

DEVELOPING BEST PRACTICES  
FOR PROMOTING PRIVATE SECTOR  
INVESTMENT IN INFRASTRUCTURE

AIRPORTS AND AIR TRAFFIC CONTROL

The views, conclusions, and recommendations presented here are those of the study consultants, and should not be considered to represent the official views of the Asian Development Bank or its member governments.

© Asian Development Bank 2000

ISBN No. 971-561-282-5  
Stock No. 010500

Published by the Asian Development Bank  
P.O. Box 789, 0980 Manila, Philippines

For more information on ADB, visit <http://www.adb.org>

## FOREWORD

This report is one of a series of five commissioned by the Asian Development Bank (ADB) to identify and recommend best practices to be followed and specific steps to be taken, by ADB's developing member countries in order to encourage both private sector investment and competition in infrastructure development. The study was financed through a \$600,000 regional technical assistance grant - RETA 5753: *Developing Best Practices for Promoting Private Sector Investment in Infrastructure*. This report focuses on airports and air traffic control; the other reports cover the power, water supply, road and port sectors.

Transport is central to achieving prosperity and the quality of life, to which all countries aspire. Efficient and competitive airports and air traffic control are important for economic development. This report develops best practices for promoting private sector investment in airports and air traffic control. It examines the underlying economics and alternative models of private sector participation, and then recommends best practice approaches. In addition, the study discusses ADB's role in facilitating private sector participation. It is hoped that the report will help ADB's developing member countries attract well-managed and cost-effective private investment in airports and air traffic control.

The five reports have benefited from the support of and valuable contributions from many individuals, both inside and outside ADB. The reports were prepared by a team of individual consultants: Water Supply - Michael Porter of Tasman Asia Pacific; Power - Elliot Roseman of PricewaterhouseCoopers; Ports - John Arnold, an independent ports specialist; Airports and Air Traffic Control - Ian Jones of National Economic Research Associates; and Roads - Roger Allport of Halcrow Fox. In ADB, Sean O'Sullivan, Senior Public/Private Sector Specialist managed the technical assistance implementation with the help of Marcelo Minc, Project Economist. ADB staff in the Energy; Transport and Communications; and Water Supply, Urban Development and Housing Divisions as well as the Private Sector Group helped in guiding the direction of the study and in reviewing the outputs. In December 1998, a workshop, hosted by ADB as an integral component of the study, provided a forum for the exchange of ideas and experiences. Participation and contributions of delegates from many developing member countries and representatives from the private sector in the workshop were very much appreciated by ADB.

The publication of the five reports is especially timely as it coincides with the introduction of a new strategy for private sector development by ADB.

Vladimir Bohun  
Director  
Infrastructure, Energy and Financial  
Sectors Department (East)

## ABBREVIATIONS

|            |   |   |
|------------|---|---|
| AAT        | – | Airports Authority of Thailand  |
| AATCo      | – | Airport Authority of Thailand Company Ltd   |
| ACCC       | – | Australian Competition and Consumer Council   |
| ADB        | – | Asian Development Bank  |
| ADC        | – | Asian Dragons Consortium  |
| AERIA      | – | Aéroport International d'Abidjan  |
| Aerocivil  | – | Aeronautica Civil   |
| ANAC       | – | Agence Nationale pour l'Aviation Civile (National Civil Aviation Agency)  |
| ANAM       | – | Agence Nationale de l'Aviation Civile et de la Météorologie, (National Agency for Civil Aviation and Meteorology) |
| ATC        | – | Air Traffic Control   |
| BAA        | – | British Airport Authority   |
| BOOT       | – | build-own-operate-transfer  |
| BOT        | – | build-own-transfer  |
| CAA        | – | Civil Aviation Authority  |
| CODAD      | – | Compania de Desarrollo Aeropuerto El Dorado SA (El Dorado Airport Development Company, Limited)                   |
| CTRL       | – | Channel Tunnel Rail Link  |
| DMC        | – | developing member country   |
| DOTC       | – | Department of Transportation and Communication  |
| EU         | – | European Union  |
| GDP        | – | Gross Domestic Product  |
| ICAO       | – | International Civil Aviation Organization   |
| OECD       | – | Organization for Economic Cooperation and Development   |
| LGU        | – | local government unit   |
| MCCI       | – | Marseilles Chamber of Commerce and Industry   |
| MIAA       | – | Manila International Airport Authority  |
| MMC        | – | Monopolies and Mergers Commission   |
| mppa       | – | million passengers per annum  |
| NAIA       | – | Ninoy Aquino International Airport  |
| NATS       | – | National Air Traffic Services   |
| NAV CANADA | – | Canadian Civil Air Navigation Service Provider  |
| NBIAC      | – | New Bangkok International Airport Corporation   |
| NERA       | – | National Economic Research Associates   |
| PIATCO     | – | Philippine International Air Terminal Company Inc.  |
| PRC        | – | People's Republic of China  |
| PSP        | – | private sector participation  |
| SEGAP      | – | Société d'Exploitation et de Gestion Aéroportuaire  |
| SODEXAM    | – | Service Météorologique National de la Côte d'Ivoire (National Meteorological Service of the Ivory Coast)          |
| UK         | – | United Kingdom  |
| US         | – | United States   |

