Keio Business School

Kansai International Airport Co., Ltd

Two years have passed since the Kansai International Airport was opened. This is the first international airport in Japan to operate on a 24-hour basis, but there are still problems of various kinds that have yet to be resolved. Among them is the rapid jump in the number of international flights from 194 a week (13 countries and 28 cities) in the initial stage to 560 a week (35 countries, 74 cities) in September 1996 (Reference 4). This, when combined with domestic flights, represents about 120,000 takeoffs and landings a year, or roughly two-thirds the airport's capacity of 160,000 a year, and concern is being felt that in the near future it may end up being too small to meet the demand (Reference 7).

The Japanese economy has endured a long period of stagnation since the bubble burst, but economists are predicting a full recovery is around the corner. In this light and considering Japan's role in the world economy in the next century, the issues facing the airline industry are indeed huge.

In this case study we look at trends in the industry, and focus especially on the part that Kansai International Airport has played and is likely to play in the future.

Background

Kansai International Airport was opened on September 4, 1994. Central to the expansion of the world's airline industry and international air travel has been international airports that operate around the clock, and with Kansai's opening, Japan at last joined the group of countries with airports that provide this

 The author of this case extends his appreciation to Osaka Prefecture, Izumisano City and Kansai International Airport Co.,Ltd.

service. But the path to this point has not always been smooth.

Kansai International Airport's development has been closely tied in to the environmental issues that have confronted the Osaka International Airport (Itami Airport) over many years. Osaka Airport is located inland, and complaints by surrounding residents over the noise resulted in severe restriction imposed on operating hours.

This placed Osaka Airport at a distinct disadvantage as an international airport and as Osaka's and the Kansai region's gateway to the rest of the world. And with this inability to cope with the growing demand for air transport adversely impacting on the region's economic base, the business community began showing a strong interest in the construction of a new international airport, premised on the closing of Osaka Airport. This was backed up fully by local governments in Kansai. In 1968 the Ministry of Transport (MOT) began surveying eight potential sites for the new airport - on the Osaka-Wakayama prefectural border near Osaka Port; in the waters off the shores of Sennan, Kishiwada, Nishinomiya, Rokko, Port Island and Akashi; and on Awaji Island.

In 1974 the Council for Civil Aviation in the MOT did a comparative study on the three areas of Senshu offshore, Kobe offshore, and Harima Sea, and eventually submitted a report recommending five kilometers offshore from Senshu as the most suitable location. The MOT then sought the cooperation of the local governments in the region.

The local governments, local residents and business community that would be directly affected by the construction gradually began showing their support for the proposed location, and in 1981 MOT presented a set of three proposals - Airport Plan for Kansai International Airport, Kansai International Airport Environmental Impact Statement and Regional Development Plan - to the three prefectural governments (Osaka, Hyogo and Wakayama) concerned. Osaka and Wakayama prefectures agreed to the proposals in 1982, while Hyogo finally agreed in 1984.

In October of the same year the Kansai International Airport Co., Ltd. (KIAC) was founded with investment capital from government and private sectors to construct and then operate Kansai International Airport. Thus 16 years had passed from the very first surveys to the beginning of actual construction on the airport.

In 1986 KIAC entered into a compensation agreement with the Osaka Federation of Fishermen's Association, and with the presentation of an environmental impact statement to the Osaka Government, finalized all the necessary environmental assessment procedures.

From early 1987 KIAC began constructing the airport island sea wall five kilometers out to sea, and at the end of 1988, the company began reclamation work. The soil and sand used for reclamation, totaling 180 million cubic meters to build up on a weak and unstable seabed base at an average depth of 18 meters, was transported from Hannan Hills in Osaka Prefecture, Awaji Island, and Kata in Wakayama City. Reclamation work was completed in March 1991.

So in under three years, a massive man-made island of 510.3 ha had emerged from the sea. In 1992 the control tower was completed, in 1993 the runway and apron, and in 1994 the passenger terminal. On September 4, 1994 the Kansai International Airport was officially opened (Reference 2).

When the airport was opened, it had a single runway of 3,500 meters allowing 120,000 takeoffs and landings a year. The passenger terminal covered a floor area of 290,000 square meters, and there was space for 33 aircraft parking spots.

