

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.

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## 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.

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## 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

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## 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.

**PART ONE**  
**STUDY OVERVIEW**

## I. INTRODUCTION

An Asian Development Bank (ADB) regional technical assistance was approved with the aim of developing sector specific best practices for promoting private sector participation (PSP) in key infrastructure sectors in ADB's developing member countries (DMCs). The sectors studied included power, water supply, roads, ports and airports and the best practices covered: (i) sector policy issues relating to pricing and competition; (ii) conducive legal and regulatory frameworks; (iii) the unbundling, mitigating, and management of risks; and (iv) mechanisms to reduce transaction costs. Five individual experts were engaged to undertake the study, one for each sector. A two-day regional workshop was held at ADB on 9-10 December 1998 for the experts to present their findings and validate them with an invited group of experienced senior government and private sector individuals, together with ADB staff. These volumes represent the final outputs of the study.

A summary of the expressed views in these volumes in relation to preferred forms of PSP in infrastructure, informed by the currency crisis, is that it is "best practice" to have a customer focus and a well structured regulatory environment around infrastructure projects, in part since this can allow domestic financing. In other words, it is financially and economically sensible to utilize the essential and often monopoly status of efficient infrastructure services in creating, in effect, a *customer finance* model of PSP. Under this customer-focused concession or franchise model, government provides the regulatory and legal framework that can satisfy customer and investor alike, with the securitization of customer accounts (say via an escrow account) or insurance techniques underpinning financing arrangements. Investors will always seek to mitigate uncertainties, but many of the privatization models to date have done so by way of government guarantees which have undermined the process in the longer run.

Regulation by entities appointed by the government is still required in the new model, given that monopoly provision of key network assets is often the only efficient option. For example there is a need to regulate access charges for connection to network assets such as pipelines, high voltage wires and port channels. But where competition can be achieved in the product market, as with electricity generation selling into a power pool, then this competition is generally the best mechanism to achieve good outcomes for customers. Realistically, in much of Asia, there is little experience with these new pro-competitive models of regulation and thus there is an expectation, on the part of the experts, of a substantial phase-in to this regulatory element of best practice in the future.

The challenge as we enter 2000 with its information-rich possibilities, is to learn from the 1990s infrastructure experience on investor-to-government build-operate-transfer (BOT) deals and concession transactions so that DMCs can benefit from the adoption of best practices in the various infrastructure sectors.

The following presents an overview of the study, including a discussion on the growth of private sector infrastructure investment in Asia, a review of the cross-sectoral issues, a summary of the sectoral best practices for each sector and suggestions on the role of ADB in supporting private sector investment in infrastructure. Part 2 comprises the specific sectoral report.

## II. THE GROWTH OF PRIVATE SECTOR PARTICIPATION

### A. Expansion and Contraction of Private Sector Investment

The last decade, and notably the period to 1996, saw both the rapid expansion of private investment in public infrastructure and a sharp increase in private management of the services associated with this infrastructure. The investment was fuelled by the development of new forms of PSP including varying forms of public/private partnerships: BOT, build-own-operate, build-own-operate-transfer (BOOT), and concessions.

New financial instruments, especially project finance, and the globalization of private investment funds, played a major role in the expansion of the infrastructure sectors in most countries. PSP in infrastructure, and in particular power generation, was supported enthusiastically by the multilateral development banks and bilateral development agencies; as well as by the international financial community. But fewer transactions were completed in the more complex and customer-focused areas such as water, electricity distribution and transport infrastructure. Early successes involved financial transactions without major organizational restructuring; later transactions focused on major infrastructure in mega-cities such as Manila, Jakarta and Shanghai. For example, water treatment plants, bulk water supply, individual power generation units, container terminals, passenger terminals, and airport toll roads.

In the first half of the 1990s, investment requirements for infrastructure in Asia were seen to be on a scale that dwarfed earlier projections and experience. Asian tiger economies were growing rapidly, and demanding massive investments in power, roads, telecommunications and other infrastructure. In most Asian economies, there was also a sense that development was being hindered by bottlenecks in power (e.g., the Philippines), transport (e.g., Thailand), water (most of Asia) and telecommunications. Since government infrastructure spending, international aid, and official sector lending could not be on a scale sufficient to meet requirements, the private sector was the focus of attention.

The new infrastructure investment requirements were estimated by ADB to be of the order of US\$1,000 billion for the 1990s for East Asia. Subsequently, they were estimated by the World Bank to be of the order of US\$1,500 billion for the decade 1995 to 2004. Such projections were useful as a means of highlighting the scale and structure of the huge infrastructure requirements of a growing and increasingly prosperous and urbanized Asia. They helped make clear the need for a major shift of focus towards PSP in infrastructure, to some extent motivated by efficiency considerations, but mainly reflecting the view that public sector financing for this scale of infrastructure requirements was neither feasible nor desirable.

There had also been a shift in views as to the comparative advantages of governments and the private sector in performing the various roles related to the provision of quality infrastructure services. Increasingly, an expanded regulatory and restructuring role was seen for governments, with investment, construction, financing, and management viewed as best opened to competitive PSP. Risks should, under this approach, be assigned to the parties best able to mitigate them, and this meant a greatly expanded role for the private sector.

There was recognition that while many private sector investments of the BOT type were being completed, the assignment of risks in many of these projects left much to be desired. Government guarantees of bulk take-or-pay contracts (between utilities and investors), often

indexed to exchange rates, had created huge contingent financial obligations of the utilities and their governments.

As with many investment trends, optimism, a proliferation of Memoranda of Understanding and glossy investment announcements gradually replaced careful evaluation. Some early successes, under special circumstances, led to the assumption that this BOT approach could be universally applied. The expression BOT had become a shorthand for PSP in many countries by the mid 1990s; but by 1999 BOTs and often the associated power purchasing agreements had also become a shorthand for unacceptable government risk exposure, and of project isolation from customer and market pressures.

This optimism ended with the Asian financial crisis; itself brought on by a lack of sound investment policies, in particular, in relation to government guaranteed power purchasing agreements. The power purchasing agreements had inadvertently converted a shortage of power supply into an oversupply, secured by take-or-pay guarantees. The result of the crisis has been a sharp contraction in private sector investment and a significant exposure of government and private sector investors to contingent liabilities. This contraction not only limits the capacity of governments to stimulate economic growth but also has led to the deterioration or stagnation of many partially completed and privately financed public infrastructure projects. The rise and fall of private sector finance is clearly shown in the private finance data presented in Box 1.

The currency crisis has caused some dramatic revisions both to economic growth forecasts and to infrastructure investment programs. However, as the analysis in Box 1 shows that while forecasts for infrastructure are lower due to lower growth and the expected move to best practice, the magnitude of investment is still huge and efficient PSP will be required.

## **B. The Challenge for Private Sector Infrastructure Investment**

As this difficult period unwinds, it is important to re-consider the comparative advantages of the public and private sectors and the critical role of improved regulation and governance—including transparency, enforcement of contracts, and the adoption of viable commercial tariff structures. There is a need to review, sector by sector, the strengths and weaknesses of the process that has been used to implement these investments. The opportunities and risks of new approaches need to be addressed—e.g., the case for expanding the emphasis on customer focused and privately managed concessions. There is a need to develop bankable versions of these models, ideally backed by the security of customer accounts rather than government guarantees or public sector assurances. This series of volumes addresses these and other sectoral best practice concerns.

There are major challenges for governments and investors alike, emerging from this shift to a new model for infrastructure development. The new best practice model does not mean a total retreat by governments; on the contrary, moving to best or better practice involves a shift to good governance, and requires an upgrade of regulatory, restructuring, and monitoring roles. Without greatly improved governance, the shift to increased PSP could just mean monopoly powers being shifted to the well connected in the private sector. Moreover, without improved governance, PSP would eventually flounder and the demands for infrastructure will not be met, as risks would become unacceptable.

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

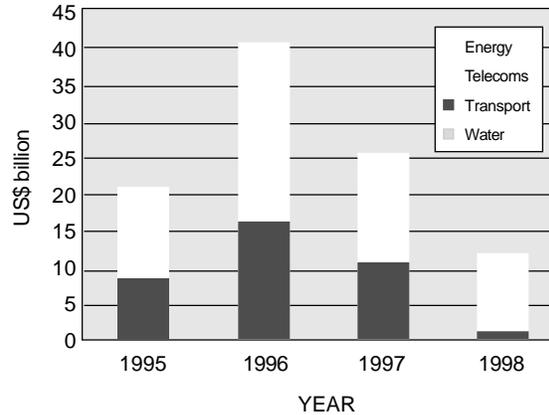
#### Asia Project Finance — Opportunity and Volatility

Figure 1 draws on a Euromoney (CapitalDATA) database and highlights the dramatic growth, and subsequent decline of infrastructure funded through project finance in selected East Asian countries. The pre-crisis level of nearly US\$41 billion for 1996, contrasts sharply with the estimated level at the end of the 1980s, when the total market for funding projects was less than US\$5 billion per annum, as well as with the crisis figure of US\$12 billion for 1998. Clearly, in the 1990s and well prior to the crisis, the importance of the private sector in infrastructure development was rapidly increasing. As a result of the crisis, the telecommunications sector has shown the most dramatic decline, reflecting the fact that such projects are typically purely privately funded, and bear demand risk in a newly open environment. The energy projects, on the other hand, appear more resilient, but mainly because they have had some form of government support, in the form of guarantees in relation to bulk sales through PPAs.

#### Future Demand for Infrastructure Investment

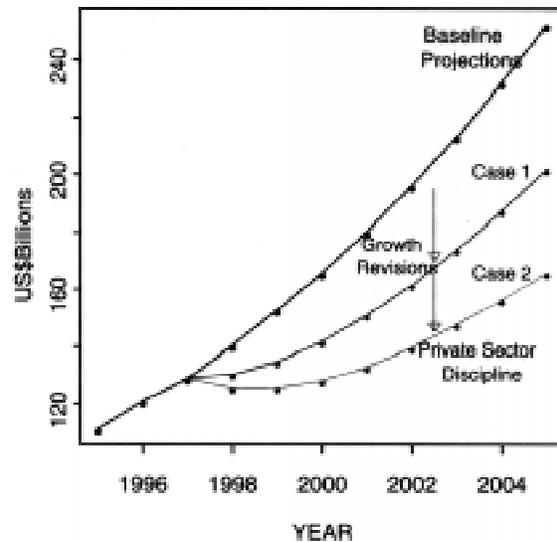
New infrastructure projections for selected East Asian countries: the People's Republic of China (PRC); Indonesia; Republic of Korea; Malaysia; Philippines; and Thailand for the period 1996-2005, adjusted to allow for both the phase-in of private sector market discipline/best practices and reduced economic growth. The revised projections are 23 percent below the pre-crisis (baseline) projections. They are based on establishing the value of the capital stock of infrastructure in each country and projecting infrastructure investments with varying gross domestic product (GDP) growth assumptions and varying infrastructure-to-output ratios. A summary is given in Figure 2. The pre-crisis projections are based on the 1996 GDP growth forecasts. Case 1 is based on the current GDP growth forecasts while Case 2 adds the impact of a transition to a lower infrastructure-to-output ratio and assumes a gradual 25 percent increase in efficiency in each sector in each country. An important factor to note in the projections for this region is that the PRC is assumed to maintain its relatively high GDP growth rate, which accounts for about two thirds of the infrastructure spending in the region. The results for Case 1 indicate a fall of 14 percent from the pre-crisis projections. If the PRC is excluded, the reduction is 33 percent. Case 2, which assumes a transition to best practices, with a resulting change in the underlying infrastructure-to-output and efficiency parameters, indicates further reductions in the level of needed investments. The analysis clearly shows the relative impact of lower growth and the potential benefits of moving to best practice models of infrastructure development. It also highlights the magnitude of investment requirements, in excess of \$120 billion per year, and the need for PSP.

**Figure 1:**  
Project Finance



**Figure 2:**  
1996-2005 Infrastructure Investment Projections

Scenario	US\$ trillion	%
Baseline	1.78	100
Case 1	1.53	86
Case 2	1.37	77



Source: "Private Sector Participation and Infrastructure Investment in Asia", Asian Development Bank paper prepared for the Finance Ministers Meeting, Asia Pacific Economic Cooperation, May, 1999; prepared by M.G Porter and C. McKinlay (Macquarie Bank and Tasman Asia Pacific).

### III. CROSS-SECTORAL ISSUES FOR PRIVATE SECTOR PARTICIPATION

There are a number of cross-sectoral issues relating to promoting private sector investment in infrastructure that were identified during the study. The review of best practices in each of the five sectors highlighted the importance of competition, transparent tendering, and effective regulation. There was broad agreement that:

- Government should specialize in planning, structuring, and regulation while the private sector should specialize in management, investment, construction, and financing;
- The transfer of responsibility to the private sector should be accomplished through deregulation and open competition or well-established contractual arrangements including management contracts, capital leases, concessions, sale of assets and rights to operate;
- Economic regulation should be applied where there is insufficient competition but it should be transparent and predictable while still accommodating the concerns of the affected parties;
- Long-term domestic financing sources must be developed; and
- Commercial risks should be assigned to the private sector but other risks should be assigned according to which party is able to mitigate the risks.

The cross-sectoral issues are discussed in more detail below.

#### A. The Need for Reform and Role of Government

PSP in infrastructure development still requires the government to play a key role in planning, policy, and regulation. The reason that infrastructure industries have remained so long in the public sector is that they have components that are natural monopolies; e.g., the costs are lower with only one provider and the services are often essential (water, power and transport). These infrastructure monopolies also typically have a relatively high proportion of capital costs, have long-lived assets with low unit variable costs, and exhibit significant economies of scale. It had been a common judgement that state ownership of such monopolies, rather than state regulation of privately owned assets, was likely to deliver the best outcomes.

Existing service providers in these infrastructure areas have also had a considerable competitive advantage over potential new entrants, because of the relatively long time required to construct expensive new networks and to build up the market for their services. The scarcity of land, rights-of-way and airspace suitable for development of the network also act as an additional barrier to competition. Sites for airports and seaports, dams, power plants, and rights-of-way for roads, rail lines and transmission systems had become increasingly difficult to acquire. Another common argument for retaining these industries within the public sector was that they must provide common (or universal) access to their services and that subsidies are required.

It turns out that public ownership and management is neither necessary, nor the best way to ensure universal access. Subsidies can easily be a requirement of a competitive tender or can be directly financed by government. A key advantage of having the private sector provide public services is that it allows public administrators to concentrate on planning, policy and regulation. The private sector, in turn, is empowered to do what it does best (i) invest capital; (ii) manage the businesses; (iii) manage and create appropriate incentives for staff and management; (iv) deal with customers; and (v) improve the efficiency and quality of service; more recently, under the spur of benchmark competition - competition by comparison.

Governments should allow the private sector to provide infrastructure services to the maximum extent possible, with governments concentrating on planning, policy and regulation, and with the private sector on efficiently investing capital and improving the efficiency and quality of such services.

## **B. Institutional Reform**

The organization of the infrastructure sectors (i.e., ministries, regulatory agencies, and utilities) has remained largely unchanged with the introduction of PSP. With financial transactions being the primary mechanism for transferring infrastructure services to the private sector, insufficient attention has been given to the broader issue of institutional reforms. It has been implicitly assumed that the introduction of private management into the ownership or operation of specific assets would obviate the need for such reforms. Instead, the weaknesses of existing institutional structures have limited the effectiveness of the private sector initiatives. In most countries, the piecemeal transfer of infrastructure components has proceeded slowly and the controlling bureaucracies that add overhead costs and often limit improvements in infrastructure performance, have remained relatively unaffected. The currency crisis has emphasized the importance of institutional reforms but government bureaucracies rarely reform themselves. Governments should carefully review the structure, size and responsibilities of state-owned utilities and other entities in the infrastructure sectors and establish special reform units reporting directly to top level ministers to spearhead the necessary reforms.

## **C. Strategic Planning**

Governments' acceptance of private sector investment in infrastructure has been due, in part, to their failure to anticipate future bottlenecks and make timely strategic investments to prevent shortages in capacity. The increased role of the private sector in developing infrastructure has caused many governments to neglect their responsibility for sector planning. Instead, governments have offered assets and public services to the private sector in an *ad hoc* manner, often failing to ensure that individual investments were complementary. In certain circumstances, unsolicited proposals have been used as a surrogate for planning. For its part, the private sector has selected projects that had already been identified in government plans, giving preference to those which offered the highest rate of return, the lowest risk or the greatest short-term benefit. The private sector has had neither the interest nor the capacity to consider the network implications of its proposals. Governments have failed to subject these proposals to rigorous financial analysis to determine their sustainability in the absence of major increases in user charges or government guarantees. Governments have also often overlooked the complementary investment required from the public sector to make the private investments successful. The results have been unsolicited proposals that involved little commercial risk (government guarantees, wrap-around provisions, transfer of existing assets, granting select rights of way) or politically generated proposals. Governments should maintain and strengthen

their role in strategic planning of the infrastructure sectors and in the process identify where PSP should be encouraged and the level of complementary support that should be provided.

#### **D. Legal and Regulatory Framework**

The effectiveness of PSP has suffered from the lack of adequate regulatory structures to control both technical and economic performance. Regulation of tariffs and other economic factors is particularly undeveloped. The basic objectives of autonomy, accountability, transparency and predictability have been difficult to achieve. More importantly, the mechanism for consultation between the public and private sector and for dispute resolution between the providers and users of the network has not been fully developed. A further problem has been the failure to separate regulation from administration in order to avoid conflicts of interest. Most countries have been slow to establish autonomous regulatory agencies with independent funding and professional staff.

Unbundling the network into competitive and monopolistic components can significantly reduce the need for regulation. The competitive components can be transferred to the private sector in a way that promotes competition and allows deregulation. The monopolistic components can then be transferred to the private sector once an effective regulatory framework has been established. This regulation should create a situation where the businesses derive their profits from increased efficiency and the attraction of additional demand.

Effective economic regulation covers also deterrence of anti-competitive practices. Most of the developing countries lack laws or agencies for dealing with anti-competitive practices. Economic activity continues to be concentrated in large conglomerates. The currency crisis has provided new impetus for breaking up the monopolies and introducing anti-monopoly laws.

The lack of established legal and regulatory procedures applies to contract law as well. The means for enforcement of contracts and the resolution of disputes are not well established. Political interference in the award of contracts has also been a problem.

PSP without a well-developed legal and regulatory framework increases the level of risk to investors. It also encourages investors to rely on special situations and political relationships rather than their merits as a means for securing and implementing contracts. The transfer of infrastructure services to the private sector should not lead to privileged deals or profits secured by government guarantees. They should be businesses with regulated income streams which derive their profits from increased efficiency and the attraction of additional demand. These income streams should be capable of securing substantial private sector funding, both because their semi-regulated nature makes them much like a government bond, and because the essential and often monopoly nature of the service lowers demand risk. Such assets are also long-lived and thus attractive to pension and similar long-term funds.

#### **E. Unbundling and Introducing Competition**

Experience in a number of countries has shown that unbundled infrastructure sectors with individual components managed separately can perform better than centrally-controlled networks. The additional costs of unbundled networks due to increased communications and transactions among components have been reduced by improvements in technology. At the same time, the unbundled management has been able to better focus on the capacity and productivity of the individual components and their interface with other components.

