ECONOMIC AND SOCIAL COMMISSION FOR ASIA AND THE PACIFIC

MONOGRAPH SERIES ON MANAGING GLOBALIZATION

REGIONAL SHIPPING AND PORT DEVELOPMENT STRATEGIES

(Container Traffic Forecast)

UNITED NATIONS
REGIONAL SHIPPING AND PORT DEVELOPMENT STRATEGIES

(Container Traffic Forecast)
This study was prepared under the Memorandum of Understanding between UNESCAP and the Korea Maritime Institute, signed in 1998, in collaboration with the Asia Pacific Economic Cooperation (APEC).

The views expressed in this publication are those of the authors and do not necessarily reflect the views of the United Nations Secretariat.

The designations employed and the presentation of the material in this publication do not imply the expression of any opinion whatsoever on the part of the Secretariat of the United Nations concerning the legal status of any country territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries.

Mention of firm names and commercial products does not imply the endorsement of the United Nations.

This publication has been issued without formal editing.
# CONTENTS

EXECUTIVE SUMMARY .......................................................................................... V

1. INTRODUCTION ................................................................................................. 1
   1.1 OBJECTIVE AND SCOPE .............................................................................. 1
   1.2 THE MPPM SUITE ..................................................................................... 1
   1.3 REPORT STRUCTURE AND CONTENTS ...................................................... 2

2. CHANGES IN INTERNATIONAL CONTAINER SHIPPING AND PORT ENVIRONMENT ................................................................. 3
   2.1 CHANGES IN INTERNATIONAL CONTAINER TRADE ........................................ 3
       2.1.1 Continuing Growth of World Merchandise Trade Volume ......................... 3
       2.1.2 Continuing Container Growth .................................................................. 4
       2.1.3 Geographical Diversification of Container Trade Growth ......................... 6
   2.2 TREND IN CONTAINER SHIPPING MARKET .................................................. 7
       2.2.1 Increased Competition ........................................................................... 7
       2.2.2 Ship Sizes Keep Growing ....................................................................... 8
       2.2.3 Financial Performance .......................................................................... 11
   2.3 SHIPPING LINE RESPONSE ........................................................................ 13
       2.3.1 Increasing Concentration ....................................................................... 13
       2.3.2 Structural Change in Shipping Service .................................................... 16
       2.3.3 Changing Clients Demands ..................................................................... 17
   2.4 IMPLICATIONS FOR PORTS .......................................................................... 19
       2.4.1 Increased Capital Commitment ............................................................... 19
       2.4.2 Administrative Reform ........................................................................... 20
       2.4.3 Private Sector Participation ................................................................... 21
       2.4.4 Global Terminal Operators ..................................................................... 21
       2.4.5 Environmental Pressures ........................................................................ 23
       2.4.6 Security Initiatives ................................................................................. 24

3. CONTAINER TRADE GROWTH........................................................................... 26
   3.1 ECONOMIC ASSUMPTIONS ......................................................................... 26
   3.2 GLOBAL CONTAINER FORECASTS ................................................................. 28
   3.3 GEOGRAPHICAL DISTRIBUTION OF CONTAINER VOLUMES ......................... 29

4. TRADE STRUCTURE ............................................................................................ 32
   4.1 CHANGING NATURE OF GLOBAL CONTAINER TRADE .................................... 32
   4.2 ASIA - NORTH AMERICA ............................................................................ 33
   4.3 ASIA - EUROPE ............................................................................................ 34
   4.4 INTRA-ASIA ................................................................................................. 35
   4.5 MINOR ROUTES .......................................................................................... 38
5. CONTAINER PORT VOLUMES ................................................................. 39
  5.1 FROM CONTAINER FLOWS TO PORT VOLUMES ......................... 39
  5.2 EMPTY CONTAINERS .................................................................. 39
  5.3 CONTAINER PORT VOLUMES: WORLD AND ESCAP REGION ...... 42
  5.4 PATTERNS OF TRANS-SHIPMENT ............................................. 43
      5.4.1 New Global Trans-shipment Centres .................................. 43
      5.4.2 Modelling Restriction and Biases ..................................... 45
      5.4.3 Trans-shipment Volumes .................................................. 45