Development entity and capital investment share

A range of options for the entity to build and run the airport was looked at in the early stages of the development plan. The three main proposals were: first, a public corporation wholly financed by the government would be responsible for building the airport island, runway, safety facilities and other elements of the

airport infrastructure, and a "third-sector" joint company comprising a public corporation, local governments and the private sector would finance the construction of and ultimately manage the terminal building and other passenger facilities; second, a "third-sector" company would build the airport island on contract from the government, lease the reclaimed land from the government, then build and operate the various airport facilities; and third, a land reclamation corporation would build the island, the national government would construct the airport facilities, and a "third-sector" company would build and operate the terminal.

Of the three, the government ultimately decided upon a "third-sector" company that brought in local governments in the region and the private sector rather than the wholly government-financed public corporation option. Among the key factors behind taking this course were the growing trend to introduce private-sector management know-how into public works as a part of the government's administrative reform initiatives, and also the strong demands by the local government and business community involvement in the project. Thus in 1984 a "third-sector" special corporation was formed to build the island and operate the airport facilities in their entirety.

Construction costs amounted to ¥1,458.1 billion: 20% was met by the national government, 5% by regional governments, 5% by the private sector, and the remaining 70% was raised through interest-bearing loans.

Pre-opening unease over the airport

Built five kilometers out to sea on a weak and unstable seabed, the airport cost a massive ¥1.5 trillion, in part for fisheries compensation and measures to stabilize its ocean floor base. Moreover, as the government adopted a "third-sector" method in the midst of its battle with financial reconstruction, 70% of this ¥1.5 trillion had to be raised from interest bearing loans. It was therefore clear right from the start that interest payments and depreciation stemming from

the enormous construction costs would place an extremely heavy burden on the future operations of the company. In August 1994 the president of KIAC, Tsuneharu Hattori, stated during a presentation that the results at the end of the first fiscal year were projected to be "an operating loss of more than ¥50 billion on a whole-year base." It was also projected that the loss before depreciation would run to more than ¥20 billion.

KIAC had set itself a long-term revenue and expenditure goal of "5-9-23." In the establishment prospectus drawn up in 1984 the company projected a profit in about the fifth year after the airport's opening and a distribution of dividends after about the ninth year. Thus the company set business targets of a single-year profit in about the fifth year, dissolution of accumulated losses in about the ninth year, and the complete repayment of all interest bearing loans in about the 23rd year. These targets are also pledges KIAC made to the Finance Ministry, the primary investor in the project, when the company was established.

Right from the start the industry had some doubts as to whether the "5-9-23" target was realistically achievable, and these doubts were also raised during negotiations with the International Air Transport Association (IATA) over the setting of landing charges and other facilities charges. Charges for the use of facilities such as the check-in counter, offices, first-class lounge, and luggage handling facilities were set at 4-8 times as high as those at Narita Airport, while landing charges for aircraft on international flights initially were to be set at ¥2,640 per ton, or 10% higher than at Narita, but these were ultimately brought down to the same level as Narita at ¥2,400 per ton. This, however, still makes Kansai between 1.5 and 11 times as expensive as other international airports around the world (Reference 21, 22). Airline companies naturally were highly critical of the high airport usage and landing charges, and with such high charges raising their operating costs and placing downward pressure on their profit margin, there was a possibility that some would give up the idea of extending their routes into Kansai International Airport. The main factor in the decision to set high charges was this ambitious "5-9-23" target. In response,

KIAC argued that since payment of airport use charges accounted for only a very small part of the overall operating costs of an airline company, and payments to Kansai constitute only one small part of this, in actual fact the difference in charges between Kansai and other airports was indeed negligible, and that any decision not to land at Kansai would be made not on the basis of high use and landing charges, but because the airline company had assessed demand in the Kansai region as being too low. In reality though, airline companies did not rush to embrace the new airport, and initial projections of 630 international flights a week were revised to 340 a week. In reality though, airline companies did not rush to embrace the new airport, and initial projections of 630 international flights a week were revised to 340 a week. And it was forecast that if the number of flights into the airport were to fall below initial projections, the "5-9-23" target would become very difficult to attain.