The unbundling of the infrastructure sectors is an important technique for reducing their natural monopoly and promoting competition. Many parts of the network can support competition. Where it is not possible to create direct competition between suppliers of network services, it is often possible to create competition among providers of complementary network services. For example, in the power sector, many countries are separating the networks into generation, transmission, distribution, and in some cases, a fourth segment responsible for retailing power to customers, with different companies responsible for each segment.

Where competition cannot be created, it is often possible to establish contestable environments e.g., a market for the business. One method is through effective competitive bidding for the sale or lease of assets and licensing or franchising of services. Another is to reduce the period of the contractual agreements or to provide for a periodic review of performance. A third is to introduce performance targets related to the quality of the service, the range of services, the prices charged for the services and overall market share. The ability of the private sector to achieve these targets is then linked to penalties, or provisions that may lead to early termination of the agreement. A fourth method is to require comparable performance vis-a-vis other networks. This may be in the form of requirements for increasing market share relative to other providers of similar services, or requiring a quality of service and price that is comparable to other networks serving similar markets.

Most infrastructure sectors are composed of profitable and unprofitable components. One practical, but not ideal, strategy for transferring the components to the private sector is to bundle profitable and unprofitable components to produce a combination that has an acceptable level of profitability. Another is to tender the profitable components through techniques ranging from operating agreements and franchising to sales of assets and to transfer the unprofitable components using management contracts; in effect, bidding out the government support for that component. A third strategy has been to transfer the profitable components to the private sector and to retain the unprofitable components in the public sector, but under control of local government units rather than the national government.

## **F. Sources of Financing**

Private sector funding of infrastructure usually brings the risk of foreign currency mismatches in the financing package; income is in local currency, but the need to resort to foreign debt and equity markets means that debt service requires substantial foreign currency. The root problem is inadequate depth in capital markets in most DMCs which prevents a tailoring of local currency debt to long-lived assets. The need to resort to foreign debt (and equity) creates substantial risks, which have been exposed in the recent crisis. Few infrastructure consortia can withstand an exchange rate depreciation of 40 to 50 percent, let alone the 80 percent decline experienced in Indonesia when their product is sold for local currency. Hence the priority on programs to deepen the domestic capital market.

In principle, currency matching requires that the bulk of debt funding of infrastructure services such as transport, water supply, electricity and other urban services should be in local currency. In the absence of the necessary capital market reforms, it is hard to see how private sector provision of infrastructure can proceed on the scale required to meet future demand. A priority, therefore, given the recent experiences, is that international development agencies such as ADB expand their role both in facilitating political risk insurance and in fostering the development of domestic capital markets in Asia, particularly bond markets.

Direct foreign investment will remain an important source of funds for the development of the infrastructure sectors. However, it will take time to restore investor confidence and, given the experience of Indonesia, Pakistan, Philippines, Republic of Korea and others, governments will naturally seek to limit their exposure to these funds in preference to local sources of capital, if possible. The development of domestic long-term capital markets will be critical for private sector investment in infrastructure, but these markets must have much better regulation as well.

### **G. Risk and Risk Mitigation**

In order to reach financial closure, governments have often accepted commercial risks that should have been assigned to the private sector. This includes not only the foreign exchange risk but also demand/traffic (volume) risk. The most obvious example has been the take-or-pay provisions in power purchase agreements. These guarantees have had three negative impacts. First, they have isolated the private sponsors from the influences of the market. Second, they have created a large amount of contingent liabilities for governments that now add to their fiscal problems. Third, they have encouraged price rigidity leading to distortions in the market and reducing the potential of the private sector to improve efficiencies in investment and operations. Other examples are build-lease-transfer agreements and volume guarantees for toll roads, airports and seaports.

Because governments have had limited contract-related knowledge or experience, the private parties have been frequently able to convince them to assume some of the commercial risks. Also, because governments have often not been able to engage suitable legal, technical and financial experts to assist during negotiations, they have been at a disadvantage in arguing with foreign proponents concerning international practices such as take-or-pay contracts, or with international lenders concerning guarantees to protect their loans. Bureaucrats who have gone through a long, often contentious bidding process have been willing to accept some commercial risks during negotiations rather than to face rebidding. Alternatively, private parties frustrated with drawn out negotiations and the continuing renegotiating of clauses have accepted risks that should have been borne by the government.

Governments should build up capacity to negotiate and deal with the private sector. Commercial risks should be assigned to the private sector and other risks should be assigned to the party best able to mitigate them.

## **IV. SUMMARY OF SECTORAL BEST PRACTICES**

The challenge for governments is to encourage an appropriate form of private sector investment in infrastructure. The study has identified significant differences among the infrastructure sectors concerning the appropriate balance between private and public participation in ownership of assets and provision of services. Only some of the sectors have well defined models for PSP. Other best practices are still evolving and the menu will continue to develop as experience grows. The decisions on which infrastructure components should be transferred to the private sector are of a strategic nature. They depend not only on the characteristics of the sector and the market it serves but also on government objectives. There was consensus among the experts that the primary objective should be to benefit consumers. However there were a number of additional objectives which governments should consider: (i) reduction in national debt; (ii) stimulation of domestic capital markets; (iii) reduction in capital and operating subsidies; (iv) investment in new infrastructure or rehabilitation of existing

infrastructure; (v) improvements in the quality of service; (vi) increased range of services; (vii) reduced prices for services; (viii) client-oriented operations; and (ix) more effective marketing.

Governments have at their disposal a number of means for effecting the transfer of infrastructure components to the private sector. The pace and sequence of such a transfer depends on the: (i) size and complexity of the infrastructure sector; (ii) rate of growth in demand and the competitiveness of the market; (iii) options for unbundling by function or geography; (iv) legal regime regarding ownership of land and other critical assets; and (v) capacity for economic regulation. The established mechanisms, which range from management contracts to unregulated competition, are not new and have proven effective. The key is to have a vision of where the sector is going, and to carry through the reforms as quickly as possible so as not to allow the interim change to become the final state of affairs. The findings of the sectoral experts for each sector are summarized below.

## **A. Power**

In the electricity sector, IPPs provided a quick solution (in the Philippines, for example) by offering generation capacity needed for rapid economic growth. However, the costs were often high because the new capacity was not consistent with the least-cost expansion path and the private sector required high rates of return. However, these costs have been decreasing as the IPP market has matured. The focus on production rather than efficient distribution put the public sector in the position of retaining that activity in which it was least effective and restricting the private sector from performing the customer focused activities (distribution and supply) where it had real expertise. At the same time, it isolated the private sector from the market through a combination of regulated pricing and guarantees against commercial risks.

The power sector expert advocates restructuring to achieve a competitive market model with wholesale and retail competition. Such reform will encourage sustainable PSP and maximize the benefits to consumers. The expert suggests five major steps in implementing this approach, and their order of precedence. To some extent, these steps may proceed in parallel, but they should be considered sequential actions that will lead to the implementation of a competitive power market:

1. Getting the investment framework right.
2. Deciding on the goals of restructuring and the ideal industry structure.
3. Preparing the players to participate in a competitive market.
4. Privatizing existing and new assets.
5. Ensuring that the competitive market is implemented properly.

Best practices for power sector restructuring would include the following:

- Create an enabling legal and regulatory environment to support competitive markets in electricity.
- Unbundle the power sector into separate generation, transmission, distribution, and possibly retailing sectors to achieve the maximum benefits for customers.
- Privatization should include the sale of power distribution utilities as well as generation, and should include existing assets as well as new projects, using a transparent process.
- Open access to transmission and distribution wires, and the ability to trade power between buyers and sellers in an open market, are critical to achieve a competitive framework.
- Operate the generation and retailing markets competitively, with a large number of generators selling into a wholesale electricity market at prices which balance demand and supply throughout the day.
- Operate the transmission network as a concession on the basis of competitive bidding, or privatize it within a tight regulatory framework, controlling rates of return, prices or gross revenue.
- The independent regulator should mainly oversee prices and incentives for transmission and distribution operations.
- Restructuring should proceed at a pace consistent with the development of a competitive and unbundled system.

## **B. Water**

The water sector has moved more slowly towards private sector investment, relative to electricity and telecommunications for example, not least because of the jurisdictional, environmental and sensitive social concerns about water supply, and its affordability. While major private sector involvement has now been achieved in distribution (Manila and Jakarta), the bulk of transactions were BOT models with take-or-pay clauses guaranteed by governments. Adding to these difficulties was the lack of knowledge about the location and condition of the (underground) networks and aquifers in many countries.

The volume on the water supply sector addresses the question of why, given the alternatives, the private sector should seek to invest in a sector with so many uncertainties, natural, governmental and financial. Water, unevenly supplied as rainfall, is often wrongly deemed a free public good, despite the costs of treatment and retail supply. Thus, there is often an ill-informed community constraint against private sector involvement in water supply, which in most countries has prevented the sorts of best practice referred to in this report.

The water expert makes the point that when it comes to best practice in the case of water supply, most of the messages are for government — to install sound and independent

regulatory regimes, catchment management policies and enforceable laws on tariff setting and collections. Once in place, best practices such as water supply concessions can be implemented. If not in place, then best feasible practice may simply relate to contracting out some services under government guarantee, or BOOT bulk supply to public sector water supply companies. It follows from this that since the particular features of the water supply situation and regulatory and privatization policies differ greatly across countries, so, too, will the feasible best practice.

One misunderstanding regarding the scope for bringing commercial practices to water supply is the issue of affordability. The report notes that the poor often pay more for water than the cost from efficient commercial piped supplies. Experience has shown that low-income families will pay for quality water supply — and are not averse to PSP — if it delivers.

The key points recommended were:

- The benefits of PSP in the water sector must be explained to win public acceptance.
- The starting point in any reform process for water supply is to form a high-level reform unit to drive and manage the process. It would be responsible for coordinating and facilitating the entire reform and PSP process. The reform unit may be a crosssectoral unit.
- While not essential to commence reform, the introduction of tradable water rights leads to efficient use of water, particularly when it is scarce and has alternative uses.
- The water sector should be unbundled to the extent possible. The private sector concession model is most likely to achieve the greatest benefits to the community and the economy as a whole. The government continues to own the network while the private operators lease the long-term right to use the assets and collect revenue from service delivery. The benefits accrue due to strong financial incentives to reduce water losses and expand service.
- If politically difficult, then the next best strategy is to use BOT, BOOT, and rehabilitate-operate-transfer arrangements to bring expertise and finance to urgently required water supply projects. The bidding procedure should be carefully managed to ensure reasonable cost and the contractual arrangements should not constrain subsequent progression to more competitive models.
- Commercialization/corporatization of water supply utilities together with tariff reform is advantageous as an interim step if the introduction of PSP is to be phased.
- Tariff reform to achieve full cost recovery is essential for PSP. Cross-subsidies for the poor can still be considered in a transparent manner.
- Critical to the success of PSP in the water supply sector is for the government to create sound and independent regulatory regimes, catchment management policies, and enforceable laws on tariff setting and collection.

- Risks are likely to vary between countries and even between different water utilities in a country. They should be managed by the party best able to minimize and manage each risk most effectively. Where no party has a clear comparative advantage to manage the risk, it should be shared.

### **C. Roads**

In Asia's roads sector, PSP has been equated with major BOT toll roads. These have been targeted where traffic is greatest — in and near the capital city and sometimes along major inter-city corridors. This private investment has produced some successes but also many failures. After more than a decade of concerted effort, implementation experience has not matched expectations. Indeed, surprisingly little has been implemented outside the PRC.

The road sector expert has advanced three reasons for modest progress in roads. First, governments have not defined their policy, often leaving the private sector to identify projects. Secondly, almost everyone involved has expected such toll roads to be profitable without government support, but this has only rarely proved to be the case (outside the dense PRC market, which is deemed a 'special case'). Thirdly, it has proved difficult to introduce promised tariffs and tariff increases in a sector where roads have become to be regarded as free.

What is clear is that private construction and maintenance of public roads produced better results where there was adequate competition and effective methods for enforcing contracts. Efforts to substitute private sector management for public sector officials in the management of the public network are in their early stages, even in the developed economies, but the preliminary results are encouraging.

Worldwide experience identifies a broad range of PSP modalities, in which BOT is close to being the most difficult to implement. Other modalities include maintenance management contracts, turnkey, operate, and maintain or rehabilitate-operate-transfer concessions. Many of these modalities target improved maintenance, and rehabilitation of the network (rather than solely network capacity expansion). They have potentially much greater application than BOT projects. Looking ahead, the requirements are to both improve the BOT process, and to extend the modalities that are applied. The key points to emerge are:

- Governments must prepare the PSP environment. Institutions may need to be restructured with the objectives of controlling the PSP process in the public interest, and creating a regulatory body, separate from vested interests. A sound legal framework and a predictable regulatory regime are essential.
- Governments must identify priority PSP projects. This will almost always require an independent feasibility study, which focuses on traffic and tariff policy, project staging, network integration issues, risk allocation, finance and implementation issues.
- The best prospects for BOT projects are in middle-income countries (where the willingness-to-pay tolls exist) along existing congested corridors, or where there are missing links (e.g., estuarial/river crossings). A regulated income stream from a tolled public toll road is capable of securing project financing of an appropriate kind (i.e., suitable to pension funds and other long-term investor groups).

- Private sector modalities other than BOT exist, e.g., concessions, and should be applied more widely, as they can address many of the sector problems, and in the process create a new high growth industry for transport management companies.
- Traffic risk is the major risk and may be shared. The core risk being taken by the private sector, with government taking a share of the upside benefit and providing a downside guarantee in the event of low traffic.
- Transparency and competition are essential in the procurement process.
- Government support should be defined upfront as a maximum so that the private sector can prepare realistic bids.

#### **D. Ports**

In the port sector, the transfer of cargo-handling activities to the private sector has been, in most cases, extremely successful in replacing inefficient government bureaucracy with commercially-oriented management. Improvements in productivity and maintenance has increased the quality of service. However, where there was no competition, these arrangements were less likely to sustain these improvements. Private investment in port infrastructure has generally been limited to new and existing cargo terminals. Trans-shipment terminals were the most successful, since they were less dependent on local markets and land transport. Greenfield ports were slower to develop because they were further from their markets and the transport access was less developed. Basic infrastructure offered few opportunities for full cost recovery.

The ports sector expert, noted that the private sector has always been actively involved in port affairs. The land and water transport services that use the port are almost entirely private sector. Nearly all of the cargo shipped through ports is privately owned. The private sector provides an array of complementary trade facilitation and logistics services for this cargo. Within the confines of the public port, cargo owners, forwarders, and ship agents actively participate in decisions concerning the handling and storage of cargo. The public sector's role is to own, develop, and manage basic port infrastructure and common-user facilities.

The process of port privatization has rarely involved pure privatization, since land and infrastructure are rarely sold. Instead, the process involves PSP in operations and investment in equipment and facilities. The process is not a monolithic effort because of the diversity and complexity of ports and the services they provide. It can be divided into three components: (i) institutional reform, (ii) divestiture of existing services and assets, and (iii) investment in new facilities and services. These can be implemented individually or in combination. For each port component, there are many possible public-private partnerships. The main points regarding moves to best practice were:

- The bidding process should encourage unbundling not only of the network but also for the services within the ports. Where ports are not financially viable, they should not be bundled with profitable ports, but treated as stand-alone facilities that are turned over to local government or put under management contract using a competitive tender.

- The landlord model is the best structure for promoting PSP because it accommodates different forms of public-private partnership while recognizing that the only fixed responsibility of the public port is the ownership of the site.
- The most effective and efficient procedure for promoting PSP in the port sector is to lease existing facilities with relatively short-term agreements that allow for reorganization and improvement in productivity. Subsequently, concession agreements can be used to encourage private investment in additional capacity. Where this capacity is required immediately, or labor problems make it difficult to lease out existing facilities, then concessions might precede lease agreements.
- Continued public investment will be required, as it is difficult to recover the costs for basic infrastructure in a time period reasonable to the private sector. Public investment may also be required to reduce the barriers to entry. This is important where a new entrant would otherwise have to make a large investment before competing with existing service providers.
- The best form of tariff regulation is market regulation; the second best is through the terms of the contract that identify the non-competitive services requiring regulation, state the maximum rates, the formulae for escalating these rates over time, and the arbitration procedures for discriminatory behavior in excess of that justified by commercial pricing. The third best is the establishment of a regulatory agency outside of the port which would apply a pricing formula related to cost recovery. All of these are preferable to a vague procedure for negotiating future changes in tariffs.
- The private sector should assume all commercial risks. Other risks should be negotiated, based on which party has the capability to mitigate the risk.
- The critical element in any effort to promote PSP is competition, or at least the potential for competition. This can be provided through direct competition between private sector service providers, between public and private service providers or between bidders in the case of an activity that does not allow competition.

## **E. Airports**

For the airport sector, PSP in terminal operations produced significant improvements in financial performance and the quality of service. Private sector investments have increased substantially over the last five years. During the previous twenty years, there was little capital investment in airports, despite a five-fold increase in traffic. The airports coped with the higher levels of traffic through a combination of larger aircraft, better air traffic control, improved runway design, and the addition of second runways and additional terminal space. This period has now ended and most countries need to invest in new airports. These are proving to be costly, complex and often controversial investments.

The key policy questions concern how best to structure airports and groups of airports to obtain maximum customer benefits. The discussion in the volume on airports and air traffic controls indicates that there is little evidence of significant scale benefits flowing from multiple airport operation; equally, however, there is little evidence of significant scale diseconomies. The case for significantly reducing the concentration of airport ownership at privatization

therefore depends on the trade-off between the up-front and visible costs of re-structuring, and the possibly less tangible benefits of increased competition resulting from break-up. The competition benefits in this industry are not clear-cut, primarily because major airports mainly serve distinct regional markets.

In the United Kingdom, the authorities took the view that any potential competition gains from breaking up the British Airport Authority prior to privatization would have been offset by restructuring costs. In Australia, in contrast, the Government has preferred to restructure and reduce industry concentration radically, emphasizing the public policy benefits of inter-airport competition for long haul international traffic. The benefits of fragmented ownership also include those that flow from yardstick competition, enabling regulatory agencies to assess individual operator performance more effectively; and from introducing a limited element of competition by emulation between operators. The airport expert found the benefits from the Australian model to be greater. Key recommendations for the airport sub-sector are as follows:

- Airport privatization will be encouraged by the existence of legislation in the form of a BOT law or similar, signaling the government's recognition of the need for PSP in infrastructure provision, It is also important to ensure that the government is able to demonstrate that any projects offered to the private sector are economically viable.
- Regarding the optimum approach, full privatization based on asset transfer or acquisition through long-term leases is preferable to more restricted forms of PSP (but is also more demanding in terms of legal and regulatory frameworks).
- As to airport industry restructuring, there is no evidence of significant economies of scale in airport operation other than those associated with increased traffic density at a particular location. Hence, PSP can be based on individual airports (although facilities may need to be bundled to assist financing of major new developments or extensions to capacity).
- The existence of unprofitable airports does not justify the maintenance of a highly concentrated industry structure to facilitate cross-subsidies.
- Limited sharing of traffic and revenue risk (between the private sector partner and government) is justifiable in airport BOT or concession contracts.
- Denomination of some, or all, airport charges in US dollars is an effective way of hedging against currency risk and may significantly reduce the risk premium required by private investors;
- The benefits of PSP in airports are likely to be maximized by regulatory frameworks that incorporate good regulatory governance practice. The price-cap approach to constraining airport charges is likely to encourage better performance outcomes than one based on rate of return regulation.
- Competition for the market, whether through sale or leases, or BOT/concessions, will be maximized by transparent bidding/sale processes.