# TABLE OF CONTENTS

|   |     |
|---|-----|
| <b>FOREWORD</b> .....   | i   |
| ABBREVIATIONS .....   | ii  |
| LIST OF TABLES .....  | v   |
| LIST OF FIGURES .....   | v   |
| LIST OF BOXES .....   | v   |
| <b>EXECUTIVE SUMMARY</b> .....                                      | vi  |
| A. Key Aspects of Good Practice .....                               | vi  |
| B. The Role of ADB .....  | vii |
| <b>PART ONE : STUDY OVERVIEW</b>                                    |     |
| I. INTRODUCTION .....   | 1   |
| II. THE GROWTH OF PRIVATE SECTOR PARTICIPATION .....                | 2   |
| A. Expansion and Contraction of Private Sector Investment .....     | 2   |
| B. The Challenge for Private Sector Infrastructure Investment ..... | 3   |
| III. CROSS-SECTORAL ISSUES FOR PRIVATE SECTOR PARTICIPATION .....   | 4   |
| A. The Need for Reform and Role of Government .....                 | 5   |
| B. Institutional Reform .....                                       | 6   |
| C. Strategic Planning .....   | 6   |
| D. Legal and Regulatory Framework .....                             | 7   |
| E. Unbundling and Introducing Competition .....                     | 7   |
| F. Sources of Financing .....                                       | 8   |
| G. Risk and Risk Mitigation .....                                   | 9   |
| IV. SUMMARY OF SECTORAL BEST PRACTICES .....                        | 9   |
| A. Power .....  | 10  |
| B. Water .....  | 11  |
| C. Roads .....  | 13  |
| D. Ports .....  | 14  |
| E. Airports .....   | 15  |
| V. THE ROLE OF THE ASIAN DEVELOPMENT BANK .....                     | 17  |

## **PART TWO: AIRPORTS AND AIR TRAFFIC CONTROL REPORT**

|      |  |    |
|------|--|----|
| I.   | INTRODUCTION .....   | 18 |
| II.  | THE BUSINESS OF AIRPORTS AND AIR TRAFFIC CONTROL .....                               | 18 |
| A.   | Introduction .....   | 18 |
| B.   | Airport Activities and the Role of Airport Operator .....                            | 18 |
| C.   | Airport Operators' Revenues .....  | 19 |
| D.   | Demand and Cost Conditions .....   | 23 |
| E.   | The Conditions of Competition and the Need for Economic Regulation .....             | 24 |
| F.   | Air Traffic Control Services .....   | 25 |
| III. | ALTERNATIVE MODELS OF PRIVATE SECTOR PARTICIPATION .....                             | 26 |
| A.   | Introduction .....   | 26 |
| B.   | Alternative Models of PSP .....  | 26 |
| C.   | Full and Partial Privatization Compared .....  | 32 |
| D.   | Air Traffic Control .....  | 33 |
| IV.  | MEASURES TO ENCOURAGE SUCCESSFUL PRIVATE SECTOR PARTICIPATION .....                  | 34 |
| A.   | Introduction .....   | 34 |
| B.   | Public Policy .....  | 34 |
| C.   | Industry Restructuring .....   | 36 |
| D.   | Regulatory Institutions and Practice .....   | 37 |
| E.   | Contract Design and Risk Management .....  | 41 |
| F.   | Securing Efficient Tendering Outcomes .....  | 46 |
| G.   | PSP in Unprofitable Airports .....   | 48 |
| H.   | Conclusions: The Main Lessons from Experience of Airport Privatization to Date ..... | 48 |
| V.   | THE ROLE OF ADB .....  | 49 |
| A.   | Introduction .....   | 49 |
| B.   | Disseminating Good Practice .....  | 50 |
| C.   | Role in Training .....   | 50 |
| D.   | Improving Financing Terms .....  | 50 |

### **APPENDIXES**

1. Examples of Private Sector Participation at Commercial Airports Worldwide
2. Specific Country Case Studies
3. Extracts from the Philippine Republic BOT Law

## **LIST OF TABLES**

Table 1: Airport Charges Index (ranking of 40 airports world wide), 1995

Table 2: The Currency of Airport Charges

Table 3: 1995 Traffic Levels at Principal DMC Airports  
— million passenger miles per annum (mppa)

