



方东平 刘洪玉

主编

清华大学建设管理丛书

Construction Management Series

清华大学国际工程项目管理研究院组编

Institute of International Engineering Project Management

Tsinghua University

建筑安全监督与管理

——国内外的实践与进展

方东平 黄吉欣 张剑 编著

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内容提要

本书系“清华大学建设管理丛书”之一,书中通过文献综述、专家访谈和现场调研等方法,对美国、英国、中国香港特别行政区及中国大陆的建筑安全监督与管理现状进行了总结和归纳。首先对美国 and 英国目前的建筑安全监督与管理模式进行了比较研究和历史分析,讨论了两国在解决建筑安全问题上的共同点和不同点及这些异同产生的原因;随后集中总结并讨论了香港特区的建筑安全监督与管理模式和历史发展,最后从中国建筑安全管理背景、建筑市场环境、建筑安全管理模式等三个方面分析了我国大陆建筑安全监督与管理中存在的主要问题,用演绎分析的方法对理想的建筑安全管理目标、策略和手段进行了探讨,并有针对性地提出了一个建筑安全管理模式的建议方案。

本书可供各级政府中从事建筑安全监督与管理的官员和施工企业领导人等参考,也可作为相关专业研究生和本科生的教材或教学用书。

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总序

从人类文明发端直至今天，建设事业始终保持着社会发展的基础地位。建设活动在为人类提供了更好的生存、生活、进化和发展的同时，也不乏因认识肤浅和违背科学而造成决策失误、管理失策，导致建设质量低劣、经济损失、人员伤亡、事故惨重之例；更有对自然环境不可恢复的破坏，对宝贵资源无法复得的浪费之惨痛教训。数百年来，世界各国在对本国建设事业和建设活动的管理过程中积累了丰富而宝贵的成功经验和失败教训，并结合各自的经济社会、文化政治特点形成了各种独特的管理模式和知识体系。

当前，我国正在进行着有史以来最大规模的工程建设，其规模之大在世界上也属罕见；可以预计，至少到 2020 年，我国都将持续地进行世界上几乎是最大规模的工程建设。然而，在工程建设管理科学和技术领域，我国基础薄弱、经验不足，理论研究尚待进一步深入系统，学科建设尚在探索成型之中。大建设为我国工程建设管理科学和技术的发展提供了不可多得的良好机遇，同时对其发展也提出了不可回避的严峻挑战。机遇来自挑战，挑战即是机遇。

面对机遇和挑战，清华大学于 2001 年在原外经贸部和学校领导的支持下成立了清华大学国际工程项目管理研究院。本院秉持高水平、国际化、开放式

的定位，主要致力于建设管理领域的科研、咨询和培训
工作。在近年来工作的基础上，本院组织编写这套
建设管理丛书，基本立意：立足国内，放眼世界，
针对我国建设管理的热点问题，借鉴发达国家和地区的
建设管理经验，从经济、管理、法律等多方位研究
探讨我国建设事业和工程建设活动的发展规律和趋势，
以及与其相适应的科学的管理模式，持续地为我国建
设事业的发展提供最新的研究成果和资讯，为工程建
设管理学科的发展构建一个高水平的学术交流论坛。

本套丛书尝试突出三个特色：一是兼收并蓄，欢
迎国内、国外的学者和专家用汉语或英语将自己相关
的研究成果和工程经验撰写成著；二是与时俱进，拟
伴随着我国建设小康社会的历程，在较长一段时期内
每年出版若干册，收揽各个阶段国内、国外建设管理
的重要思想和成果；三是实用创新，鼓励出版反映热
点、贴近实际的新理论、新方法和新观点。

殷切希望在广大作者和读者的大力支持下，本套
丛书能够在我国建设管理领域中成为——

汇集百家精华之文库，收藏时代印记之史鉴。

全国人民代表大会常务委员会委员

清华大学国际工程项目管理研究院院长 袁驷

清华大学土木水利学院院长

2004年11月于清华园

前言

中国近 4000 万的建筑工人是世界上最大的行业劳动群体。我国提出要在 2020 年实现全面建设小康社会的奋斗目标，其中建筑工人的安全生产是“小康社会”的重要标志之一。