## V. THE ROLE OF THE ASIAN DEVELOPMENT BANK

The crisis has focused on the urgent need for institutional strengthening and governance reforms in both the financial and infrastructure sectors, areas where ADB can play a major role. There are a number of ways identified in the study in which ADB can assist in the reforms associated with increased PSP in infrastructure. The most obvious is to provide technical assistance to define policy objectives, develop network master plans, identify and evaluate projects, define the role of new regulatory institutions, and train regulators to handle their new responsibilities, prepare contracts and negotiate with the private sector. ADB's efforts to promote financial sector reform and develop long term capital markets will also be important. This would include efforts to improve the bankruptcy laws, and the regulation of domestic debt and equity markets.

In order for ADB to have a significant role in promoting PSP, it should link this promotion with on-going project lending. ADB can provide support for private sector investment directly through its private sector window and through its guarantee operations. More importantly, ADB should provide sovereign loans to complement but not compete with private sector investment in the form of public-private partnerships. Public sector project lending should also be used to finance basic infrastructure that cannot be packaged into financially viable investments for the private sector but provides significant economic benefits and improves sector efficiency. Program lending is another key modality to promote the necessary reforms where ADB provides financing for the adjustment costs in stages, upon the satisfactory achievement or fulfillment of government actions that will promote PSP and sector restructuring. This modality allows ADB to exercise some leverage on government decisions and actions to support reform. Country strategies should address which areas of development are to be financed by government using sovereign loans, general revenues and government bonds and which are to be financed by private investment and should ensure a coordinated approach to all forms of ADB assistance.

**PART TWO**

**AIRPORTS**

**AND**

**AIR TRAFFIC CONTROL**

**REPORT**

## **I. INTRODUCTION**

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 in 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 remainder of the report gives an overview of the economics of airports and of ATC services, drawing attention to the diverse range of activities carried out at airports, the existing role of the private sector in providing airport services, the conditions of competition, and the need for economic regulation. The report then describes the alternative models for PSP in core airport activities, and evaluates the strengths and weaknesses of each approach. Although full privatization of airport assets is proposed as the appropriate target model for the sector, it is recognized that this approach is relatively demanding in terms of the legislative and institutional infrastructure required for implementation. More restricted forms of PSP, such as concessions or strategic partnerships, may be appropriate interim vehicles for PSP in the absence of the necessary legislative framework to enable privatization. Drawing on the set of case studies of different approaches to PSP in airports, as well as experience of PSP in other types of transport infrastructure, the report then sets out the contractual and other conditions likely to encourage successful PSP projects. Finally, there is a discussion on the potential role of ADB and other development agencies in facilitating PSP ventures in the airport sector.

## **II. THE BUSINESS OF AIRPORTS AND AIR TRAFFIC CONTROL**

### **A. Introduction**

This section discusses airports as businesses, drawing attention to the wide range of activities carried out at airports, and the role of the airport operator. It describes the sources of revenue for airport operators, covers demand and cost conditions, discusses the conditions of competition applying to different types of services and the implications for economic regulation, and describes the provision of ATC services.

### **B. Airport Activities and the Role of Airport Operator**

An airport can be defined as one or more runways and complementary facilities for aircraft (taxiways, apron areas) together with associated terminals and facilities for handling

passengers and freight. Within the airport framework, the airport operator is typically directly responsible for the provision and maintenance of airport infrastructure, and the provision of essential services, including passenger search and perimeter security, fire fighting, and cleaning and maintenance of passenger terminal areas (the latter often provided by sub-contractors). These services are referred to as core airport activities. The airport operator also allocates space and resources, both between airlines (for example, check-in desks, passenger departure lounges) and between commercial concessionaires (such as retailers or caterers).<sup>1</sup>

Other airport services are typically provided by airlines or their handling agents (including check-in processing, baggage handling, and aircraft maintenance) and control authorities (including customs, immigration, policing and ATC). In addition, a wide range of customer services, including retailing, catering, banking, and car hire, are provided by concessionaires appointed by the airport operator.<sup>2</sup>

Whilst it owns the large majority of the airport capital stock, the airport operator may employ directly only a modest proportion of airport employees, since many activities carried out by other agencies, such as baggage handling and retailing, are relatively labor intensive. An extreme example of this is London Heathrow airport, where the airport commercial activities have been exceptionally intensively developed by the airport's owner, the British Airport Authority (BAA) plc. As a consequence, BAA directly employs less than 10 percent of all full time airport employees.<sup>3</sup>

## **C. Airport Operators' Revenues**

Airport operators typically derive revenues from airport charges, levied on airlines, to cover the provision of core airport services. Airport operators also obtain revenues from on-airport commercial activities, in the form of concession fees and rents from concessionaires, property rents and charges for services such as airport car parking.

### **1. Airport Charges**

The airport charges paid by airlines usually include:

- Take-off or landing charges, based on aircraft weight.
- Apron or parking charges, again based on aircraft size or weight, and the duration of stay.
- Passenger handling charges, expressed as a rate per departing (or arriving) passenger, and differentiated by domestic and international flights. Such charges are distinct from the departure taxes, imposed by governments in the United Kingdom and elsewhere, which accrue directly to the government concerned as general taxation and not to the airport operator.

Broad principles covering both the costs to be recovered through airport charges and also the structure of charges are set out in guidelines published by the International Civil

<sup>1</sup> In most countries, passenger terminals are provided as common user facilities by the airport operator. However, in some countries, such as the United States (US) and Australia, terminals may be owned and operated by airlines, either as exclusive or as common user facilities.

<sup>2</sup> Some airport operators continue to provide duty free facilities for international passengers.

<sup>3</sup> Around 4,000 out of the total airport employment of 55,000 in 1996.

Aviation Organization (IOAD),<sup>4</sup> although such guidelines are not mandatory.<sup>5</sup> Airport charges are more directly constrained in certain respects by international legislation, notably the Chicago Convention, paragraph 15 of which imposes non-discrimination conditions with respect to airport access and airport charges on signatories. Further constraints on airport access and charging may also be specified in bilateral Air Service Agreements governing the provision of scheduled air services.

Table 1 presents an index of airport charges at 40 international airports throughout the world in 1995, based on published airport charges for eight different types of aircraft. Although the data do not take account of factors such as the availability of accounts or the extent to which there may be variations in the range of services covered by the charges, it is clear that there are very wide variations in the level of airport charges in different locations. Average charges in the upper quartile of airports are over three times as high as those in the lower quartile. The average charges show little systematic variation with factors such as airport size, traffic composition or ownership characteristics.

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

Airport	Index	Airport	Index
Tokyo	100	Orlando	27
Frankfurt	53	Miami	26
Vienna	52	Singapore	25
Chicago	51	Washington	25
New Jersey	48	Madrid	23
Berlin	44	Heathrow	23
Munich	43	Milan-Linate	22
New York JFK	43	Los Angeles	22
Amsterdam	42	Budapest	22
Brussels	39	Vancouver	22
Paris Charles De Gaulle	39	Bombay	21
Athens	38	Honolulu	21
Oslo	37	Cairo	20
Helsinki	36	Gatwick	19
Moscow	35	Dallas/Fort Worth	18
Copenhagen	33	Hong Kong	16
Stockholm	32	Sydney	12
Lisbon	32	Jeddah	11
Dublin	28	Algiers	10
Johannesburg	27	Dubai	5

Source: *Monopolies and Mergers Commission* (1997, BAA plc).

Note: Based on an average of peak and off-peak charges for eight aircraft types (international arrivals and departures).

The ICAO guidelines also recommend (paragraph 16(i)) that under normal circumstances, charges should be expressed and payable in the local currency of the state concerned. However, it is recognized that under special circumstances, "for example where economic conditions are not stable", airport operators are entitled to denominate user charges in another currency.

<sup>4</sup> ICAO, Statement from the Council on Airport Charges.

<sup>5</sup> Thus, the ICAO guidelines recommend that the passenger handling charge is levied on airlines and therefore reflected in airline fares, but many airport authorities continue to levy a charge directly on international passengers at the point of departure.

Table 2 summarizes current practice with respect to the currency used in setting airport charges in a group of twelve DMCs. It shows that in half of the cases (India; Malaysia; Singapore; Thailand; South Korea; and Hong Kong, China) all types of airport charges are denominated in the local currencies concerned. In three cases (Pakistan, Cambodia, and the Philippines) charges are US dollar denominated, and in the three remaining areas (Indonesia, Viet Nam, and Laos), international traffic charges are US dollar denominated, whilst domestic traffic charges are wholly or partly local currency denominated.

As noted in the following section, denominating some or all airport charges in US dollars is a potentially useful instrument for mitigating the currency risk faced by prospective overseas investors in airports, some or all of whose financing costs may be denominated in US dollars.

**Table 2: The Currency of Airport Charges**

Country	Currency of International Landing Fees	Currency of Domestic Landing Fees	Passenger Charges
India	India rupees	India rupees	India rupees
Pakistan	US dollar	US dollar	US dollar
Malaysia	Malaysian ringgit	Malaysian ringgit	Malaysian ringgit
Singapore	Singapore dollar	Singapore dollar	Singapore dollar
Philippines	US dollar	US dollar	US dollar
Thailand	Thai baht	Thai baht	Thai baht
Cambodia	US dollar	US dollar	US dollar
Indonesia	US dollar	Indonesian rupiah	Indonesian rupiah
Viet Nam	US dollar	US dollar	International: US dollar Domestic: Vietnamese dong
Lao PDR	US dollar	US dollar	Domestic: Laos kip
South Korea	Korean won	Korean won	Korean won
Hong Kong, China	Hong Kong dollar	Hong Kong dollar	Hong Kong dollar

## 2. Commercial Revenues at Airports

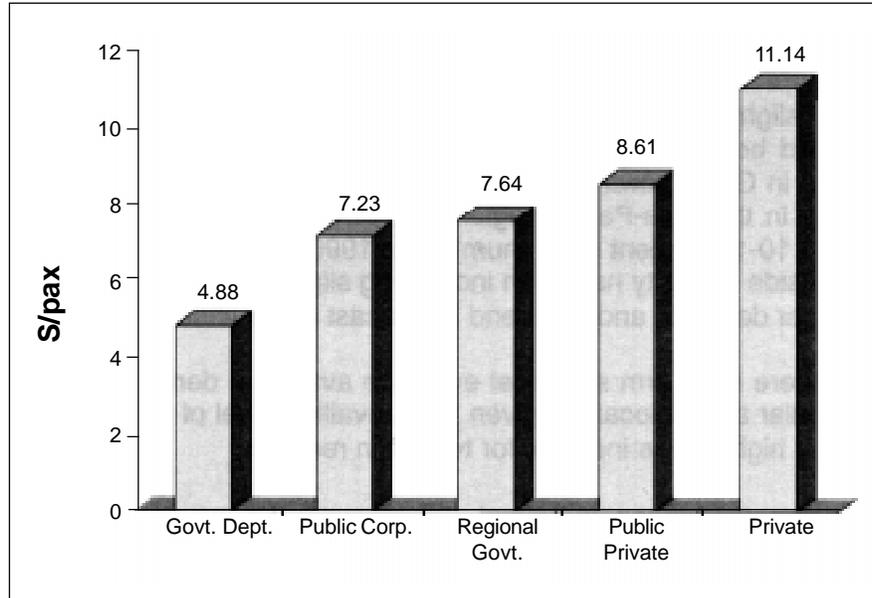
A major potential source of commercial revenues at airports with a significant volume of international traffic are tax and duty-free sales to international travelers. At airports where the traffic is wholly or mainly domestic, the scope for developing retailing activities is more limited, and focuses on services such as catering, car parking, and car hire.

Revenues from commercial activities vary widely between airport operators, partly as a function of exogenous factors, principally the role of the airport operator, and whether it operates passenger terminals, and the mix of domestic and international traffic. However, there is also very wide variation in the revenue mix between airports where passenger terminals are owned and operated by the airport owner, and with a similar mix of international and domestic traffic. Kapur<sup>6</sup> suggests that variations in the level of revenue generated from commercial activities are linked to the ownership status of the airport operator. He shows that land-side (commercial)

<sup>6</sup> Kapur, Anil (1995), *Airport Infrastructure. The Emerging Role of the Private Sector*, World Bank Technical Paper 313.

revenue per passenger in the early 1990s varied by a factor of almost three between government department owned airports and privately owned airports (Figure 1).

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



Source: Kapur (1995)

Kapur cites the example of privatized BAA plc as an airport operator which has been especially effective in developing on-airport commercial activities, both in its own airports and, increasingly, as a contracted manager of passenger terminals and commercial facilities in other countries, including Hong Kong, China; Malaysia; and US.

Given the framework of economic regulation in UK, characterized by the application of the so-called “single till” approach,<sup>7</sup> and price regulation of airport charges, BAA’s success in developing its on-airport commercial activities has translated directly into strong downward pressure on the level of airport charges. Average revenue per passenger from airport charges at BAA’s London Airports fell by approximately 20 percent in real terms over the period 1992/93 to 1996/97.<sup>8</sup>

<sup>7</sup> Under the “single till” approach, airport charges must be set taking into account the profits from other on-airport commercial activities accruing to the airport operator. The general principles governing the level of airport charges are set out in the ICAO guidelines in the following terms:

“In determining the cost basis for airport charges the following principles shall be applied: the cost to be shared is the full cost of providing the airport and its essential ancillary services ... but allowing for revenues both aeronautical or non-aeronautical accruing from the operation of the airport.”

<sup>8</sup> See, Monopolies and Mergers Commission (1997), BAA plc.

## D. Demand and Cost Conditions

### 1. Demand Conditions

As with other types of transport infrastructure, the demand for airport capacity is subject to daily and seasonal fluctuations, the nature of which depends on airport location; operating conditions (24-hour or restricted opening); and traffic mix (domestic - international; short haul long haul; business - tourist/recreation). Demand for air travel is relatively income-elastic and has been growing strongly for many years (around five percent per annum world wide for passengers, and slightly above five percent per annum for freight). The rate of growth of demand has varied between regions (Asia-Pacific, Europe, US, etc.), mainly reflecting inter-regional variations in GDP growth rates. Until the recent recession, demand had been growing particularly rapidly in the Asia-Pacific region, where passenger volumes at major airports had been expanding at 10-13 percent per annum in the 1990.<sup>9</sup> Because of increases in aircraft size, the demand for airside capacity has been increasing slightly less rapidly in recent years than the growth in passenger demand, and this trend is forecast to continue.

Although there is no firm statistical evidence available, demand for airport capacity from airlines at a particular airport location, given the prevailing level of airport charges world wide, is believed to be very highly price inelastic for two main reasons:

- First, airport charges represent only around five percent of total airline operating costs for the International Air Transport Association affiliated airlines (the proportion is somewhat less for long haul operations, but may be as high as 15 percent for short haul services). This means that, on average, even a 100 percent increase in airport charges would only increase airline costs by about five percent;
- Second, there are usually no close substitute airport facilities available, especially for major regional hub airports, such as Singapore, Hong Kong, Bangkok, Manila or Kuala Lumpur.

### 2. Cost Conditions

The lack of close substitutes on the demand side reflects the fact that the supply of airport services is subject to economies of traffic density, extending at least as far as the traffic throughput of a single runway capable of handling the largest passenger jet aircraft (currently the B747 series). The theoretical capacity of such a runway is determined by the maximum number of incoming and outgoing flights that can be handled, which depends upon the quality and availability of complementary ATC and taxiway facilities. The practical capacity will reflect demand as well as supply side factors, including traffic mix, aircraft size, the airport load configuration, the capacity of passenger terminals and parking areas, and any unsocial hours restrictions on take-offs and landings. To illustrate the traffic volumes that can be accommodated within the basic single runway configuration, Gatwick, one of BAA plc's London system airports,

<sup>9</sup> During the period 1991-1995, passenger volumes increased annually at major airports as follows:-

Hong Kong:	9.3%
Singapore:	9.7%
Manila:	10.7%
Bangkok:	11%
Jakarta:	12.4%
Seoul:	13.1%

Source: ICAO, Airport Traffic, 1995.

currently handles around 24 million passengers per annum (mppa), and projected capacity for the year 2000 is around 30 mppa.

Network scale economies in the provision of services by airlines probably mean that the minimum efficient scale of airport operation exceeds the capacity of a single runway facility. A two-runway airport handling, say, 50 mppa will offer airline passengers a wider range of interconnecting services to passengers than two single-runway airports each handling 25 mppa. As a consequence, the airlines' willingness to pay for access to the 50 mppa facility will be worth more than twice their willingness to pay for two 25 mppa facilities.

A traffic density of 50 mppa exceeds the demand for air travel at all airports except for a handful of major conurbations throughout the world, such as London, New York, Paris and Tokyo. Table 3 shows 1995 traffic levels at major airports in the DMCs covered in the present study.

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

Country	mppa
Republic of Korea (Seoul)	30.7
Hong Kong, China	27.4
Singapore (Changi)	21.7
Thailand (Bangkok)	20.9
Malaysia (Kuala Lumpur)	14.2
Indonesia (Jakarta)	12.8
Philippines (Manila)	10.9
India (Bombay)	10.7
Pakistan (Karachi)	4.9

Source: ICAO, *Airport Traffic*, 1995

Although there are strong traffic density economies in airport operations serving a single conurbation or region, there is no evidence that scale effects extend to the operation of more than one airport in different locations. Thus the decision to transfer all seven of the BAA's airports (three in London and four in Scotland) to privatized BAA plc owed more to the UK Government's desire to avoid the complexities and costs of restructuring, and to maximize flotation proceeds at an early stage of the privatization process, than to a considered view on the existence of multi-airport scale effects. In this respect, the more recent policy of the Australian Government in disposing of Federal Airport Corporation airports individually, better reflects the economics of the business, and will improve the effectiveness of economic regulation in the long run, by introducing an element of yardstick or comparator competition into the process.

## **E. The Conditions of Competition and the Need for Economic Regulation**

As well as having market power over the prices of essential airport services used by airlines, airport operators (and/or their agents) at major hub airports also enjoy market power in respect of a wide range of airport-related services, including rentals for on-airport facilities used by airlines or other air transport businesses, and services to passengers which are highly localized in time and space, such as air-side restaurants and airport parking.

The position of many airport concessionaires, such as those operating retailing outlets and land-side restaurants, is somewhat different. Such businesses compete with other local off-airport retail businesses, and in the case of duty-free shops, with duty-free facilities at overseas airports or on aircraft.

The monopoly power enjoyed by airport operators in the markets for air transport services and airport-related ancillary services could be used by profit-seeking businesses to earn profits in excess of those required to attract new investment into the business (so-called “supernormal” profits). Such a policy might manifest itself not only in terms of high prices for services supplied by the airport, but also in under investment in airport facilities, such that capacity expansion programs were unreasonably delayed, leading to poor quality of service to airlines and passengers. Market power can also be abused if the monopolist is able to earn sufficiently high profits given super-competitive cost levels. The ability to abuse monopoly power in these ways would need to be constrained in order to protect the interests of all types of airport user, including airlines, passengers, and freight shippers.

## **F. Air Traffic Control Services**

The provision of ATC services covers two distinct but complementary activities:

- Airport ATC, involving the control of take-off and landing at airports, and of surface aircraft movements within the area of the airport, where the ATC activity is usually carried out from an airport control tower.
- En route ATC, where a single-control center, often quite separate from an individual airport ATC facility, may regulate traffic over a wide area.