6. CONTAINER BERTH REQUIREMENTS .................................................. 48

REFERENCES .......................................................................................... 51
TABLES

Page

TABLE 2-1: GROWTH OF WORLD MERCHANDISE EXPORTS BY SELECTED REGION ......3
TABLE 2-2: SPECIFICATION OF VERY LARGE CONTAINER SHIPS ........................................9
TABLE 2-3: AVERAGE CONTAINERSHIP CHARTER RATE INDEX ......................................12
TABLE 3-1: ESTIMATED AND FORECAST GROWTH RATES FOR CONTAINER TRADE (1980–2015) .........................................................................29
TABLE 6-1: PORT CLASSIFICATION AND INDICATIVE THROUGHPUT PER BERTH .......49

FIGURES

Page

FIGURE 2-1: RELATIONSHIP BETWEEN WORLD TRADE GROWTH AND WORLD ECONOMIC GROWTH OVER THE POST-WAR PERIOD ..................................4
FIGURE 2-3: WORLD CONTAINER TRADE GROWTH (1980-2004) ...................................6
FIGURE 2-4: INCREASE IN CONTAINERSHIP SIZE (1980–2015) .....................................9
FIGURE 2-5: SHARE OF TOP 20 LINERS IN TOTAL GLOBAL CAPACITY (1988-2004) ....14
FIGURE 2-6: CALL PATTERNS OF MAJOR USA-ASIA SERVICES ................................17
FIGURE 2-7: ADMINISTRATIVE REFORM OF PORTS ......................................................20
FIGURE 2-8: GLOBAL TERMINAL OPERATORS ..............................................................22
FIGURE 2-9: SHIPPING LINE TERMINAL OPERATORS ..................................................23
FIGURE 2-10: NEW SECURITY INITIATIVES .................................................................24
FIGURE 3-1: ECONOMIC GROWTH ESTIMATES UNDERLYING CONTAINER FORECASTS ..................................................................................27
FIGURE 3-2: FORECAST GDP GROWTH BY ECONOMIC GROUP ...................................27
FIGURE 3-3: PAST AND FORECAST GLOBAL CONTAINER VOLUMES (1980–2015) ....28
FIGURE 3-4: DISTRIBUTION OF CONTAINER VOLUMES – 2002 ....................................30
FIGURE 3-5: DISTRIBUTION OF CONTAINER VOLUMES – 2015 ..................................31
FIGURE 4-1: CONTAINER TRADE BY TRADE GROUP (2002 AND 2015) ..............32
FIGURE 4-2: EAST-WEST TRADE LANE GROWTH (2002 - 2015) .................. 33
FIGURE 4-3: TRADE IMBALANCE ON EAST-WEST ROUTES (2015) .......... 34
FIGURE 4-4: INTRAREGIONAL TRADE GROWTH (2002 - 2015) .............. 37
FIGURE 4-5: INTRA-ASIAN TRADE GROWTH (2002 - 2015) ................. 38
FIGURE 5-1: ESTIMATION OF EMPTY CONTAINER MOVEMENTS: MPPM MODELS .... 40
FIGURE 5-3: ASIAN CONTAINER PORT THROUGHPUT BY SUBREGION (2002–2015)... 43
FIGURE 5-4: TRANS-SHIPMENT PORTS INCLUDED IN MODEL .................. 44
FIGURE 5-5: TRANS-SHIPMENT VOLUMES BY SUBREGION (2002 – 2015) .... 46
FIGURE 5-6: TRANS-SHIPMENT SHAPES BY TRADE ROUTE (2015) ............. 47
FIGURE 6-1: SUBREGIONAL SHARES OF NEW CONTAINER BERTH REQUIREMENTS (2002–2015) ............................................................. 49
FIGURE 6-2: ESTIMATED COST OF ADDITIONAL BERTH PROVISION BY SUBREGION (2002–2015) ................................................................. 50