

Causes of Delay in Construction Projects in Nepal

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Abstract

Nepal, a developing nation with a population of over 29 million, heavily relies on the construction sector for its economic growth and development. However, delays in construction projects have adversely affected the country's national economy. This research aims to identify the main factors that contribute to construction project delays in Nepal and proposes solutions to address these issues. A detailed descriptive analysis was conducted by reviewing six selected journals. The findings indicate that inadequate planning, weak monitoring, poor site conditions, design changes, lack of construction materials, equipment, and manpower, low bidding of contracts, unrealistic contract durations, lack of coordination among team members, variation of quantities during project execution phases, climate change, inflation, natural calamities, rapid changes in government, strikes, holidays, insufficient budget allocation, and political and governmental issues are the primary causes of construction project delays in Nepal. These delays have significant implications for Nepal's economic growth and development. For example, delays in the construction of critical infrastructure, such as roads and bridges, can hamper access to essential services, hinder trade and commerce, and result in delayed project delivery, increased project costs, negative impact on the project's reputation or impression on donor agencies, stress among concerned authorities, negative impacts on economy and society, strained relationships, and communication breakdowns. To address these issues, all stakeholders, including the government, contractors, and project owners, must be involved in implementing the recommended solutions. The proposed solutions include improving planning and monitoring, ensuring availability of materials, equipment, and manpower, enhancing coordination among team members, realistic contract bidding and duration, and addressing political and governmental issues. The findings of this study have implications for other developing countries facing similar challenges in the construction sector. By implementing the recommended solutions, Nepal can overcome these obstacles and achieve its infrastructure development goals, promoting economic growth and improving the quality of life for its citizens. In conclusion, this research highlights the need for a coordinated effort by all stakeholders to address construction project delays in Nepal, which is critical for the country's progress and development.

Keywords: Nepal, construction, delays, Government, Stakeholder.

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INTRODUCTION

The Republic of Nepal is a developing nation with a population of more than 29 million people, and its construction sector has a crucial part to play in the country's progress. Unfortunately, this sector has been plagued with delays, causing significant setbacks to Nepal's economic growth. The construction of infrastructure, such as roads, bridges, and water supply systems, has been significantly affected by delays in starting and completing projects, resulting in a negative impact on the country's economy.

Delayed construction projects in Nepal have become a persistent problem, with many examples of projects that have not started or have been stalled in the

middle without progress. According to a report by the Asian Development Bank, the usual lag in public construction industries in Nepal was 37 months, and only 15% of the task were completed within the desired time frame. This delay has led to increased costs, reduced benefits, and the failure to achieve development goals.

One of the most notable examples of delay in Nepal's public projects is the Melamchi water supply project, designed to provide drinking water to residents of Kathmandu Valley, which suffers from water scarcity, especially during the dry season. The project has faced numerous challenges, including inefficiencies in the purchase of goods or machinery, land acquisition issues, and problems with investment modalities and

contractual agreements. This endeavor was initially intended to be finished by 2007, but it was delayed several times due to these issues. Despite efforts to complete the project, it still faces challenges, such as damage caused by floods and increased costs (Shrestha, 2021)

The delay in the Melamchi water supply project has significant implications for Nepal's development. According to a report by the World Bank, access to clean water is crucial for reducing poverty and improving health outcomes, as well as promoting economic growth (World Bank, 2018). Therefore, the Melamchi water supply project has hindered development due to the resultant lack of access to clean water, increased health risks, and impact on economic growth.

Effective project management and oversight are essential to prevent delay issues in Nepal's public construction projects. Project management encompasses the tasks of scheduling, coordinating, and regulating resources to attain particular objectives within a specified period. Proficient project management can facilitate the identification of potential hazards and the creation of tactics to alleviate them, culminating in the punctual accomplishment of the project. Oversight involves monitoring and evaluating the progress of the project, ensuring that it complies with the contract terms, and identifying and addressing any issues that arise. Effective oversight can help prevent delays by identifying and addressing issues early on, ensuring that the project stays on track (Rest, 2018)

The goal of this research is to explore the major factors and reasons for construction progress delays, the impact of project delay on construction projects in Nepal, and the factors that should be taken into attention to minimize delays in projects. This study is significant because it will identify the factors that contribute to delays in construction projects, provide insights into the impact of these delays on Nepal's development, and offer recommendations for effective project management and oversight to prevent delays in the future. The findings of this study can be valuable for policymakers, construction project managers, and stakeholders to enhance the efficiency of construction projects in Nepal and promote sustainable development.