The two systems must be closely integrated for operational purposes; as aircraft approach or take-off from the airport, so control passes between the airport and en route ATC centers. Both activities are subject to strongly increasing returns to traffic density and, in the case of en route ATC, to scale, in the sense of the size of area controlled.

An important aspect of ATC provision is the need for interface between civil and military use of the airspace. In some countries, such as Argentina, this interface is secured by having all ATC services provided by the military authorities. Elsewhere, civil ATC operates within designated controlled airspace, and the military authorities provide ATC services to both military and civil aircraft in so-called uncontrolled airspace. The existence of a strong defense interest in the provision of ATC services, which can affect many aspects of the specification and operation, has sometimes been held to preclude full privatization of ATC assets, other than those supplying airport ATC.

ATC costs are recovered through air navigation charges; as with airport charges, the structure and level of ATC charges are subject to international agreements and conventions. For example, in Europe, ATC charges are subject to the Eurocontrol Multilateral Agreement, under which charges are adjusted annually, so as to recover the full costs incurred by each member state.

### III. ALTERNATIVE MODELS OF PRIVATE SECTOR PARTICIPATION

#### A. Introduction

Airport services do not exhibit the classic public good characteristics of non-rivalry, non-excludability and asymmetric information between suppliers and purchasers which make provision of the services by profit-seeking private sector businesses problematic. They are, however, characterized by pervasive external effects, in the form of noise, visual intrusion, and air pollution, and by spill-over effects and complementarities with other surface transport infrastructures, which mean that public authorities will necessarily continue to play a significant role in project initiation and planning. As noted, core airport services are also natural monopoly activities, so that a framework of economic regulation is required to limit the abuse of a dominant position, irrespective of whether the facility is publicly or privately owned.

However, there is now ample experience world wide of natural monopoly utility assets being owned and operated by private sector businesses within a framework of economic regulation. There is increasing evidence that privatized provision, combined with incentive compatible forms of regulation, based on the price cap approach, offers superior performance outcomes (lower prices, and improved service quality as well as improved profitability) compared to service provision by state-owned enterprises.<sup>10</sup>

In this section, the report discusses alternative models of PSP in airport and ATC activities, ranging from complete or almost complete privatization, through flotation or trade sale, to more restricted forms of management contracting. Complete privatization is proposed as an appropriate target model, but it is recognized that this approach works best within a relatively sophisticated regulatory framework involving not only an appropriate legislative framework but also a wider set of conditions covering the conduct of economic regulation. A recent National Economic Research Associates (NERA) report to ADB<sup>11</sup> indicates that current regulatory arrangements in most Asian DMCs fall far short of international best practice. In this situation, more restricted forms of PSP may provide appropriate means of extending the role of the private sector in airport activities. The sector also covers the privatization of ATC facilities.

#### B. Alternative Models of PSP

Table 4 summarizes the key features of alternative models of PSP:

- Full privatization.
- Partial privatization.
  - Concessions.
  - Strategic partnership(s).
  - Management contract(s).

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<sup>10</sup> See, for example, NERA (1996), *The Performance of Privatised Industries: Prices and Service Quality*, a report for the Centre for Policy Studies.

<sup>11</sup> NERA (1998), *Governance and Regulatory Regimes for Private Sector Infrastructure Development: Final Report*, ADB RETA 5758-REG.

## 1. Full Privatization

Full privatization involves the transfer of ownership of airport assets from a public corporation to private investors through a flotation or through a trade sale. Following privatization, the privatized entity is fully responsible for operating the airport facilities, directly or through agents/concessionaires, and for financing investments in airport assets internally, from retained earnings, or externally through the issue of new equity or debt.

The first example of airport privatization occurred in UK, with the flotation of BAA plc in 1986. BAA plc took control of the seven airports previously owned by British Airports Authority, a public corporation. Since 1986, several other publicly owned airports have been privatized, including Belfast International, East Midlands, Southampton and Bristol.

Outside UK the most far-reaching privatization program has taken place in Australia, where long term leases (50 years with an option to extend for a further 49 years) were offered for sale over 18 of the 22 airports operated by the Australian FAC in a two phase sales program. The first phase covered the sale of leases on three major international gateway airports, at Brisbane, Melbourne and Perth, and the second phase the sale of leases on a further fifteen airports.

## 2. Partial Privatization

The evidence on the current extent of PSP in airports, summarized in Appendix 1, shows that there have been relatively few instances of full privatization. There are more examples where private sector financing and operation of airport assets have been introduced via partial privatization measures, although the large majority of cases listed in Appendix 1 refer to situations where some form of partial privatization is being considered or planned but has not yet been realized. The comparative absence of full privatization based on two interrelated factors:

- First, governments' reluctance to cede control over what, at least in the case of major capital city airports, is widely regarded as a vital national asset.
- Second, the lack of an appropriate framework of economic regulation and regulatory governance to balance the interests, short and long term, of consumers and investors, given the highly immobile and long-lived character of airport assets.

These two factors combine to encourage forms of PSP based on long-term contracting or public-private partnerships, in which the contract or partnership mechanism acts, first, to secure investment in airport infrastructure sought by the government partner, and, second, to protect the private investor against arbitrary or opportunistic behavior by government.

Three principal variants of this partial privatization model can be identified:

- Concession or build-operate-transfer (BOT) projects.
- Strategic partnerships.
- Management contracts.

**Table 4: Alternative Models of PSP**

	Privatization	Partial Privatization		
		Concessions	Strategic Partnerships	Management Contract
1. Roles				
Ownership	Private	State	State	State
Investment	Private	Private/mixed	Mixed	State
Operation	Private	Private/mixed	Private/Mixed	Private/Mixed
2. Regulation	Independent Regulator independent regulator	Contract, ownership or	Ownership	Ownership
3. Examples	UK  - British Airports Authority plc (BAA)  - Regional airports Australia <sup>12</sup>  - Federal Airport Corporation (FAC) airports	Colombia — Bogota <sup>12</sup>  Philippines — Manila <sup>12</sup>  Cambodia — Phnom Penh  Argentina <sup>12</sup>  Côte d'Ivoire — Abidjan <sup>12</sup>	Thailand <sup>12</sup>  South Africa	US  - Indianapolis  - Pittsburgh  Italy  - Naples  Malaysia  - Kuala Lumpur

<sup>12</sup> Covered in case studies in Appendix 2.

### a. Concessions

As demonstrated in Appendix 1, the large majority of actual or planned cases of private sector privatization in airports involve concession contracts, under which control of some or all core airport assets is transferred to a private investor, who is responsible for financing investment and operating the airport for the term of the concession, typically 25-30 years. The precise extent of the private sector operator's responsibilities varies. In some cases, the concession agreement may cover financing and operation of all airport assets; in others, the concessionaire may only be responsible for financing and operating a particular facility, such as a passenger terminal or runways, alongside the incumbent public sector airport operator.

The case studies in Appendix 2 include three airport concession projects in developing countries:

- Abidjan Hophôuet-Boigny Airport, Côte d'Ivoire.
- Ninoy Aquino International Airport, Philippines.
- Bogota El Dorado International Airport, Colombia.

Responsibility for the operation and development of Abidjan Hophôuet-Boigny Airport (AERIA) was transferred through a 15-year concession agreement signed in July 1996 between the Government of Côte d'Ivoire and AERIA, a special purpose company controlled by Société d'Exploitation et de Gestion Aéroportuaire (SEGAP), itself a jointly owned subsidiary of the Marseilles Chamber of Commerce and Industry (MCCI) and Groupe Sofrevia, a French aviation services company. MCCI operates Marseilles airport, and SEGAP also operates Libreville (Gabon) airport under a 30-year concession agreement signed in 1998.

Under the concession agreement, AERIA committed to a four year investment program, covering a major expansion of the international passenger terminal and associated parking apron and taxiway areas together with runway reinforcement and extension, aimed at expanding the airport capacity from around one to 1.7 mppa by 2001. AERIA will finance the investments from airport user charges and other airport revenues; it will also pay concession fees to the Ivorian authorities, amounting to approximately 20 percent of turnover, largely to finance the operation of unprofitable interior airports in Côte d'Ivoire.

At Ninoy Aquino International Airport (NAIA), a concessionaire, Philippine International Air Terminal Company Inc. (PIATCO), has been selected to construct and operate a new international passenger terminal over a 25-year concession period. The Manila International Airport Authority (MIAA), a public corporation, will continue to own and operate other airport assets, including the two existing passenger terminals and runways. Under the concession contract, PIATCO will be able to increase international passenger charges (levied on airlines) from the initial level determined by the Ministry of Transport and Communications in line with a pre-determined formula. PIATCO will also pay a two-part concession fee to MIAA, consisting of a sum fixed in real terms, and a variable fee, expressed as a proportion of total revenues from international passenger charges and other commercial activities. This two-part structure introduces a degree of revenue risk sharing into the agreement.<sup>13</sup>

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<sup>13</sup> There is further discussion of this and other contract design issues in Section IV below.

In the Bogota El Dorado International Airport project, the concessionaire, Compañia de Desarrollo Aeropuerto El Dorado SA (CODAD) will construct and maintain a new runway and taxiway facilities over the 20-year concession period. However, it will also be responsible for maintaining the existing runway, taxiways and parking areas, and will be remunerated by revenues from airport landing charges. The airport passenger terminal facilities will continue to be operated by Aeronautica Civil (Aerocivil), the government agency responsible for operating other airports and ATC facilities in Colombia.

The concession agreement provides for the concessionaire to double landing charges on completion of the new facility. Thereafter, charges will be increased in line with domestic inflation. Unlike the Manila concession, the agreement does not require the concessionaire to make any payments to the Colombian Government. Recently, CODAD has successfully issued 15-year US dollar denominated revenue bonds, on the basis of a minimum revenue guarantee by the Colombian Government. Revenue bonds, linked to tax incentives, have been widely used as a vehicle for airport infrastructure financing by public sector authorities in the US, including the Port Authority of New York and New Jersey.

The majority of concession projects identified in Appendix 1 cover specific investment projects, similar to those implemented at Manila and Bogota. Francophone countries, in particular, such as Gabon and Cambodia, offer examples of more wide-ranging concession agreements, covering the upgrading and operation of an entire airport. On a much larger scale still is the recently concluded concession agreement covering the transfer of 33 of Argentina's 59 civil airports to a private sector-led consortium.<sup>14</sup> In this case, the 30-year concession agreement requires the concessionaire to finance and undertake a US\$2 billion upgrading and modernization program covering the principal international and regional airports, and to pay the government an annual concession fee of US\$171 million throughout the concession period. The airports included in the concession include a mix of profitable and unprofitable facilities; investment and operating losses at the unprofitable airports will be financed by cross-subsidy from the profitable airports. It is expected that the investment program will be financed by a combination of free cash flow from existing airport operations and some limited project finance.

The make-up of a concession consortium depends upon factors such as the nature of the project and the extent of any constraints imposed by governments on stake-holdings (many governments require a significant, or majority, ownership stake to be held by indigenous businesses). For projects involving construction and operation of passenger terminals, the consortium would normally include an airport operator, such as BAA plc, alongside a construction company (often local) and an investment bank. Shareholders usually take only a very limited equity stake (5-10 percent of funding) with the bulk of the financing taking the form of externally held debt, sometimes including an element of development bank funding.

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<sup>14</sup> See Appendix 2 for further details.

## **b. Strategic Partnerships**

Under the strategic partner model, a private sector firm or consortium acquires a stake (typically a minority shareholding) in a state owned airports operator. Proposals for re-structuring the Airports Authority of Thailand (AAT) via a strategic partnership are currently being considered by the Thai Government,<sup>15</sup> and the South African authorities have offered a minority stake in the Southern African Airports Company Limited to a strategic investor, as a possible step towards full privatization.

In Thailand, it is expected that, apart from taking an equity stake in the re-structured airports operating company, the strategic partner will also be awarded a management contract covering the operation of a range of airport ancillary activities, such as internal telephone systems, car parking and aircraft maintenance facilities.

Strategic partnerships provide a vehicle for introducing private sector finance and operational expertise in order to directly relieve public financing constraints and to improve operational and financial performance. Another form of partial privatization occurs when a minority of shares in a state-owned airports operator are sold to private investors, usually through a flotation. This approach has been followed in Vienna Airport (Austria) and in Copenhagen Airport (Denmark). The incumbent management, and through its power to appoint top management, the state, retains control of the business, but the conduct of the business is exposed to a measure of external capital market discipline. As with strategic partnerships, this may be the precursor to eventual privatization.

## **c. Management Contracts**

Under the management contract model, a private sector contractor is retained to manage airport assets, usually passenger terminal facilities or retailing activities within passenger terminals. Other airport operational activities, such as maintenance and operation of runways and ATC facilities, continue to be undertaken by the airport owner or other state sector agencies. This model enables the private sector contractor to transfer best practice across a range of airport activities, thereby reducing costs and enhancing revenues and improving standards of services. Responsibility for funding investment in airport assets is retained by the airport owner, but the prospects for more wide-ranging types of privatization may be greatly improved by the increased profitability of the business under the management contract.

The concessionaire would either receive a management fee, linked to revenues generated in the activities for which it was responsible, or it would receive a share of airport revenues, but would pay a lease or rental charge to the airport owner. With responsibility for financing major investments remaining with the airport owner, the length of a management contract would tend to be significantly shorter than the term of a BOT contract.

To date, management contracts have been almost exclusively applied by public airport authorities in developed OECD countries as a means of improving service quality and the financial performance of the airport. In developing countries, the stimulus to engage the private sector is more frequently related to securing additional funding for investment projects and for gaining the benefit of private sector skills in project management.

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<sup>15</sup> See Appendix 2 for further details.

### C. Full and Partial Privatization Compared

It was argued above that given the current political climate and regulatory practice in DMCs, full privatization of airports as in UK or Australia, is probably not feasible in these countries. However, if the climate was to change and regulatory arrangements were to move closer to international best practice, so that full privatization was feasible, what are the pros and cons of the two approaches?

The first point to make is that any improvement in regulatory practice will generally be expected to improve the terms on which the private sector is willing to invest in DMCs. Although contractual mechanisms might be regarded as a substitute for economic regulation, concession contracts will almost certainly need to be revised over the term of the concession in light of unexpected market developments. The presence of an effective regulatory governance framework both increases competition for the market and improves performance under contracts, by giving investors better assurance that contract terms would be revised in a manner which respected their interests as well as those of consumers.

The potential advantages and disadvantages of full and partial privatization reflect the economic characteristics of the two approaches. By comparison with full privatization, in which all operational assets are owned and operated by the private sector, partial privatization arrangements, are certainly time limited, and are often scope limited. Experience to date indicates that BOT projects and management contracts, in particular, are often embedded within a wider set of airport activities which continue to be provided by a public sector agency. Finally, partial privatization through strategic partnership requires control to be shared between the public and private sector partners.

Compared to full privatization, these characteristics of partial privatization may have certain potentially adverse effects on the performance of the service provider:

- Weaker incentives to invest and to innovate, especially during the later stages of the concession, because its time-limited nature restricts the scope of benefit capture.
- Higher transaction costs associated with incomplete contracting.
- More generally, a partial privatization framework based on formal contractual mechanisms may restrict the private sector partner's ability to respond flexibly to unexpected market developments, etc.
- Finally, concessionaire's costs may be inflated for one of two (mutually exclusive) reasons. First, suppose that the concession agreement does not contain explicit provisions for compensating the concessionaire for the residual value of all assets acquired during the concession period,<sup>16</sup> but whose economic life extends beyond the end of the concession terminal date. The concessionaire will need, prudently, to amortize the cost of the assets over the remaining term of the concession, since there is no guarantee of the concession being extended. This would mean that the level of depreciation to be recovered through airport charges will be higher than if the airport assets had been privatized. Alternatively, if the agreement does contain compensation provisions, there may still be significant uncertainty as to how they will be applied in practice, especially in first generation concessions and in the absence

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<sup>16</sup> As several existing concession agreements do not.

of mature regulatory institutions and precedents. This uncertainty will either be reflected in a higher cost of capital (conceptually similar to the so-called “regulatory risk premium”) or in conservative estimates of the terminal cash flow element, leading to less favorable financial bids.<sup>17</sup>

However, performance outcomes will also depend upon the nature and extent of competitive pressures on the incumbent, and in this respect, a time-limited concession approach offers some advantage over full privatization, since it enables periodic competition for the market, albeit across a more restricted set of activities. This benefit is attenuated in practice because of the long term nature of airport concessions, which is required in order to provide the concessionaire with adequate incentives to invest in very long-lived assets, in the absence of robust arrangement for compensation based on residual asset values. The extent of any advantage is also uncertain because a privatized business will itself be subject to competitive pressures from the capital market.

On balance, its advantages over partial privatization solutions means that full privatization of airport operations should be regarded as an appropriate target model for DMCs. Improvements in regulatory practice should therefore not only improve outcomes under existing partial privatization initiatives, but should bring wider benefits, by improving prospects for full privatization of airports.

#### **D. Air Traffic Control**

There is clear evidence of rapidly expanding interest in and experience of private sector financing and operation of airports. However, there are few signs of any corresponding developments in ATC provision, despite widespread concern regarding the difficulties of financing investment to upgrade en-route ATC, given constraints on public expenditure, and the perceived inefficiency of many state-owned ATC providers.

Apart from full privatization of the Civil Aviation Authority’s (CAA) ATC division National Air Traffic Services (NATS), which was proposed by the UK Government in 1994, but not subsequently implemented, two other types of structural reform of ATC provision have been implemented in recent years:

- Provision of ATC services by a non-profit making trust. This approach has been adopted in Canada, where the Canadian Air Navigation System was sold to NAV CANADA in 1996. NAV CANADA is constituted as a non-profit corporation, with a Board comprising representatives of airlines, government and the air traffic controllers’ union. It is allowed to set user charges to recover costs, but any surpluses must either be used to retire debt or enhance traffic services.
- Corporatization of the ATC activity, either by transforming an existing authority into a public corporation (as in New Zealand) or by transferring ATC assets from an authority to an existing corporation (as in Malaysia, where ATC assets are now owned by the state airports corporation).

Following the abandonment of full privatization in 1995, the UK Government has explored a partial privatization approach to ATC, within the so-called Private Finance Initiative

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<sup>17</sup> It should, however, be noted that problems of this kind may arise under full privatization, for example, if regulators change the rules of the game with respect to regulatory asset values, or apply discretion in deciding which assets should be included in the regulated firm’s regulatory asset base.

framework. This would involve a BOT contract for construction and operation of a new en-route control center in Scotland.

This approach has been strongly criticized by the existing NATS management, who claim that it would be significantly more costly than traditional public sector financing for three reasons:

- A higher private sector cost of capital.
- Additional bidding and transaction costs (which NATS claimed would add around two percent to project costs).
- Loss of potential competition for subsequent upgrading contracts.

Both NATS and the CAA have argued that it would be preferable to privatize NATS as a regulated utility subject to a price cap.

#### **IV. MEASURES TO ENCOURAGE SUCCESSFUL PRIVATE SECTOR PARTICIPATION**

##### **A. Introduction**

This section reports on the existing experience of PSP in airports and in other types of transport infrastructure, both in DMCs and elsewhere, in order to identify measures likely to encourage successful privatization initiatives in the airports sector. The discussion is organized as follows:

- the importance of establishing a favorable public policy environment to encourage PSP.
- the case for restructuring the airports industry in order to accommodate PSP.
- a discussion covering aspects of the legal and regulatory framework necessary to secure the interests of key stakeholders following privatization.
- the allocation of risk between the state and privatized airports operators.
- measures to encourage efficient tendering outcomes where privatization is implemented either through trade sale of leases or concessions.
- a review of options for engaging the private sector if the airport is unprofitable.
- the main lessons, both positive and negative to be learned from experience to date.

