
Construction Project Failures Around the World: What Have We Learnt so Far?

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ABSTRACT

Project failure has become a global phenomenon in the built environment. Failures recorded on construction projects can be linked to various issues depending on the nature of the project, the synergy of the professional project team and external stakeholders. Also, external factors beyond the project team's control can lead to project failure. Given the different causes of project failure experienced globally, this study seeks to review project failure on monumental construction projects across the world. To achieve this, the study adopted an extensive review of literature to assess the causes of the failures recorded on the focused projects. The study also synthesised the different causes of failures recorded to project lessons learnt from the failed projects. Findings of the study revealed that lack of project planning before the inception of these projects and inadequate risk assessment contributed largely to the failures recorded on these projects.

Keywords: Built environment, Construction industry, Project abandonment, Project failure

INTRODUCTION

The construction industry encounters various problems on daily basis. De Silva, Rajakaruna and Bandara (2008) highlighted finances, governmental policies, innovation, management and monitoring of projects, resources, safety, and skills training, to mention a few as problems faced by the industry. Financial challenges in the construction industry may be in the form of financial stability or instability of a client and contractors. The financial standing of construction professionals affects a project's success. Lack of government policies and ineffective policies have been identified as a hindrance to the construction industry's progress. Managing and monitoring projects also pose a problem to projects in the construction industry if cost planning, documentation, time management, communication and administrative issues are not dealt with accordingly (Abeynayake and Kumara 2013).

The construction industry depends highly on human correspondence, which is why human error can pose the greatest threat. Human errors can, however, be controlled and minimised. Examples of such errors are: Errors in the design – This can be caused by data used to design, data from the given specifications and drawings; Incorrect Detailing and drafting - projects may

have been appropriately designed and executed but may still close prematurely due to poor detailing work. Improper selection of incorrect materials - in the construction industry, it is important to avoid using materials without any tests or checks to determine if the material will fulfil the required specifications. No inspections carried out during construction - site inspections should be carried out in every phase periodically, and random inspections should also be conducted to ensure progress. Lack of good workmanship requires the development of skills through experience from work done in the past. Formwork failure - improper fixing of formwork can cause project termination. Geotechnical errors leading to failure - the soil is essential and thus needs to be investigated thoroughly before construction commences. Constructing on the wrong soil type can cause the built structure to fail. Failure caused by human errors can cause errors by being ignorant, careless, and greedy. Factors out of human beings' control are classified as uncontrollable causes, for example, natural disasters (earthquakes, floods, etc.) and accidents and collisions from vehicles or aircraft also fall under uncontrollable causes. Uncontrollable causes may also be referred to as unpredictable (Abeynayake and Kumara, 2013; Masurkar and Attar, 2014).

The construction industry has witnessed a great deal of project failures which can be translated to project failure. Such failure brought the industry the need to investigate what had been the cause of those failures and attempt to come up with any ideas that may help prevent such situations. The construction industry, as a whole, conducts investigations and comes up with solutions that help avoid any failure (Masurkar and Attar, 2014). Issues during the physical construction phase, issues due to failure of services and issues with improper maintenance were mentioned as types of failure that might cause a project to end prematurely.

According to Abeynayake and Kumara (2013), construction projects are complex in nature and inevitable, but they should be appropriately administered. However, some projects end prematurely. Project failure can be classified as premature closure for convenience and cause (sometimes referred to as termination for default). When a project is terminated for convenience, the client may terminate the contract for any reason, such as economic/business reasons. Gabula (2012) posited that when a project is closed prematurely, the most common reasons are failure to pay for labour and subcontractors, failure to meet the project schedule, defective performance, failure to follow safety requirements consistently, and failure to follow the rules and regulations. Based on the foregoing challenges of project failure, this study assesses project failures recorded on various construction projects across the world. This is with the intention to draw lessons for future projects in the built environment. This was achieved by carrying out a detailed and constructive literature review.

BUILT ENVIRONMENT PROJECT FAILURES ACROSS THE WORLD

British Petroleum Disaster, Mexico

The British Petroleum (BP) was founded in 1990 and was the sixth-largest oil and gas company by production and fifth largest by annual revenue (De Wolf

and Mejri, 2013). The problem occurred in April 2010 in Mexico during the Deep-Water Horizon project, whereby an explosion caused an oil spill which was noted as the worst oil disaster in history. The incident resulted in the loss of 11 workers' lives. Smoke caused by the explosion covered a wide area. A wide area was contaminated by the oil, which resulted in the death of 8000 animals. BP only managed to close the well on the 15th of July, thus stopping the oil. It took BP three months to stop the oil flow completely, but it had caused much damage. As a result, 780 million litres of oil had been spilled into the ocean while 210 000 gallons of hydro-chemical leaked into the Gulf Ocean (Abbasi, Wajid, Iqbal and Zafar; 2014). The economy also took a knock as BP's shares dropped to almost 7%, and its reputation suffered in all parts of the world and not just in the United States. The company faced challenges of consumers boycotting their products (De Wolf and Mejri, 2013). Abbasi, Wajid, Iqbal and Zafar (2014) further stressed that the incident took three months before BP could completely stop the oil flow into the ocean. Over 30 000 human beings worked to try and collect the oil, but the damage caused was so severe that the environment is still affected today. According to De Wolf and Mejri (2013), BP mobilised substantial means and expended a great deal of effort to deal with the spill and the damage it caused to its reputation and financial crisis. The company particularly started up its communication machine to reduce and repair reputation damages. However, crisis management and communication experts' opinions differed on whether BP successfully or unsuccessfully communicated with its stakeholders during the crisis.