OBJECTIVE OF STUDY

The primary objective of this systematic literature review is to identify the primary causes of construction delays in major projects in Nepal. The study has the following objectives:

- i) To recognize the key factors and causes that lead to construction delays in significant projects in Nepal.
- ii) To assess the influence of project delays on construction projects in Nepal.
- iii) To provide recommendations based on the

analysis of the causes and impact of construction delays

RESEARCH METHODOLOGY

This research, entitled "Delays in the Construction Projects in Nepal," will employ a secondary data research approach, which involves using information that has already been collected and is accessible through existing literature, reports, and databases (Hoffmann *et al.*, 2014). The use of secondary data is advantageous as it allows researchers to gather large amounts of data from multiple sources without the need for primary data collection, which may be time-consuming and expensive. This paragraph outlines the research philosophy, research strategy, literature review approach, electronic search outline, inclusion and exclusion criteria, search results, and decision trail for a systematic literature review of construction delays in Nepal.

Research Philosophy:

The research philosophy adopted for this study is positivism, which emphasizes the use of objective and empirical methods to gather and analyze data. Positivism maintains that research should be conducted scientifically and systematically. This approach is particularly suitable for the study of construction delays in Nepal, as it involves a systematic literature review of previous research studies on the topic. By adopting a positivist approach, the study aims to identify the primary causes of construction delays in Nepal through an objective and detail analysis of existing data. The use of openly assessed references will further enhance the validity and reliability of the study's findings, ensuring that they are based on verifiable and trustworthy sources (Binu Joseph, 2012).

Research Strategy:

The research strategy adopted for this study is a systematic literature review, which is considered a rigorous and transparent research method. The systematic literature review involves a comprehensive search of the literature on a particular topic. The topic was followed by a critical appraisal of the studies identified, and the synthesis of the findings (Thomas, 2001). This approach is particularly useful for this study as it allows for a comprehensive analysis of the causes of construction delays in Nepal based on previous research studies. Furthermore, this approach also ensures that the study is replicable and can be easily verified by other researchers, which adds to its credibility.

Literature Review:

A systematic literature review is a widely recognized and accepted research method for synthesizing existing evidence transparently and systematically (Halverson and Graham, 2019). It involves a rigorous and comprehensive search of the literature, followed by a critical appraisal of the studies

identified. This approach is particularly suitable for this study as it allows for a comprehensive analysis of the causes of construction delays in Nepal, based on previous research studies.

Literature Review Approach:

The literature review approach used in this study is a systematic review of peer-reviewed research articles. The systematic review approach involves a comprehensive search of electronic databases for relevant studies, followed by the critical appraisal of these studies using pre-defined inclusion and exclusion criteria. The systematic review approach is appropriate for this study as it allows for a rigorous and transparent analysis of the literature on construction delays in Nepal.

According to (Halverson and Graham, 2019) systematic reviews are an important method for synthesizing existing evidence transparently and rigorously. This approach involves a comprehensive search of the literature using pre-defined inclusion and exclusion criteria. The studies identified are then critically appraised using established criteria, to identify the most relevant and reliable evidence on the topic. The systematic review approach is particularly suitable for this study, as it allows for a rigorous and transparent analysis of the literature on construction delays in Nepal.

Electronic Search Outline:

The electronic search for this study involved the use of four databases, including Google Scholar, JSTOR, Scopus, and Web of Science. The search was

conducted using pre-defined inclusion and exclusion criteria, with a focus on identifying studies that examined the causes of construction delays in Nepal, was published in peer-reviewed journals, were conducted in Nepal, and were published in English.

The initial search yielded a total of 21 studies across the various databases. After applying the inclusion and exclusion criteria, 6 studies were identified as meeting the criteria for inclusion in the final analysis. The search yielded and selected researches are shown in Annex.

Decision Trail:

The decision trail leading to the final choice of selected studies involved a two-stage process. In the first stage, the titles and abstracts of the studies were screened for relevance. Studies that did not meet the inclusion criteria were excluded at this stage. In the second stage, the full text of the remaining studies was reviewed to determine their eligibility for inclusion based on the inclusion and exclusion criteria. Any discrepancies in the inclusion/exclusion decision were resolved through discussion among the reviewers.

