

# Corporatisation of Air Navigation Services in India: A Governance Model for Future Growth?



Prepared by CAPA India's  
Research & Intelligence Unit

*We understand Indian Aviation*

## **INTRODUCTION**

Indian aviation has gone through a dramatic transformation in the last 6 years with aircraft movements at Indian airports having more than doubled during this period. This has placed great pressure on the infrastructure required to handle this volume of traffic. The result has been increased congestion, higher operating costs, a greater environmental impact, potential safety implications and a diminished passenger experience.

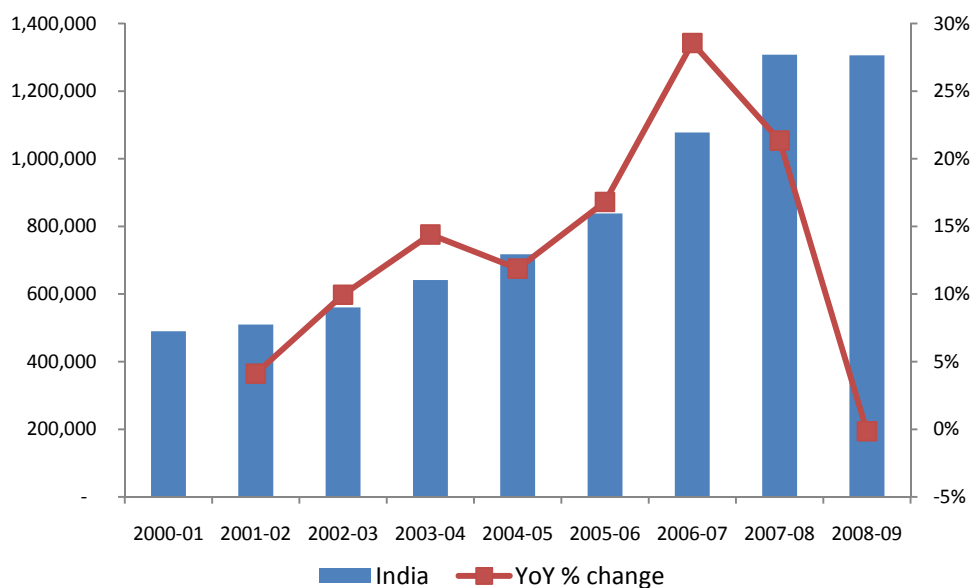
Much of the industry and media focus has been on the capacity of airport terminals and runways. A multi-billion dollar upgrade and modernisation program has been underway since 2005, with positive outcomes now becoming increasingly apparent. However, equally if not more critical, is the issue of airspace and air traffic management infrastructure. As India enters a new growth phase, this key component of the aviation value chain requires a renewed focus. There is a need for fresh thinking on how best to prepare the Indian Air Navigation Services Provider (ANSP) to meet the challenges ahead, including a review of funding and governance models in line with the trend towards corporatisation seen in many of the leading aviation markets around the world.

## **AIR NAVIGATION SERVICES IN INDIA**

Air Navigation Services in India are provided by the Airports Authority of India (AAI), which is also the largest airport operator in the country measured by the number of facilities, at approximately 130 airports across the country. The AAI controls a large airspace of 9.5 million square kilometres, of which 5.9 million sq km is oceanic.

As shown in the chart below, the number of aircraft movements at Indian airports has grown dramatically since 2003.

**Total Annual Aircraft Movements at Indian Airports 2000/01 to 2008/09**

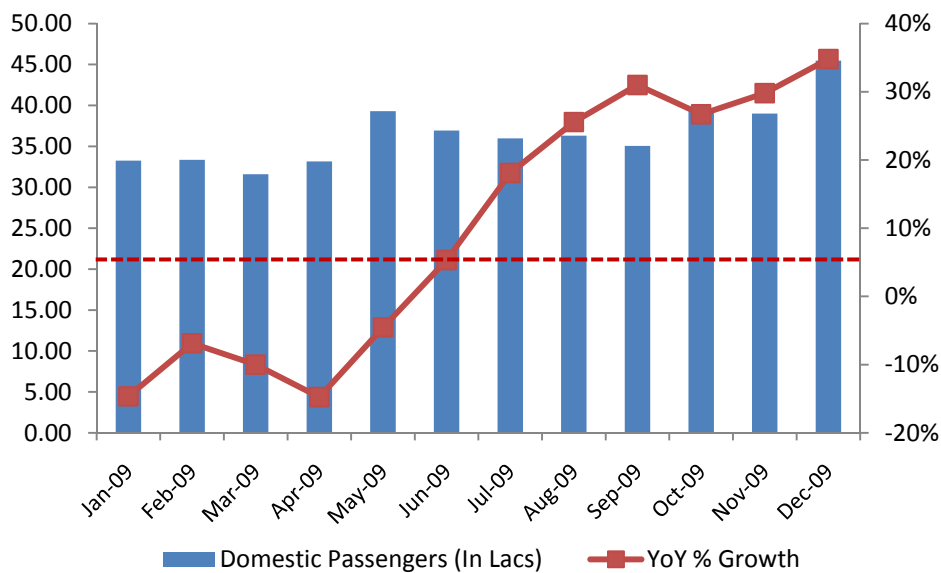


Source: Airports Authority of India

This excludes the impact of increasing overflight services given India’s geographical location between the two fastest growth aviation markets in the world over this period, namely Asia and the Middle East. In addition to the rapid growth at a macro level, there has also been the issue of bumping up against the capacity limits at slot constrained airports such as Mumbai, particularly at peak hours, which has required localised solutions such as delivery of training in cross-runway operations.

The economic slowdown in 2008/09 provided some respite from the increasing pressure that was being felt by the aviation infrastructure in the country, however as can also be seen below, there has been a very sharp recovery in the last 6 months, with year-on-year domestic traffic growth close to 30% in some months. With the Indian government and third party organisations such as the IMF have raised GDP growth forecasts quite substantially in recent weeks, and double digit traffic growth is expected over the next 5 year period.