According to Abbasi, Wajid, Iqbal and Zafar (2014), the following were the reasons for the project to fail and end before time: lack of planning, weak risk management, extreme geographic location, lack of timely decisions, slow response in critical situations and not taking serious situations earnestly. A SWOT analysis revealed that negative opinions from customers, poor management, legal threats, and limited resources also negatively impacted BP. Focusing on the BP project, it was revealed that reasons for the BP project failure and premature closure are lack of planning, weak risk management, extreme geographic location, lack of timely decisions, slow response in critical situations, not taking severe situations seriously.

Wonderland, China

Construction of the amusement park was commenced by the Reignwood Group during the '90s and set to be the biggest amusement park in Asia. Japan's Tokyo Disneyland would be smaller than this amusement park by 5 acres, 4046,86 square meters. According to Liqiang (2013), the chief inspector of the amusement park said that the project was prematurely closed because the park was in forestry land, and some policies were aimed at protecting such land. These policies forced the company to review its plans. Lucia (2015) agreed with Liqiang (2013) and added that some believed that the land was situated on forestry land, which was a major red flag because of the possibility of flooding; this would have required the Reignwood Group to re-evaluate the plans. The Amusement park's main attraction was planned

to be the Disneyland-like castle which stood a few hundred meters behind the main entrance. Construction workers abandoned the castle even before completing the exterior. The shell was the only part that remained standing, and there was a staircase with no railings. Moxley (2013) described the castle as disorienting and described the stairs as narrow and dark as one climbs higher. He further reported that the locals had been using the upper parts of the staircase as a bathroom.

According to Taylor (2011), in Chenzhuang Village, China, about 20 miles from central Beijing, there lies the ruins of an incomplete amusement park which was set to be called Wonderland. The incomplete amusement park lies near a highway and is now surrounded by houses and fields of corn. The project closed prematurely in 1998 following disagreements between the local government and farmers over property prices. Some added that the problems arose when stakeholders could not decide on the worth of the land which Wonderland was sitting on. Although developers thought it would be the largest amusement park in Asia, it did not happen as funds were withdrawn because of disagreements between farmers and the local government. Construction projects cost a lot of money, materials, labour, machinery and time. Such expenditures on projects need to be weighed against the expected benefits resulting from these projects to the public and the national economy. Therefore, economic feasibility studies are essential and need to be conducted before the actual physical construction occurs. The economic feasibility study assists clients in making decisions according to the possibility of profit or loss of a specific project, which is why feasibility studies need to be viable and should never be ignored (Hyari and Kandil, 2009).

China's Wonderland was meant to be the largest amusement park in Asia, but it did not come to pass as the project was left incomplete and abandoned following disagreements between local government and farm owners over property prices. Disagreements between these two parties led to the withdrawal of funds. Upon premature closure of the project, investors also decided to pull out as they did not want to lose their hard-earned money and did not want to be associated with a 'failed' project. It was learned that social influences could greatly impact a project's success or failure. In this case, social influences contributed negatively as it led to disagreements which, in turn, led to the withdrawal of funds, thus bringing about financial constraints. Moreover, it was also learnt that project failure could have been avoided by conducting economic feasibility studies and communicating effectively with the affected area's parties.

The Millenium Dome, Southeast London

The Millenium Dome project was initially set up by the then Prime Minister of England, John Major, under the Conservative government. It was set to be opened on the 1st of January 2000. It was supposed to be a small project that would celebrate the third millennium and attract many visitors. The project's scope and size increased, leading to increased costs. The government saw the project as a structure they could be proud of as it would be an attraction and marvel visitors and was set to be the apple of London's eye (O'Donnellan,

2016). Abbasi, Wajid, Iqbal and Zafar (2014) describe the Millennium Dome as a dome-shaped structure built in the Greenwich peninsula in Southeast London. Its main purpose was for celebrating the third millennium, which was to occur from the 1st of January 2001 to the 31st of December 3000. The project ended prematurely as it was closed on the 31st of December 2000 because it had failed to attract the number of visitors anticipated. Before its premature closure, it attracted many visitors, but as time went by, the number decreased. O'Donnellan (2016) agreed with Abbasi, Wajid, Iqbal and Zafar (2014) by echoing how the project was not backed up by the whole project team involved in the project. It was based too much on political ideas and figures and lacked efficient planning.

It was revealed that the project was not appropriately planned, poor execution, lack of sufficient operational expertise, marketing strategies not in place, and financial mismanagement. It was also learnt that the project failure of the Millennium Dome led to financial problems, which led to the loss of jobs.

