



# AVIATION SAFETY, SECURITY & THE ENVIRONMENT: The Way Forward



## Emerging Issues for Air Navigation Services A Challenge for Developing Countries



Charles E. Schlumberger  
Principal Air Transport Specialist  
The World Bank

Montreal, Canada  
15-16 Sept. 2007



# The Challenges

- ❖ Lesser developed countries (LDC) must meet international standards:
  - ➔ No tolerance for poor safety or security (e.g. blacklists, country assessments)
  - ➔ Operators are reluctant if infrastructure is deficient (cost for safety, security)
  - ➔ Growth constrained if standards are considered poor (limitation of access)
  - ➔ Income limited (e.g. ATC services)



*Emerging Issues for Air Navigation Services*  
*A Challenge for Developing Countries*



# The Challenges

- ❖ LDC are faced with necessary hard currency investments:
  - Basic infrastructure require large investments (e.g. runways, radar)
  - Air Transport Infrastructure seen as a low priority, competing with more important sectors (e.g. health, education, energy)
  - Difficulties to raise private funds



*Emerging Issues for Air Navigation Services*  
*A Challenge for Developing Countries*



# The Challenges

- ❖ LDC have difficulties to recover or retain operational income of the sector:
  - Competing sectors -> funds allocated to the central treasury (e.g. Afghanistan)
  - Air transport only source of hard currency income (e.g. Mongolia's ATC \$40 million)
  - Bad governance (disappearance of funds, corruption, non transparent procurement)



*Emerging Issues for Air Navigation Services*  
*A Challenge for Developing Countries*



## Three Financing Alternatives

1. Low cost solution: meet minimum standards (SARP)
2. Traditional Financing: Government funds and external financing (MDB)
3. New emerging markets trend: Private sector participation (PPI)



*Emerging Issues for Air Navigation Services*  
*A Challenge for Developing Countries*





# Low cost solution

- ❖ Meet Standards and Recommended Practices (SARP):
  - ➔ Minimum standards do allow low cost solutions (e.g. ATC, Safety & Security)
  - ➔ Positive safety and security ratings attract traffic and investments
  - ➔ Lack of safety & security compliance is mostly a problem of “lack of discipline” and poor governance not a lack of funding



*Emerging Issues for Air Navigation Services*  
*A Challenge for Developing Countries*



# Low cost solution

## Example Air Traffic Control

- ✈ Procedural ATC can be sufficient (but has low or limited capacity)
- ✈ New technology offer lower cost solutions (e.g. ADS-B, GNSS)
- ✈ Industry may contribute or invest (e.g. IATA GNSS procedures)





# Low cost solution

## Good Example: Air Traffic Control

### **Mongolia**

- 40,000 over-flights per year
- Procedural ATC
- US\$ 40 million



*Emerging Issues for Air Navigation Services*  
*A Challenge for Developing Countries*





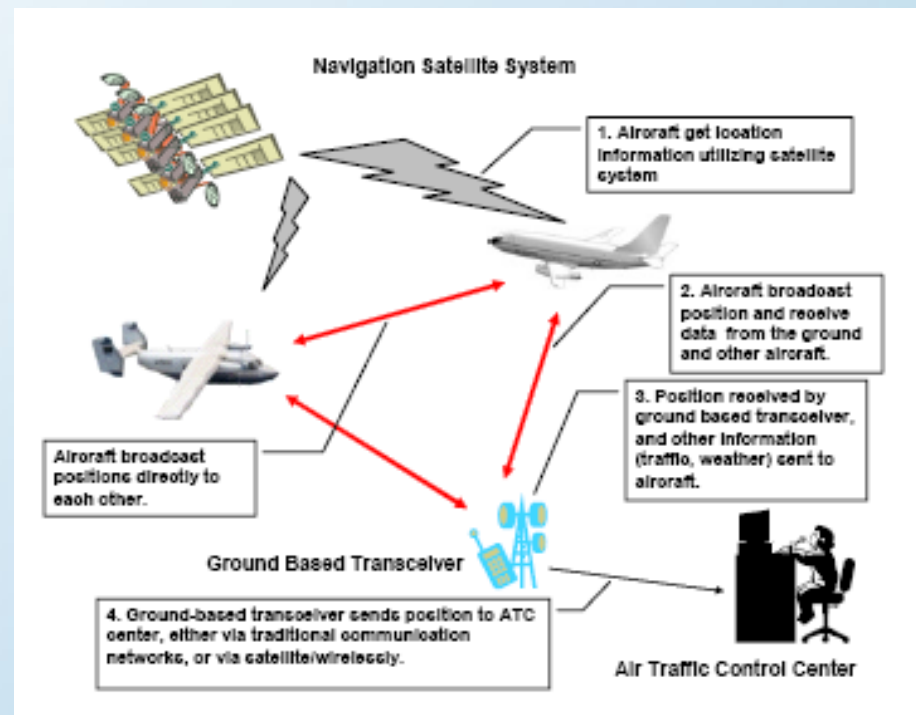


# Low cost solution

## The Opportunity: New Technology

### ADS-B

- Low cost CNS
- Future system of the USA
- Skip costly radar installations
- WB Projects in East Africa in preparation



