



Construction Industry Advance and Change

Progress in Eight Asian Economies since 1995

Edited by
**Michael Anson, Yat Hung Chiang
Patrick Lam and Jianfu Shen**

 **AsiaConstruct**

Contributions From:

**Daisuke Hosoda
Chandima S. Karunaratne
Nagamine Yukinobu
Pham Van Bo
Krishna S. Pribadi
Madhuri Jyothi Rani
Biemo W. Soemardi
Chijoo Lee
Ahmad 'Asri Abdul Hamid
Ahmad Farrin Mokhtar
Che Saliza Che Soh
Nur Ima Zainol Abidin**

Construction Industry Advance and Change

This page intentionally left blank

Construction Industry Advance and Change: Progress in Eight Asian Economies Since 1995

EDITED BY

**MICHAEL ANSON, YAT HUNG CHIANG
PATRICK LAM AND JIANFU SHEN**

The Building and Real Estate Department of the Faculty
of Construction and Environment,
*Building and Real Estate Department, the Faculty of Construction
and Environment, Hong Kong Polytechnic University*



United Kingdom – North America – Japan – India – Malaysia – China

Emerald Publishing Limited
Howard House, Wagon Lane, Bingley BD16 1WA, UK

First edition 2022

Copyright © 2022 Emerald Publishing Limited

Reprints and permissions service

Contact: permissions@emeraldinsight.com

No part of this book may be reproduced, stored in a retrieval system, transmitted in any form or by any means electronic, mechanical, photocopying, recording or otherwise without either the prior written permission of the publisher or a licence permitting restricted copying issued in the UK by The Copyright Licensing Agency and in the USA by The Copyright Clearance Center. Any opinions expressed in the chapters are those of the authors. Whilst Emerald makes every effort to ensure the quality and accuracy of its content, Emerald makes no representation implied or otherwise, as to the chapters' suitability and application and disclaims any warranties, express or implied, to their use.

British Library Cataloguing in Publication Data

A catalogue record for this book is available from the British Library

ISBN: 978-1-80043-505-6 (Print)

ISBN: 978-1-80043-504-9 (Online)

ISBN: 978-1-80043-506-3 (Epub)



ISOQAR certified
Management System,
awarded to Emerald
for adherence to
Environmental
standard
ISO 14001:2004.

Certificate Number 1985
ISO 14001



INVESTOR IN PEOPLE

Chapter 7 Construction Industry Progress of South Korea: 1995–2019 <i>Chijoo Lee</i>	137
Chapter 8 Sri Lanka The Construction Industry: 1995–2019 <i>Chandima Swarnamali Karunaratne</i>	163
Chapter 9 The Vietnam Construction Industry: The 25 Years, 1995–2019 <i>Pham Van Bo</i>	183

About the Contributors

Nur Ima Zainol Abidin is the Senior Manager of the Business Division, Construction Industry Development Authority (CIDB) Malaysia. An Economist majoring in Business Management, she started her career with CIDB Malaysia in 2002. Her experience in CIDB includes the provision of current construction economic information and the analysis of trends. She is currently in charge of the development of construction sector information systems and involved in enhancing the CIDB's Big Data Analytics capability as well as promoting the export of construction-related services.

Michael Anson, Civil Engineer, Professor Emeritus, is a member of the Department of Building and Real Estate in the Faculty of Construction and Environment at the Hong Kong Polytechnic University. He was the first Dean of that Faculty, between 1992 and 2000. An Oxford University graduate in Engineering Science in 1959, he gained his Ph.D. from London University in 1962. Following 6 years with the Division of Building Research, CSIRO, in Australia and 17 years with Lancaster University, UK, in the Department of Engineering, 6 years as Head, he joined the then Hong Kong Polytechnic in 1988 as Head of its Department of Civil and Structural Engineering. His research interests and publications mainly divide between concrete structures design and factors affecting the productivity of concreting on site.

