Risks posed by falling objects from elevated construction sites in Bangkok

By **Peter A Leggat** and **Frances W. Leggat**

Abstract

This study aims to determine the incidence and nature of fatal and non-fatal accidents from falling objects from elevated construction sites in Bangkok, and to ascertain possible contributing factors, if any. Press records were examined for reports of fatal and non-fatal accidents. Between November 1997 and July 1998, three deaths and 11 injuries were reported. One of the deaths and eight of the injuries involved tourists. No near misses were reported. All of the incidents were involved with the construction of elevated freeways or railways. The study shows that accidents and near misses do occur around elevated construction sites in a large city like Bangkok, although injuries and death are relatively uncommon from such incidents. However, better reporting mechanisms and accident investigations are needed to help eliminate their occurrence. Tourists and the general public should be vigilant around elevated construction sites and avoid these areas wherever possible.

Brief Profiles

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Introduction

Bangkok is a thriving city of more than 6 million people (Tourism Authority of Thailand, 2000). Like other major cities around the world, it has had to overcome the problems of increasing traffic gridlock and lack of vacant land, so it has had to build upwards. Falling objects in the workplace, especially those involving high-rise and elevated construction sites, can pose a major hazard for workers and the general public, if adequate safeguards are not taken. The height from which an object falls can make even a small falling object potentially lethal.

Accidents at construction sites can be exceptionally newsworthy, especially when they involve the general public or tourists, with potentially deleterious effects on the construction industry. Little is known about the risk of injury and death from falling objects from elevated construction sites in Bangkok. The aim of this study was to determine the incidence and nature of such fatal and non-fatal accidents, and to ascertain possible contributing factors, if any.

The Bulletin for 19th October 1901 reported 47 fatalities on Sydney tramways for January - July 1901. So metro transport 100 years later is safer.

Methods

Press records from a major English language newspaper, the Bangkok Post, for a nine-month period from November 1997 to July 1998, were examined for reports pertaining to fatal and non-fatal accidents and mishaps resulting from falling objects from elevated construction sites in Bangkok, assisted by the newspaper's searchable electronic on-line database (Bangkok Post Database Service, 2000). A database was established of reported deaths, injuries and near misses resulting from falling objects from elevated construction sites in Bangkok. In addition, demographic data available for the victims involved in these incidents, together with possible contributory factors, were collected.

The small number of cases and uncertain denominator of persons at risk preclude calculation of a reliable risk estimate. The descriptive approach is therefore adopted to highlight possible avoidable errors.

Table 1. *Summary of reported incidents resulting in deaths and injuries from falling objects in Thailand from November 1997-July 1998*

Date	Place of incident	Type of incident	Agency	Time	Outcome
-.11.97	Elevated Bang Na-Chon Buri expressway under construction	Steel beam fell on minivan carrying Malaysian tourists	Steel beam	N/A	One death and six injuries (Malaysian tourists)
12.97	Elevated Bang Na-Chon Buri expressway under construction	Steel sheet from crane fell on police motorcyclist	Steel sheet	N/A	One death (Thai)
24.12.97	Elevated railway under construction near train platform-Sukhumvit Road, Bangkok	One female was hit on the head with a winch nut, which fell from train platform-had persistent headache for 2months - spent 10,000 baht on treatment	Winch nut	N/A	One injured (Thai)
3.98	Elevated railway under construction, Sukhumvit Road, Bangkok	Steel girder fell from platform crushing taxi-driver	Steel girder	N/A	One death (Thai)
6.4.98	Elevated Bang Na-Chon Buri expressway under construction	Truck-driver injured when iron rod fell and pierced windshield	Iron rod	N/A	One injury (Thai)
-.6.98	Elevated railway under construction Sukhumvit Road, Bangkok	Railway worker was hit by flying concrete chip Worker injured.	Concrete chip	N/A	One injured (Thai)
27.7.98	Elevated railway under construction Sukhumvit Road, Bangkok	Pedestrians hit by steel cable which fell from elevated rail platform	Steel cable	PM	Two injuries (Germans)

Results

Between November 1997 and July 1998, three deaths and 11 injuries were reported as a result of accidents involving falling objects from elevated construction sites in Bangkok, which have been detailed in Table 1. One of the deaths and eight of the injuries involved tourists. No near misses were reported. All of the incidents were involved with construction of elevated freeways or railways. Three of the accidents occurred at elevated freeway construction sites and four of the accidents occurred at elevated railway construction sites. Six of the falling objects involved in the accidents described were made of steel.

Discussion

This descriptive study or case series shares the limitations inherent to studies utilizing retrospective data sources not specifically designed for research; in this case, press reports. A second English language newspaper available in Thailand was not examined, however it is likely that both newspapers based their stories on the same official press releases. The findings of this study must however be interpreted cautiously as what is reported in newspapers may not always be accurate. It is almost certain that the press reports were very strongly biased towards accidents that caused more serious injuries or death. Hence, newspapers may not necessarily report all incidents, especially injuries and near misses, which may not be newsworthy. The period of the study was restricted to approximately one year. The study was also restricted to one city in one country and the results of this study should not be interpreted to mean that the

city or the country under study is particularly unsafe. In any event, given the large number of people residing in and travelling to Bangkok, deaths or injuries as a result of falling objects from elevated construction sites appeared relatively uncommon in Bangkok.

The study has provided some insight into the safety hazards, which may be faced by workers and the general public around elevated construction sites in Bangkok and what information is available through the news media. It follows other studies which have utilized similar sources to ascertain health and safety issues for tourists in Queensland, Australia (Wilks, Pendergast and Service, 1996), and risks posed by wild mammals in South Africa, both to travellers (Durrheim and Leggat, 1999) and also to workers in wildlife reserves (Leggat, Durrheim and Apps, 2000). There are a number of important features underlying the fatal and non-fatal accidents, which permit recommendations that may contribute to preventing future episodes.

In addition to death and injuries to local people, the death and injuries to tourists as a result of falling objects from elevated construction sites have been highlighted. Amongst the Southeast Asian countries, Thailand is one of the most popular tourist destinations, with 7.3, 7.8 and 8.7 million international visitors to the Kingdom for the years 1997, 1998, and 1999, respectively (Tourism Authority of Thailand, 2000). It is important that the general public are protected during the construction of elevated freeways and rail systems. Accidents involving objects, may have disastrous consequences when they fall from height. Many of the falling objects were heavy items made of steel.

The U.S. Occupational Safety and Health Administration (OSHA) previously produced a booklet on fall protection in the construction industry (OSHA, 1995). This deals with protection of employees from falling objects. Fall protection systems, which are discussed in this booklet (OSHA, 1995), include roadway and vehicular aisle covers, storage of materials to prevent them falling and the use of canopies and toe boards. It is important for construction companies to realise that the general public, including tourists, have no protection against falling objects and should be excluded from construction areas. Even motor vehicles or motor cyclist helmets afford limited protection against falling objects of any significant size, especially the size of those metal objects referred to in this study.

Conclusions

This study has shown that accidents and mishaps do occur around elevated construction sites in a large city like Bangkok, although injuries and death are relatively uncommon from such incidents, particularly given the size of the population of Bangkok and the number of tourists entering the city. However, better reporting mechanisms are needed. Care needs to be taken by construction companies involved with elevated freeway, railway or other high-rise projects, to investigate accidents involving falling objects and to take measures to reduce or eliminate their occurrence. Tourists and the general public should be vigilant around elevated construction sites and avoid these areas wherever possible. Travel health advisers should also include advice concerning personal safety abroad and tourist and local authorities should endeavour to promote and advocate construction site safety for tourists, workers and residents.

References

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