to my family. A special feelings of gratitude to my loving parents, Victor Gabra, Afaf William whose believe in the richness of learning and word of words of encouragement. And also my sister Cathrine and brother Kirolos whose have supported me all the way since the beginning of my studies.

Also, this thesis is dedicated to my fiancé Rami Izat Ayad who
has been a great source of motivation and inspiration.

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Abstract:
Construction is a risky industry compared to many other industries where it requires proper application of business practices.

The Sudanese construction sector is characterized by many small and large projects and high labor intensity. The basic problems facing the Sudanese construction projects are the risk factors that affect construction project performance. The main objectives of this research include identifying the risk factors affecting the performance of Sudanese construction projects. The study aims also to investigate the usage of risk preventive and mitigative methods.

The objectives of this research have been achieved through data collection questionnaires in Khartoum city. The results obtained from the data analysis where interpreted and discussed thoroughly. The output concluded that the most
important risk factors are: poor / defective supply of materials, natural disasters, awarding the design to unqualified designers, shortage of human resources/ machinery and material resources, instability of currency exchange, delays in resolving disputes, gaps between the implementation and the specifications and poor resource management. The results show that there are many risk factors which could not be allocated to any party. Such risks should be predetermined in the project plan. The study findings show that the contractors, consultants and the owners suffer from lack of innovative methods to prevent or mitigate risks.

The results of this study recommended that there is an essential need for more standardization and effective forms of contracts, which address issues of clarity, fairness, roles and responsibilities, allocation of risks, dispute resolution and payment. Owners, consultants and contractors are advised to identify the possible risk factors that could confront their projects and to allocate them contractually. The recommendations of this research are useful for the policy makers to establish legislations towards the welfare of the industry.

**Summary of the study**

The building industry is more exposed to risks than any other industry and requires the implementation of proper practices. The building sector in Sudan is characterized by a large number of small and large projects, and the socio-economic problems facing Sudanese building projects are the risks that affect the performance of the building project. It includes the high density of the outbreak of the building and construction sectors, the high rate of the building sector and the high rate of the building sector. The challenges faced by the building projects in the building sector are the challenges faced by the building projects in the building sector.

The building sector is a high-risk industry, and the proper implementation of practices is required. The building sector in Sudan is characterized by a large number of small and large projects, and the socio-economic problems facing Sudanese building projects are the risks that affect the performance of the building project. It includes the high density of the outbreak of the building and construction sectors, the high rate of the building sector and the high rate of the building sector. The challenges faced by the building projects in the building sector are the challenges faced by the building projects in the building sector.
الأهداف الرئيسية لهذا البحث التعرف على المخاطر التي تؤثر في أداء المشاريع الإنشائية السودانية. وأيضاً وهدف الدراسة للتحقيق في استخدام طرق منع وتقليل المخاطر.

وقد تم تحقيق أهداف هذه البحث من خلال جمع المعلومات عن طريق استبيانات في مدينة الخرطوم. النتائج التي تم الحصول عليها من تحليل الاستبيانات تم تفسيرها ومناقشتها بأسلوب خاص، لخصت أن أهم عوامل الخطر هي: انخفاض القدرة الإنتاجية للعمال/عطل الآلات، والكوارت الطبيعية، توكيل تصميم للمصممين غير مؤهلين، نقص الموارد البشرية/المواد غير المؤهلين، التأخير في حل الخلافات، أخطاء في التنفيذ بسبب سوء فهم المواصفات، استنفار إدارية الوجود، وتشير النتائج أنه من الصعب تحديد مسؤولية عدد من المخاطر لأي طرف. وتشير نتائج الدراسة إلى أن المقاولين والاستشاريين والمالك يعانون من عدم وجود طرق مبتكرة لمنع أو تقليل المخاطر.

أوصت نتائج هذه الدراسة أن هناك حاجة ضرورية لتوحيد العقود بطريقة فعالة وقياسية، بحيث التي تتسم بالوضوح والعدل، وتحديد الأدوار والمسؤوليات بصورة واضحة، وتوزيع المخاطر، وتوزيع المنازعات والمساندة. ودعوة لكل أصحاب البناء والاستشاريين والمقاولين لتحديد عوامل المخاطر المحتملة التي يمكن أن يواجهها وتخصيص لهم تفاعلياً، ونتيجة لذلك يجب تطبيق أنواع مختلفة من العقود وينبغي بذل المزيد من الجهد لتطبيق صحيحة لإدارة المخاطر في صناعة البناء والتشييد.
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