Che Saliza Che Soh is an Economist and General Manager of the Business Division, Construction Industry Development Authority (CIDB) Malaysia. She has more than 20 years of experience in the provision of strategic construction information for policies formulation and strategic business planning purposes. In performing this role, she is responsible for the gathering and analysis of construction data, identifying and disseminating trends and reviewing construction sector performance as well as promoting the export of services relating to construction.

Dr Y. H. Chiang, Quantity Surveyor, retired from the Hong Kong Polytechnic University as Professor in the Department of Building and Real Estate in 2020. On his move to the University in 1990, having served the Hong Kong Government as a Quantity Surveyor for 10 years, he taught Construction Economics, mainly, and carried out and published research in the field of competition and performance of the construction sector and its firms. He has undertaken consultancy studies commissioned by the Hong Kong Government and other public bodies including the Construction Industry Council and the Construction Innovation and Technology Fund.

Ahmad ‘Asri Abdul Hamid, the current Chief Executive of Construction Industry Development Authority (CIDB) Malaysia, spent over 36 years in the construction mechanical industry, 13 of them in the post of Engineer in the Public Works Department between 1985 and 1998. He was President of the Professional Services Development Corporation from 2008 to 2011. During his 20 years with the CIDB, he headed various units and divisions as General Manager and Senior General Manager before becoming Chief Executive. He has contributed to the development and implementation of CIDB strategic plans, the Construction Industry Master Plan and the Construction Industry Transformation Programme. He represents Malaysia on many international construction-related platforms and is active on national committees and councils.

Daisuke Hosoda, Social Scientist, has been a Researcher at the Research Institute of Construction and Economy, since September 2019. He was awarded his degree in Social Science from Ritsumeikan Asia Pacific University in 2005, before joining Penta-Ocean Construction Co., Ltd. in the same year. After experience in its domestic branch offices for seven years, he was transferred to the Malaysia branch office in May 2012 to work as a Site Administration Manager. He then moved to the Singapore branch office in 2013, also as an Administration Manager, where he was involved in several construction projects including a subway project, a port construction project and others.

Chandima Swarnamali Karunaratne, Civil Engineer, is a Deputy Director of Sri Lanka’s Construction Industry Development Authority (CIDA). She joined the Institute of Construction Training and Development in 2005, the forerunner of CIDA, contributing for the last 15 years to training itself and to construction industry development including national awards schemes and disputes mediation and supporting advice. She worked in construction between 1991 and 1994, on roads and water supply and drainage, before spending 11 years in civil engineering teaching at the Katunayaka Technician Training Institute, including seconded experience in Australia and Germany. She took her Bachelor degree in Engineering (Civil) at the Open University of Sri Lanka in 1996. In 2002, she gained a post graduate diploma in Construction Management and is currently studying Geotechnical Engineering at post graduate level.

Dr Patrick T. I. Lam, Quantity Surveyor, Builder and Engineer, served in the private sector, with consultants and a contractor with a development arm, before joining the academic world. He recently retired from his Professorship at the Hong Kong Polytechnic University, where he led a well-subscribed M.Sc. programme in Project Management. His research interests are in contractual and construction cost issues, buildability, quality assurance, specifications, project financing, renewable energy and smart cities. His publications in these areas are frequently cited and awards have been granted for his teaching, research and service to industry.

Chijoo Lee, Architectural Engineer, is an Associate Research Fellow at the Construction Economy and Industry Research Division of the Korea Research Institute for Human Settlements in South Korea. He obtained his Ph.D. degree in Architectural Engineering from Yonsei University and is a former Research Professor in Pohang University of Science and Technology. His main research areas are in building information modeling (BIM), economic analysis, data analytics, construction automation, modular construction, green building and construction policy. He is author of more than 15 refereed journal and conference publications. His research goal is to contribute to construction policy and develop technologies for the construction industry.