*Emerging Issues for Air Navigation Services*

*A Challenge for Developing Countries*





# Low cost solution

## Bad Example: Airport Safety & Security



The Caribbean



West Africa

*Emerging Issues for Air Navigation Services*  
*A Challenge for Developing Countries*





# Traditional Financing

- ❖ Three main sources
  - Government funds from operational income and allocated general funds
  - Financing by bilateral partners
  - Financing by Multilateral Development Banks (MDB)



*Emerging Issues for Air Navigation Services*  
*A Challenge for Developing Countries*



# Traditional Financing

## ❖ Government funds

- ➔ Operational income must be allocated to the sector (e.g. landing fees, passenger taxes)
- ➔ If insufficient, general funds must be allocated (based on approved Masterplan)







# Traditional Financing

## ❖ Bilateral partners

- ➔ Financing of airport or air traffic management infrastructure
  - ➔ Dar-Es-Salaam airport in Tanzania
  - ➔ € 53 million grant / loan by the Dutch Government



*Emerging Issues for Air Navigation Services*  
*A Challenge for Developing Countries*







# Traditional Financing

- ❖ Financing by Multilateral Development Banks (MDB)
  - Regional Development Banks (African DB, Asian DB, Inter-American DB)
  - Global Development Institutions (EBRD, The World Bank Group)



*Emerging Issues for Air Navigation Services*  
*A Challenge for Developing Countries*

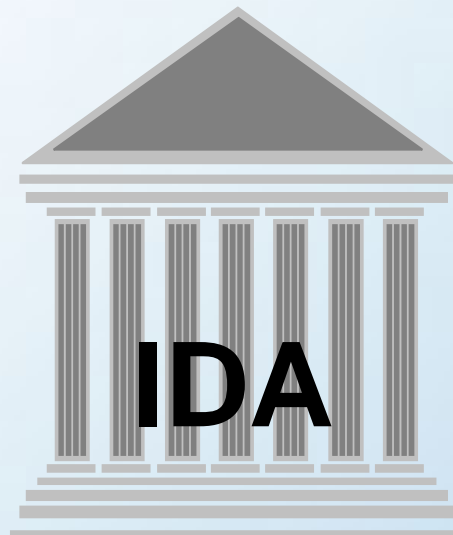


# The World Bank Group



**IBRD**

**1945**



**IDA**

**1960**



**IFC**

**1956**



**MIGA**

**1988**



**ICSID**

**1966**

*Emerging Issues for Air Navigation Services*

*A Challenge for Developing Countries*





# The World Bank Portfolio

<b>Fiscal Year 2006 (in millions USD)</b>	<b>IBRD</b>	<b>IDA</b>	<b>IFC</b>	<b>Total</b>
<b>Loans/Credits outstanding</b>	103,004	127,028	21,627	251,659
<b>Transport Sector</b>	15,450	15,243	1,326	32,019
<b>Air Transport</b>	411	303	309	1,023
<b>Percent of rows above</b>	15% 2.7%	12% 2.0%	6.1% 23%	12.7% 3.2%

*Emerging Issues for Air Navigation Services*  
*A Challenge for Developing Countries*





# Private Participation

## ❖ New emerging markets trend

- ➔ Private participation in infrastructure (PPI) have several modes
- ➔ Modern instruments of financing can facilitate foreign funding (e.g. securitization of ATC income)
- ➔ Good governance is essential to attract private investors



*Emerging Issues for Air Navigation Services*  
*A Challenge for Developing Countries*



# Private Participation PPI

	Complete Government Control			Complete Private Sector Control
<b>Ownership</b>	Government	Government	Government	Private Sector
<b>Investment</b>	Government	Government	Private Sector	Private Sector
<b>Management/Operations</b>	Government	Private Sector	Private Sector	Private Sector
<b>PPI Options (commonly used)</b>		<ul style="list-style-type: none"> <li>■ Service Concessions</li> <li>■ Contracting-Out</li> <li>■ Management Contracts</li> <li>■ Multiple Concessions</li> </ul>	<ul style="list-style-type: none"> <li>■ BOT scheme (BOOT, BTO, etc.)</li> <li>■ Long Term Leases (LDO, etc.)</li> <li>■ Master Concession</li> </ul>	<ul style="list-style-type: none"> <li>■ Wraparound Additions</li> <li>■ BOO</li> <li>■ Strategic Buyout (e.g., MEBO, etc.)</li> <li>■ Capital Markets</li> </ul>