##### **B. Public Policy**

All other things being equal, the role of the private sector in financing and operating all types of public utility infrastructure will develop most rapidly when the stance of public policy is openly and consistently supportive, and recognizes that privatized provision of utility services should be regarded as the rule rather than the exception.

How precisely this environment is achieved will depend upon the legal and administrative traditions of the countries concerned. In UK, for example, the process of utility privatization

developed in a relatively ad hoc fashion. The major privatizations of the mid 1980s, involving British Telecommunications, British Gas, and BAA were each justified in terms of the specific circumstances of the nationalized industries concerned, and an increasing recognition of the benefits of privatization to the public finances. It was only in the mid-late 1980s that a coherent philosophy emerged regarding privatized ownership of the utilities as the norm.

Other countries, including some in Eastern Europe and some DMCs, have taken a different approach, and have created legislative frameworks to facilitate privatization across the utilities sector. The Philippines, for example, has passed the so-called BOT law authorizing the financing, construction, operation, and maintenance of infrastructure projects by the private sector. As amended in 1993,<sup>18</sup> the law begins with the following declaration of policy:

“It is the declared policy of the State to recognize the indispensable role of the private sector as the main engine of national growth and development and to provide the most appropriate incentives to mobilize private resources for the purpose of financing the construction, operation and maintenance of infrastructure and development projects normally financed and undertaken by the government. Such incentives, aside from financial incentives as provided by law, shall include providing a climate of minimum government regulations and procedures and specific government undertakings in support of the private sector.”

As well as identifying the specific types of PSP covered by the legislation, other sections of the law make provisions covering, inter alia:

- The duty of government agencies to identify candidate PSP projects and to give wide publicity to the projects thus identified.
- Procedures for tendering and project award.
- Authorization for concessionaires to derive revenues from user charges or rentals stemming from the possession and use of infrastructure assets.
- Arrangements for terminating or extending concessions.
- Arrangements for establishing Regulatory Boards, to supervise pricing and performance of the private sector.

Similar provisions are contained in legislation on concessions in some Eastern Europe countries such as Hungary, where the legislation<sup>19</sup> enables concessions in public transport (including airports), water services, telecommunication networks, energy/supply and postal services. The Hungarian legislation has provided a framework for negotiating BOT motorway projects, but so far has not been applied to the airports sector.

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<sup>18</sup> Republic Act 7718.

<sup>19</sup> Act XVI, 1991 on concessions.

### C. Industry Restructuring

In most countries, the existing structure of the airports industry falls into one of the following categories:

- A highly concentrated industry structure in which a national airports or civil aviation authority or corporation owns and operates all major civil airports.
- A more fragmented industry structure, characterized either by local or regional authority ownership of airports, or by a combination of state and local authority ownership.

If airport ownership is highly concentrated, the issue arises of whether, and, if so, how, the industry should be restructured in order to accommodate PSP.

The case studies in Appendix 2 illustrate different approaches to this issue. In UK, for example, privatization has taken place without any significant industry restructuring. The BAA, a state corporation, which owned and operated a total of seven airports, three in south-east England and four in Scotland, was privatized as a single entity, BAA plc. Although ownership of the non-BAA airports is relatively fragmented, the industry remains highly concentrated by virtue of the predominance of BAA's south-east airports as international gateways.

At the other extreme, the airport sector in Australia has been radically re-structured as a result of the privatization process. Prior to privatization, the FAC, a state corporation, owned and operated an extensive network of international and regional airports. Following the privatization process, which involved the sale of very long term leases on 17 of the principal airports, ownership is now divided between 10 different consortia, with no single consortium controlling more than one of the major international gateway airports so far offered for privatization.

In between these two extremes, the case studies of Thailand, Côte d'Ivoire and Argentina offer examples where privatization has been, or will be, accompanied by some degree of industry re-structuring. The simplest case is in Côte d'Ivoire, where, prior to privatization, a national civil aviation authority - Agence Nationale de l'Aviation Civile et de la Météorologie -owned and operated airports and ATC facilities throughout the country. Following the concessioning of the major airport at Abidjan in 1996, the remaining airport and ATC activities were transferred to a newly created state corporation, le Service Météorologique National de la Côte d'Ivoire (SODEXAM), which also acts as the conceding authority in relation to the Abidjan airport concession.

In Argentina, airports and ATC facilities were operated by the Argentina Air Force. Thirty three of the principal airports, including the major international gateway at Buenos Aires were transferred to a single private sector concessionaire in 1998; the remainder, many heavily loss-making, were transferred to the regional governments concerned.

The most complex re-structuring is envisaged in Thailand, where major airports are currently owned and operated by a state corporation, the AAT. The Thai Government plans to offer a minority stake in a newly created joint venture company, the Airport Authority of Thailand Co. Ltd., to a strategic partner. The Airport Authority of Thailand Co. Ltd., in turn, will be either the sole or majority shareholder in two successor companies, the first responsible for operating the existing international airport at Bangkok, and the second for developing and operating a new international airport at Bangkok. AAT's major regional airport assets will be transferred to a newly created regional airport company, in which the majority shareholder will be a private

sector partner, possibly the same as the strategic partner participating in the development of the Bangkok system.

An important factor in this complex set of proposals is the need to preserve a state sector majority shareholding in the entity charged with developing the new airport, in order to benefit from a large soft loan facility, offered by Overseas Economic Cooperation Fund, to finance the new airport construction, which is only available on a government-to-government basis.

The discussion in Section II indicates that there is little evidence of significant scale benefits flowing from multiple airport operation; equally, however, there is little evidence of significant scale diseconomies. The case for significantly reducing the concentration of airport ownership at privatization therefore depends on the trade-off between the up-front and visible costs of re-structuring, and possibly less tangible benefits of increased competition resulting from break-up. The competition benefits in this industry are not clear-cut, primarily because major airports mainly serve distinct regional markets. Even in UK, where BAA's south-eastern airports were clearly serving broadly the same regional market, competitive pressures at the time of privatization were weakened by traffic distribution rules (although these have since been abandoned), and, more fundamentally, by the dominant position of Heathrow within the system (although this has possibly weakened somewhat as a result of traffic growth at the other airports).

In UK, the authorities took the view that any potential competition gains from breaking up BAA prior to privatization would have been offset by restructuring costs. In Australia, by contrast, the government has preferred to restructure and reduce industry concentration radically, emphasizing the following public policy benefits of the approach:

- The possibility of some limited inter-airport competition for long haul international traffic.
- The benefits of fragmented ownership in generating yardstick evidence, enabling regulatory agencies to assess individual operator performance more effectively; and in introducing a limited element of competition by emulation between operators.

#### **D. Regulatory Institutions and Practice**

Irrespective of whether PSP in airports and ATC involves full or partial privatization, arrangements are needed to safeguard the interests of airport users and to balance the long-term interests of users and investors.

##### **1. Regulating Fully Privatized Airports Operators**

The economic regulation of fully privatized airports involves the imposition of constraints, either on the maximum prices charged, or on airport profitability, as measured by the rate of return on capital. Both UK and Australia have preferred to regulate prices rather than profitability, in the belief that this form of regulation will encourage better performance outcomes, in particular, in respect of cost efficiency.

In UK, the primary legislation, the Airports Act, 1986, identifies a set of licensed airports, where the license conditions impose obligations on the airport authority relating to the safe operation of the facilities, and delegate powers to the authority, such as the power to set local by-laws needed to fulfil these obligations. Within the set of licensed airport operators, the Airports Act also specifies a minimum threshold scale of operations, currently £1 million of

turnover,<sup>20</sup> above which the airport operator is subject to economic regulation, in the sense that it must apply to the regulator for permission to levy charges. Within the airports subject to economic regulation in this way, secondary legislation identifies a further subset of four airports, London Heathrow, Gatwick and Stansted, all owned by BAA, and Manchester International Airport, where the airport license includes conditions relating to the maximum level of charges.

The rationale for only designating four airports as subject to price regulation offered when the legislation was passed was that charges at other airports would be constrained by competition from other airports, including those subject to price regulation, the provisions of existing UK and European Union (EU) competition policy legislation, and the threat of designation.

A broadly similar approach has been followed in Australia, where price cap regimes have been applied at major international gateway airports and at a number of larger regional airports.<sup>21</sup> At smaller airports, the regulatory agency is able to determine charges if the airport operator is unable to agree charges with airline customers.

Another common feature of economic regulation in UK and Australia is the establishment of an independent regulatory agency, separate from the executive departments of government.

In UK, responsibility for the economic regulation of airports has been vested in the CAA, a specialized sectoral regulator, which also owns and operates ATC facilities, and exercises safety and economic regulatory responsibilities in relation to UK registered airlines. In Australia, the task of setting and reviewing airport price caps and of monitoring service quality performance and compliance with other contractual obligations has been given to the Australian Competition and Consumer Council, which has wider responsibilities as a competition policy agency.

In both UK and Australia, the decisions of the regulatory agency in respect of the maximum prices to be allowed, are taken in the light of certain public interest criteria, specified in primary legislation. For example, Section 39 (2) of UK Airports Act, 1986, states that the CAA shall perform its functions so as to:

- Further the reasonable interests of users of airports within the UK.
- Promote the efficient, economic and profitable operation of such airports.
- Encourage investment in new facilities in time to satisfy anticipated demands by the users of such airports.
- Impose the minimum restrictions that are consistent with the performance by the CAA of its functions.

The criteria in Section 39 thus recognize that whilst the regulatory agency must protect the interests of airport users, it must also balance the interests of consumers and investors, to encourage continuing investment in new facilities.

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<sup>20</sup> To be altered to 1 million passengers per annum under current government proposals.

<sup>21</sup> The following 12 airports are subject to price regulation:

Darwin, Townsville, Brisbane, Coolangatta, Sydney, Canberra, Melbourne, Adelaide, Alice Springs, Perth, Hobart, and Launceston.

The Airports Act also determined the procedures for carrying out periodic reviews of airport charges at airports subject to price cap regulation. Under these provisions, the Monopolies and Mergers Commission (MMC) was given responsibility for reviewing performance under the existing price cap and on any other aspects of airport operator conduct referred to it by the CAA. The MMC review process involved extensive interchange of information and opinion with the regulator and other parties, such as airlines. On the basis of the results and expectations about future market developments, the MMC then recommended, in a published report, a new quinquennial price formula. The CAA was given final responsibility for determining the price formula in light of the MMC recommendations, although it was not bound to accept these recommendations. Once again, the GAA's decision and its justification was published.

This set of institutions, conduct rules and processes scores highly in terms of five of the six criteria of good practice in regulatory governance identified in a recent NERA report to ADB.<sup>22</sup> Specifically it ensures:

- Clarity in the role and objectives of the regulating agency.
- Regulatory autonomy.
- Effective participation by regulatees and other interested parties, such as airlines, in the regulatory process.
- Regulatory transparency.
- Regulatory accountability.

It did not ensure regulatory predictability, since the MMC was not bound by its own previous decisions. However, it can be argued that other characteristics of the review process, notably clarity of objectives and regulatory transparency, at least help to reduce the likelihood of inconsistency of approach between reviews. In practice, in contrast to the position in some other UK regulated industries, it appears that the regulatory authorities have so far taken a consistent approach at successive periodic reviews over matters such as regulatory asset valuation.

The roles assigned to the MMC and the sector regulator (the CAA) under the 1986 Act were, in fact, distinctive in relation to practice in other UK regulated industries, where the regulatory agency, such as the Office of Telecommunications, was responsible for conducting the periodic review and making proposals for resetting the price cap. The MMC would act as an appeals body in the event that the regulated company and the regulator could not reach agreement on a revised price cap formula.

Following a recent review of utilities regulation, the Government has announced proposals for bringing the conduct of future periodic reviews in the airports sector into line with practice in the other industries. The CAA, in common with other such regulators, will be responsible for reviewing outcomes and making proposals for resetting the price cap, with the MMC acting as an arbitrator if the parties cannot reach agreement. In the event of an MMC referral, the MMC's report will be published.

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<sup>22</sup> NERA (1998), *op cit*.

## 2. Economic Regulation under Partial Privatization

Under partial privatization involving a concession, the government (or its agent) acts as a purchaser of the services provided by the private sector contractor, following a process of competition for the market, and the resulting contract terms act as the primary instrument of regulation. The case studies of airport concessions in Appendix 2 include examples of different approaches to regulating concessionaire conduct.

In the Côte d'Ivoire, the terms of the concession agreement require the concessionaire, AERIA, to consult with the conceding authority (SODEXAM) before adjusting airport charges. However, the conceding authority is obliged under the concession agreement to sanction any increases in charges necessary to maintain the concessionaire's financial equilibrium, defined in the agreement as the full recovery of operating and financing costs. If approval is withheld, then the government must compensate the concessionaire directly. This framework therefore corresponds closely to a rate of return or cost of service form of regulation, which is generally believed to weaken the cost efficiency incentives of the concessionaire. The concession agreement appears to address the resulting incentive problem by envisaging a high degree of interaction between the concessionaire and the conceding authority, with annual negotiations on tariff adjustments and other operational aspects of the concession agreement, similar to those that might occur between a state-owned enterprise and its sponsoring ministry.

In the cases of Argentina, Colombia, and the Philippines the concession contract contains a price cap mechanism to restrict the maximum permitted rate of increase in airport charges. In contrast to cost of service regulation, the price cap approach offers strong incentives to the concessionaire to be cost-efficient, reducing the need for the intrusive regulation that appears to characterize arrangements in the Côte d'Ivoire. However, airport concessions are typically very long lived, and arrangements must be made to monitor regulatee performance under the contract, especially over matters such as the timely completion of investment projects, and service quality, to review and revise financial and other contract terms in the light of outturn experience (which may differ significantly from assumptions on which the contract was based) and, finally, to discourage opportunistic behavior by government.

As shown in the section below, contractual mechanisms that allocate risks efficiently between the parties can significantly reduce the need for formal contract review mechanisms. It can also be argued that the issues posed by uncertainty and opportunism are less important in the aviation sector than in other types of transport infrastructure, such as roads or light rail transport systems. Uncertainty over future demand is arguably less of a problem for airports (and ATC) because there are few substitutes and demand is not highly price sensitive. Also, government has fewer incentives to behave opportunistically over airport charges than over user charges in other sectors, whose impact is more widely felt by domestic consumers (and voters).

However, governments may behave opportunistically over other terms of the concession agreement than those relating to airport charges. An example of this has occurred recently in Cambodia, where the concession agreement at Phnom Penh airport included a Government commitment to designate Phnom Penh as the sole international gateway for Cambodia.<sup>23</sup> Subsequently, the Government has reneged on this commitment by permitting international flights to land at an airport elsewhere in Cambodia, and it is not yet clear whether some

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<sup>23</sup> Similar provisions are included in the Ninoy Aquino International Airport BOT agreement. See Appendix 2.

compensating adjustment to the terms of the concession has been negotiated between the government and the concessionaire.

It seems certain that actions of this kind will adversely affect the private sector's future willingness to invest in Cambodia. Such effects might have been mitigated by the existence of an independent arbitrator, armed with clear conduct rules, to whom the concessionaire could have appealed in the event of a failure to agree an appropriate adjustment to contractual terms with the Government.

Assessing current regulatory practice in six DMGs (Bangladesh, India, Indonesia, Malaysia, Pakistan, and the Philippines) against criteria of good practice, NERA's recent report to ADB<sup>24</sup> found that whilst there was evidence of a clear trend towards generally more effective regulatory governance, there was as yet:

“no clear evidence of convergence to best-practice or any other common solution. It remains to be demonstrated whether international best-practice regulatory frameworks can and do work effectively in Asian DMCs.”

As recent experience in Cambodia, Côte d'Ivoire, Gabon, the Philippines, and in several Latin American countries, illustrates, imperfections in regulatory governance do not prevent PSP in airports, given certain favorable characteristics of the market environment (strong growth in demand, strong market position of hub airport operators). However, they may well reduce the flow of private sector investment in infrastructure projects, and worsen the terms on which the private sector is willing to invest.

## **E. Contract Design and Risk Management**

An important aspect of good practice in the concession model of PSP is the management of risk through contract design. It is necessary at the outset to define what is meant by risk management in this context. Mainstream finance theory distinguishes between systematic risk, which refers to the relationship between the variation in project returns and variations in the average return across a wide portfolio of assets (the market return), and the specific risk of a project, which refers to the variability in the expected return to the project. Mainstream theory emphasizes the role of systematic risk in determining the cost of equity capital, under efficient capital markets.

### **1. Sources of Risk**

The term risk management as used in the present context is distinct from these more familiar concepts of risk, and can perhaps best be understood by considering the set of variables which determine the expected present value of an airport investment project to a potential contractor. These are shown in Table 5, together with some of the factors affecting outcomes in respect of each variable. With the exception of exchange rate risk, where outcomes are entirely exogenous, outcomes under the determining variables reflect a combination of external factors and contractor performance.

The objective of efficient contract design is to allocate risk to the party best able to manage it. This means that the government may protect the concessionaire from certain types of risk, such as risk arising from planning delays or changes in externally imposed safety or

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<sup>24</sup> NERA (1998), *op cit*.

security regulations whilst leaving them exposed to factors reflecting their own performance, especially those relating to costs.

**Table 5: Sources of Risk**

<b>Variable</b>	<b>Risk Factors</b>	
<b><i>Construction cost/time</i></b>	Contractor performance External	<ul style="list-style-type: none"> <li>- planning/legislative time scale</li> <li>- regulatory factors</li> <li>- safety/security regime</li> <li>- purchaser behavior (change of specification).</li> <li>- inflation</li> <li>- exchange rate (for imported equipment)</li> </ul>
<b><i>Operating cost</i></b>	Contractor performance External	<ul style="list-style-type: none"> <li>- change in security regime</li> <li>- inflation</li> </ul>
<b><i>Demand/revenues</i></b>	Contractor performance External	<ul style="list-style-type: none"> <li>- charges</li> <li>- macroeconomic factors</li> <li>- airline industry factors</li> <li>- inflation</li> </ul>
<b><i>Financing cost</i></b>	Contractor performance External	<ul style="list-style-type: none"> <li>- market perception of project risk</li> <li>- investment bank policies</li> </ul>
<b><i>Exchange rates</i></b>	External	

## **2. Managing Risks**

The approach now widely adopted in concession projects in the airports sector, and in other types of transport infrastructure, is to identify a range of external risk factors, such as those shown in Table 5, and to specify compensating adjustments in the financial terms of the contract in respect of pre-defined outcomes under each factor. For example:

- Contractors are not normally exposed to planning risk, which covers a variety of contingencies that arise because large transport infrastructure projects, such as major airport developments, are prone to suffer both delays and cost increases as a result of planning enquiries or legislative processes. Thus, if planning processes lead to a requirement for greater expenditure on environmental protection than was anticipated when the contract was negotiated, the contractor would normally benefit from a compensatory adjustment to contract terms.
- Similarly, contractors are also protected against general inflation risks, though price indexation clauses in contracts (including price cap mechanisms).

