GREGORY COUTAZ

COPING WITH DISASTER RISK MANAGEMENT IN NORTHEAST ASIA

ECONOMIC AND FINANCIAL PREPAREDNESS IN CHINA, TAIWAN, JAPAN AND SOUTH KOREA

COPING WITH DISASTER RISK MANAGEMENT IN NORTHEAST ASIA

This page intentionally left blank

COPING WITH DISASTER RISK MANAGEMENT IN NORTHEAST ASIA: ECONOMIC AND FINANCIAL PREPAREDNESS IN CHINA, TAIWAN, JAPAN AND SOUTH KOREA

BY

GREGORY COUTAZ

Chinese Culture University, Taiwan



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

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

First edition 2018

Copyright © Emerald Publishing Limited, 2018

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: 978-1-78743-094-5 (Print) ISBN: 978-1-78743-093-8 (Online) ISBN: 978-1-78754-507-6 (Epub)



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

INVESTOR IN PEOPLE

Certificate Number 1985 ISO 14001

Contents

List of Abbreviations

	T . 4	1	1
Chapter 1		duction	1
	1.1	Addressing the Threat of Natural Disasters	2
	1.2		4
		Hazard, Risk, and Disaster	6
	1.4	Tragedy or Opportunity	7
	1.5	About this Book	10
	Refe	rences	13
Chapter 2	Fina	ncing Natural Disasters	17
	2.1	Comprehensive Disaster Risk	
		Management Strategy	18
	2.2	Pre-Disaster Budgetary Measures	21
	2.3	Insurance and Reinsurance	23
	2.4	Catastrophe (CAT) Bonds	24
	2.5	Making a Difference	26
	2.6	Conclusion	27
	Refe	rences	28
Chapter 3	Chin	a: Disaster Preparedness, Response, and Recovery	31
-	3.1	The Great Sichuan Earthquake	32
	3.2	Economic Development and Urbanization	34
	3.3	Climate Change and Agriculture Losses	35
	3.4	Compact Institutional System	37
	3.5	The Role of the PLA in Disaster Response	39
	3.6	Central Public Funding	41
	3.7	The Lack of Insurance Coverage	43
	3.8	Building Resilience in Shanghai	47
	3.9	Where is the Civil Society?	52
	3.10	Conclusion	54
	Refe	rences	55

ix

Chapter 4	Evol	lution of Disaster Risk Management in Taiwan	61
1	4.1 Natural Disasters in Taiwan		62
	4.2	Disaster Risk Management before 1999	64
	4.3	The 921 Earthquake Revolution	65
	4.4	Taiwan Residential Earthquake	
		Insurance Fund: Residential Earthquake	
		Financial Protection	69
	4.5	The Formosa Re CAT Bond	72
	4.6	Deadly Morakot	73
	4.7	Public Budgets and Emergency Funds	75
	4.8	Importance of Charitable Donations	79
	4.9	Conclusion	81
	References		81
Chapter 5	Livi	ng with Natural Disasters in Japan	85
-	5.1	Recognition of Japanese Expertise in Disaster	
		Risk Management	86
	5.2	Public Awareness and Education	88
	5.3	Japan Earthquake Reinsurance Co. Ltd. and	
		Cooperative Mutual Insurers	90
	5.4		95
	5.5	Triple Disaster of the Tohoku	
		Earthquake and Tsunami	98
	5.6	Post-Disaster Reactions	101
	5.7	Cost of Protection	103
	5.8	Conclusion	106
	Refe	prences	107
Chapter 6	Sou	th Korea: Vulnerability and Adaptation to	
	Natural Disasters		111
	6.1	Risk Identification	112
	6.2	The Impacts of Past Disasters	114
	6.3	Modernization of the Legal System	115
	6.4	Institutional Framework	117
	6.5	Disaster Insurance Schemes	120
	6.6	Environmental Protection	123
	6.7	Political and Social Obstacles	126
	6.8	Conclusion	130
	Refe	rences	131

Chapter 7	Need for Financial Preparedness	133
	7.1 Promoting Disaster Risk Awareness	134
	7.2 Public–Private Partnerships	136
	7.3 International Practices	138
	7.4 Regional Initiatives	141
	7.5 Conclusion	144
	References	145
Chapter 8	Conclusion	147
	8.1 Similarities and Differences Observed	150
	8.2 Limited Private Participation	154
	8.3 Indispensable Commitment	155
	References	158
	Index	159