BOT=Build-Operate-Transfer; BOOT=Build-Own-Operate-Transfer; LDO=Lease-Develop-Operate  
 BTO=Build-Transfer-Operate; BOO=Build-Own-Operate; MEBO=Management-Employee Buyout

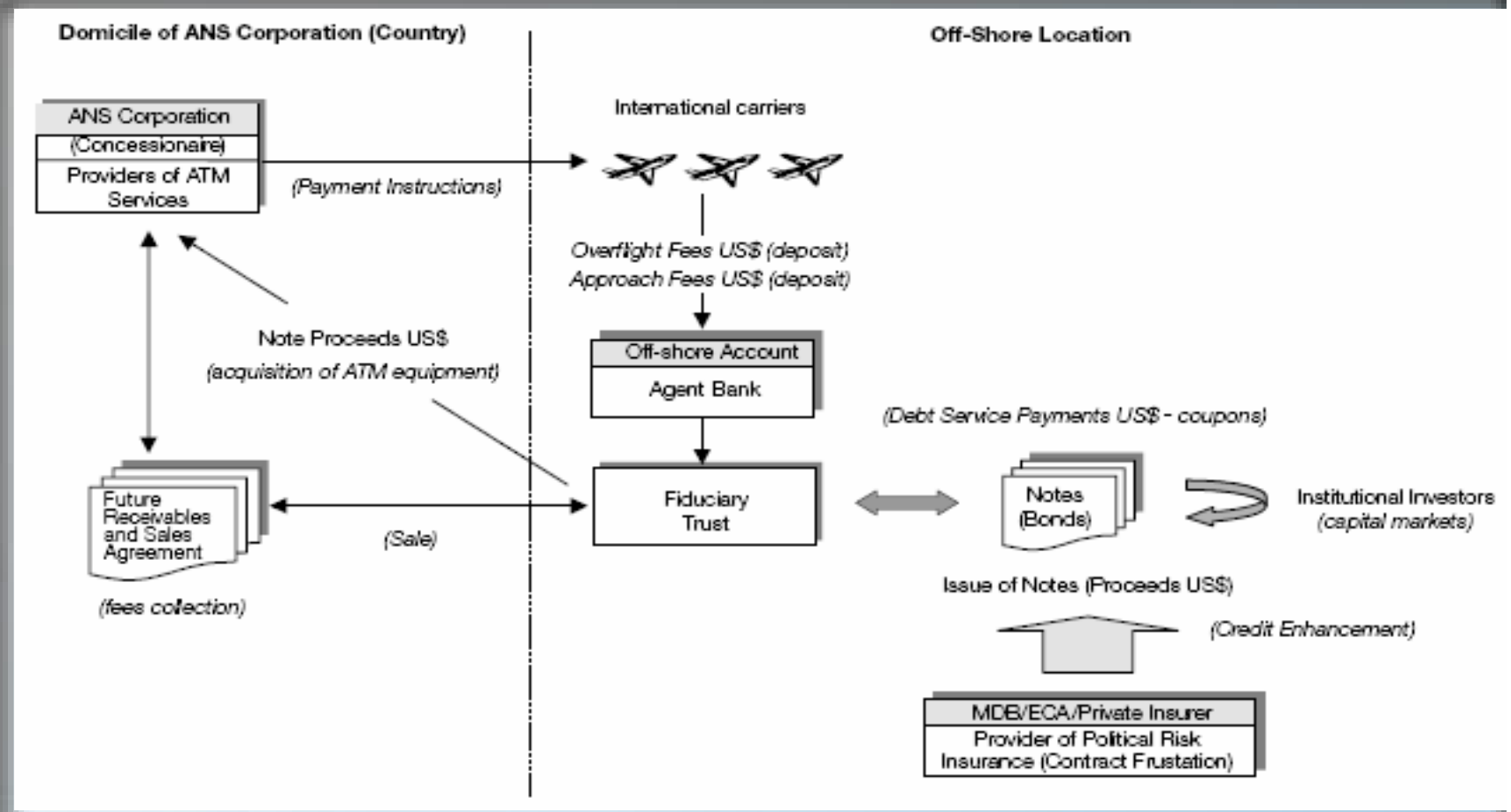


*Emerging Issues for Air Navigation Services*  
*A Challenge for Developing Countries*





# Example for Securitization of ATC fees to facilitate external funding



Emerging Issues for Air Navigation Services  
A Challenge for Developing Countries





# Conclusions

- LDC need to meet international agreed minimum standards for infrastructure and regulatory oversight
- Meeting minimum standards is primarily NOT a financial challenge, but a mostly a problem of political will and good governance
- Governments of LDC need to recognize the importance to adequately fund their aviation sector
- Funding is available from bilateral or multilateral partners or development institutions
- Private sector participation in infrastructure is the ultimate objective for LDC

*Emerging Issues for Air Navigation Services*  
*A Challenge for Developing Countries*