### Monthly Domestic Traffic on Indian Carriers – Last 12 Months



Source: DGCA

**CAPA View:** “CAPA believes that the growth in traffic and aircraft movements over the next decade may be stronger and more sustained than anticipated. This will create significant pressures to which ad hoc responses will not suffice. The solution will require a new way of thinking with a fresh approach and an organisation that is focused not only on technology and equipment, but also people and training.”

The AAI has made important strides towards addressing the management of recent and projected growth. Its Future Indian Air Navigation System Masterplan consists of the following four key elements:

- Investing in modernising airport infrastructure;
- Upgrading Communications, Navigation, Surveillance (CNS), Air Traffic Management (ATM) and meteorological equipment;
- Enhancing manpower and training infrastructure.

- Harmonisation with other global initiatives in line with the ICAO Global and Regional Air Navigation plans.

With respect to upgrading infrastructure, planned initiatives include:

- Extended provision of VHD Data Link; DATIS, PDC, AIDC;
- Enhanced radar coverage, ADS-C, ADS-B (from 13 to 22 radars);
- Wider roll-out of Advanced Surface Movement Guidance & Control System;
- Implementation of ground based and satellite based augmentation systems;
- Improved DVOR/DME and ILS navigation equipment;
- Extension of Performance Based Navigation;
- Optimisation of airspace and improved ATC procedures;
- Automation of tower operations at 30 airports;
- Upgrading of controller tools.

In the medium term the infrastructure upgrades will be used to implement route optimisation, reduced separation minima and cost reductions through the amalgamation of 11 control centres into 4 en route centres. The sector will transition to centralised air traffic flow management and the use of an Aeronautical Telecommunications Network and from Aeronautical Information Service to Aeronautical Information Management.

In the longer term, the satellite based augmentation system, GAGAN, which is being jointly developed by the AAI and the Indian Space Research Organisation, will place India as one of the leaders in this field. Implementation is scheduled for 2013. A key objective will be to ensure harmonisation with global systems and to keep abreast of developments with the Single European Sky ATM Research and the US NextGen initiative.

The gradual introduction of Performance Based Navigation (PBN) procedures, which commenced in 2007 is expected to result in greater safety due to increased segregation of arrival and departure flight paths; more fuel efficient routings; reduced communication requirements and improved operations e.g. draft procedures to improve the capacity of Runway 32 at Mumbai Airport. A road map for the implementation of PBN was released in May 2009.

Another major development is the provision to license air traffic controllers, although this has yet to be implemented. The move is expected to increase the quality of controllers, although at present the key issue is a shortage of approximately 500 controllers vis-à-vis the sanctioned levels.

### **PREPARING FOR THE FUTURE**

The AAI has done a remarkable job of handling the growth in traffic over the last few years. And it has taken decisive and positive steps to outline a plan going forward. However, the challenges are only going to increase in future. The fact that growth is now occurring off a substantially larger base than even 5 years ago, means that the absolute number of additional movements that have to be accommodated each year is growing. In addition, the technology framework is changing dramatically, while the external environment is becoming more complex.

If India is to meet CANSO's Global Vision for the future of ANS, it will need to address issues such as:

- **Seamless & Efficient Airspace:** increased cooperation and coordination with global ANS providers in order to create an efficient and seamless global airspace;
- **Managed Safety:** Implementation of a Safety Management System and deployment of appropriate equipment;
- **Appropriate Regulation:** streamlined but effective regulation, and separation from the operator;
- **Civil-Military Airspace:** increased cooperation to optimise use of limited airspace through flexible management of capacity;
- **People:** enhanced training and performance, and greater harmonisation between countries on licensing to increase mobility;
- **Business-Like Approach:** establishment of normal business practices with respect to financial sustainability, with economic oversight to drive value and transparency;
- **Customer focused:** performance and service driven operations aligned with international best practice, with regular consultation with the industry;
- **Optimised ATM Systems:** implementation of productivity enhancing technology which is inter-operable with other ANSPs;
- **Environment:** supporting efficient procedures and operations that will reduce the industry's carbon emissions within a clear regulatory framework;
- **Security:** establishment of clear responsibilities.

In order to achieve the above, the AAI will need to make significant investment in technology, people and training. Not only are the capital requirements massive, but there is virtually a need for a completely new culture which will require a focused approach. The AAI has performed its responsibilities as the ANSP with great care and commitment. However, given the expected future direction of the sector, and in line with international trends, perhaps the time is now approaching to develop a new model rather than ad hoc revisions to the existing structure.

**CAPA View:** *“CAPA believes that the critical challenge for Indian aviation over the next 10 years will be to ensure that there is significant and continuous investment in developing a world class ANS infrastructure, with a rigorous focus on safety as the primary objective, whilst maintaining cost efficiency and environmental awareness. A culture in which safety is paramount must be instilled across the industry”.*

The AAI's airport operations responsibilities are in themselves a huge undertaking. With major upgrade programs underway at 2 metro airports, 35 non-metro airports and several other regional and greenfield initiatives, the budget requirements are huge. However, revenue in the last 12 months has been below expectations, projects costs have over-run and only a handful of operating airports are profitable.

Given these calls on the budget, allocating capital for the significant and continuous funding that is required for ANS operations will be difficult. This is an appropriate time for change. It is a situation which has been faced in several countries before.

The most common response to the call for change has been the so called corporatisation (or commercialisation) of ANSP's. Corporatisation has myriad guises but at the broadest level includes

changes to governance, ownership and regulation that enables the ANSP to operate in a more business like fashion.