The decision trail used in this study follows established best practices for systematic reviews, with a rigorous and transparent process used to identify and appraise the most relevant and reliable evidence on the topic (Halverson and Graham, 2019). This approach helps to ensure that the results of the review are robust and reliable and that the study findings are based on the best available evidence.

Table 1: Data Analysis Table of Impact of Delays

Factor	Author						Frequency	Percentage
	(Timilsina, Ojha and Dhungana, 2020)	(Acharya, Bhandari and Timilsina, 2021)	(Subedi and Joshi, 2020)	(Suwal and Shrestha, 2016)	(Manavazhi and Adhikari, 2002)	(Sha et al., 2017)		
Delayed Delivery of Project Benefits	√	√	√	√	√	√	6	100.000
Increase in Market Risk		√	√				2	33.333
Increased Project Costs	√	√	√		√	√	5	83.333
Increased Stress and Workload/Compromise in Quality	√	√					4	66.667
Legal Disputes and Litigation	√	√			√	√	4	66.667
Negative Economic and Social Impacts	√			√	√		3	50.000
Negative Impact on Project Reputation/Bad Impression on the donor agency	√	√	√	√		√	5	83.333
Strained Relationships and Communication Breakdowns	√					√	2	33.333

Table 2: Data Analysis Table of Delays factors

Factor	(Timilsina, Ojha and Dhungana, 2020)	(Acharya, Bhandari and Timilsina, 2021)	(Subedi and Joshi, 2020)	(Suwal and Shrestha, 2016)	(Manavazhi and Adhikari, 2002)	(Sha et al., 2017)	Frequency	Percentage
Budget allocation and insufficient financing	√					√	2	33.33
Climate change, inflation, and natural calamities	√		√		√		3	50.00
Faulty premises at the time of designing and starting the projects/Variation of Quantities	√		√	√		√	4	66.67
Political issues /Rapid Change in Government /Strike and Holiday / Power influence on the project	√		√	√			3	50.00
Inexperienced Subcontractors, suppliers, and low-skilled manpower	√	√		√	√		4	66.67
Lack of coordination between the Project Team	√	√			√	√	4	66.67
Lack of construction material equipment and manpower		√	√	√	√	√	5	83.33
Unrealistic contract duration	√	√		√		√	4	66.67
Low bidding of contracts	√	√		√		√	4	66.67
Technical issues (Inadequate planning, Weak monitoring, supervision system, poor site condition, and Design Changes)	√	√		√	√	√	5	83.33

DATA ANALYSIS AND MANAGEMENT

The methodology employed for peer review among the reasons for major construction delays and its influences involves analyzing the significant frequency of factor occurrences. This leads to the identification of major significant factors, as listed below. Additionally, frequency analysis is used to calculate the percentage of occurrence for each significant factor, as indicated in the tables 1 and Table 2.

RESULT AND DISCUSSION

Objective 1: To recognize the key factors and causes that lead to construction delays in significant projects in Nepal.

The result from the data analysis table is given as:

From the analysis table above we found that the most commonly reported factors that contribute to delays in construction projects are technical issues and lack of construction material, equipment, and manpower, which both find equal contributions to the delays in a construction project in Nepal. These factors are found in 5 out of 6 selected research papers with 83.33 % frequency. The technical issues contain inadequate planning, weak monitoring, a supervision system, poor site condition, and Design Changes.

By the analysis table, five factors equally contribute to the delays in the construction project of Nepal. It uses 4 out of 6 research with a frequency of 66.67 %. The factor is low bidding of contract, Unrealistic contract duration, and lack of co-ordinating between team members who have been involved in the

various stage of the project. The other factors that contribute equally to the delays factors are faulty premises at the time of designing and starting the project, variation of quantities during project executing phases, and use of inexperienced subcontractors, suppliers, and low-skilled manpower to execute the project.

As we know while running the project various enforcing things happens, which can not be solved instantly so the other points that contribute to the delays in a construction project in Nepal are climate change, inflation, and natural calamities, these unforeseen factor found in 3 out of 6 research articles with 50% frequency. In the context of Nepal, we know the factor that may cause delays with political issues. This factor includes political issues, Rapid change in Government, Strike, Holiday as well as the powerful influence on the project. It is believed that more than dozens of projects will cause delays due to government change at the province level or central level. The political issues were also found in 3 out of 6 research articles with 50 % frequency.