This page intentionally left blank

List of Abbreviations

AADMER	ASEAN Agreement on Disaster Management and Emergency
	Response
ADB Adrfi	Asian Development Bank
ARC	ASEAN Disaster Risks Financing and Insurance Programme
ARE	African Risk Capacity ASEAN Regional Forum
ARF ARF DiREx	ASEAN Regional Forum Disaster Relief Exercise
ARF DIKEX	Alternative Risk Transfer
ASEAN	Association of Southeast Asian Nations
BAU	Business-As-Usual
CCFVI	
·	Coastal City Flood Vulnerability Index
CCP	Chinese Communist Party
CCR	Caisse Centrale de Réassurance (France)
CCRIF	Caribbean Catastrophe Risk Insurance Facility
CDSCHQ	Central Disaster and Safety Countermeasures Headquarters (South Korea)
CEA	California Earthquake Authority
CIRC	China Insurance Regulatory Commission
CRED	Centre for Research on the Epidemiology of Disasters
CREIP	China Residential Earthquake Insurance Pool
DMZ	Korean Demilitarized Zone
DPP	Democratic Progressive Party (Taiwan)
DPRK	Democratic People's Republic of Korea
DSCHQ	Disaster and Safety Countermeasures Headquarters (South
	Korea)
ECFA	Economic Cooperation Framework Agreement
ECLAC	Economic Commission for Latin America and the Caribbean
	(United Nations)
EEW	Earthquake Early Warning (Japan)
EEWS	Earthquake Early Warning System (Taiwan)
EM-DAT	Emergency Events Database
EQC	Earthquake Commission (New Zealand)
ESCAP	Economic and Social Commission for Asia and the Pacific
	(United Nations)

x List of Abbreviations

FAO	Food and Agriculture Organization (United Nations)
FARD	Frequency Analysis Rainfall Data (South Korea)
FEMA	Federal Emergency Management Agency (United States)
GDP	Gross Domestic Product
GHG	Greenhouse Gas
GIS	Geographic Information System
HA/DR	Humanitarian Assistance/Disaster Relief (activities)
IDNDR	International Decade for Natural Disaster Reduction (United Nations)
IFRC	International Federation of Red Cross/Red Crescent Societies
ILS	Insurance-Linked Securities
IMF	International Monetary Fund
INES	International Nuclear and Radiological Event Scale
IPCC	Intergovernmental Panel for Climate Change
JER	Japan Earthquake Reinsurance
JMA	Japan Meteorological Agency
JP¥	Japanese Yen
KACCC	Korean Adaptation Center for Climate Change
KIRI	Korea Insurance Research Institute
KMT	Kuomintang (Taiwan)
KRW	South Korean Won
METI	Ministry of Economy, Trade and Industry (Japan)
MEXT	Ministry of Education, Culture, Sports, Science and
MEXT	Technology (Japan)
MOOTW	Military Operations Other Than War
MoU	Memorandum of Understanding
NCDR	National Committee for Disaster Reduction (China)
NCREE	National Center for Research on Earthquake Engineering
	(Taiwan)
NDMI	National Disaster Management Research Institute
	(South Korea)
NDRC	National Development and Reform Committee (China)
NEMA	National Emergency Management Agency (South Korea)
NGO	Non-Governmental Organization
NHK	Nippon Hoso Kyokai
NHMP	National Hazard Mitigation Program (Taiwan)
NHRA	Natural Hazards Risk Atlas
NT\$	New Taiwan Dollar
NZ\$	New Zealand Dollar
OECD	Organization for Economic Cooperation and Development
P&C	Property and Casualty
PCRAFI	Pacific Catastrophe Risk Assessment and Financing Initiative
PCRIC	Pacific Catastrophe Risk Insurance Company
PICC	People's Insurance Company of China
	respire a mode and company or china

PLA	People's Liberation Army
РРР	Public–Private Partnership
PRC	People's Republic of China
RCSC	Red Cross Society of China
RMB	Renminbi (China)
RMS	Risk Management Solutions
ROC	Republic of China
ROK	Republic of Korea
SDF	Self-Defence Forces (Japan)
SEADRIF	Southeast Asia Disaster Risk Insurance Facility
SPNDA	Standard Procedure for Natural Disaster Assistance (Taiwan)
SPV	Special-Purpose Vehicle
TAPEX	Taiwan Cooperative Precipitation Ensemble Forecast
	Experiment
TCIP	Turkish Catastrophe Insurance Pool
TDRS	Tsunami Disaster Response System (South Korea)
TELES	Taiwan Earthquake Loss Estimation System
TEPCO	Tokyo Electric Power Company
TREIF	Taiwan Residential Earthquake Insurance Fund
TRY	Turkish Lira
TTFRI	Taiwan Typhoon and Flood Research Institute
UNDHA	United Nations Department of Humanitarian Affairs
UNFCCC	United Nations Framework Convention on Climate Change
UNICEF	United Nations Children's Fund
UNISDR	United Nations Office for Disaster Risk Reduction
USDA	United States Department of Agriculture
WEF	World Economic Forum