### **ELEMENTS OF CORPORATISATION**

Historically ANSP's and Regulators have been one and the same organisation. Since the mid 1980's however, there has been a defined trend to change this to have the Regulator and ANSP operator as two independent organisations. While a notable exception is the FAA, in general, many countries have or are contemplating such a separation.

According to the Civil Air Navigation Services Organisation (CANSO) the provision of ANS "covers a range of commercial models adopted with differing levels of independence from direct government control extending to the extreme case of privatisation." In all cases the government concerned retains responsibility for the provision of services but licences or contracts the corporatised body to perform the task on its behalf.

"Commercialisation has allowed significant improvements in service quality without substantial increases in cost of service, or the erosion of safety standards. Other public interest considerations have also been protected. These performance benefits can be attributed to key decisions on the governance on new ANS organizations"

*Messrs McDougall and Roberts,  
Suffolk University, 2009*

The same segmentation of corporatisation and commercialisation exists in this sector as it does in the airport sector. In the ANS industries Corporatisation usually means merely changing from a government department to a government-owned corporation. Commercialisation goes a step further. Under this model the ANSP remains a wholly owned government entity but is run under private sector disciplines, with implications for minimal economic regulation, financial independence, profit motive and a wholly different corporate culture. In theory this should produce a more efficient ANS organisation that can impart added value to the customer by way of reduced or at least stable ANS charges and improved operational practices.

Since 1996, and initially in Canada, the relocation of ANS from the control of a government department to that of a fully or partially privatised organisation (although not-for-profit) has also found some favour, albeit slowly.

The driving factors behind ANS commercialisation include the reduced desire of governments for involvement in infrastructure businesses like ANS; the cost of the required technology being beyond the means of some smaller countries and the increasing difficulty of matching charges to costs.

In a paper<sup>1</sup> presented to ICAO by CANSO in 2008 the separation of regulator and operator was expounded to be "consistent with best governance practice". ICAO has substantively agreed with that position and recommended that ICAO guidance material should promote such autonomy. It is of course up to each state to create an implementation programme to achieve this goal however and thus the timeframes differ markedly state by state. They argue that capacity shortage problems can only be resolved in the long term by applying "lessons from the deregulation of other industries such as telecommunication and airlines."

IATA in its February 2007 paper<sup>2</sup> on commercialisation of ANSP's identified six drivers for success as follows:-

1. Policy changes should be defined and agreed with customers.

2. A clear institutional environment/organisation need to be created.
3. Authorities and responsibilities need to be clearly defined and agreed.
4. The financial model needs to be defined and agreed.
5. As a monopoly provider full transparency is desirable.
6. Systematic performance management through benchmarking to promote improvements is required.

It would appear that to varying degrees, the nations that have successfully transformed the historically shaped government organisations seem to have adopted these principles, explicitly or not.

The same paper goes on to point out that newly corporatised ANSP's should ensure that the cost of provision does not include cross subsidisation; that they should consult with industry; and that they become and remain aligned with ICAO policies and be subject to independent oversight.

ICAO in its 36<sup>th</sup> Session considered a paper<sup>3</sup> entitled "ANSP Governance and Performance" and concluded that "Good ANS performance results from good governance". The paper substantively agreed with the points raised by IATA and suggested that policy makers should focus on the following eight areas:-

1. **ANSP mission and objectives** – emphasis on safety, capacity, cost-efficiency, customer-focused service and environmental responsibility.
2. **Enabling legislation and regulation** – roles and responsibilities and observance of international obligations.
3. **ANSP governance structure** – processes, customs, policies, laws, regulations and institutions ensuring its vision, mission, goals and objectives are in line with obligations and expectations.
4. **Independent & empowered management** – empowered, qualified, responsible and accountable.
5. **Customer relations** – mature, transparent relationship that seeks agreed goals and objectives.
6. **Other stakeholder relations and social dialogue** – appropriate and meaningful stakeholder interface mechanisms.
7. **Performance measurement** – performance measurement and benchmarking has a positive influence on ANS performance.
8. **Economic oversight** – nature, scope and extent of such oversight depends on other elements of ANSP governance, taking into consideration the cost of such oversight.

*"Good ANSP  
performance results from  
good governance".*  
**CANSO**

Central to the process of transforming the ANSP from a government entity to a corporatised organisation is that of how it treats the customer. Mostly it is agreed that the customer of the ANSP is the airline community and irrespective of the degree of monopoly protection in place, treating airlines as if they have choice, separates the successful corporatised ANSP's from the less successful.

## **EXAMPLES OF CORPORATISATION**

### **Air Services Australia**

Airservices Australia was one of the first ANSPs to corporatise, in 1988. The present organisation was formed in 1995 when the Australian Civil Aviation Authority was split into two entities - Airservices

Australia took on service provision for the Australian airways and the Civil Aviation Safety Authority took on the regulatory role.

### **Airways New Zealand**

New Zealand's Civil Aviation Division became Airways Corporation when corporatised in 1987, and latterly Airways New Zealand. In recent years it has paid a dividend to government. The commercialisation of Airways New Zealand came about in the late 1990s as a result of the Asian Financial Crisis, which prompted a significant business review focused on cost reduction rather than an increase in fees.

### **DFS Germany**

Deutsche Flugsicherung GmbH (DFS), the German ANS provider, was founded in 1953 and corporatised between 1993 and 1995 from a public authority to a private law company, the first such arrangement in Europe. It is 100% owned by the Federal Republic of Germany (Department of Transport) under the legal authority of a supervisory board. DFS was set for full privatisation in 2006, however the Act did not go through due to concerns that the process was not compatible with the German constitution.

### **Nav Canada**

In February 1996 the Canadian government transferred its Department of Transport Air Navigation Service to a private sector company, Nav Canada, which purchased it for \$1.5 billion. It was then established as debt-financed company through bond issues. Transport Canada, the air transport safety regulator, is a separate entity. Four years earlier, the Canadian National Airports Policy had begun to divest control of airports from Transport Canada, establishing them as private, not-for-profit organisations between 1992 and 1996.