不断改善建筑工人的安全生产状况，提高建筑安全生产水平，保障建筑工人的生命安全，政府有着义不容辞的责任。多年来，政府做了大量的工作以提高建筑业的安全生产水平，使建筑业的安全生产状况得到了很大的改善。然而，目前我国的建筑安全生产监督和管理工作中还存在许多问题。如监督与管理理念较为落后，效率不高；监督措施缺乏，管理手段单调，难以满足市场经济的要求；对违规行为缺乏有效的制约措施；良好的安全文化尚未形成等。2004 年 9 月的中国共产党十六届四中全会做出《中共中央关于加强党的执政能力建设的决定》，昭示着政治体制改革即将全面展开，为改革建筑安全监督与管理模式，推广先进的建筑安全监督与管理理念、方法和手段提供了一个良好的历史契机。

借鉴发达国家和地区的先进经验，是迅速提高我国建筑安全生产水平的重要途径。同时也应该注意到，一方面发达国家目前形成的建筑安全管理模式是上百年历史经验的总结，凝结着千百万劳动人民的

智慧和血泪，我国对建筑安全监督管理进行研究时，应该努力汲取精华、洋为中用。另一方面，中国与西方发达国家之间的政治经济体制和历史文化背景都有很大的差别，所以在借鉴国外的建筑安全监督与管理的实践经验时，需要非常谨慎地结合我国建筑安全的实际情况。此外，香港特别行政区由于特殊的历史原因，其建筑安全管理方面的经验对我国大陆建筑安全监督管理模式的发展与改革有较大的借鉴意义。本书综合比较了几个发达国家和香港特别行政区政府对建筑安全的监督与管理经验，然后结合我国的情况比较系统地探讨了政府对建筑安全的监督管理模式。

本书的基本内容如下：

第一章，概括了世界范围内建筑安全的现状，国内外学术界在建筑安全政府监督与管理方面的研究进展，并对本书的一些基本概念、主要理论和研究方法作了介绍。

第二章，对美国和英国政府的建筑安全监督与管理模式作了比较细致的总结和分析，并对各自的监督与管理模式作了比较。

第三章，介绍了香港特别行政区政府的建筑安全监督与管理的各种做法，尤其从历史沿革上分析了建筑安全监督与管理的变迁。

第四章，总结分析了我国建筑安全监督与管理中的现状和问题，并在前文研究的基础上结合我国建筑业的特点提出了建筑安全监督与管理模式的改革建议。

第五章，对本书的内容作了总结，并对建筑安

全监督与管理的发展，从国际、发达国家和发展中国家三个不同角度作了展望。

本书的主要内容来自（清华-金门）建筑安全研究中心完成的有关研究报告，作者在此对金门建筑有限公司长期的支持与协助表示衷心的感谢。还要感谢国家建设部、原香港工务局、香港劳工处、北京市建设委员会、上海市建筑质量安全监督总站、河北省建筑安全监督总站在这本书写作过程中给予的帮助。特别感谢建设部工程质量安全监督与行业发展司邓谦处长和原香港劳工处助理处长麦鸿骥先生，他们对本书进行了审稿工作，并提出了大量极有价值的意见和建议。

由于作者水平所限，书中难免有偏颇与疏漏之处，敬请读者批评指正。

作者

2004年11月于清华园

Executive Summary

With the further development of market economy and the revolution of political system, the planned economy philosophy and its system for managing construction safety, are no longer capable to cope with the present challenges facing construction industry in China. It is of paramount importance and urgency to review the nationwide construction safety management practices in a systematic way and prudently re-consider the major issues that obsess Chinese construction industry, and then to explore an appropriate model of managing construction safety, that inject new impetus into the safety agenda in China.

United States of America (USA) and United Kingdom (UK) are, amongst the others, the two most renowned western developed countries with long history, more than 100 years, in the field of managing construction safety. Whole complex of arrangements and activities, whether of a statutory or voluntary nature, which seek to protect and promote the safety and health of construction populace, have been well established and enhanced through recent years. Benchmarking their experiences and systems, that embedded with blood and sweat of millions of people, would have significant benefits on forging the management model of construction safety under the evolving market economy in China.