### a. Exchange Rate Risks

The recent Asian economic downturn has highlighted the potential importance of exchange rate variability and demand uncertainty as determinants of project viability. Exchange rates affect viability because user charges, including airport charges, are set in local currencies, whereas a proportion, possibly the majority, of the concessionaire's liabilities may be hard currency denominated.

To the extent that exchange rate fluctuations reflect, or cause, variations in the rate of domestic inflation relative to global inflation, indexation of output prices in local currency offers a measure of protection against exchange rate risk. A more extreme solution would be to have airport charges denominated in a hard currency, such as US dollars. Whilst this would still leave the operator exposed to currency risk in relation to services from commercial activities, such as retailing and car parking, many of the costs arising in these activities would also be denominated in local currency.

As noted above, setting charges in a non-local currency is admissible under ICAO recommended procedures:

“in special circumstances, for example, where economic conditions are not stable.”<sup>25</sup>

According to the evidence on current airport charging practice, several DMCs now set many or all airport charges in US dollars. Moreover, the only two DMCs in the group shown in Table 2 to have implemented airport concessions to date, Cambodia and the Philippines, have each adopted a policy of dollar denomination of charges.

### b. Demand and Revenue Risk

The case studies and experience in other types of transport infrastructure project have identified widely differing approaches to the treatment of demand and revenue risk in concession projects:

- At one extreme, some concession contracts allocate demand and revenue risk entirely to the project promoter.
- Elsewhere, a range of contractual mechanisms has been devised to share revenue risk between the government purchaser and the project promoter.

Contractual mechanisms where revenue risk remains with the contractor take one of two forms:

- The concessionaire pays a once-for-all or annual concession fee to the government that is fixed in real terms, or if the project is unprofitable, the concessionaire receives a fixed payment from government. Projects are awarded to the concessionaire offering the highest (least negative) fee. Examples of this type of agreement include the Argentine airports concession, where there is a constraint on the maximum level of charges that can be set by the concessionaire, and the original concession

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<sup>25</sup> ICAO, Statement by the Council on Airport Charges, Section I C.

agreement for the Channel Tunnel Rail Link (CTRL) in UK, where the market was judged to be competitive, and so no constraint on charges was imposed.

- The concessionaire retains project revenue for a fixed term and the contract is awarded to the bidder offering the lowest level of user charges (a Chadwick auction mechanism).

Fixed fee or revenue retention contracts of this kind are favored because they provide the strongest possible incentives for the concessionaire to perform effectively. The potential difficulties which they introduce are well illustrated by the recent experience with the CTRL concession. Fixed price bids for the project were sought at a time when future demand was highly uncertain. In the event, realized demand has been far lower than that projected by the bidder, and the agreement has had to be abandoned, at considerable expense to both the concessionaire and to the UK Government. The outcome exemplifies the “winner’s curse” problem characteristic of this type of bidding process, since the winning bid was based on a highly optimistic view of the level of future demand for the project. It can be argued that the level of demand uncertainty in airport development projects is generally less significant than for projects, such as CTRL or roads, where there may be far closer substitutes available, and where realized demand may be greatly affected by competitor response.

A range of contractual devices are available for sharing demand and revenue risk. The airports concession projects covered in the case studies illustrate three variants of this approach:

- The most straightforward is when, as in Côte d’Ivoire, the concession agreement is based on cost of service regulation. Given price inelastic demand for airport services, this approach would enable the concessionaire to increase charges in real terms to whatever extent was necessary to restore financial equilibrium, allowing market risks to be fully transferred to airport users.
- A government minimum revenue guarantee (Bogota). This approach is conceptually similar to devices such as minimum offtake agreements, observed in concession contracts in the power sector. The Bogota project was awarded to the bidder seeking the lowest guaranteed level of revenue and the lowest average landing fee.
- Concession fees variable with airport revenue (the Philippines). In this case, the concession fee payable to MIAA contains both a fixed and a variable element, the latter expressed as a proportion of total revenue accruing through passenger terminal operations. In this case, the contract has been awarded to the bidder offering the highest expected concession fee revenue, with the revenue being evaluated across a range of demand scenarios.

Other risk sharing devices observed in transport sector concession projects include:

- Variable concession lengths; this approach has been applied in a number of tolled motorways and bridges. If the present value of concession revenue reaches a certain pre-determined level before the maximum term of the concession, which is specified, the concession is terminated. This approach leaves some residual revenue risk with the concessionaire, but the maximum concession length is usually based on a pessimistic view of future traffic levels, so that this residual risk is very limited in practice.

- Shadow tolling; in UK design-build-finance-operate program, the concessionaire's revenue varies with the level of traffic. However, bids are expressed in terms of a declining block tariff structure, such that the marginal rate of shadow toll payment falls with successively higher levels of traffic. The variation in revenue is damped, and should broadly match the variation in operating costs with traffic at the margin. Although this approach has so far only been used to underpin concession projects involving non-tolled facilities, it could equally well be applied to airport runway projects, such as the Bogota El Dorado airport concession. In this case, the public sector airport operator would retain landing charge revenues, and the concessionaire would be remunerated through the shadow toll mechanism.

The impact of revenue risk sharing measures on the terms potential private sector contractors are willing to offer (given expected market conditions), will depend upon the precise nature of the measure. Two effects can, in principle, be identified.

First, any such action reduces the specific risk in a project, either by curtailing downside risk, or by capping both downside and upside risk. Although orthodox finance theory would suggest that changes in specific, i.e., diversifiable, risk should not affect the terms on which capital markets are willing to supply capital to a project, it is not clear that the assumptions underpinning the theory are completely satisfied given the infant industry character of airport concession projects. If not, then a reduction in specific risk may reduce the required rate of return sought by potential concessionaires.<sup>26</sup>

Second, measures such as minimum revenue guarantees, that underwrite downside risks without capping upside risk, increase the expected private net present value of the project, although the expected social net present value is unchanged. In itself, this would tend to improve the private sector's willingness-to-pay for the project, given expected market conditions, etc.

The potential downsides of contingent contracting and bidding mechanisms are, first, that they may weaken the contractor's incentives to perform effectively, by maximizing demand and revenue and by completing projects to time, and, second, that the bid evaluation procedures may be more complex than under fixed fee/term contracting, since in some cases, bids must be evaluated across a range of demand scenarios.

The emerging consensus in favor of different forms of contingent approach suggests that market participants expect the potential downside effects to be outweighed by the potential risk sharing benefits of the contingent approach.

### **3. Other Aspects of Contract Design**

A frequently cited problem with time-limited concessions in industries such as airports, where the assets are specific and long-lived, is that the economic life of the assets acquired by the concessionaire may be far longer than the concession period. Because there is no guarantee that the concession will be renewed, the concessionaire must seek to amortize such assets over the remaining term of the concession, and to recover these costs from user charges. As a result, the cost base is inflated compared to the full privatization model; the cost inflation impact is especially acute for assets acquired later in the concession period.

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<sup>26</sup> For further discussion, see Jones, I, Zamani, H, and Reehal, A (1996), *Financing Models for New Transport Infrastructure*, Luxembourg, Office for Official Publications of the European Community.

Provisions in the Abidjan airport concession agreement, which are similar to recent developments in water industry concessions, offer the prospect of mitigating, if not altogether removing, such an effect. The approach in these agreements is to make provision in the concession contract for paying compensation to the concessionaire based on the residual value of assets not fully depreciated under industry standard accounting rules, if the concession is terminated or transferred to another party following a rebidding process at the end of the concession period. The impossibility of fully mitigating the effects stems from the need for the conceding authority to protect itself against underwriting unwise or opportunistic investment by the concessionaire. Thus, water industry compensation terms may incorporate concepts such as “used and useful”, which introduce some element of ex-ante uncertainty for the concessionaire as to what the conceding authority will offer. Uncertainty of this kind may be limited by provisions offering arbitration if agreement cannot be reached between the parties on a fair valuation of stranded assets, as in the Abidjan airport concession agreement. The introduction of explicit provisions for dealing with stranded assets in airport concession contracts involving more than the construction and operation of a particular facility, such as a runway, thus offers scope for improved performance outcomes.

## **F. Securing Efficient Tendering Outcomes.**

The net benefits of engaging the private sector through concessions and other forms of contracting arrangement will generally be higher the more effective is competition for the market, which, in turn, is linked to the effectiveness of public procurement procedures. Experience in the EU, where public procurement throughout the Union is subject to a series of EU Directives,<sup>27</sup> indicates that good practice covers the following aspects of procurement:

- The absence of restrictive (or preferential) conditions on bidder eligibility (in the case of the EU directives, this takes the form of banning discrimination on grounds of nationality).
- Transparency in selecting potential contractors and awarding contracts, secured by
  - the requirement to publicize any contract whose estimated value exceeds a specific threshold (which will vary according to the nature of the goods or services being purchased). In this way, potential contractors are kept well informed about possible opportunities;
  - the use of objective criteria which must be known beforehand in order to prevent a contracting authority from selecting candidates and tenders on the basis of criteria different from those initially stated;
- a precise indication of which of the permissible award procedures has been chosen:
  - an open procedure, in which any firm may tender;
  - a restricted procedure, in which only firms that have been invited to tender by the contracting authority may do so;

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<sup>27</sup> Directive 93/36/EEC (public supplies); Directive 93/37/EEC (public works); and Directive 92/50/EEC (public services). A further directive, 89/665/EEC, covers measures to ensure compliance with the primary directives.

- a negotiated procedure, in which the contracting authority consults selected firms and negotiates the contract terms with one or more of them; and
- compliance with explicitly stated technical requirements standards.

The case studies in Appendix 2 offer examples of widely differing levels of competition either for concession contracts or, in the case of airport privatization in Australia, for airport leases. In Côte d'Ivoire, procedures for awarding the concession at Abidjan airport were informal, in the sense that the initial call for expressions of interest was not tightly specified, and only limited financial accounting data were available on the performance of the airport. This was followed by an extended process of negotiation, initially with two, but finally with a single favored bidder, selected on the basis of the overall quality of the expression of interest.

In Australia, the airport privatization program attracted a great deal of interest and the sales proceeds were higher than had initially been expected. Several factors appear to have contributed to the success of the privatization program:

- The establishment of a regulatory framework and process which set down clear guidelines within which the newly privatized airports would operate.
- The provision of as full as possible disclosure of information on the current and expected performance of the airport businesses.
- The use of transparent tendering procedures setting out clear and unambiguous rules by which tenders would be assessed.

The first two factors meant that prospective bidders had as clear as possible a view of the commercial potential of the businesses; the third factor ensured that bids were well-focussed and observed the same rules of the game, enabling the authorities to make decisions that were defensible in terms of the specified criteria.

The Philippine BOT law, referred to earlier, contains provisions covering procedures for tendering and awarding BOT projects, relevant extracts from which are in Appendix 3. These provisions score highly in requiring public authorities wishing to award BOT contracts to publicize the opportunity widely, and in setting out admissible procedures and decision criteria leading to the award of contracts.

As described in more detail in Appendix 2, the BOT project to construct and operate a second international terminal at NAIA resulted from an unsolicited bid, admissible under Section 4-A of the BOT law, in respect of financially viable projects. This provision recognizes that public sector agencies may well not be able to identify all potentially viable projects, and offers scope for entrepreneurial initiatives from the private sector. However, it is also important to ensure that the projects promoted through this process are economically viable, on the basis of comprehensive and rigorous cost benefit and financial analyses. In the case of the new international terminal at NAIA, doubts were initially expressed about the economic justification for the project, first, because it appeared to conflict with existing plans to develop a new international gateway airport for the Manila region at Clark Airforce base, and, second, because the project will require the premature closure of another existing terminal. While subsequently it was demonstrated that the project was economically viable, in other circumstances, issues of this kind would tend to weaken the private sector's willingness to bid for a project, because they would increase the risk that the Government might not continue to support the project. Conversely, the availability of Government-sponsored studies demonstrating a strong case for

the project would signal to prospective private sector bidders that the Government would be committed to the project.

The Philippine law requires the purchasing agency concerned to seek competitive bids for any project for which an unsolicited bid has been received. In this case, a competitive bid was submitted, offering very significantly better terms than those offered in the unsolicited bid, which the original bidder felt unable to match. As a result, the BOT contract was awarded to the competitive bidder.

### **G. PSP in Unprofitable Airports**

There are several possible mechanisms for engaging the private sector in unprofitable airport operations, defined as a situation where the expected present value of future airport revenue streams is less than the expected present value of future operating costs, including both current and capital expenditures.

First, the airport may be offered to the private sector with an element of government subsidy, injected either through a negative concession fee mechanism, or by a grant towards the cost of a capital project. This approach has been extensively applied elsewhere in the transport sector, notably in the provision of unprofitable rail or bus services, but there is no evidence of its application in the airport sector.

An alternative approach, which removes the need for any direct or explicit subsidy payment from government, is to bundle unprofitable airport activities with profitable airports, or possibly with property or commercial development opportunities, where the activities are closely complementary to the airport. The Argentine airport privatization program provides an example of the bundling of profitable and unprofitable airports within a single multi-airport concession, which preserved the pattern of cross-subsidy within the existing state-owned entity. The authorities in Côte d'Ivoire are currently examining options for developing the airport at San Pedro, in the south-west of the country, in conjunction with a major expansion of tourist facilities in the region; one possible approach would be to offer a concession covering both the airport and hotel development, etc.

The Australian authorities also considered, but rejected, the idea of bundling groups of airports together in reviewing structural options for the privatization program. In doing so, the Government took the view that it would be more efficient to allow the ownership structure to be determined by the market, rather than imposing a structure ex-ante. The availability of incentive compatible mechanisms for allocating subsidy through a competitive bidding process, added to the public policy benefits of increasing the transparency of subsidies, further reinforces the advantages of the unbundled approach to engaging the private sector.

### **H. Conclusions: The Main Lessons from Experience of Airport Privatization to Date**

In drawing lessons from the existing experience of airport privatization, it should be emphasized that the extent of this experience remains strictly limited. The flotation of BAA plc, the first major airport privatization episode, occurred in 1986, and it is only in the past 2-3 years that PSP, in what we characterized earlier as core airport activities, has become at all widespread, chiefly as a result of developments in Australia and Latin America.

The key lessons to be learned from experience to date are summarized in Figure 2.

**Figure 2: Key Lessons**

<p><b>Public Policy</b></p> <ul style="list-style-type: none"> <li>• Airport privatization will be encouraged by the existence of legislation, in the form of a BOT law or similar, signaling the state's recognition of the need for private participation in infrastructure provision.</li> <li>• It is also important to ensure that government is able to demonstrate that any projects offered to the private sector are economically viable.</li> </ul> <p><b>Industry Structure</b></p> <ul style="list-style-type: none"> <li>• 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.</li> <li>• Equally, the existence of unprofitable airports does not justify the maintenance of a highly concentrated industry structure to facilitate cross-subsidy.</li> </ul> <p><b>Regulatory Framework and Mechanisms</b></p> <ul style="list-style-type: none"> <li>• 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.</li> <li>• Such a framework is equally relevant under both full and partial (concession based) privatization scenarios.</li> <li>• The price cap approach to constraining airport charges is likely to encourage better performance outcomes than one based on rate of return regulation.</li> </ul> <p><b>Risk Allocation</b></p> <ul style="list-style-type: none"> <li>• 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.</li> <li>• Denominating some or all airport charges in US dollars may be a useful device for encouraging PSP in airports in the wake of the recent currency crisis.</li> <li>• There would be advantages in the widespread adoption of mechanisms already present in some concession agreements for compensating concessionaires for stranded assets in the event that the concession is terminated or transferred to another party when it is rebid.</li> </ul> <p><b>Tendering Procedures</b></p> <ul style="list-style-type: none"> <li>• 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.</li> </ul>
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## V. THE ROLE OF ADB

### A. Introduction

This concluding section discusses ADB's role in facilitating PSP in airports and ATC services in DMCs. In this section the report examines how ADB can assist in disseminating good practice, both in respect of the mechanics of contracting, and in the wider context of public policy and regulatory structures and conduct. Further, ADB's role in providing training for officials in DMC government agencies, to equip them for the tasks of negotiating contracts with private sector organizations is considered. Finally, the discussion shows how ADB's actions can improve the terms on which the private sector is willing to participate in financing and operating infrastructure facilities.

## **B. Disseminating Good Practice**

Through this medium and other projects undertaken under ADB's 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. In the case of the airports sector, much of the experience currently available relates to the type of arrangements that are feasible. There is as yet little substantial evidence on what particular arrangements are likely to produce better performance outcomes in practice than others. However, there are some aspects of public policy, industry structure, regulatory practice, contract design and public procurement procedures, where the elements of "good practice" are now visible.

## **C. Role in Training**

Transforming the basis for procuring infrastructure services from the traditional publicly financed design and build model (with subsequent operation by the public sector agency) to a private financing and operation model, requires significant changes in the procurement and project management activities of public sector agencies. To make BOT arrangements work effectively, the public sector must develop new capabilities in contract negotiation, especially in the area of risk allocation and management, and in the regulation of contract performance in the operational phase, which extends over many years, and may include contract review and renegotiation.

In the short term, shortage of necessary skills may be covered by hiring external advisers. However, in the long run it will generally be more cost effective to develop internal agency skills, especially if there is a steady flow of new projects to be negotiated. Moreover, parameters of the procurement process should become increasingly standardized on whatever model emerges as best practice in light of experience. The more routine the process, the more efficiently it can be managed by bureaucratic rules and procedures within public sector agencies.

Experience with programs such as the Private Finance Initiative in UK suggests that developing the necessary agency skills can be achieved by a combination of re-training of existing agency staff and external recruitment, although external recruitment may be problematic because of disparities between public and private sector remuneration.

Agencies such as ADB can act both as direct training providers, especially during the early pump-priming stages of the process of transforming public procurement strategies, and through initiatives to encourage indigenous training capabilities. These include supporting the development of "model" training programs, facilitating secondment of staff from DMCs to agencies in other countries with greater experience of private sector provision of infrastructure and assisting in the establishment of training centers in the DMCs, such as the BOT Center in the Philippines.

## **D. Improving Financing Terms**

ADB has a fivefold role in improving the financial terms on which the private sector is willing to provide airport and ATC infrastructure services in DMCs:

- First, 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.
- Second, by promoting good practice in regulatory governance and public procurement.
- Third, by promoting good practice in contract design, to encourage the efficient allocation of risk between the DMC government agencies and private sector contractors
- Fourth, by assisting DMC agencies to bring forward economically viable projects which attract widespread support from relevant constituencies within the DMC.
- Finally, ADB's willingness to invest in or sponsor a project can act as a signaling device to private investors about the soundness of the project, which, in turn, should improve the terms on which external investors are willing to participate.

# **APPENDIXES**

## EXAMPLES OF PRIVATE SECTOR PARTICIPATION AT COMMERCIAL AIRPORTS WORLDWIDE

### A. Full Privatization

The private sector entity is responsible for the ownership, investment, management and operation of airport infrastructure. Privatization is implemented mainly through flotation or trade sales.

**Table A1.1: Examples of Full Privatization Schemes Worldwide**

Country	Plans or actions for airport privatization
Australia	17 airports sold on long-term leases of 50 years, with an option for additional 49 years.
Bahamas	Transferred ownership of Freeport International Airport to a private entity.
Dominican Republic	Transferred ownership of Puta Cana International Airport to a private entity.
New Zealand	Implementing trade sale of Auckland and Wellington International Airports.
Slovakia	Plans to sell Bratislava Airport to a private entity.
United Kingdom	Share offering in British Airport Authority responsible for the operation of seven airports.  Local government sold Belfast International Airport to a private company formed by employees.  UK regional governments have sold East Midlands International airport to a private entity and are planning to sell shares in Birmingham Airport.