There is a clear strategy in Canadian Government air policy. Nav Canada is also organised as a non-profit non-share capital corporation, working on a breakeven basis. It is governed by founding members comprising of the government, airlines, general aviation representatives and trade unions, each appointing directors, who nominate independent members and, ultimately, a Chief Executive. The company therefore has no shareholders and is financed through the debt markets. It is required to reinvest any surplus, minimise debt or return part of its charges to users by way of fee reductions. Typically it reinvests first, in CNS/ATM systems.

The driving force for privatisation was the inability of the previous government organisation to provide investment for much needed system modernisation, which was causing traffic delays, together with the need to separate the regulator from the service provider. Additionally the desire for a more responsive management structure outside of the rigours of government bureaucracy; for a reduction in administrative expense; and to focus on customer needs. Nav Canada was tasked with ensuring management efficiencies, managing the transition, modernising the system, reducing costs while increasing controller numbers, applying labour relations to a new private sector environment, establishing a user fee system to replace the Air Transportation Tax, and with meeting investment demands by raising capital without government support. Having initially arranged credit of \$1,800 million through public debt markets to purchase the ANS it is now funded principally via user fees.

There was a period of poor labour relations that stemmed from the involuntary redundancy of over one thousand management and support staff when it privatised and the difficult rounds of

bargaining with some operational employee groups that arose from it. Having completed its teething period Nav Canada realigned its charging structure at the request of the airlines.

## **NATS UK**

In a country (Great Britain) where the penchant for privatisation of utilities and transportation (airlines, airports, railway infrastructure and operators, bus services etc) was established in the mid 1980s, it is not surprising that ANS should eventually have come under the spotlight. With capital funding for new air traffic control systems reduced by the British government from a peak of £130 million in 1993/94 to £36 million in 1998/99, it was recognised that to meet the predicted traffic demand the National Air Traffic Services (NATS) needed freedom to invest.

NATS was already corporatised in 1996, its funding emanating wholly from user fees. The chosen vehicle was partial privatisation through a Public-Private Partnership (PPP), by which ownership of NATS was transferred from the Civil Aviation Authority (CAA) to the Department of Environment, Transport and Regions, with the government then selling 46% of its interests in NATS to a strategic partner, 5% to the organisation's employees, and retaining 49% for itself as a Golden Share. The process, instigated in 1999, experienced several delays and was only completed in July 2001, upon which NATS became a holding company. This resulted in NATS becoming the first Air Traffic Service Provider to be managed and funded through the private sector on a fully commercial basis.

## **DOES COMMERCIALISATION DELIVER?**

A central question is of course does corporatisation deliver results? Secondly is the question of defining what results are desirable? It is our view that advantages of separating the ANS provider from the state regulator include:

- The regulator can perform its regulatory role without being compromised through conflict of interest perceived or real;
- Severance of the regulator from the provider (and airport operators) allows the ANS provider to remain fully focused on its main reason for its being – air traffic control and facilitation to support such service, without being distracted by other activities;
- The ANS provider generates its own revenue through air navigation facility charging (ANFCs) as described in ICAO documents, in return for aeronautical services that satisfy the regulator's requirements and meet customer (e.g. airlines') needs and expectations, through tailoring services and infrastructure by a collaborative approach. Accordingly the need for government funding is diminished and ultimately removed;
- The ANS provider operating on a commercial basis as a government owned corporation or private company can operate more efficiently in a business context than traditional government public service departments can. Efficiency increases benefit customer organisations contributing towards a more effective and safer air navigation environment;
- Commercial operations that are audited internally and externally by the regulator and commercial accounting provide high degrees of transparency

ANSP performance can be grouped and measured in the four categories of:-

1. **Commercially successful-** profitable trading, funding capital programmes and appropriate pricing

2. **Helping customers succeed**- aligned priorities with customers in such noise, emissions and on time departure/arrivals
3. **Motivated and prepared workforce**- right people at the right time with the right skills.
4. **Safe and reliable**- system integrity is extremely high and incidents are low and trending downwards

All are equally important and none are mutually exclusive. Benchmarking exercises carried out by CANSO indicate that these four headings of activity are generally accepted as appropriate measures of ANSP success. A trend seems to be emerging that ANSP's that have truly corporatised are now rewarded with long term positive benefits across all these metrics. Certainly the commonly but erroneous held view "that in a commercial organisation, focussed on the bottom line, safety will suffer" is completely without substance.

A recent report by Suffolk University<sup>4</sup> is perhaps the most definitive and independent review of ANSP reforms. The authors, Messrs McDougal and Roberts, report a positive outcome from ANSP corporatisation over a sample of about 10 states. (Including Australia, New Zealand, Germany, UK, Ireland, Canada, Switzerland and South Africa).

The study looked at a wide range of aspects of the ANSP business including safety, technology, service, labour productivity, industrial relations and financial performance. Across all these metrics both internal and external stakeholders agreed that corporatisation generally was beneficial to the organisation, the owners and the travelling public.

The United States Government Accountability Office also conducted a study on five commercialised ANSPs – Australia, Canada, Germany, New Zealand and the UK – and similarly found that each:

- Operates as a business and carries out its own strategic, operational and financial decisions;
- Generates and manages its own revenue to cover its costs (including raising commercial debt if required);
- Retains safety as the primary goal and is subject to external regulation – and in no cases have safety incidents increased, and in fact in 2 out of the 5 examples they have decreased;
- Invested in new technologies and equipment;
- Lowered costs through modernisation and efficiency – and some have reduced prices to airlines;
- Consults in a structured manner with their stakeholders.