Most of the contract in Nepal is based on internal income. If the income is not maintained as per the prejudgement then there will be a problem with budget allocations and create a problem, which may cause delays in the project. On another hand, the contractor takes too many contracts at the same time, which may lead the insufficient financing to complete the project. So factor Budget allocation and insufficient financing is other factors that contribute to the delays in

a construction project in Nepal found in 2 out of 6 research articles with 33.33 % frequency.

In Summary, The most common factors contributing to delays in construction projects in Nepal are technical issues and lack of construction materials, equipment, and manpower, while other factors include low bidding of contracts, unrealistic contract durations, political issues, climate change, and budget allocation/insufficient financing, as found in multiple research articles with varying frequencies.

Objective 2: To assess the influence of project delays on construction projects in Nepal.

To assess the impact of the project delays on a construction project in Nepal, we compare the different factors with different research articles which are shown in Table 4. The result of the analysis of the table is given as.

There is various impact of project delays on the construction project, these impact may concern with country, the department or project team as well as the contractor involved in the project. In the table, the impact is classified into 8 primary impacts. The analysis of the output of all of the research goes 100% with the delayed delivery of the project as the main impact of delays in a construction project in Nepal. So we can say that due to delays the project will not be delivery of the project within the given timeframe. Which may lead to a negative impact on the country's economy.

The second most impact caused by the delays in the construction project in Nepal is increased project costs and Negative impact o the project's reputation or Bad impression on the doner agency which was found in 5 out of 6 research articles. If the Project delays are due to a factor related to government issues, in this case, the contract claims the money due to the delays which may cause an increase in project cost. In another impact, if the project is not completed in the given time frame the donor agency will be unhappy and it may cause a bad impression and by the next time they will not be happy to work with such an impact responsible authority.

While the project causes delay, it generates stress among the concerned authority. The team on the project executes the work in a way of anyhow completed within the given time frame so they work in an unmanaged way which leads to compromising the quality of the work. In another way, delays in a construction project may impact legal disputes and litigation among the concerned authority. So Increased stress and workload as well as legal disputes and litigation are the third most impact of delays in construction projects found in 4 out of 6 research with a frequency of 66.67%.

The other impact caused by the delays in a construction project in Nepal is the Negative Economy and social impacts, which are shown in 3 out of 6 research with 50 % frequency. There are some other impacts associated with the delays. Increased project costs and strained relationships and communication breakdowns are the other impacts that somehow impact the delays in a construction project with 2 out of 6 research with 33.33% frequencies. In a summary, we conclude that the impact of the delay is various factors that are directly concerned with the economy as well as the relationship between the donor agency. So increase in project time not only make a negative economic and social impact, but it also creates an increase in project cost.

Objective 3: To provide recommendations based on the analysis of the causes and impact of construction delays.

Based on the factors that are responsible for the delays and impacts identified by the delays, the following recommendations can be made to control delays in construction projects in Nepal:

Improvement in planning and monitoring: Adequate planning, monitoring, and supervision systems should be taken into consideration to ensure the smooth execution of construction projects. This includes proper site assessment, design changes, and regular monitoring of the project to identify and address any technical issues that may cause delays in a construction project.

Ensuring the availability of materials, equipment, and manpower: To overcome the shortage, Sufficient availability of construction materials, equipment, and manpower should be ensured to avoid delays. Proper procurement and logistics planning should be in place to avoid delays due to a lack of resources.

Enhance Coordination among Team Members: To avoid delays, required Strong coordination and communication among team members involved in different stages of the project. It may include Regular meetings, reporting mechanisms, and collaborative decision-making processes should be established to ensure smooth coordination among team members.

Realistic Contract Bidding and Duration: Contracts should be realistically bid and duration should be set based on the proper assessment of project requirements. Unrealistic contract bidding and duration can lead to delays and cost overruns. Proper risk assessment and contingency planning should be considered in contract bidding and duration.

Addressing Political and Governmental issues: Political issues, like rapid changes in government, strikes, holidays, and powerful influence on projects

should be proactively addressed to avoid delays. Strong team communication strategies should be in place to manage political and governmental issues that may impact the progress of construction projects.