The social and economical development of Hong Kong Special Administrative Region of China has been greatly influenced by other developed countries especially the British Commonwealth of Nations. With relatively mature legislative framework in construction safety

management and the background of traditional Chinese culture, the experience and lessons learnt in respect of managing construction safety in Hong Kong were of great reference value.

Through literature review, experience survey and field study, this report summarized the national systems for managing construction safety in USA, UK, Hong Kong and Mainland China. Firstly, on the basis of the summarization, the systems for managing construction safety in USA and UK were studied and their evolutions were discussed. The similarities and differences between them as well as the ratiocination behind were deliberated. Thereafter, the approaches for managing construction safety and the developing history in Hong Kong Special Administrative Region of China were summarized and highlighted. At last, the safety management scenario in China, construction market force, current system for managing construction safety and existing major problems were discussed.

Basing on the investigation on the current systems and philosophical approach for managing construction safety in USA, UK, Hong Kong and Mainland China, this project aims at injecting new impetus to solve problems prevailing in the construction industry in Mainland China. After addressing the ideal vision, strategy and approach for managing construction safety, through qualitative reasoning research, pragmatic recommendations were put forward.

1. Establishing clear and appropriate vision

The Occupational Safety and Health Act 1970 of USA denote the vision: to assure safe and healthful working conditions for working men and women. On the other hand, the Health and Safety at Work etc. Act 1974 of UK seeks to protect and promote the safety and health of people at work, and to protect the public from hazards of industrial origin. The vision of Labour Department of Hong Kong Special Administrative Region of China is: to secure the safety and health of people at work, through ensuring that risks to their safety and health at work are properly managed, by legislation, education and promotion. The vision of Hong Kong Occupational Safety and Health Council is : to foster safe and healthy working

environment in Hong Kong by working in partnership with government, employers, employees, professionals and academics through education, publicity and research to inculcate safety culture and awareness at community level and to enhance safety performance.

Comparing with others, the vision of managing construction safety in China is not clear. Through comparison and analysis, it was suggested that the ultimate vision of managing construction safety should be to ensure the safety and health of each and every construction worker. Correspondingly, the recommended direct goal should be to exhort contractors to implement proper safety management system and stage initiatives to improve safety performance.

The vision of managing construction safety should be pitched at three levels. Firstly, the ultimate vision should be to ensure the safety and health of each construction worker. Secondly, three remedies, namely, sanction, compensation and accident prevention, can be used to meet the ends. The systemic combination and fluid deployment of the three remedies should be emphasized. Nevertheless, accident prevention is the main task. Thirdly, the government should declare clearly her vision and policy and then accomplish the mandate by setting the scene for exhorting contractors to implement effective and efficient safety management system and staging initiatives to enhance their safety performance.

2.Strategy of managing construction safety

Modern safety management philosophy of all - participation and whole process participation, advocated that only when the safety policy of an establishment is consistent with its business goals, the safety performance of the contractor could be improved.

To impact positive influence on the contractors, the strategic approach to manage construction safety should include:

Firstly, as part of the core business of a construction company, safety management agenda should be consistent with the other functions of the company. Through analyzing the economical attribute of safety , the characteristic of investment in safety and the

Model of Adverse Selection of construction safety, the reason for the poor safety performance of the construction industry had been identified. Furthermore, introduction of incentive insurance system and scheme of incorporating reasonable standard to evaluate and list the safety performance of the contractors were recommended.

Secondly, the construction market has interactions with others. Other than direct controls on the contractors, regulatory approaches towards others' activities might generate significant influence on the contractors' attitude and ways that they managed their own safety issue. In this research, it was noted that the sub - system that made up of the contractors, government, owners/developers, workers and insurers had the most powerful effect on the behavior of the contractor. What's more, there are three main components in this sub - system. The first one is the owners' /developers' exclusive influence on the contractors. The second one is the insurers' influence on the contractor. The third one is the inter - relationship amongst the government, contractors and workers. Thereupon, arising from the discussion about the three main components, some practical management strategies, such as affirming the safety responsibility of the owners/developers, exerting the exemplary effect of the public owners/developers, tripartite check and balance were advanced.