*"We find that ANSP commercialisation has generally achieved its objectives. Service quality has improved in most cases. Several ANSP's have successfully modernized workplace technologies. The safety records of ANSP's are not adversely affected by commercialisation, and in some cases safety is improved. Costs are generally reduced, sometimes significantly. Other risks of commercialisation – such as erosion of accountability to government, deterioration of labour relations, or worsened relationships between civil and military air traffic controllers – have not materialised."*

**Messrs McDougal & Roberts**

## **CASE STUDY: AIRWAYS NEW ZEALAND**

*Corporatisation of the air navigation services (ANS) components of the former Civil Aviation Division of the New Zealand Ministry of Transport was undertaken in 1987 as Airways Corporation of New Zealand Ltd., a state-owned enterprise.*

*As the world's first commercial ANS provider, its performance over 20 years can be measured by its demonstrable success. The commercialisation process saw the separation of the operational services and facilities as the Airways Corporation of New Zealand, from the State's regulatory and policy arm (Civil Aviation Authority of New Zealand) and from airport operators.*

*Airways Corporation of New Zealand essentially operates as a private company, although shareholding is retained by the New Zealand government through the two shareholding ministers, the Minister of Finance and Minister of State Owned Enterprises.*

*A Board of Directors oversees the chief executive and senior executive management team who have day to day strategic, financial and operational responsibilities of the company. As Airways is no longer a government department, the corporation does not receive any financial assistance from the government and is expected to pay taxes as any private company does.*

*In the case of New Zealand a governance arrangement depicted in figure 1 below has existed more or less with alteration since April 1987. The clear separation between the regulator (CAA) and the ANS Service delivery (Airways New Zealand) can be seen, reporting as it does to different Ministers of the Crown.*

*"Airways New Zealand sets an excellent example for other ANSPs to follow. Airways New Zealand also has a good consultation process and its charges are reasonable. It has not increased its charges for 10 years and will hold them for at least another two. Airways New Zealand is delivering global improvements in route optimisation, operational efficiency, safety and cost efficiency."*

**Bisignani, IATA, 2008**

*Since its formation as a State Owned enterprise (SOE) in 1987, Airways has operated entirely as a commercial entity and its business is neither subsidised nor underwritten by the Government of New Zealand.*

*Where necessary for capital programs, financing is arranged on a normal commercial basis from lending institutions as appropriate and in the manner that corporations and private companies do and it pays both taxes*

*and a dividend to the owner.*

*In its third decade as a commercial entity there are two shareholders of this SOE, namely the Minister for Finance and the Minister for State Owned Enterprises.*