Ahmad Farrin Mokhtar, is the Senior General Manager of the Corporate and Policy Sector, Construction Industry Development Authority (CIDB) Malaysia. He is responsible for matters related to strategic planning and corporate affairs as well as the development and execution of policies to advance the construction industry. He has over 29 years of experience in the construction industry, including 9 years in quantity surveying and contract management for private sector projects. He has headed various divisions in CIDB and publishes articles on construction technology and policy implementation.

Yukinobu Nagamine, Civil Engineer, an Executive Fellow at the Research Institute of Construction and Economy (RICE) since July 2019, received his Master degree in Civil Engineering in 1994 from Hokkaido University. He commenced employment with the National Land Agency of the Cabinet Office within the Japanese Government (now, the Ministry of Land, Infrastructure and Transportation) in 1994. He has also worked with UN-HABITAT and the Tokyo Metropolitan Government. Before joining RICE, he was seconded to the Reconstruction Agency of the Japanese Government involved in mitigation and other work following the great East Japan earthquake. He is a member of the City Planning Institute of Japan.

Krishna S. Pribadi, certified Project Manager, is currently Professor and Chair of the Construction Engineering and Management Research Group at the Bandung Institute of Technology. He served as Vice Chair of Research and Development, Training and International Collaboration for the National Construction Service Development Board between 2016 and 2020. A graduate from Institut National des Sciences Appliquées, Lyon, France in 1985 his research interests include construction industry development, human resource development and disaster mitigation in the construction sector and business continuity planning. He is a certified mediator in conflict resolution, with more than 20 years of experience in construction project management and in directing research projects and investigations.

Madhuri Jyothi Rani, a Social Development Professional with over three decades of experience in Capacity and Institutional Building in the Construction Sector, holds a Master's degree in Business Administration from the University of

Delhi. She is a certified Life Coach, Alternate Medicine and Pranic Healer. As Deputy General Manager (Projects) at the Indian Construction Industry Development Council (CIDC) she has initiated pan-Indian skill development training programmes, and organised more than 50 national and international conferences. During those years, she has collaborated with the Governments of Bhutan, Indonesia and Sri Lanka and many organisations and universities around the world and participated in many conferences and workshops to promote the Indian Construction Industry and new technologies. She has wide cultural interests and is a supporter of holistic living, value-based education and sustainable development.

Jianfu F. Shen, Economist, completed his Ph.D. degree in Real Estate Finance at The University of Hong Kong. He obtained his Bachelor degree in Land Management and his Master degree in Finance from Renmin University of China in Beijing. He is a certificated Financial Risk Manager and Chartered Financial Analyst. He joined the Department of Building and Real Estate, The Hong Kong Polytechnic University in June 2019. He teaches Construction Economics, Construction Finance, Housing Studies, Development Finance, Business Valuation and Project Appraisal. His major research interests lie in real estate finance/economics, urban studies and capital markets.

Biemo W. Soemardi, certified Project Manager, was the Chair of the Committee for Research and Development at the Construction Service Development Board, between 2016 and 2020 and has been a member of the Research Commission for the Board of Higher Education, the Ministry of Research Technology and Higher Education. Dr. Soemardi joined Bandung Institute of Technology in 1991 and is currently an Associate Professor in Construction Engineering and Management. His research interests include project management, contract and legal aspects and the application of technology in construction. He has published more than 30 articles in conferences and scientific journals. He has more than 20 years of project management consultancy experience.

Pham Van Bo, Economist, is Vice President of the Academy of Construction Managers for Construction and Cities. He took his B.A. in Economics at the Hanoi Commercial University in 1988, an M.B.A. in Economics at the National Economics University in the year 2000 and in 2005 in India, his Ph.D. in Economics at the Jamia Millia Islamia, New Delhi. He has published many scientific articles and conference reports, two books and at Ministerial Level has directed four scientific topics. He is currently Project Director of the international project, 'Institutional Strengthening and Capacity Building for Sustainable Urban Development'.

Foreword

This book has been written to mark the first 25 years of existence of the AsiaConstruct Conference.