Operations of KIAC

Regular flights

When the airport opened it was servicing 67 domestic flights a day covering 24 routes by six airlines, and by September 1996 this had risen to 84 flights a day on 33 routes by seven airlines. On the international side, the airport was handling 48 flights a day connecting to 21 countries and 44 cities by four Japanese and 25 foreign airline companies, and by September 1996 these figures had grown to 80 flights, 35 countries and 74 cities, and 5 Japanese and 40 foreign airline companies (Reference 5, 6, 9, 10).

Converted to annual takeoffs and landing on regular flights, these sets of figures represent an increase from 84,000 on opening to 119,000 two years later. This is about 2.9 times as many international flights as were being serviced by Osaka Airport before Kansai came into operation.

Osaka Airport was also handling 148 domestic flights a day on 38 routes before

the opening, but by September 1996 this had dropped to 114 flights on 29 routes.

Passenger numbers

Annual passenger numbers one year after opening stood at 8,027,000 international and 7,868,000 domestic passengers. The international figure was 1.44 times as high as Osaka Airport before Kansai Airport's opening; while the domestic passenger figure, when combined with the Osaka numbers for the same period, showed a 1.13-fold increase. Since then international passenger numbers have risen sharply, with the fiscal 1995 number rising to 1.68 times as high as Osaka Airport before Kansai's opening. This represents a 17% rise over the number of international passengers in the first year of the airport's operation. There was little change in the number of domestic passengers (Reference 5).

Freight

In the first year of operation, the airport handled 350,000 tons of international freight and 80,000 tons of domestic freight. The international freight figure was 1.73 times as high as Osaka Airport before Kansai Airport's opening; while the domestic freight figure was 1.03 times as high. Since then international freight has increased sharply, with the fiscal 1995 figure rising to 1.94 times as high as Osaka Airport before Kansai's opening. This represents a 12% rise over the international freight figure in the first year of the airport's operation. There was little change in the domestic freight figures (Reference 5).

Management

From the beginning the airport was well received by passengers and other users. It received praise for the stylish lines of the passenger terminal, designed by the Italian architect Renzo Piano, and for the ease with which arrival and departure procedures can be completed. Transferring from international to domestic flights is also simply a matter of moving between floors. In a survey by

the Nihon Keizai Shimbun, 70% of visitors to the airport thought "It is more convenient to use than Narita and Osaka Airports." The airport was also highly regarded because of access - only 29 minutes is required by Nankai Railway express train to travel from the airport to the center of Osaka.

The high standing of the airport was also reflected in the increasing number of visitors and the amount of non-aeronautical revenue: despite the ¥800 admission fee for adults, the observation deck on the northern side of the island attracted close to 10,000 visitors a day, while the restaurants and souvenir shops brought in almost ¥140 million a day. The number of international flights rose to 386 a week with the introduction of the winter schedule at the end of October, while a steady increase in overseas flights to cater for the rising number of Japanese heading overseas on the back of a soaring yen was expected to see the summer schedule at the end of March 1995 jump to about 450 flights a week. In this light, KIAC announced its projections in December 1994 that revenue would be better than initially forecast. The company projected that in the first fiscal year of the airport's operation (September 1994 - March 1995) revenue derived directly from aeronautical services, such as landing charges, would come to ¥22 billion, and non-aeronautical revenue, such as shop rent in the terminal building, would be ¥36 billion for a total operating revenue of ¥58 billion, while on the other side of the ledger, depreciation would amount to ¥19 billion, operating expenditure would be ¥34 billion, and interest payments ¥32 billion, for a total expenditure bill of ¥85 billion. The net outcome would be a loss of ¥27 billion, or a loss before depreciation of ¥8 billion. The KIAC report also forecast that if an increase of 5% could be achieved in the total operating revenue, the company would be able to keep the loss before depreciation down to about ¥5 billion.