## Airways New Zealand Governance Structure

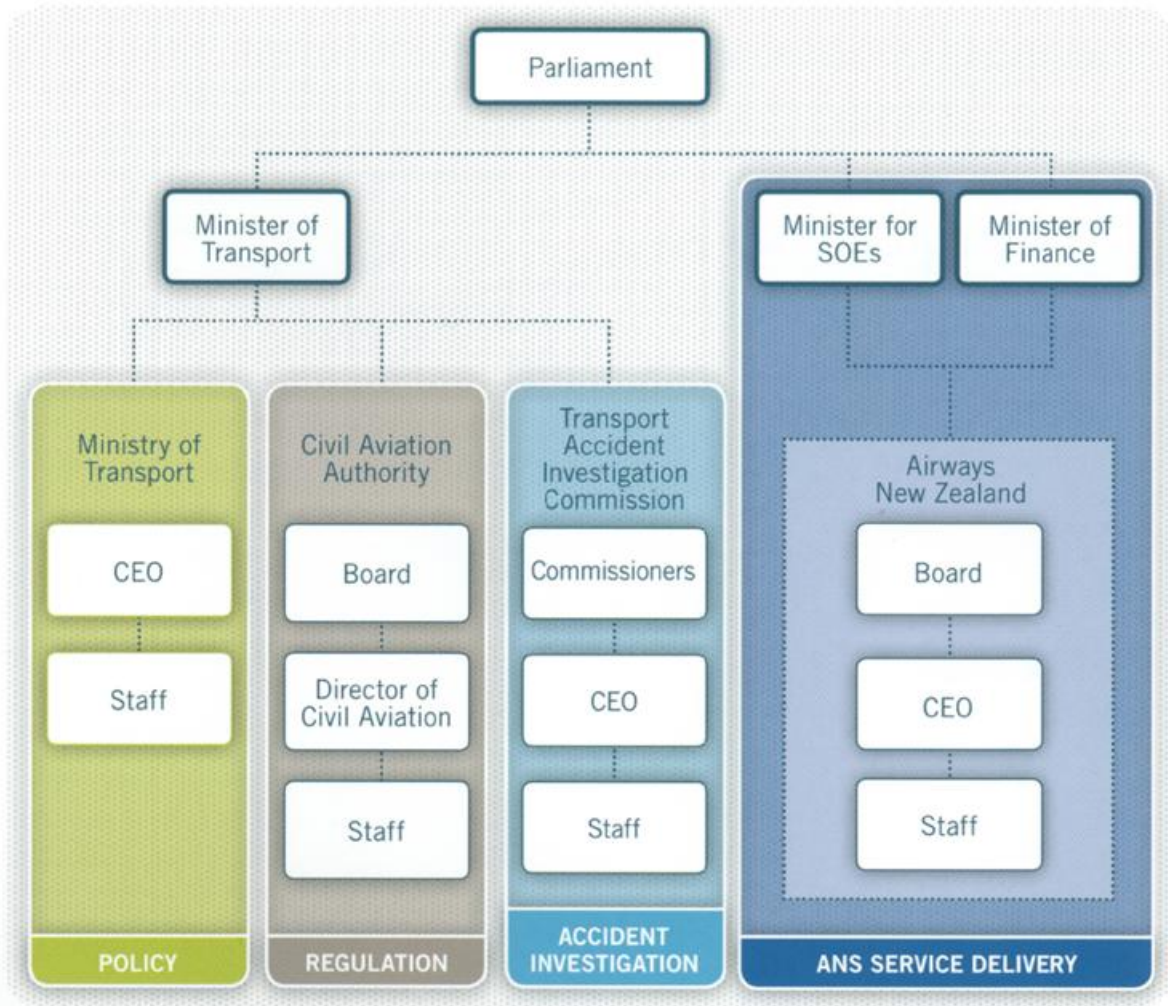
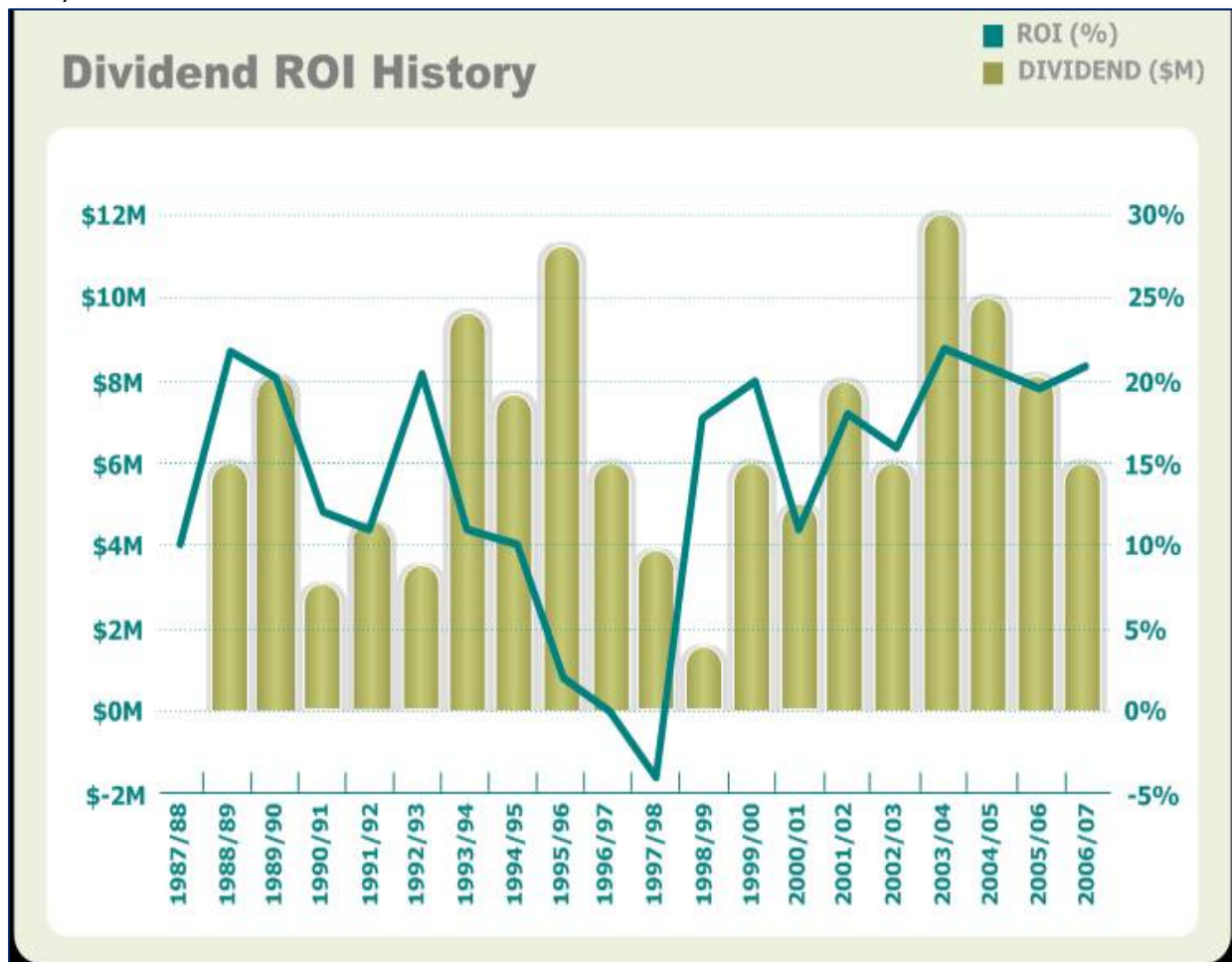