Budget allocation and financing improvement: Proper budget allocation and sufficient financing should be ensured for construction projects to avoid delays caused by funding shortages. Contractors should be encouraged to take on a manageable number of projects at a time to ensure sufficient financing for each project.

Preparedness for Unforeseen calamities: As we know Climate change and natural calamities can cause delays in construction projects. Proper risk assessment, mitigation measures, and calamity preparedness plans should be in place to minimize the impact of these unforeseen things on project progress.

Manage Project Stress and Workload: Project stress and workload should be managed effectively to ensure that the quality of work is not compromised. Adequate resources, workload distribution, and stress management strategies should be in place to prevent delays caused by the compromised quality of work.

CONCLUSION

From the analysis and discussion, the conclusion of the study can be given as. There are various factors are present in the delays in the construction project of Nepal and the key factors that contribute to project delays include technical issues, lack of construction materials, equipment, and manpower, low bidding of contracts, unrealistic contract durations, political issues, climate change, and budget allocation, insufficient financing. These factors have been identified through the analysis of multiple research articles with varying frequencies. These factors badly impact the National economy of the country as well as the other various sector. The impact of these delays on construction projects in Nepal includes delayed delivery of projects, increased project costs, negative impact on project reputation or donor agency impression, increased stress and workload, legal disputes and litigation, negative economy and social impacts, strained relationships, and communication breakdowns. Various recommendations are suggested to mitigate these effects of delays and improve project outcomes in Nepal. Examples of some recommendations are better planning and monitoring, addressing technical issues, ensuring adequate availability of construction materials, equipment, and manpower, creation of realistic contract durations, effective coordination among team members, addressing political issues, considering climate change impacts, ensuring proper budget allocation and financing, managing contract claims, improving project management practices, and fostering better communication and relationships among stakeholders involved in construction projects.

REFERENCES

- Acharya, S., Bhandari, B. R., & Timilsina, N. (2021) 'Time Overrun Study in Construction Projects of Rural Municipalities in Syangja', *International Journal of Engineering and Technical Research*, 10(08), 561–570. Available at: <https://www.researchgate.net/publication/354686829>.
- Aryal, B., & Dhakal, B. (2022). 'Analysis of Extension of Time Impact on Project's Performance: A Case Study of Projects in Hupsekot Rural Municipality', *South Asian Research Journal of Engineering and Technology*, 4(5), 86–99. Available at: <https://doi.org/10.36346/sarjet.2022.v04i05.002>.
- Binu, J. (2012). 'From the study of the development of human intelligence, in all directions, and through all times, the discovery arises of a great fundamental law (which is that) each branch of our knowledge passes successively through three different theoretical conditi', *Research Philosophy*, 2(3), 1-9.
- Halverson, L. R., & Graham, C. R. (2019). 'Learner engagement in blended learning environments: A conceptual framework', *Online Learning Journal*, 23(2), 145–178. Available at: <https://doi.org/10.24059/olj.v23i2.1481>.
- Hoffmann, T. C., Glasziou, P. P., Boutron, I., Milne, R., Perera, R., Moher, D., ... & Michie, S. (2014). Better reporting of interventions: template for intervention description and replication (TIDieR) checklist and guide. *Bmj*, 348, 1-12. Available at: <https://doi.org/10.1136/bmj.g1687>.
- Islam, M. S., & Trigunarsyah, B. (2017) 'Construction Delays in Developing Countries: A Review', *Journal of Construction Engineering and Project Management*, 7(1), pp. 1–12. Available at: <https://doi.org/10.6106/jcepm.2017.3.30.001>.
- Karunakaran, S., Malek, M. A., & Ramli, M. Z. (2019). 'Causes of delay in construction of highway projects: A review', *International Journal of Civil Engineering and Technology*, 10(2), 2374–2386.
- Ke, Y., Ling, F. Y. Y., & Ning, Y. (2013) 'Public construction project delivery process in Singapore, Beijing, Hong Kong and Sydney', *Journal of Financial Management of Property and Construction*, 18(1), pp. 6–25. Available at: <https://doi.org/10.1108/13664381311305050>.
- Khanal, B. P., & Ojha, S. K. (2020). 'Cause of time and cost overruns in the construction project in Nepal', *Advances in Science, Technology and Engineering Systems*, 5(4), pp. 192–195. Available at: <https://doi.org/10.25046/aj050423>.
- Koirala, M. P. (2018). 'Risk Factors Causing Delay of Urban Infrastructures Projects, Nepal', *International Journal of Advanced Research in*