Thirdly, good management of construction projects was needed from conception to execution if high safety standard were to be maintained. Through analyzing the major activities of the contractors in the market, it is suggested that besides the actual construction period, safety management consideration should be emphasized during the tendering stage and annual enterprise evaluation periods. In particular, arrangement, preferably of statutory nature, to pre - select prospective contractors using safety competence as a criterion, to use safety plan to alert contractors to safety issues to manipulate post - tender examinations or similar procedures for verification, etc., should be established as quickly as possible.

3. Approach for managing construction safety

Through delving the various approaches for managing construction

safety, it was committed that four approaches, i.e., legislative, economical, cultural, and scientific and technological approaches, should be exerted synthetically. Nonetheless, it was asserted, through this research that all of the four aspects still had much room for improvement. Therefore, intensifying the economical approach first is the best viable option.

3.1 Legislative Approach

It was analyzed from three aspects of Legislative Framework, Institutional System and Enforcement and Supervisory Approach.

Firstly, the following issues relating to Legislative Framework were discussed. Safety legislations should be updated and kept pace with the development of the social economy. The best way to accommodate safety legislation and technical standard is to set the goals of the legislation in general clauses but to leave details to technical standard. The ideal legislative framework should include legislation, administrative orders and administrative regulations. Through the comparison between the Prescriptive Legislation and Performance - based Legislation, it was observed that the Performance - based Legislation is becoming more and more popular because it can cope with the rapid changing world. Based on the research of the construction safety experts all over the world, it was once more emphasized, in this episode, that all partners, such as owners/developers, contractors, designers, should bear corresponding legal liabilities in respect of safety and health. What's more, safety consideration must be addressed from the very beginning of the construction planning to the demolition of the buildings.

Secondly, following salient points, relating to institutional framework, were deliberated: a) it is recommended that liabilities and rights of the construction safety management organizations should be prescribed clearly; b) the pros and cons of having an authoritative body should have been detailed; c) supporting institutions should be established and d) adequate resources, both human and financial, should be allocated.

Thirdly, the contents below related to Enforcement and

Supervisory Approach were discussed. When deploying the slender enforcement resources, more attention should be paid on how to improve the effectiveness and efficiency of regulatory inspection. Proper priority could be accorded and better sanction could be achieved by considering size and tract record of the enterprises, hazards and risks involved, frequency of the inspection and the inspection methodology, etc. Through the discussion and comparison of "Deterrence" approach and "Compliance" approach, the Enforcement Pyramid was introduced to demonstrate how to properly adopt the suitable enforcement strategy. The enforcement issues related to the small and medium enterprises were also discussed.

3.2 Economical Approach

In the discussion about the economical approach, four occupational injury insurance systems in construction industry, "workers' compensation insurance", "employers' liability insurance", "construction accidental injury insurance" and "associated self insurance of the contractors", were summarized and discussed. It was pointed out the "construction accidental injury insurance" is the most practical one though there are rooms for improvement in schematic arrangement before putting into real practice. Alternatively "associated self insurance of the contractors" is the one with a lot of advantages. It can be put into trail run in some areas with the pre-conditions. Besides, some other economical incentive schemes, such as Pay for Safety Scheme (PFSS) in Hong Kong, were also cited.

3.3 Cultural Approach

In the discussion about the cultural approach, it was mainly pointed out that arrangements and activities, whether of a statutory or voluntary nature, such as education and training, promotion and publicity, contribution of partners and intermediaries, employees' involvement, assistance to enterprises to establish safety management system, etc., are conducive to inculcating safety culture and awareness of various strata. Furthermore, the role played by various parties and strategies adopted should be reviewed periodically to maximize the available resources.

3.4 Scientific and Technological Approach

In the discussion about the scientific and technological approach, it was pointed out first that the pivotal role of the scientific and technological approach should be recognized. Then the importance of systematic research schedule, full utilizations of research institutes, sufficient research findings, etc. were iterated.

In the epilogue of this report, there is a summation of all the major issues and recommendations, as well as, a prospective picture of construction safety management.

Keywords: Construction Safety, Occupational Safety, Safety Management, Law and Policy

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