Figure 1

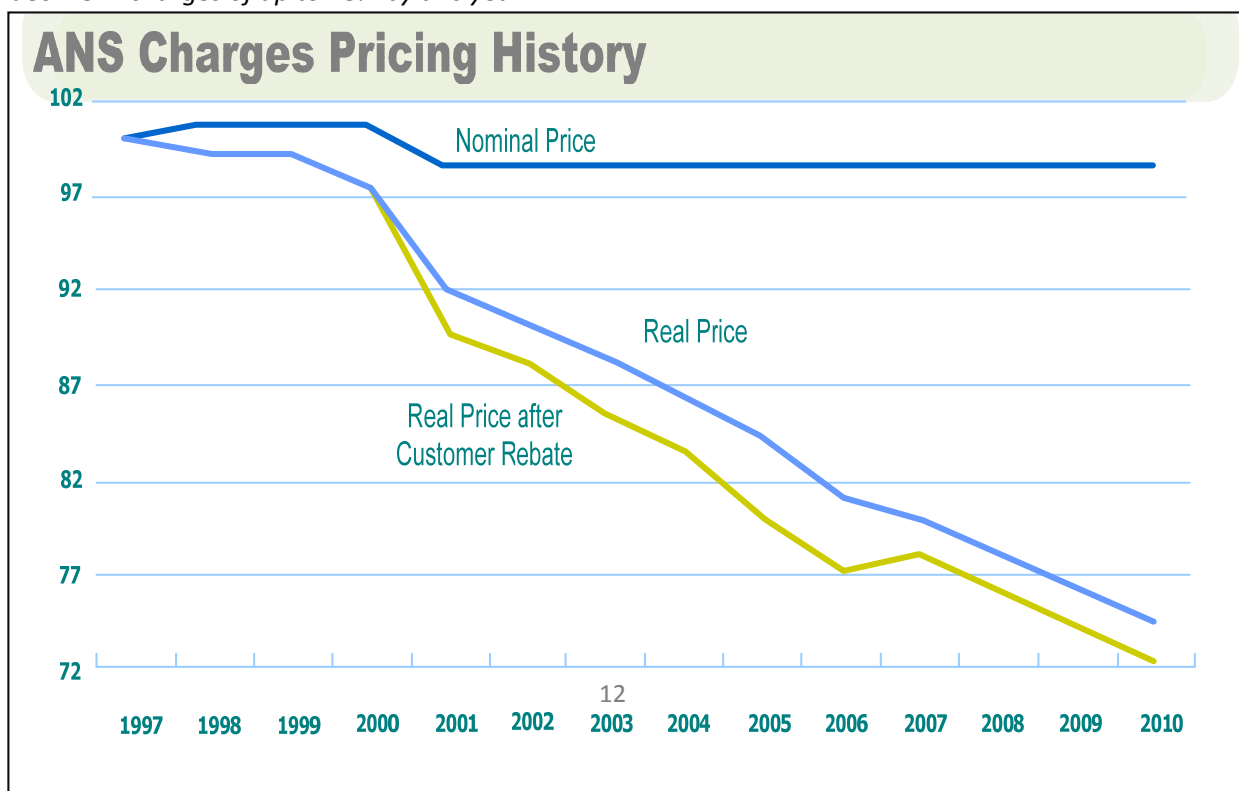
*Unlike in many countries, Airways operates under a deregulated market in relation to terminal and aerodrome control services, where competitors should they so wish and having satisfied regulatory criteria, establish themselves as competing service providers.*

*Revenue is generated by facilitation charges placed on users of the system. Airways is effectively a natural monopoly in relation to enroute services provision. Accordingly costs are carefully controlled and fee rates are determined to allow only modest profits with a dividend paid to the shareholders – presently the New Zealand government – with some retained earnings for research and system renewal. The company is efficiently directed by an independent board appointed from industry, who report annually to shareholders. Airways have undertaken two major restructures including downsizing, resulting in improved services and economics. Also, generational renewal of capital systems has twice been implemented in consultation with customer organisations and increased efficiencies continue to be realised.*

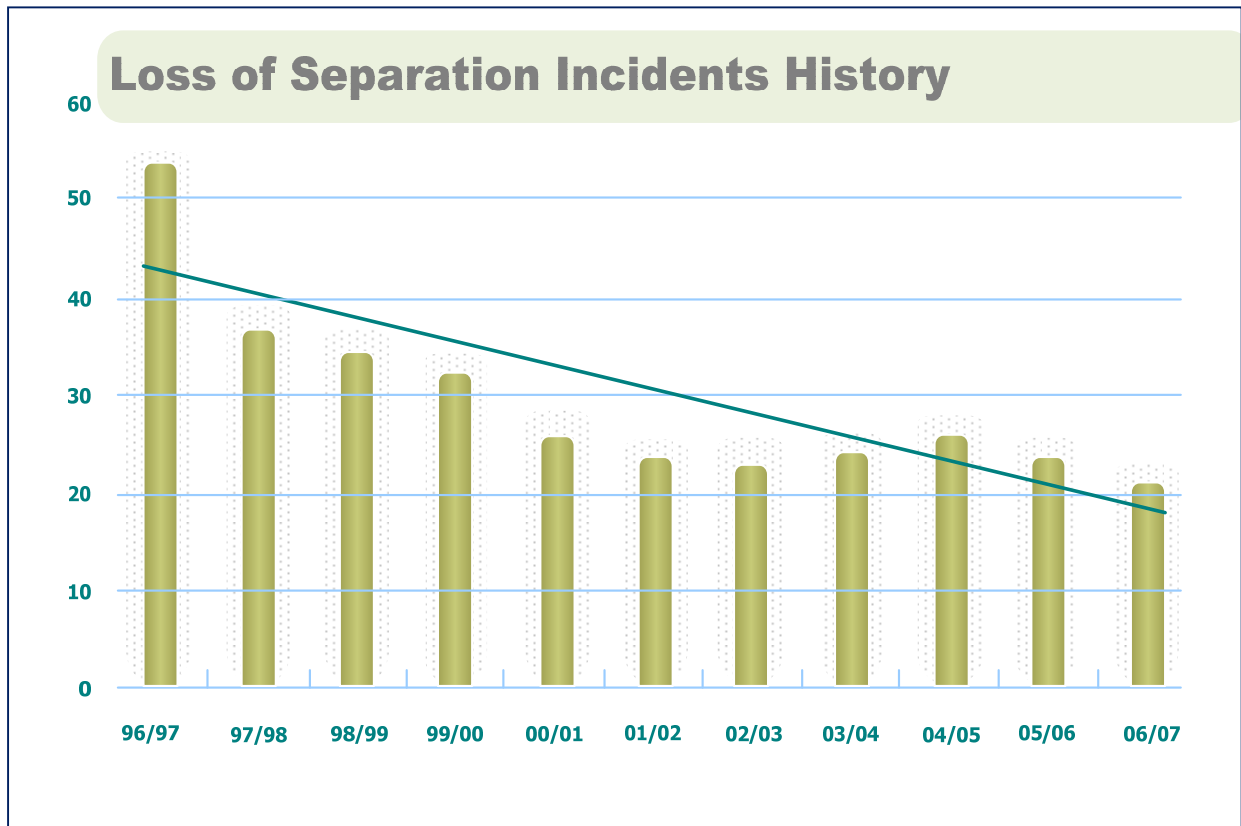
The following charts show the performance trends achieved by Airways New Zealand. Dividend payments have been stabilised at NZ\$6 million per annum, that was the amount that was paid in 2007/08, 2008/09 and is the planned annual distribution for each of the next 3 years through to 2011/12.