### B. Partial Privatization

#### 1. Concession or BOT Schemes

Under a concession or build-own-transfer (BOT) contract, a private entity finances, builds or modernizes a facility before operating the facility and gaining revenue from the operation. After a certain period, ownership of the facility transfers to the government. There is often some overlap between BOT schemes and long term management contracts as in both cases investment is required from the private entity.

**Table A1.2: Examples of BOT/Concession Schemes Worldwide**

Country	Plans or actions for airport privatization
Algeria	Plans to construct and operate new international terminal a Houari Boumedienne Airport near Algiers.
Argentina	Long term concession agreement implemented for operation and development of 33 of the country's airports.
Bolivia	25-year master concession offered for running of the major three airports in Bolivia. Assets remain with the government throughout.
Bulgaria	Plans a 30-year BOT scheme to upgrade Sofia International Airport.
Brazil	Plans a contract with a private entity to rehabilitate the terminal at Guarapes International Airport in Recife.
Cambodia	25-year BOT contract for upgrading of Pochetong Airport in Phnom Penh. Plans for a 15-year BOT contract for projects at Sihanoukville Airport on Naga Island.
Cameroon	Plans for a long-term lease to build and operate a terminal at Yaound Airport.

**Table A1.2: Examples of BOT/Concession Schemes World Wide (continued)**

Country	Plans or actions for airport privatization
Canada	Private entity implemented to build and operate a third terminal at Pearson International Airport in Toronto on a long-term lease basis.
Chile	Plans a 15-year BOT contract with a private entity for a second terminal at Arturo Merino Benitez International Airport in Santiago.
People's Republic of China	Planning to contract with private entities to develop and operate eight airports.
Columbia	Awarded a BOT contract to private entity to build second runway and operate both runways at El Dorado International Airport, Bogota.
Côte d'Ivoire	15-year concession granted for Abidjan Airport.
Costa Rica	Plans a BOT contract with private entity for new airport in San Jose.
Ecuador	Plans to combine BOT contracts for two new airports in Quito and Guayaquil with operation of existing two airports in same cities.
Egypt	Plans BOT project for new airport near Cairo.
Gabon	30-year concession granted for Libreville Airport.
Germany	Considering contracts with private entities to develop and lease airports, including a major Berlin Airport.
Greece	Implementing a 30-year BOT contract for a new airport near Athens.
India	Considering contracting with private entity for construction and operation of new airport in Bangalore.
Malaysia	Implemented a BOT contract for a new terminal and a lease-develop-operate contract for non-aeronautical portions of new international airport in Sepang.
Mexico	Considering long term leasing of 58 airports to private entities, following national legislature passing a bill to allow these leases.
Myanmar	Plans BOT contract for the new Hanathawaddy Airport near Rangoon. Panama Plans a 10-year contract to expand and maintain passenger and cargo facilities at Tocumen International airport near Panama City.
Pakistan	Plans BOT scheme for a new terminal at Lahore International Airport.
Peru	Implemented a lease to build and operate a terminal and runway at Jorge Chavez International Airport in Lima.
Philippines	Has agreed long-term BOT agreement with a private entity for a new terminal at Ninoy Aquino International Airport in Manila.
Qatar	Plans a BOT contract for new international airport in Doha.
Russia	Implementation of private concessionaire to design, finance, construct, own and operate a new international terminal at Pulkova Airport in St. Petersburg, with initial 49-year lease period.
Trinidad and Tobago	Implementing BOT contract for a new terminal at Piarco International Airport.
Turkey	Implemented BOT contract with 3 year 9 month operational period for new terminal at Ataturk International Airport near Istanbul.
Venezuela	Plans long-term contract to build, operate and manage a new airport between Bolivar City and Guayana City in Eastern Venezuela.
Viet Nam	Plans BOT contract for new international passenger terminal at Tan Son Nhat International Airport in Ho Chi Minh City.
Uruguay	Plans a 20-year contract with a private entity to expand the terminal, build a new runway and make other improvements at Laguna del Sauce International Airport near Maldonado.

## 2. Strategic Partners/Partial Divestiture

A private entity or investors may have majority or minority holdings in an airports company, act as a partner in a joint venture to provide extra investment capital for infrastructure development or act as a strategic partner to increase the efficiency of existing operations.

**Table A1.3: Examples of Strategic Partner/Partial Divestiture Schemes Worldwide**

Country	Plans or actions for airport privatization
Austria	Shares sold in Vienna Airport; 47 percent of total shares are privately held.
People's Republic of China	Implementing a joint agreement to build and operate a new airport in Haikou.
Denmark	Shares sold in Copenhagen International Airport.
Hong Kong, China	Implementing a joint development agreement with a private entity for the new Chek Lap Kok Airport on Lantau Island.
Hungary	Implementing a joint development agreement with a private entity for a new international terminal at Ferighey Airport in Budapest.
Indonesia	Plans a joint development agreement with a private entity for a new airport in Medan.
Italy	National Government owned airlines are divesting their shares in Rome and Milan Airports.
Jamaica	Plans a joint partnership at Sangster International Airport in Montego Bay.
Macau, China	Implemented a joint development agreement with a private entity to develop and manage a new international airport.
South Africa	A private company was sold a 20 percent stake in the South African Airports company to become a strategic equity partner to improve the company's performance prior to privatization.
Switzerland	Sold 50 percent of shares in Zurich International Airport to private holdings. A private firm operates the airport.
Thailand	A strategic partner is being sought to participate in the development and operation of a second international airport at Bangkok and in a regional airports company.

## 3. Management Contracts

Ownership and investment is maintained by the state and management and operation is carried out through a private sector body. This may be in the form of a management contract, a service concession, a multiple concession or a contracting out strategy.

**Table A1.4: Examples of Management Contract Schemes Worldwide**

Country	Plans or actions for airport privatization
Albania	Contracted with a private entity to modernize and expand Tirana Airport.
Chile	Implemented a contract for a private entity to operate the passenger terminal at Arturo Merino Benitez International Airport in Santiago.
Italy	Plans to contract with a private entity to manage Naples Airport.
Hong Kong, China	Private company awarded management contract of Kai Tak Airport.

## SPECIFIC COUNTRY CASE STUDIES

### A. Australia<sup>1</sup>

#### 1. Policy Background

Following a policy review in 1993, the Australian Federal Government decided to implement a radical airports privatization program. Key features of the privatization policy were as follows:

- In order to ensure that airports continued to be operated as airports, it was decided to sell very long term leases (50 years with an option to renew for a further 49 years) rather than to sell the airport freeholds.
- Airports were offered for sale individually, with cross-ownership restrictions imposed on a limited number of airports, between which it was believed there was some scope for competition.
- In order to encourage competition in downstream (airline) markets, airline ownership of airports was restricted and, in fact, none of the airports offered for sale is airline controlled. Airport operations have also been made subject to economy wide access provisions in order to encourage new airline entrants.
- Airport charges at core airports were regulated via a price cap mechanism. However, non-aeronautical charges will not be regulated.

#### 2. The Privatization Process

The privatization of 17 of the 22 airports took place in two phases in 1997 and 1998.

##### a. Phase One

The first phase involved the sale of the major international gateway airports at Melbourne, Brisbane and Perth, which was initiated in April 1996, and completed with the granting of licenses on 1 July 1997. The tender process took place within a relatively short time period — expressions of interest were invited by 10 October 1996. After short listing, nine consortia submitted offers by 30 January 1997. Six consortia were then asked to present revised bids by 10 April 1997. The three successful consortia were announced on 7 May 1997. The three successful bids totaled A\$3.31 billion, far in excess of the A\$2.2 billion estimated at the time the sale was announced.

##### b. Phase Two

Following the success of the first sale, a further 15 airports were offered for sale individually on 1 October 1997. Sydney airport, the country's largest, was excluded from the process due to problems caused by environmental restrictions, such as a government-imposed traffic cap and a night-time curfew. The second phase sales were completed by 30 June 1998, although no satisfactory bids were received for one airport, which was withdrawn from sale.

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<sup>1</sup> This section has benefited greatly from detailed comments by Mr Robin Renwick, Senior Director, Office of Asset Sales and IT Outsourcing, Australia, a discussant at an Asian Development Bank (ADB) workshop.

Twenty six consortia were on the original shortlist. The Phase Two airports were divided into two groups — 10 Regular Public Transport airports and five General Aviation airports.

As a result of the Phase One and Two sales program, the industry structure was radically transformed, with ownership divided between ten private sector consortia.

### **3. Investment Structure**

As part of their bid, each lessee company provided an airport masterplan, in which they committed to include major development plans as well as satisfying various building requirements. For Melbourne and Brisbane, these involved new runways, focusing on freight and using airport land to build new hotels and business facilities.

### **4. Regulation**

The main features of the economic regulation framework applied to the core privatized airports are as follows:

- Application of airport specific price caps to aeronautical charges for an initial five-year period. The value of X varied between airports according to an assessment by the regulatory agency, the Australian Competition and Consumer Council (ACCC) of the scope for productivity improvements at individual airports. There is also scope for individual price caps to be varied at the initiative of the operator and subject to the consent of the ACCC and users to accommodate increases in costs as major new investments are brought on stream.
- A quinquennial review of the existing framework, when airport operators will be given the opportunity to come forward with their own proposals for future regulation.
- Monitoring of service quality against pre-determined performance indicators (service quality standards are not mandated).
- Monitoring of lessee investment programs against airport masterplan commitments.
- An emphasis on transparency, with financial reporting requirements imposed on lessees in order to facilitate inter-airport comparisons of performance.
- Airport operations to be made subject to economy wide conditions on access to essential facilities.

## **B. Colombia<sup>2</sup>**

### **1. Introduction**

Following deregulation of the Colombian air transport market in 1990, domestic passenger traffic had doubled and international traffic had increased 2.5 times by 1996. As a result, the single runway at El Dorado International Airport in Santa Fe de Bogota, responsible for 65 percent of Colombia's total air traffic, reached its technical capacity in 1993. In 1993, the Government of Colombia also separated airport operations from air navigation activities through the corporatization of the Civil Aviation Authority, Aerocivil. At the same time, it undertook the

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<sup>2</sup> We acknowledge the assistance of Justin Anstee (Deutsche Bank, London) in preparing this case study.

development of a second runway, urgently needed to cope with an annual growth of eight percent in international traffic and 12 percent in domestic traffic, utilizing a BOT scheme with an opening date of September 1998.

## **2. The Process**

### **a. The Concessionaire**

The consortium Compañía de Desarrollo Aeropuerto El Dorado S.A. (CODAD), owned by Dragados y Construcciones S.A. of Spain (66 percent), Ogden Corporation of the US (19 percent) and Concreto Ingenieros Civiles S.A. of Colombia (15 percent), won the 20-year concession following a competitive bidding process initiated by Unidad Administrativa Especial de Aeronautica Civil (Aerocivil), the Colombian Government agency responsible for the regulation and operation of airports. Once bidders had fulfilled the technical requirements, bids were evaluated on the basis of the net present value of the minimum landing fee revenue that the bidder would require throughout the concession period and the weighted average landing fee in US dollars.

### **b. Project Details**

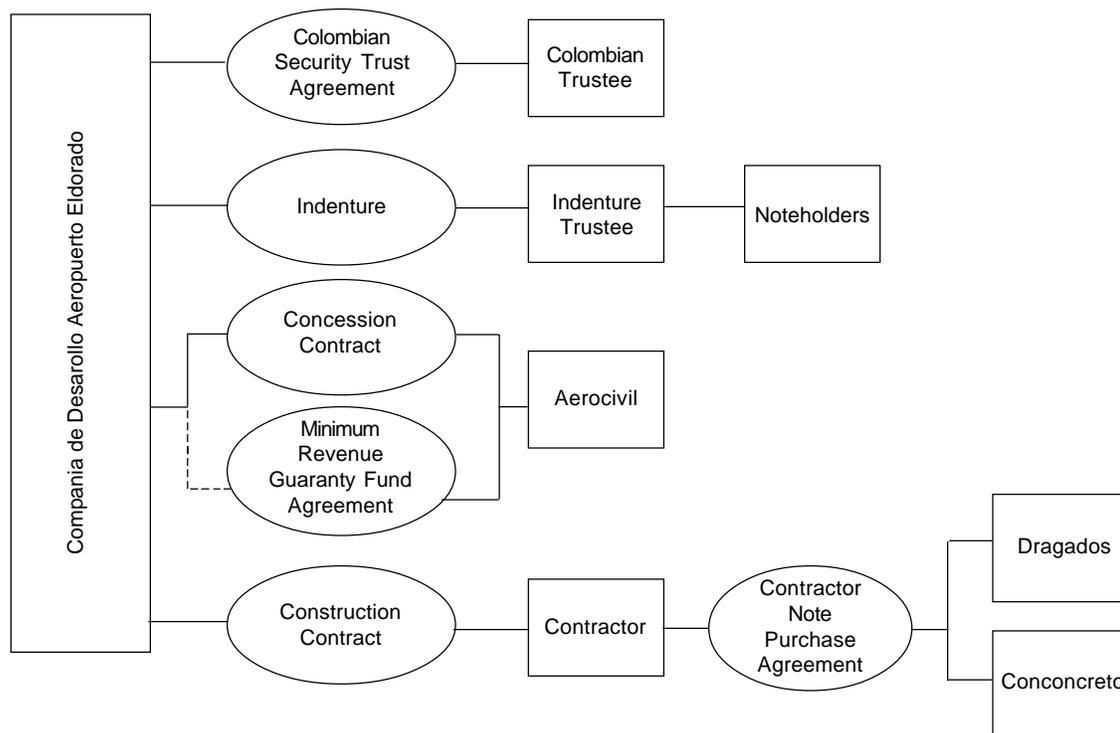
The project has a BOT structure, under the terms of which CODAD will build a second runway and maintain both runways from the time that operation commences for the 20-year duration of the concession contract. The project involved building

- a runway 3,800m long by 45m wide;
- a parallel taxiway 30m wide;
- three 90° exits and one high speed exit;
- taxiways to connect the old and new runways;
- installation of lighting, visual guidance equipment, radio-navigation aids and meteorological sensors;
- re-routing of 2,600m of the Bogota river.

## **3. Contractual Structure and Remuneration**

Following construction, CODAD will be responsible for any investment that is needed in the maintenance of the new runway, and, in return, will have the right to commercial aircraft landing fees generated at El Dorado airport. Following the completion of the second runway, the concessionaire may immediately increase its charges by double the 1997 tariffs for the original Bogota runway (following a 20-30 percent increase in tariffs between 1996-1997). The scheme has a high guaranteed minimum return on its investment such that if the landing fee structure or traffic volume (or both) cannot support the required revenue stream the Government would compensate the concessionaire from a trust fund equivalent to 30 percent of the annual landing fee revenue. The concessionaire will receive a 20 percent equity stake in the facility.

Figure A1.1: Contractual Structure



Using private sector capital to relieve the capacity constraint at El Dorado airport is expected to allow Aerocivil to focus investment on increasing the level of airside operations and improve the safety of flight operations.

#### 4. Financial Structure

Access to private capital has been provided through a US\$116 million CODAD offering of senior secured notes with a BBB/BBB rating and a due date of 2011 (15 year final maturity). The initial financing offered a spread of 340 bps over a 10-year treasury bond with a coupon of 10.1 percent, while in secondary trading this tightened to 330 bps. The proceeds from this issuance and sale of notes to the consortium will be used to fund the development, construction and financing costs of the new runway estimated at US\$100.3 million. The offering was successful, being substantially oversubscribed and attracting a number of first time project finance buyers.<sup>3</sup>

The CODAD financing structure set a number of benchmarks for Colombia as it represented the first investment grade rated cross-border transportation project, the longest maturity cross-border transportation project and the first example of non-energy project financing in the country.

<sup>3</sup> Deutsche Bank, 1997

## **5. Regulatory Structure**

Aerocivil acts as the regulatory body. Aerocivil is not an independent regulator, such as the UK Civil Aviation Authority, but is a part of government, which allows the concessionaire more freedom in their charging behavior. The initial generous ceiling on landing charges has been outlined above.

### **C. Philippines**

#### **1. Introduction**

Under the provisions of the Philippine BOT law, as amended in 1994, unsolicited bids can be made to carry out financially viable public sector projects on a BOT basis. Proposals were put forward in 1996 by the Asian Dragons Consortium (ADC), a group of Filipino businesses, to construct and operate a third passenger terminal at Ninoy Aquino International Airport (NAIA) to handle international traffic. The airport, a two-runway facility, currently handles around 12.3 million passengers per annum (mppa) (7.8 mppa international, 4.6 mppa domestic) and is owned and operated by Manila International Airport Authority (MIAA), a state-owned corporation created following the separation of airport operations from the Philippine Air Transport Organization, an agency of the Department of Transportation and Communications (DOTC). The Philippine Air Transport Organization had previously owned and operated airport and air traffic control (ATC) assets throughout the Philippines.

#### **2. The BOT Project**

The ADC proposal envisaged the construction and operation of the new international terminal alongside the MIAA's existing airport operations. The BOT entity would be entitled to receive passenger charges, as agreed between MIAA and DOTC for passengers using the terminal. These charges would increase in line with domestic inflation. It would also receive revenues from commercial activities (retailing, car parking, office rentals) carried on in the terminal for a period of 25 years from the commencement of the concession.

Use of the existing international terminal would be discontinued and all international traffic will be transferred to the new terminal upon its completion. The concession agreement would also commit the Government not to authorize any development of new facilities for international traffic in the region (for example, at Clark Airbase), until international traffic at NAIA had exceeded 10 mppa for three consecutive years. On current projections, made before the onset of the economic and financial crisis, this would not occur until around 2005-2010.

The concessionaire would pay MIAA a two part (fixed plus variable) concession fee; the variable element would be expressed as a proportion of total revenue generated by the terminal. The concession contract committed the concessionaire to maintain certain service quality standards and to provide specified peak passenger handling capacity through the terminal.

#### **3. A Competitive Bid**

Under Section 4-A of the BOT law,<sup>4</sup> the government is obliged to seek competitive proposals for unsolicited projects, once financial terms have been negotiated with the bidder. In this case, a competitive bid was received from a consortium including Lufthansa as well as

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<sup>4</sup> See Appendix 3.

indigenous Filipino organizations. The competitive bid offered significantly better financial terms than the ADC proposal, with a higher fixed fee and a larger proportion of revenue. Had ADC felt able to match these terms, the project would have been awarded to them; however, they did not, and the competitive bid was accepted.

ADC subsequently challenged the award of the contract in the Philippine courts.

## **D. Thailand<sup>5</sup>**

### **1. Introduction**

The major international gateway airport in Thailand (Don Muang) has experienced very rapid traffic growth (11 percent per annum in the period 1990-95), and is likely to become increasingly congested. The Thai Government has plans to construct a second international airport for Bangkok at Nung Ngu Mao (the so-called Cobra Swamp). Proposals for the new airport, published in 1996, envisaged that the first stage of the new airport would open around 2000. In September 1996, the Japanese government agreed to provide a 25-year soft loan to Thailand, including US\$280 million towards the construction of the new airport.