Incomplete Ryugyong Hotel, North Korea

North Korea had never been recognised globally for any new developments. Therefore, during the 1980s, the country wanted to gain recognition and respect by constructing something bigger and unique, in contrast to what it was known for. The government decided to build a hotel set to be the tallest building in the world. The hotel's construction was set to attract new Western investors to the country and serve as a symbol of progress and development (Almen and Kohnechian, 2014). Construction began in 1987 and was supposed to be completed in 1989, just in time for the 13th World Festival of Youth and students. They tried to invite and attract Western dollars by drawing up plans for the 105-floor hotel they had been planning. The plans included full hotel activities such as casinos, nightclubs and fancy restaurants. Construction was estimated to cost \$230 million from 1987 when the project commenced to 1989 when the project was planned to be completed. As planned, construction commenced in 1987 but experienced delays and cost overruns. Instead of staying within budget, costs escalated from \$230 million to \$750 million, which was 2% of North Korea's entire GDP. The project was supposed to be completed in 1989 but was still in progress in 1992. This caused the North Korean government to be broke, and the country suffered from food and electricity shortages in the early 1990s. This construction blunder caused investors to pull out as the project had been delayed, and cost overruns also impacted. In 1992, the building had finally reached its full architectural height, but there were no financial means to complete it. This caused the project to close prematurely (Murano, 2013). The unfinished hotel was left vacant for more than 16 years, with no windows, pictures or furnishings. A crane was abandoned at the top of the building. This caused the government to be embarrassed because the project was now declared an enormous blunder even though they wanted to put North Korea on the map. They were so embarrassed that they had all official photographs of the building removed. It was labelled as "The Worst building in the world". Other common

names were “Hotel of Doom” and “the Phantom Hotel.” The North Korean government was so embarrassed that they denied acknowledging the hotel’s existence for over a decade (Murano, 2013).

This study was a clear case of a prematurely closed project due to its high costs, leading to financial constraints and poor structural integrity. It was also learnt that errors in human judgement caused this project’s failure. It was further observed that incompetent and inadequately experienced stakeholders contributed to this project failure.

Cape Town’s Eastern Boulevard freeway, South Africa

Cape Town’s unfinished Eastern Boulevard freeway was initially conceptualised in the early 1960s when an elevated freeway was proposed. It was proposed to be part of the Central Business District (CBD) concept. The project was closed prematurely in 1977. Lack of traffic demand justification was identified as the main reason for project failure. The completed sections of the freeway may have fulfilled their desired purpose, but traffic demand has increased over time, requiring the freeway to be completed. Lack of traffic demand justification was not the only reason the project closed prematurely, financial constraints were also pointed out. The city transport director admitted to the clear need to complete the freeway, but there was no budget (Mangxamba, 2006). This premature closure has had a negative impact as the unfinished highway is the first thing foreign visitors see when they come to Cape Town, and it is very unpleasant for the city (Gorse, Johnston and Pritchard, 2012).

The Cape Town Highway was a case of a feasibility study not conducted although forecasting and predicting future may be risky. It is imperative that any risk associated with these forecasts and predictions needs to be identified and evaluated

CONCLUSION

The literature reviewed found that project failure has a negative impact because it affects the project in question and affects human lives and jobs. To prevent project failure, it can be concluded that the management structure must be in place while roles and responsibilities should be clear and straightforward. In terms of project costs, projects should only commence if the project life cycle assessment cost is assessed. A risk analysis of the project has been conducted to know and understand the cost that could arise in the later stages of a project. Also, resources like time and money are used on built environment projects, so careful assumptions should be made. The project team and stakeholders should not rely on one plan but rather have at least two plans if one plan does not work out. All expenditure commitments should be recorded and tracked as this will assist in identifying all expenditures and liability at any time. Construction projects cost a lot of money, materials, labour, machinery and time. Such expenditures on projects need to be weighed against the expected benefits resulting from these projects to the public and the national economy. Therefore, economic feasibility studies are essential and need to be conducted before the actual physical construction occurs.

The economic feasibility study assists clients in making decisions according to the possibility of profit or loss of a specific project, which is why feasibility studies need to be viable and should never be ignored. It was also revealed that specific measures could have been taken to avoid the BP project. Before any project commences, all employees to be involved in the project must be trained, and their job responsibilities must be clearly defined; Staff and skills should not be in limited supply; All equipment to be used must be verified after periodic intervals to ensure accuracy; There must be a clear hierarchy so that any critical situation be addressed as soon as possible; For projects in remote areas, there must be a reliable form of transport that will be used in case of emergency to minimise the loss of lives; Proper standard operating procedure (SOP) must be clearly defined in all areas. Further study can be carried out on the approaches to minimising project failure globally. It is worthy of note to state that this study encountered some limitations. Notably, the study is conceptual and generic as it employed secondary data obtained from publications on the subject matter. Hence, to understand the root causes of project failure, further study should be carried out to retrieve primary data from construction experts.

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