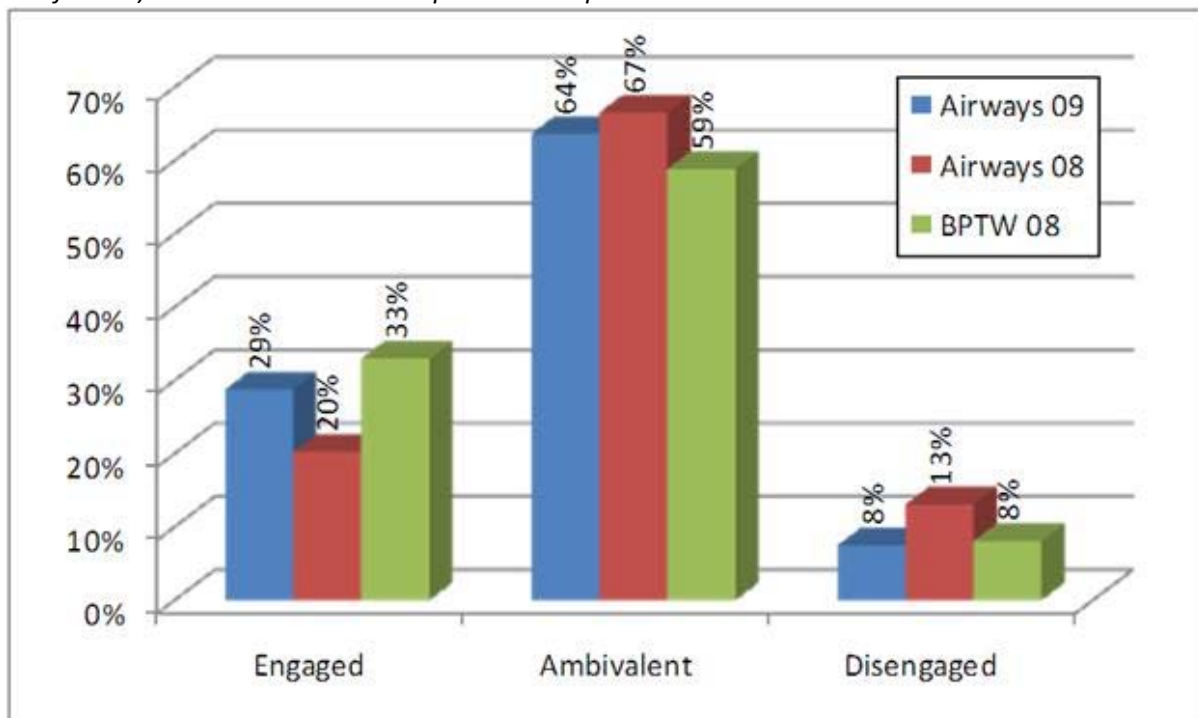
With ANS charges fixed since 2001 in nominal terms, Airways New Zealand will have delivered a real decline in charges of up to 28% by this year.



And on the key issue of safety – frequently raised as one of the greatest concerns of corporatisation – in the first decade under the new model, the trend number of loss of separation incidents for example more than halved.



The following graph from Airways New Zealand shows favourable staff engagement (a measure of satisfaction) in 2009 vs 2008 vs best practice comparison across New Zealand and Australia.



## **CONCLUSION**

Indian aviation is about embark upon its next phase of growth. In order to manage this safely and efficiently, significant investment will be required in ANS operations. The AAI has been a very capable provider, however the combination of the growing demands of the airport operations business and the need for continuous capital funding for ANS augmentation, means that it is appropriate to consider whether corporatisation may be the way forward from here.

CAPA believes that the critical challenge for Indian aviation over the next 10 years will be to ensure that there is significant and continuous investment in developing a world class ANS infrastructure, with a rigorous focus on safety as the primary objective, whilst maintaining cost efficiency and environmental awareness. A culture in which safety is paramount must be instilled across the industry.

CAPA also believes that the growth in traffic and aircraft movements over the next decade may be stronger and more sustained than anticipated. This will create significant pressures to which ad hoc responses will not suffice. The solution will require a new way of thinking with a fresh approach and an organisation that is focused not only on technology and equipment, but also people and training.

From the collective experience of corporatised ANSP's it is now becoming quite clear that corporatisation delivers results for the industry. Equally however, it is apparent the transformation from a government entity ANS Operations co-joined with the Regulator to two separate entities is not necessarily an easy or rapid process. In all cases the process of change required commitment from the very highest level of Government, tenacious focus by organisation leadership and often the assistance of external change agents who can bring experience to the process. In the difficult economic environment that faces the aviation industry today commencing the ANSP corporatisation journey has never been more essential.

### **CAPA Experience: Air Navigation Services**

- CAPA is currently preparing the Masterplan for the CAPA AeroPark, planned as world class aviation and training campus to be developed in India for multiple disciplines, including an Air Traffic Controller academy;
- We have a research desk that monitors developments in the ANS sector in India;
- Our international market intelligence unit tracks global issues affecting the sector in the ATM Monthly research report.

#### References:

1. ICAO September 2008; "Separation of ANS Provision from Regulatory Oversight" by CANSO
2. IATA February 2007; "Commercialisation of Air Navigation Service Providers"
3. ICAO 36<sup>th</sup> Session 2007; "ANSP Governance and Performance"
4. Suffolk University 2009; "Commercialising ATC: Have Reforms Worked?"