Table 4: Alternative Models of PSP

Table 5: Sources of Risk

Table AI .1: Examples of Full Privatization Schemes Worldwide

Table AI .2: Examples of BOT/Concession Schemes Worldwide

Table AI .3: Examples of Strategic Partner/Partial Divestiture Schemes Worldwide

Table AI .4: Examples of Management Contract Schemes Worldwide

## **LIST OF FIGURES**

Figure 1: Average Land-side Revenue per Passenger by Ownership Structure

Figure 2: Key Lessons

Figure AI .1: Contractual Structure

Figure AI .2: Thai Airport Restructuring Proposals

## **LIST OF BOXES**

Box 1: Past Project Finance and Future Infrastructure Demand — East Asia

## EXECUTIVE SUMMARY

This report is one of a series commissioned by the Asian Development Bank (ADB), identifying best practice for promoting the role of the private sector in financing and operating infrastructure in its developing member countries (DMCs). The report focuses on the airports and air traffic control (ATC) sectors; other reports cover the power, water supply, roads and ports sectors.

The background to the report is that, in common with other international agencies and commentators, ADB believes there are significant advantages to expanding the role of the private sector in financing and implementing transport infrastructure and related services in the DMCs, principally for two reasons:

- First, private sector participation (PSP) may help to overcome constraints on public sector borrowing, and, equally or possibly even more important, on the public sector's capacity to implement efficiently and cost-effectively large-scale infrastructure programs.
- Second, the active participation of the private sector in all phases of the project life cycle may secure better value-for-money in the project than the traditional 'design-build' model, where the private sector's role was limited to the project construction phase.

The main findings of the report are summarized below.

### A. Key Aspects of Good Practice

1. **Public Policy** — Airport privatization will be encouraged by the existence of legislation in the form of a Build-Own-Transfer (BOT) law or similar, signaling the state's recognition of the need for private participation in infrastructure provision. It is also important to ensure that government is able to demonstrate that any projects offered to the private sector are economically viable.
2. **Industry Structure** — In the absence of any significant scale benefits from multi-airport operation, there are advantages from using the privatization process as an opportunity for reducing high levels of industry concentration. Equally, the existence of unprofitable airports does not justify the maintenance of a highly concentrated industry structure to facilitate cross-subsidy.
3. **Regulatory Framework and Mechanisms** — The process of PSP will be encouraged by the existence of good regulatory governance structures, based on independent regulatory agencies, operating within well defined public interest criteria, and with well articulated appeal or arbitration mechanisms. Such a framework is equally relevant under both full and partial (concession based) privatization scenarios. The price cap approach to constraining airport charges is likely to encourage better performance outcomes than one based on rate of return regulation.
4. **Risk allocation** — Some sharing of revenue or market risks between a concessionaire and government may offer a better deal for the purchaser than full transfer of such risks to the concessionaire. Denominating some or all airport charges in US dollars may be a useful device for encouraging PSP in the wake of the recent currency crisis. There would be advantages in the widespread adoption of

mechanisms already present in some concession contracts for compensating concessionaires for “stranded assets” if the concession is terminated or transferred to another party when it is rebid.

5. **Tendering Procedures** — Competition for the market will be encouraged by a clear and transparent tendering process, based on equal treatment of bidders and full disclosure of information to enable bidders to make as informed an assessment as possible of the business opportunity.

## **B. The Role of ADB**

ADB has a potentially important role to play in encouraging the successful implementation of policies to extend PSP in airports and ATC services.

1. **Disseminating Good Practice** — First, through the medium of the regional technical assistance umbrella, ADB can provide decision-makers in DMCs with authoritative and impartial assessment of the rapidly evolving experience worldwide of PSP in infrastructure development.
2. **Training** — Second, ADB can play a role in assisting public sector agencies in the region to develop the capabilities required in contract negotiation and in regulation to make BOT and concession agreements work successfully. It can do so directly by providing training courses; and through measures encouraging development of indigenous training capabilities, such as assisting in the establishment of training centers and facilitating secondment of staff in DMC agencies to agencies in other countries with greater experience of privatized infrastructure provision.
3. **Improving Financing Terms** — Finally, ADB can work to improve the financial terms on which the private sector is willing to provide airport and ATC infrastructure services in DMCs:
  - by encouraging the corporatization of existing state owned providers of airport and ATC services, so that potential private sector investors are better able to understand the business proposition in which they might be engaged;
  - by promoting good practice in regulatory governance and public procurement;
  - by promoting good practice in contract design, to encourage the efficient allocation of risk between the DMC government agencies and private sector contractors;
  - by assisting DMC agencies to bring forward economically viable projects which attract widespread support from relevant constituencies within the DMC;
  - by investing in or sponsoring a project, ADB can signal to private investors its views on the soundness of the project, which, in turn, should improve the terms on which external investors are willing to participate.