Climate Change and Adaptation Planning for Ports

Adolf K.Y. Ng

Department of Supply Chain Management
I.H. Asper School of Business
University of Manitoba
Winnipeg, Manitoba, Canada

E-mail: adolf.ng@umanitoba.ca

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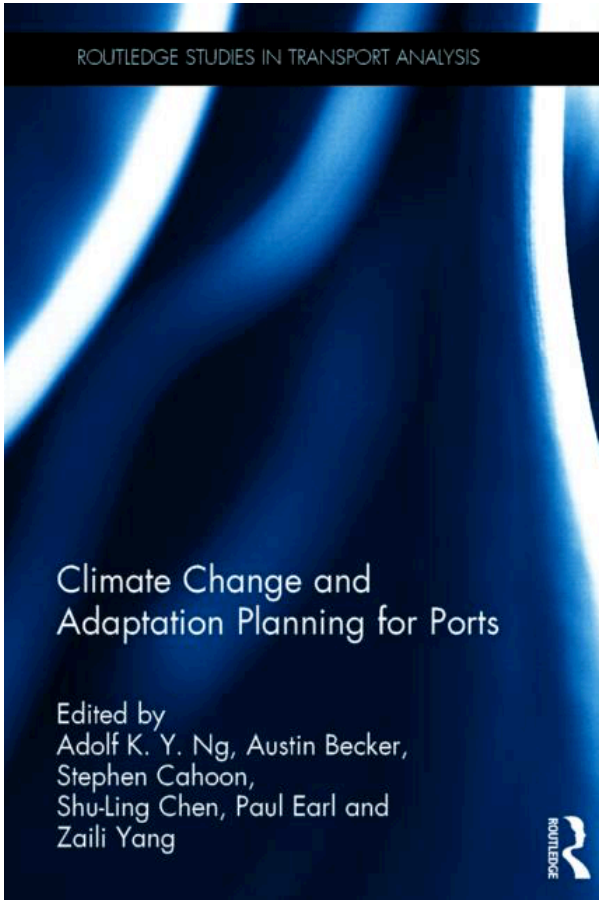
adolf.ng@umanitoba.ca

Climate Change and Adaptation Planning for Ports (2016)



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THEORY AND METHODOLOGY

1. Time to Act: The Criticality of Ports in Adapting To the Impacts Posed By Climate Change 2. Seaport Adaptation for Climate Change: The Roles of Stakeholders and the Planning Process 3. Analyzing Risks Posed By Climate Change on Ports: A Fuzzy Approach

LOCAL EXPERIENCES – NORTH AMERICA

4. Climate Change and Adaptation Strategies of Canadian Ports and Shipping: The Case of the St. Lawrence- Great Lakes System 5. Climate Change and the Adaptation Planning Of Inland Port and Rail Infrastructures in the Province Of Manitoba in Canada 6. The Impacts of Hurricane Sandy on the Port Of New York and New Jersey: Lessons Learned For Port Recovery and Resilience

LOCAL EXPERIENCES – EUROPE

7. Climate Adaptation of German North Sea Ports: The Example of Bremerhaven 8. Port Planning and Climate Change: Evidence from Italy

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LOCAL EXPERIENCES – ASIA

9. Adaptation to an Increase in Typhoon Intensity and Sea Level Rise by Japanese Ports 10. Modeling and Evaluation of Green Port Development: A Case Study on Tianjin

LOCAL EXPERIENCES – LATIN AMERICA

11. Terminal Maritimo Muelles El Bosque, Cartagena, Colombia 12. Climate Change Adaptation in the Panama Canal

LOCAL EXPERIENCES – AUSTRALIA AND OCEANIA

13. The Impact of Climate Change on Australian Ports and Supply Chains: The Emergence of Adaptation Strategies 14. A Decision Support Toolkit for Climate Resilient Seaports in the Pacific Region

ADAPTATION AS OPPORTUNITIES – ARCTIC DEVELOPMENT

15. Canada's Arctic Shipping Challenge: Towards A 21st Century Northwest Passage 16. Arctic Transportation and New Global Supply Chain Organizations: The Northern Sea Route in the International Economic Geography

CONCLUSION, PROPOSED RESEARCH AGENDA AND COLLABORATION

17. The State Of Climate Adaptation for Ports and the Way Forw

Adolf K.Y. Ng, Asper School of Business, University of Manitoba
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adolf.ng@umanitoba.ca

Economic Analysis

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Port investments on coastal and marine disasters prevention: Economic modeling and implications

Yi-bin Xiao [a], Xiaowen Fu [b,*], Adolf K.Y. Ng [c], Anming Zhang [d]

[a] School of Mathematical Sciences, University of Electronic Science and Technology of China, China
[b] Institute of Transport and Logistics Studies, University of Sydney, Australia
[c] Department of Supply Chain Management, I.H. Asper School of Business, University of Manitoba, Canada
[d] Sauder School of Business, University of British Columbia, Canada

Economic Analysis

- Scenario 1: Early investment (*period 1*) with individual investment decision
- Scenario 2: Late investment (*period 2*) with individual investment decision
- Scenario 3: Early investment (*period 1*) and coordinated investments maximizing joint profits of the port and terminal
- Scenario 4: Late investment (*period 2*) and coordinated investments maximizing joint profits of the port and terminal

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Economic Analysis

- If the probability of negative impacts ('disasters') is large in the foreseeable future ('period 1'): (private) port stakeholders would be better off with early investments, and coordinated by government

- Low (or implicit) in the foreseeable future: then investments should be postponed to long term ('period 2')

- Neither too high nor too low ('uncertainty') in the foreseeable future: should invest early, but government coordination may NOT be the best solution

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Economic Analysis

- The problem of government coordination in this case:
  - Ambiguous (and sometimes ambivalent) interests and objectives ~ difficult to identify priorities under budgetary and other constraints
  - The 'free-ride' problem
  - Institutional constraints and 'path-dependent' practice

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Work Plan

- Global Survey: Responses obtained, analysis ongoing, and manuscript draft will be ready for review soon

- Consolidate the research consortium

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