- Civil & Structural Engineering*, 1(1), 40–47. Available at: https://www.researchgate.net/publication/328102397_40-47_Peer_Reviewed_Journal_Koirala_MP_Risk_Factors_Causing_Delay_of_Urban_Infrastructures_Projects.
- Manavazhi, M. R., & Adhikari, D. K. (2002). 'Material and equipment procurement delays in highway projects in Nepal', *International Journal of Project Management*, 20(8), 627–632. Available at: [https://doi.org/https://doi.org/10.1016/S0263-7863\(02\)00027-3](https://doi.org/https://doi.org/10.1016/S0263-7863(02)00027-3).
 - Memon, A. H., Memon, A. Q., Khahro, S. H., & Javed, Y. (2023). Investigation of Project Delays: Towards a Sustainable Construction Industry. *Sustainability*, 15(2), 1457. Available at: <https://doi.org/10.3390/su15021457>.
 - Motaleb, O., & Kishk, M. (2010). 'An investigation into causes and effects of construction delays in UAE', Association of Researchers in Construction Management, ARCOM 2010 - Proceedings of the 26th Annual Conference, (September), pp. 1149–1157.
 - Muhwezi, L., Acai, J., & Otim, G. (2014). 'An assessment of the factors causing delays on building construction projects in Uganda', *Construction Engineering and Management*, 3(1), 13–23. Available at: <https://doi.org/10.5923/j.jce.20231301.01>.
 - Rest, M. (2018). 'Dreaming of pipes: Kathmandu's long-delayed Melamchi Water Supply Project', *Environment and Planning C: Politics and Space*, 37(7), 1198–1216. Available at: <https://doi.org/10.1177/2399654418794015>.
 - Samarah, A., & Bekr, G. A. (2016) 'Causes and Effects of Delay in Public Construction Projects in Jordan', *American Journal of Engineering Research (AJER)*, (5), 87–94. Available at: www.ajer.org.
 - Sha, M. K., Shahi, P. B., Pandit, R., & Pandey, A. (2017). Causes and effects of delays in construction projects. *Journal of Mechanical and Civil Engineering*, 14(2), 52-58. Available at: <https://doi.org/10.9790/1684-1402065258>.
 - Sha, M. K., Shahi, P. B., Pandit, R., & Pandey, A. (2017). Causes and effects of delays in construction projects. *Journal of Mechanical and Civil Engineering*, 14(2), 52-58. Available at: <https://doi.org/10.9790/16841402065258>.
 - Shahi, Ramanand Pandit, Ashok Pandey. (2017). 'Research Article.
 - Shrestha, S. (2021). 'The Impact of COVID-19 on Construction Project in Nepal', *Journal of Advances in Civil Engineering and Management*, 4(1), pp. 1–4.
 - Subedi, D. P., & Joshi, B. R. (2020). 'Identification of Causes of Delay in Road Projects: Cases in Gandaki Province, Nepal', *Saudi Journal of Engineering and Technology*, 5(5), 231–243. Available at: <https://doi.org/10.36348/sjet.2020.v05i05.004>.
 - Suwal, A., & Shrestha, S. K. (2016). 'Causes of Delays of Motorable Bridge Construction Under Postal Highway Projects, Department of Roads', *Journal of Advanced College of Engineering and Management*, 2, p. 85. Available at: <https://doi.org/10.3126/jacem.v2i0.16101>.
 - Thomas, D. R. (2001). 'Research Strategies for Investigating Policy Processes', *Research Strategies*, pp. 1–21.
 - Timilsina, S. P., Ojha, S. K., & Dhungana, B. R. (2020) 'Causes of Delay in Construction of Motorable Bridges under "Design and Build Model" of Bridge Project, Department of Roads, Nepal', *Modern Economy*, 11(08), pp. 1451–1462. Available at: <https://doi.org/10.4236/me.2020.118103>.
 - Zarei, B., Sharifi, H., & Chaghooee, Y. (2018) 'Delay causes analysis in complex construction projects: a Semantic Network Analysis approach', *Production Planning and Control*, 29(1), pp. 29–40. Available at: <https://doi.org/10.1080/09537287.2017.1376257>.