The AsiaConstruct Conference, an annual meeting of Asian Construction Industry representatives, exists to promote mutual knowledge, to recognise and discuss factors affecting industry performance and share information on recent trends and progress. The book participants are organisations representing the Hong Kong Special Administrative Region of China and the seven countries of India, Indonesia, Japan, Malaysia, South Korea, Sri Lanka and Vietnam. The first conference was held in November 1995. Each chapter in the book relates to each of these eight construction economies for the period 1995–2019.

The Research Institute of Construction and Economy, Japan had the privilege of hosting the first 1995 AsiaConstruct Conference in Japan and is pleased, therefore, to be accorded the honour of writing the Foreword to this book. The project was conceived in Kuching, Malaysia, in November 2018. A publisher was then found, followed by project confirmation in Madurai, India, in November 2019. Professor Mike Anson, representing the Hong Kong Polytechnic University Team was appointed Coordinator by the AsiaConstruct leadership. His continuing dedicated efforts in that role, with his team, are warmly acknowledged.

All eight contributors are regular attenders at the annual AsiaConstruct Conference hosted in rotation by network members. AsiaConstruct exists, ‘within a spirit of friendship and cooperation’, to share knowledge among its members, of construction industry practice, progress, difficulties and standards, including the construction market, methods of procurement, resources provision, standards of constructed quality, site safety, productivity and others, as they apply in the different countries. At the annual conference, alongside a paper on a topic chosen by the host country (e.g. financing construction, resources supply and disaster management), each country also submits a construction economics report for the year, providing up to date statistics on the construction market, construction investment, labour and materials costs and trends, the proportions of private and public investment and contributions to gross domestic product (GDP).

In the same spirit of sharing knowledge, the eight main chapters outline 25 years of recent construction industry progress in Hong Kong, India, Indonesia, Japan, Malaysia, South Korea, Sri Lanka and Vietnam. Chapter 1, an overview chapter, identifies concerns common to all eight industries on the one hand and the more unique concerns which exist, on the other. For example, land shortage stands out as a serious constraint in Hong Kong.

The eight chapters differ considerably in the emphasis placed on the different factors affecting industry progress and performance, although all are unified in their ambition to employ the new Information and Communication Technologies (ICT) to the maximum useful extent in the coming years. Japan, for example, says much about the consequences of the massive earthquake of 1995 and the 2011 major earthquake and tsunami event. India, very large scale, is notable for its programme to develop 100 smart cities with differing focusses. The chapter by Hong Kong, a single city, is at a totally different level of detail. Indonesia is a big population country, and one widely dispersed geographically with many islands. The eight chapters also divide between economies with high levels of GDP per capita and those with lower levels.

This book is intended as an interesting ‘good read’ for the construction professional or student of construction, interested in a broad appreciation of the contribution made by construction industries to the economic progress of the nations they serve, the issues of quality, productivity, safety and resourcing which affect that progress and the differences which exist between the industries of different countries. All construction industries have the same general objectives, but unlike the car industry, for example, all are ‘home grown’ long-term derivatives of the local culture, history and geography, economic circumstances and economic and political ideologies.

Indeed, this book is not without interest to *any citizen*, immersed in the outputs of his/her construction industry and concerned for the surrounding built environment, but is most likely to engage construction industry professionals with wide interests and construction industry development policy makers within governments. The book is not a scholarly reference work of the type sought by academic researchers containing large amounts of comparative statistical data, but remains not irrelevant to such persons.

I hope all readers will enjoy this book and widen their understanding of construction industry progression and achievement, and of the attendant constraints affecting them.

OZAWA Keiichi

Ozawa Keiichi

President
The Research Institute of Construction and Economy (RICE)
Tokyo, JAPAN



February, 2021

Acknowledgements



This book is an Initiative of AsiaConstruct, first mooted 2018 in Kuching, Malaysia, and confirmed in Madurai, India, in 2019.