At the same time the prospect that the loss could be kept well below the initial forecast first emerged, the company set up a profit maximizing committee to strengthen the business foundations. The committee, which had a kind of an in-house entrepreneurial role, sought to canvass a wide range of ideas to increase

profit from within the company, then translate those ideas with potential into concrete measures. With roughly 60% of the airport's revenue coming from non-aeronautical sources such as rent and business fees, the profit structure is vastly different from that at Narita and other international airports, where aeronautical services make up about 80% of total revenue. Reasons for this include, first, Kansai airport has many domestic passengers, and they tend to spend a higher amount in the airport shops and other facilities; second, the new airport is tapping into the enormous potential demand for air travel in the Kansai region that was not being satisfied by the old Osaka Airport, so there is a much higher percentage of first-time overseas travelers at Kansai Airport than at Narita, where many international passengers from Japan are "seasoned" travelers; and third, there are no access restrictions, so the general public is able to go into the airport quite freely. So to improve its earning capacity, KIAC had to cut operating costs and to increase aeronautical revenue, and at the same time, it also believed that greater effort by the company would realize a much higher earning potential from the non-aeronautical services. Specifically, the company began operating its own duty-free shops, and shops and restaurants in the terminal building, and developing the tourism side of the airport; for example, charging for the use of the airport character marks (Kan-kun and Kuko-chan), sales of guidebooks for the terminal building, observation hall, etc., sales of videos recording the construction of the airport, holding events and exhibitions at the airport, and guided tours through the airport. On June 24, 1995 the multifunctional Aeroplaza was opened. It consists of the Hotel Kansai Airport, run by KIAC (but managed by Japan Airlines Development Co. under contract), the Aeroplaza Takashimaya (operated by Takashimaya as the key tenant), and numerous restaurants and other drinking facilities, and is expected to add considerably to the airport's non-aeronautical revenue.

Outcome after the first fiscal year

On June 7, 1995, KIAC announced the company's fiscal 1994 (11th period; first fiscal year since the airport's opening) financial statement (Reference 29). The

statement showed that total revenue (aeronautical and non-aeronautical revenue) was ¥55.2 billion and total expenditure was ¥75.3 billion, for a loss of ¥17.1 billion. Compared to the projections announced in December 1994, operating revenue was down ¥2.8 billion - up ¥700 million in aeronautical revenue but down ¥3.5 billion in non-aeronautical revenue. The fall in non-aeronautical operating revenue is thought to be largely due to the effects of the Great Hanshin Earthquake in January 1995. On the other side, total expenditure was below the December projections by ¥9.7 billion, and the main contributing factor to this was an operating expenditure figure ¥7.8 billion below expectations. This, and non-operating revenue of ¥3 billion also helped to keep the loss down. Thus the current loss was ¥17.1 billion, but ¥500 million surplus before depreciation was a much better result than the company had hoped for at the end of 1994.

The lower-than-expected operating expenditure can be put down to such factors as the airport was not confronted by any major problems in the early stages, it was opened after the summer season, which is known for highly fluctuated expenditure, had passed, and the loss that had been forecast into calculations to account for natural disasters and the like did not eventuate. Also bearing fruit was the effort the company put into rationalizing and improving the efficiency of plant and equipment operation and the organizational structure to cut expenditure. In facilities development and operation, the company kept its sights on minimizing personnel costs and energy by laying electricity, gas, water supply and communication cables and pipes together in common pipelines, grouping together electrical meters, mechanizing the security system, and installing a computer-controlled sector air-conditioning system that can respond to passenger movements. In June 1994, before the airport opened, KIAC had a rethink about the organizational structure of the airport, and sought to improve the efficiency of business operations by streamlining the administrative side of the company, including reorganizing divisions and departments and reviewing employee numbers, and also by setting up subsidiary companies to handle the non-administrative operations. The main advantage in setting up subsidiary companies to handle the non-administrative work was that these companies would be able to absorb the

operational know-how of the joint investors in the airport while maintaining links with KIAC.

So despite the tough operating environment, KIAC managed to achieve a business outcome for its first accounts period better than it had predicted; nonetheless, it was still well short of the outcome needed to deliver on the company's "5-9-23" target. Without doubt, what is needed is a further increase in the number of flights, and even more effort by the company in the operational side of the airport.

Fiscal 1995 outcome (second fiscal year)

On May 29, 1996 KIAC announced its financial statement for fiscal 1995. When compared to the forecast announced in June 1995, sales were down about ¥15 billion to ¥108.3 billion, mainly because although aeronautical revenue was quite close to the forecast figure, thanks to a fairly accurate projection of flights, non-aeronautical revenue was lower than forecast. The operating loss was ¥35.8 billion, an improvement of around ¥3 billion due mainly to lower sales-related purchasing costs and a drop in expenditure. Moreover, the before depreciation loss stood at about ¥3 billion, an improvement of around ¥4 billion (Reference 30). Fiscal 1996 forecasts are operating revenue of ¥126.3 billion, current loss of ¥31.7 billion, and ¥1.4 billion profit before depreciation. Regarding these forecasts, KIAC president Tsuneharu Hattori was optimistic, "While we can't say that everything is going entirely smoothly, we certainly have something to look forward to in these forecasts."