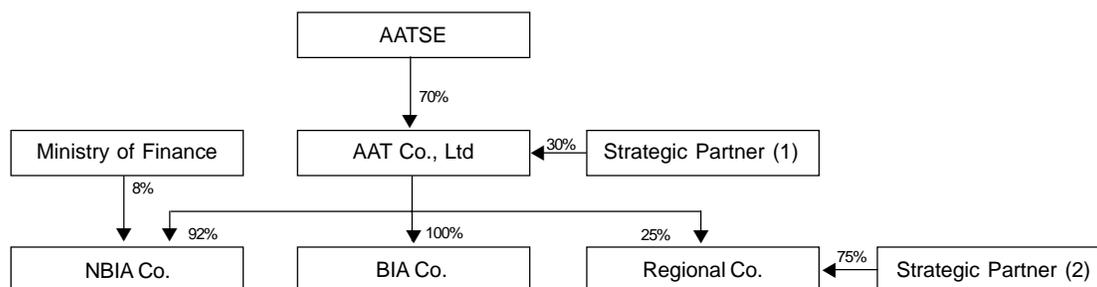
The five major airports in Thailand - Bangkok, Ohiangmai, Ohiengrai, Phaket and Hadyai — are currently owned and operated by the Airports Authority of Thailand (AAT). Twenty five smaller airports are owned and operated by the Thai Department of Aviation. AAT was responsible for developing plans for the new airport. However, the Thai Government has been examining options for attracting private financing to the airports sector. To facilitate this, and to minimize the risk of more bureaucratic delays to the project, it has created a new state corporation, the New Bangkok International Airport Corporation (NBIAC), jointly owned by the AAT and the Finance Ministry, to be responsible for the new airport project, if possible with some private sector funding. A Government committee examining privatization options has also recommended that the four principal regional airports at Phuket, Chiangmai, Ohiengrai and Hadyai, which are perceived to be potentially attractive to private investors, as a single package.

### **2. Restructuring and Strategic Partnership Proposals**

Options for restructuring AAT and privatization are constrained by conditions attached to the Overseas Economic Cooperation Fund loan, a key element of the financing package for the new airport. The loan is a government to government facility and can only be made available to a state-controlled entity within Thailand. To satisfy this constraint, whilst at the same time creating a role for private sector participation (PSP), the Thai Government's financial advisers have proposed a complex re-structuring package, involving two strategic partnerships with the private sector, as shown in Figure A1.2.

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<sup>5</sup> The case study of Thailand has benefited from the constructive comments of Sirote Duangratana, of the New Bangkok International Airport Corporation, a discussant at ADB workshop.

**Figure A1.2: Thai Airport Restructuring Proposals**

At the heart of the restructuring, is the creation of two joint venture companies, Airport Authority of Thailand Co. Ltd. (AATCo), which would be 70 percent owned by a state holding company, Airport Authority of Thailand State Enterprise (AATSE), and 30 percent by a private sector strategic partner, and the Regional Airports Co. Ltd, which would be 25 percent owned by AATCo, and 75 percent owned by a strategic partner, which might be the same organization as the strategic partner in AAT. AAT would wholly own BIA, the operator of the existing Bangkok International Airport, and would own 92 percent of NBIA Co., with a small residual holding being retained by the Finance Ministry.

This structure thus allows the injection of private finance through both the minority AAT holding and through the majority stake in the regional airports company.

It is recognized that although this structure offers a private partner effective control over the regional airports entity, the minority holding in AAT may be unattractive. Also, whilst operation of the regional airports might be relatively profitable, initial returns on the investment in AAT may be modest, given the need for major investment in the new airport. To remedy this, the strategic partner may be offered a management contract and exclusive rights to commercial revenues in some of the more lucrative lines of business at the two Bangkok airports.

The Thai Government is promoting a corporatization Bill, to facilitate the establishment of the new AATCo entity and to enable AATCo to benefit from soft loan funding. The Bill is expected to become law by the end of 1998. It is now expected that the selection of a strategic partner and full implementation of the proposed new structure will be completed by early 2000.

### **3. Regulation of Charges**

Increases in airport charges sought by AAT are subject to Government approval. No definite proposals have so far been made regarding future arrangements for determining airport charges under the new ownership structure, either at the Bangkok airports or at the regional airports.

## **E. Argentina**

### **1. Introduction**

The concessionaire for the large scale privatization of 33 of Argentina's airports in a single package was chosen in February 1998. Previously an arm of the Argentine Air Force owned, administered, operated and regulated the Argentine airport infrastructure, in a relatively unique combination which would have influenced the decision to attempt a large scale

privatization scheme. However, because of opposition from some shareholding provincial governments, only 33 of the originally intended 59 airports in Argentina were involved in the 1997/98 process, although this proportion still gave the private operator a monopoly in airport service.

## **2. The Process**

### **a. The Concessionaire**

In its invitations for bidding, the Government stipulated that the operator must have a minimum 10 percent share within a bidding consortium, recorded passenger flows of 10 million, and relevant construction experience of US\$150 million over the past five years. The Government's insistence that the airport operator had to hold equity left many potential bidders out of the process, although four major consortia prequalified.

In February 1998, the consortium Aeropuertas Argentina 2000 (AA2000) won the 30-year contract to manage 33 of Argentina's state-owned airports, with an option for 10 additional years. Argentina 2000 is 30 percent owned by Milan airport operator (SEA), 28 percent owned by Ogden, a US ground-handling company, and 35 percent owned by a local company, Corporacion America Sudamericana. In May 1998 the consortium commenced management of Ezeiza International Airport, the largest Argentine international airport. The two other main airports, Aeroparque de Buenos Aires and Paja Blancas in Cordoba, were to be transferred to the consortium within 90 days of the agreement, whilst the other 30 transfer within a year. The consortium will employ and supervise airport personnel and subcontractors though it will not be responsible for the maintenance and operation of ATO or landing systems and security, which will be handled by the Air force and the government.

There are large variations in traffic volume between different airports with Ezeiza and Aeroparque in Buenos Aires capturing two-thirds of total terminal volume, with annual turnover of 5.5 million and 6 million people respectively. Estimates that only a maximum of eight airports are profitable indicate the need for cross subsidies to improve and develop inadequate existing facilities at many airports. As a result, a sole-party concession was deemed necessary but has also led to fears of higher charges at larger airports.

## **3. Investment Structure**

The consortium offered the Argentine Government a US\$2.2 billion capital investment program over the 30 year concession period in addition to a US\$171 million annual license fee. No additional funding will be provided by the government for these investments. The bulk of this total investment (US\$1,346 million) will go to Buenos Aires airports. Approximately US\$859 million will be invested in the first five years of the concession (1998-2002). A large amount of which would be invested in a proposed expansion of Ezeiza airport, which will be merged with the operations of Buenos Aires' domestic airport, Aeroparque, to create a single domestic and international airport at the current location of Ezeiza by 2001. Following this initial five year period there is a declining financial commitment for the remainder of the 30-year concession, from a peak of US\$180 million total throughout the system in 2000 to approximately US\$10 million in 2027.

An environmental study for each airport, identifying existing problems has provided the operator with a list of remedial work to be carried out, the cost of which will be deducted from

their license payments due to the Government. Operator accountability will begin when problems arise beyond this original study.

#### **4. Remuneration**

The consortium will collect and retain all airport revenues from air and land side activities, except where existing contracts have not expired. Airport land may also be utilized for its commercial value, making low passenger volume airports located in Industrial Free Zones more attractive. New tariff levels will be announced to be effective from 22 June when the concessionaire takes over the airports. It is expected that landing charges will stay constant and passenger charges will increase by up to 50 percent, alongside increases in other charges, such as real estate rents. By year six the consortium anticipates making an 18 percent return on capital, and profits are anticipated to average seven percent of revenue. Having been given a free hand to exploit commercial opportunities, the consortium expects revenues to approach US\$20 billion over the life of the concession. The US\$2.2 billion for capital improvements is expected to be funded from system cash flows and non-recourse project finance.

Duty free, ground handling and warehousing services are not included in the concession where pre-privatization contracts will not expire until 2010, unless the operator and current franchisees agree on other arrangements. The concessionaires will get some revenues from these contracts up until that point, though these amounts are expected to be lower than international standards, and may lead to an increase in charges on airlines or passengers.

#### **5. Regulation**

Post privatization, roles will be divided between the existing airport manager (ORA) and the concessionaire. A regulatory body under the Ministry of Economy, the Organismo Regulador del Sistema Nacional de Aeropuertos, will exist to resolve conflicts between the two parties, and if conflicts involve the regulatory body itself, the Argentine judicial system will intervene.

### **F. Côte d'Ivoire**

#### **1. Background**

Until July 1996 all airports in Côte d'Ivoire and ATO services at airports other than the major international airport at Abidjan<sup>6</sup> were owned and operated by Agence Nationale de l'Aviation civile et de la Meteorologie (National Agency for Civil Aviation and Meteorology (ANAM)), which also acted as a national regulatory agency for air transport. Under legislation passed in 1996, however, responsibility for the operation and development of Abidjan airport was transferred through a 15-year concession agreement to AERIA, a special purpose company controlled by Société d'Exploitation et de Gestion Aéroportuaire (SEGAP), a jointly owned subsidiary of the French based Service Group and the Marseilles Chamber of Commerce and Industry (MCCI). MCCI operates Marseilles airport, and SEGAP also operates Libreville (Gabon) airport under a concession agreement signed in 1988. AERIA took over responsibility for operating Abidjan airport on 1<sup>st</sup> July 1996. The concession agreement contains provisions for the Ivorian state to hold up to 20 percent of AERIA's share capital.

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<sup>6</sup> ATC services at Abidjan are owned and operated by ASECNA (Agence pour la Sécurité de la Navigation aérienne en Afrique et a Madagascar), a multinational agency jointly owned by a group of fourteen Francophone African States, charged with providing en-route air navigation services on behalf of the member states.

## 2. The Award of the Concession

Following a decision in 1994 to seek PSP in upgrading and extending the facilities at Abidjan airport, the Côte d'Ivoire authorities issued a call for expressions of interest containing outline terms of reference for the project. Respondents were invited to put forward proposals covering:

- The form of PSP, and the relationship between the private sector party and the state.
- An investment program to upgrade and extend the airport infrastructure over the period 1996 - 2000 to the extent necessary to consolidate Abidjan's position as the major hub airport in Francophone, West Africa. The authorities also anticipated that the concessionaire would undertake significant commercial development on the airport and in areas adjacent to the airport.
- Indicative financial terms.

In response, the authority received outline proposals based on the concessions model of PSP from SEGAP and from a consortium led by Aéroports de Paris, and entered negotiations with both parties in 1995.

SEGAP was identified as the preferred bidder primarily on the basis of the quality and depth of its proposals, in particular, concerning the investment program during the early years of the concession period. Negotiations were concluded early in 1996, and a special purpose company, AERIA was established as concessionaire.

## 3. Principal Features of the Concession Agreement

Under the terms of the concession agreement, AERIA gains title to aeronautical<sup>7</sup> and other commercial revenues (such as rents and car parking fees) arising from airport operations at Abidjan which previously accrued to ANAM. From these revenues, AERIA is committed to operating and maintaining airport assets over the 15 year concession and to undertaking and financing a specified program of investments covering the first four years of the concession period. AERIA also commits to pay around 20 percent of total turnover (net of VAT) in concession fees to the concessioning authority. Approximately a half of the fee is described as a usage charge. The remainder is identified as a subsidy to cover deficits at interior airports.

AERIA must also set aeronautical tariffs on the basis of principles established by the International Civil Aviation Organization (ICAO). Any proposed adjustments to aeronautical tariffs (though not commercial charges) must be approved by the concessioning authority. In assessing AERIA's proposals for tariff adjustments, the concession agreement requires the concessioning authority to ensure the "financial equilibrium" of the concessionaire. This is described simply in terms of revenues from aeronautical charges and other sources covering the concessionaire's costs, including the concession fee paid to the government.

As an aspect of financial equilibrium, the concession agreement recognizes AERIA's right to recover the full costs of the contractually committed investments over the life of the concession. However, the agreement also recognizes, and attempts to address, the issue of

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<sup>7</sup> Aeronautical charges are levied on airlines and include landing charges (based on aircraft weight), aircraft parking charges (also aircraft weight based) and passenger handling and freight handling fees.

unanticipated investment undertaken later in the concession which would be “stranded” if the concession was terminated after 15 years. It does so by providing for the concessionaire to receive compensation from the conceding authority in respect of unamortised investments on the basis of a valuation undertaken by an independent expert or experts. Although not explicitly stated, it is expected that in the event of a failure to agree on such a valuation, the issue would be covered by the general arbitration provisions in the concession agreement. The agreement also provides for the modification of detailed aspects of the investment programs in the light of technical etc., changes and the emerging needs of the airport business.

In order to enable the concessioning authority or its agent to carry out its responsibilities for technical and financial oversight of the concessionaire, the agreement requires the concessionaire to provide to the concessioning authority annual budgets and financial accounting data, and to report on the progress of the agreed investment program, and on the state of inherited assets.

The concession agreement provides for the termination or suspension of the concession in the event of serious failure to perform, for example, in respect of severe interruption to airport services other than for reasons beyond the control of the concessionaire. Apart from relatively extreme circumstances of this kind, there are no specific terms in the agreement covering AERIA's obligations in respect of service quality, nor are there provisions requiring the concessionaire to provide specific types of information on service quality outcomes.

Finally, the concession agreement allows the concessionaire to propose an extension to the concession period. However, any such proposal can only be considered within the last two years of the concession, and renewal can only be formally approved by the concessioning authority in the final year of the concession.

A 15-year concession term is significantly shorter than the norm for concession or BOT contracts elsewhere in the airport sector; SEGAP's response to the call for expressions of interest suggested a 25-year concession period, in line with international experience.

#### **4. Regulatory Agencies**

Following the winding-up of ANAM, that agency's regulatory and policy development responsibilities for the aviation sector were transferred to the Agence Nationale pour l'Aviation Civile (National Civil Aviation Agency (ANAC)). ANAC also retained certain of ANAM's operational responsibilities for providing airport terminal security (passenger and baggage screening) at Abidjan H-B.

ANAC's responsibilities have recently been reviewed by the Ivorian Government, partly to achieve an even clearer separation of regulatory and operational responsibilities between ANAC and le Service Météorologique National de la Côte d'Ivoire (National Meteorological Service of the Ivory Coast (SODEXAM)).

Proposals for modifying the existing arrangements were made in a communication from a government working group in October 1998, and these were subsequently ratified by the Council of Ministers. The measures cover the re-definition of the responsibilities of ANAC, SODEXAM and AERIA, and the creation of a new government committee to co-ordinate policy for the airport sector.

ANAC's role as the regulatory agency for the aviation sector is confirmed. However, operational responsibility for airport security at Abidjan H-B is to be transferred to AERIA, under a new concession agreement, with ANAC acting as the concessioning authority. The new structure will presumably require provisions for sharing security charges levied at Abidjan between SODEXAM and AERIA, although this is not specifically addressed in the government's proposals. ANAC does not appear to have any locus in "regulating" AERIA's concession agreement. This function remains with SODEXAM as the conceding authority.

SODEXAM's existing operational responsibilities are confirmed, and it is identified as the conceding authority for all airport infrastructure (including Abidjan). As such, SODEXAM (not ANAC) must approve AERIA's proposals for varying airport tariffs and SODEXAM also "vets" AERIA's investment program. There is no obligation on SODEXAM to publish its decisions on AERIA's tariffs or other aspects of the concession contract. The government working group's communication expressed the hope that SODEXAM's responsibilities for operating interior airports might eventually be transferred to private sector agencies within a concession framework.

The inter-ministerial committee is given wide-ranging responsibilities for initiating and coordinating policies affecting the development of the airports sector. In the short-term, the primary focus of its work will be to implement the new arrangements for airport security and to review current provisions for financing and staffing ANAC and SODEXAM.

## **EXTRACTS FROM THE PHILIPPINE REPUBLIC BOT LAW**

The following extracts from the Philippine Republic Build-Operate-Transfer (BOT) law cover key aspects of public procurement in respect of BOT projects.

### **A. Section 4-A: Unsolicited Proposals**

Unsolicited proposals for projects may be accepted by any government agency or local government unit on a negotiated basis: Provided, That, all of the following conditions are met: (1) such projects involve a new concept or technology and/or are not part of the list of priority projects, (2) no direct government guarantee, subsidy or equity is required, and (3) the government agency or local government unit has invited by publication, for three weeks, in a newspaper of general circulation, comparative or competitive proposals and no other proposal is received for a period of sixty (60) working days: Provided, further, that in the event another proponent submits a lower price proposal, the original proponent shall have the right to match that price within thirty (30) working days.

### **B. Section 5: Public Bidding of Projects**

Upon approval of the projects mentioned in Section 4 of this Act, the head of the infrastructure agency or local government unit concerned shall forthwith cause to be published, once every week for three consecutive weeks, in at least two newspapers of general circulation and in at least one local newspaper which is circulated in the region, province, city or municipality in which the project is to be constructed, a notice inviting all prospective infrastructure or development project proponents to participate in a competitive public bidding for the projects so approved.

In the case of a build-operate-and-transfer arrangement, the contract shall be awarded to the bidder who, having satisfied the minimum financial, technical, organizational and legal standards required by this Act, has submitted the lowest bid and most favorable terms for the project, based on the present value of its proposed tolls, fees, rentals and charges over a fixed term for the facility to be constructed, rehabilitated, operated and maintained according to the prescribed minimum design and performance standards, plans and specifications. For this purpose, the winning project proponent shall be automatically granted by the appropriate agency the franchise to operate and maintain the facility, including the collection of tolls, fees, rentals, and charges in accordance with Section 5 hereof.

In the case of a build-and-transfer or build-lease-and-transfer arrangement, the contract shall be awarded to the lowest complying bidder based on the present value of its proposed schedule of amortization payments for the facility to be constructed according to the prescribed minimum design and performance standards, plans and specifications: Provided, however, that a Filipino contractor who submits an equally advantageous bid with exactly the same price and technical specifications as those of a foreign contractor shall be given preference.

In all cases, a consortium that participates in a bid must present proof that the members of the consortium have bound themselves jointly and severally to assume responsibility for any project. The withdrawal of any member of the consortium prior to the implementation of the project could be a ground for the cancellation of the contract.

The public bidding must be conducted under a two-envelope/two-stage system: the first envelope to contain the technical proposal and the second envelope to contain the financial

proposal. The procedures for this system shall be outlined in the implementing rules and regulations of this Act.

A copy of each contract involving a project entered into under this Act shall forthwith be submitted to Congress for its information.

**C. Section 5-A: Direct Negotiation of Contracts**

Direct negotiation shall be resorted to when there is only one complying bidder left as defined hereunder:

- If, after advertisement, more than one contractor applied for prequalification and it meets the prequalification requirements, after which it is required to submit a bid/proposal which is subsequently found by the agency/local government unit (LGU) to be complying.
- If, after advertisement, more than one contractor applied for prequalification but only one meets the prequalification requirements, after which it submits a bid/proposal which is found by the agency/LGU to be complying.
- If, after prequalification of more than one contractor, only one submits a bid which is found by the agency/LGU to be complying.
- If, after prequalification, more than once contractor submit bids but only one is found by the agency/LGU to be complying: Provided, That, any of the disqualification Bids and Awards Committee within 15 working days to the head of the agency, in case of national projects or to the Department of the Interior and Local Government, in case of local projects from the date of the disqualification was made known to the disqualified bidder. Provided, furthermore, That the implementing agency/LGUs concerned should act on the appeal within 45 working days from receipt thereof.