This page intentionally left blank

The Eight Chapter Contributing Organisations

The Building and Real Estate Department of the Hong Kong Polytechnic University

The Department of Building and Real Estate (BRE) has the longest history, and is the largest of its kind in Hong Kong, in terms of the student body and numbers of academic staff. It was a founding constituent of the 1937 Government Trade School, a precursor of the Hong Kong Polytechnic University and has evolved into the major tertiary institution it is today. BRE provides a comprehensive range of courses up to doctorate level, including building engineering, construction law and disputes resolution, facility and project management, international real estate and surveying. Most undergraduate students are local. Of those taking the post-graduate taught and research courses, however, an increasing and significant proportion are students from Mainland China and other parts of Asia. BRE has organised itself around, and undertaken research and consultancy work in, economics, management, technology and urban sustainability policy, the four broad disciplines of the building and real estate sectors. In the 2021 QS World University Ranking by Subject, the University ranked 18th in the world in the field of Architecture/Built Environment. The BRE strives to continue providing competitive courses and game-changing research outputs, particularly for the building and real estate industries.

Construction Industry Development Council, India

In 1996, the Planning Commission, Government of India, jointly with the Construction Industry, set up the Construction Industry Development Council (CIDC) to advance the Indian construction industry. CIDC, the first organisation of its type in India, has branches across the whole country, in providing the impetus to raise quality levels across the industry and helping to secure a wider awareness of the importance of construction businesses and their concerns, by government and society. CIDC is an agent of change towards a more competitive, quality conscious and equal opportunity industry, ready for the future, contributing to societal goals and nation building. Since 1996, Council initiatives include the following:

Advising Government on industry and financing policies, standardising construction contracts and procedures, training skilled worker and management

manpower, grading construction businesses, devising worker welfare mechanisms, establishing a pool of construction equipment and a contract disputes resolution service, promoting emerging technologies and best practices, assisted by the CIDC Viswakarma awards for achievement and creating a database of consultants, manufacturers, suppliers and service providers for robust procurement purposes.

The Construction Services Development Board, Indonesia

The economic crisis that hit Indonesia in 1998 resulted in an economic slump, including a slump within the construction industry. Following this downturn, reforms were carried out on various aspects of governance; Law No. 18 of 1999, being the one concerning construction services. Under this law, the Construction Services Development Board – CSDB (LPJK) became an entity to promote the development of the national construction industry. As an independent institution, CSDB had representative members from the professional associations, construction company associations, government and universities. After more than 20 years of working in this very dynamic industry, under Law No. 2 of 2017, the pendulum swung back to closer government control of the development of the national construction industry. In its new form today, CSDB is part of the government bureaucracy under the Ministry of Public Works and Housing, and its function is limited to the registration of construction workers and business entities. Its other functions, such as research and development, training and education and professional and business certification have been transferred to other institutions.

The Research Institute of Construction and Economy, Japan

The Research Institute of Construction and Economy (RICE), was established in September 1982 as a non-profit and independent research organisation to conduct theoretical and empirical studies, chiefly on the subjects of construction investment (including public and private investment), construction industries, housing and urban issues, national land policy and others. Besides that, RICE studies trends in overseas construction markets and has conducted case studies research by exchanging information with foreign organisations and by study of the literature. Reports of its activities are periodically released in such publications as Construction Economy Report (Japanese Economy and Public Investment), Construction Investment Forecasts, Analysis of the Settlement of Accounts of the main Japanese construction corporations and the RICE monthly magazine.

As a major collector, verifier and analyst of information on the performance of the Japanese domestic and overseas construction industries, RICE will continue to fulfil its ‘think tank’ role and contribute to the development of new policies and ideas which advance the industry.