Transition to an international hub airport

The world's airline industry is placing great importance on globalization strategies as it sets its sights on the 21st century. The nickname that characterizes trends in the industry and airport construction is the "hub-and-spoke" network centered on international hub airports. This concept first

appeared against the backdrop of airline deregulation in the 1970s. And the U.S. Airline Deregulation Act, established in 1978, was the driving force behind the push for the liberalization of the airline industry.

This drive to liberalize the skies intensified competition within the industry, and at the heart of airline companies' competition strategies lies this "hub-and-spoke" network.

As the name implies, the network is like the wheel of a bike. The hub of the wheel is, naturally, the hub airport, and radiating from it are the spokes of the wheel, or in this case, the air routes to other parts of the world. One of the main features of this system is that the long-distance routes are used to connect the various hub airports, after which passengers often change planes at the hub and take the shorter routes to reach their destinations. The idea behind this is to expand the air transport service base while keeping in check the number of routes.

Delta Air reportedly established this system around Atlanta Airport as the most efficient transportation system following the advent of market forces with the liberalization of the skies, and since then it has evolved as the core of U.S. carriers' competition strategies.

The international version of the "hub-and-spoke" network in the U.S. is the international hub airport. Denver International Airport is a good example of this. Being in the center of the U.S., the airport is no further than a four-hour flight to any city in the country. It is also ideally suited as an international hub airport in the aspect that it is roughly equidistant between Munich, one of the main business centers in Europe, and Tokyo. Denver is, however, not the only airport in the U.S. that meets the criteria as an international hub airport. Among the others are the John. F. Kennedy Airport in New York, the O'Hare International Airport in Chicago, and Los Angeles International Airport.

Across the Atlantic, Europe, and the EU in particular, is entering a new era of air transport. After the inauguration of the European Union (EU) in 1993, the EU Commission implemented a single airline policy in which a common operating permit system was established to allow carriers with the permit traffic rights over all EU airspace. The system was introduced with the aim of opening up the airline market in stages, and also to deregulate fares.

Travel between cities in Europe has always had an international flavor, often with many crossings of national borders. The EU structure is strengthening the bonds between the different countries of Europe, and with this, air transport is taking on an even greater importance. The competition to be regarded as an international hub airport among the major European airports with high numbers of international passengers, such as Heathrow in London, Frankfurt, De Galle Airport in Paris, Amsterdam, and Zurich, therefore continues to intensify.

So in Europe, where there are more international airports situated in a smaller area than in the U.S., the ease of access between the airport and the city is a decisive factor in the battle to become the international hub airport. In other words, comfort and appeal of the airport facilities are not the only criteria for an international hub airport in Europe; convenience and diversity of access is also essential.

The EU is planning a network of high-speed trains and expressways with an eye to the year 2000, and with this, travel between the major regions of Europe will be much faster. Thus the competition is tough among the major European airports to be the one to shift from an international airport servicing short routes to an international airport servicing the long routes.

In the Asian region, remarkable economic growth among the NIES and ASEAN countries has pushed up the demand for air travel, and this is accelerating the expansion of airports in the major countries.

Hong Kong's Kai Tak Airport has reached its limits, and there is little room in the present site for expansion. Construction is therefore under way on a new airport - Chek Lap Kok Airport - on Lantau Island, 28 kilometers west of the existing airport. The airport is scheduled to be opened in 1997. When opened, it will have a single runway of 3,800 meters, cover an area of 1,250 hectares, and be able to handle 35 million passengers a year. It will then be expanded in phases, with additional runways and a new terminal building, and by the time of its expected completion in 2040, it will be able to handle 87 million passengers a year.

Hong Kong is also planning to build port facilities and a residential area near the airport and connect them to the business centers of Hong Kong and Kowloon 30 -odd kilometers away by expressway and subway.

In South Korea, construction work on the New Seoul Metropolitan Airport to replace the existing Kimp'o International Airport in the western districts of Seoul, which has reached its limits of expansion and is the source of growing environmental concern, is well under way. The new airport, scheduled for opening in 2000, is being built on 5,600 hectares of reclaimed land offshore of Inchon, 50 kilometers west of Seoul, and is surrounded by four islands, including Yongjong-do.

When opened, it will have a single runway of 3,750 meters, but by the time of its scheduled completion in 2020, this truly massive facility will have four runways, and be able to handle 100 million passengers a year. What is also interesting to note is that next to the airport the developers are building, or planning to build, an exhibition center, conference center, office buildings, plaza hotel, and other convention facilities, as well as a shopping center and an industrial estate. This enormous undertaking is going hand-in-hand with the construction of high-speed rail services and expressways for access to the airport and surrounding area (Reference 20).

In other parts of Asia, new airports are on the drawing boards in Bangkok, Shanghai and Kuala Lumpur, while additional runways and extensions to existing terminal buildings are being planned in Taipei and Singapore.

Airports in Asia are therefore hastening their metamorphosis into international hub airports on a scale and with the capabilities and capacities equal to the major international airports in Europe and North America (Reference 11, 16).

Economic effect of the Kansai International Airport

In February 1996 the Center for the Industrial Renovation of Kansai (director: Masafumi Onishi) issued a report on the economic effect of the airport in its first year of operation (Reference 19 (1) and (2)). The survey focused on the Kansai region (Osaka, Kyoto, Hyogo, Nara, Wakayama, Shiga and Fukui prefectures), and covered the economic effect based on the operational outcomes of the airport in its first year, and the economic effect arising from projects generated since the start of construction work on the airport. In the report the economic effect is broken down into benefit from the flow of people (commercial activities), flow of goods, and airport-related projects. The primary indicator used in this is added value output.

The economic effect flowing on from commercial activities is calculated at ¥500 billion, made up of ¥262.1 billion of added value output induced from spending based on the number of airport users, and ¥237.9 billion of added value output through the induction from airport employees' incomes and others.

The economic effect from goods flow is estimated from the industrial input-output tables after calculating spending based on the charges tables of the major forwarding agents for the volume of freight loaded and unloaded at the airport and transported by land. According to this, spending is ¥15.63 billion, and the end economic effect from goods flow is ¥22 billion.

The economic effect from airport-related projects is put at ¥135 billion, based on investments in Rinku Town, the Osaka World Trade Center building and Hannan Sky Town (¥108.5 billion).

Total investment to date on airport construction and the projects mentioned above, excluding land acquisition costs, has amounted to ¥3.734 trillion, and this is calculated to have generated economic benefits of some ¥4.597 trillion since construction began.

From this, the economic benefit that has flowed on to the Kansai region in the first twelve months of the airport's operation is estimated to be ¥660 billion. The projected economic benefit the airport will bring to the region from the increase in airport-related spending and demand for domestic transportation services in 1997 alone will exceed the airport construction costs of ¥1.444 trillion. Moreover, if the airport can achieve its full international passenger potential, it will generate an additional ¥133.8 billion yen for the regional economy.

Employment benefits

Several surveys have been conducted on the business and employment benefits the airport has generated since its opening.

Business benefits

According to a survey conducted by the Daisho-Minami Osaka No.7 Chamber of Commerce and Industry, 24.8% of respondents indicated that the opening of the airport has had a "significant effect" or "some effect" on their business operations. Of these, on the positive side, 28.5% said that "new business opportunities had increased" and 27.0% said that "orders had increased and therefore sales had also increased," while on the negative side, 21.2% said that "personnel costs had increased" and 25.5% said that "the number of competitors

had increased" (multiple responses).

As for company management, 8.6% of the companies surveyed indicated that the airport had made employment management easier. Of these, 32.7% responded that " business opportunities have expanded and employee morale has risen," and 18.3% responded that "the improved image of the region has made it easier to secure the desired personnel." On the other hand, 7.3% of companies indicated that they had to put much more effort into employment management, of which 36.7% responded that "securing staff has become more difficult," and 30.5% responded that " personnel costs have risen because of competition with businesses within the airport."

According to a survey by the labor division in the Osaka prefectural government in November 1994, more people believe that on balance the airport has had a positive effect (19.6%) than it has had a negative effect (3.9%).