The Construction Industry Development Board, Malaysia

The Construction Industry Development Board (CIDB) Malaysia is a Federal Statutory Body under the Ministry of Works, established under the Construction

Industry Development Board Act 1994 (Act 520) to develop, regulate, enforce and execute tasks and functions related to the Malaysia construction industry. With the primary vision of becoming the leading authority on solutions for developing a socially and environmentally responsible industry, CIDB has taken initiatives and implemented wide ranging programmes of activities to enable the industry and enhance its capacities and capabilities, including those of the workforce. This includes emphasis on such key aspects as built quality, safety and a culture of professionalism as well as the continuous adoption of modern practices and technologies. CIDB serves as a construction data depository agency nationwide, in relation to contractor registration, construction personnel registration and declarations of construction work.

The Korea Research Institute for Human Settlements, South Korea

Korea Research Institute for Human Settlements (KRIHS) was established in 1978 to contribute to the balanced development of the national territory and to improve the quality of life of the people through policy-oriented research in the efficient use, development and conservation of territorial resources. KRIHS conducts practical research exploring mid- to long-term national agendas to both lead and support government policies including territory-related social issues. The institute studies land use and its conservation, urban and regional planning, housing and land policies, transportation, construction economics, the environment, water resources and geographic information systems in the relation to issues affecting the Northeast Asian region and Korean territorial policies.

The Construction Economy and Industry Research Division of KRIHS undertakes studies aiming to advance the construction industry and its international competitiveness. It focusses on capacity building for domestic construction, public-private partnership projects and on overseas construction. The Division comprises the Fair and Innovative Construction Research Center and the Public-Private Partnership Research Center covering (a) construction economic trends, production systems, contract management, warranties and smart technologies; (b) public-private partnership project success factors such as the appropriate qualifications, feasibility studies, proposal evaluation, negotiation processes and project operational management; and (c) planning for such as small-scale infrastructure modularisation and overseas expansion support for small and medium sized enterprise.

Construction Industry Development Authority, Sri Lanka

The Construction Industry Training Project (CITP), funded by the World Bank was established in 1981 for the purpose of developing the human resources needed by the construction industry. The CITP was succeeded by the Institute for Construction Training and Development (ICTAD) in 1986, and re-established in 1992 as a State Corporation under the provisions of the State Industrial Corporations Act No. 49 of 1957, by the Gazette notification number 718/15 dated 10.06.1992.

The Construction Industry Development Act No. 33 came into operation in December 2014, providing the legal basis underpinning the development of the construction industry in Sri Lanka. More specifically, the Act provides the means to regulate, register, formalise and standardise procedures and activities in the construction industry. It established a National Advisory Council to guide the process, the Construction Industry Development Authority (CIDA) and the Construction Industry Development Fund for the CIDA, and among other matters, is intended to ensure the well-being of all stakeholders, professional persons and craftsmen. The Act also provides for the settlement of disputes among stakeholders and introduces measures relating to safety and others.

Academy of Managers for Construction and Cities, Vietnam

The Academy of Managers for Construction and Cities (AMC), established in July 1975, is a public service institution under the Ministry of Construction, operating on a national scale in the fields of short-term training courses for cadres; research and consultancy relating to urban development and construction management.

Its main functions are to (a) organise training courses for officials and employees of the construction industry, urban managers at all levels and for those involved in construction activities themselves; (b) disseminate construction-related legal regulations; (c) conduct research into applications of advanced technologies and managerial science; and (d) participate in the compilation of legal regulations and conduct other public services related to the functions of the Ministry.

The Academy's Headquarters is located in Hanoi in the north of the country. The two main supporting centres are located in Ho Chi Minh City in the south and Danang in the centre of Vietnam.

Examples of influential projects undertaken by the Academy include 'Building better cities through better urban managers' funded by the World Bank (2011–2014), 'Training of capacity building in construction management and urban development for leaders and, urban managers at all levels in the period 2010–2020' (Decision No. 1961/QĐ-TTg by the Prime Minister) and 'Institutional Strengthening and Capacity Building for Urban Development in Vietnam' sponsored by SECO, Switzerland, through UNHABITAT (2020–2025).