Airport-related employment

Job openings in the three months immediately before the airport's opening (June, July and August 1994) and in the three months immediately after (September, October and November 1994) were above the figures for the same months in 1993 (Izumisano Employment Office).

The bulk of job-openings in airport-related businesses were part-time or casual work in food preparation, customer service in restaurants etc., shop sales, in-flight meals preparation and handling, and cleaning, and most involve shift, early morning or night-time work.

・Numbers who changed residence following the airport's opening (including families)Thirty-six percent of people working in the Kansai Airport or in related service areas have changed residence following the airport's opening, of whom, 76% are either single or moved into the area without their families. Overall, more than 8,000 people, including the families of workers, have changed their

residence because of work connected with the airport.

・New employment opportunities in the Senshu areaAbout 3,600 people living in the Senshu area before the airport was built found new jobs or changed their line of work as a direct result of the airport, either in the airport itself or in related services. (March 1995 Job Creation Survey (Kansai International Airport Co., Ltd.))

Future outlook

After working through many financial challenges, the Kansai International Airport finally opened with the hopes of the entire Kansai region resting on its runway and terminal. The future outlook for the airport depends heavily on the successful realization of the master plan, beginning with the second construction phase (References 23-28). On March 7, 1995 in his keynote address at the "Skies of the 21st Century" symposium, the president of KIAC, Tsuneharu Hattori, stated the following.

"Today we need people to look at the income and expenditure of airports, and also of airport corporations that manage those airports, with a long-term vision; and not become overly concerned about this year's or next year's outcomes. ... And there can be no doubting that this airport will, over time, become a focal point for the generation and nurturing of many social, economic, information and cultural functions in the Osaka and Kansai region."

"The ASEAN and NIES countries in particular are pushing ahead with the further expansion and development of their international airports with the basic understanding that this is important, indeed indispensable, to their future growth and prosperity. And in this national aspect of international airport development, these countries enjoy an advantage over Japan, an advantage that continues to grow. ... I am convinced that the realization of the Kansai International Airport master plan must be seen in Japan as a crucial national undertaking that is indispensable to the nation's future progress and prosperity.

and not merely a local project that will bring benefit only to the Kansai region."

Basic Concepts of the Seventh 5-year Airport Development Program (Interim summary)

(Airports and Air Safety Facilities Development Sub-committee of the Aviation Council, August 24, 1995)

I. Basic Approach to Airport Development

With the growing economic interdependence and the collapse of the cold-war structure, the walls separating individual countries in the world are coming down. This is equally true for Japan also. The 21st century will turn out to be an age of increasing exchanges with the outside world in all spheres of national life, including the economy, culture and social activities. At home also, logistics, both transportation of goods and movement of people, will become increasingly important along with rising living standards and diversification of life styles.

In an age such as this, air transportation will have an important bearing on the smooth flow of people and goods. To secure continuing socioeconomic growth and to ensure that the nation maintains its standing in the international community, the government should not lose the opportunity to develop airports, especially international hub airports (that is, key airports in air transportation networks) as well as domestic hub airports. The issue is also important from the standpoint of assuring that a lack of airports will not become a bottleneck from the logistics standpoint. International air transportation networks within the fast growing and increasingly important Asian region, and between Asia and the US and Europe are developing rapidly. Asian countries are aggressively developing airports to cope with the growing international air transportation networks. To cope with the expected increase in demand, development of key points of international exchanges, centering on international hub airports is also an

urgent issue for Japan, a leading member of the East Asian community. These issues are not unique to Japan. They are also important to the international community considering its increasing interdependence with Japan.

With the maturing of the economy and society, it is unlikely that Japan will return to the uninterrupted growth enjoyed in the past. The timing of development of international hub airports must not be missed since it should be viewed as an important part of social infrastructure development, more so because of the above factors. Moreover, development of airports will spur free competition between airlines and lead to qualitative and quantitative improvement in air transportation services for customers. It will also create employment opportunities in surrounding areas and bring about an economic influence.

Coming down to the development of airports, factors like accurate appraisal of the impact of the airport on the region and coexistence with the local community should be emphasized.

The next section deals with airport development for the 21st century.

1. Development of hub airports in major metropolitan areas

Construction of key airports in major metropolitan areas that will serve as hubs of an air transportation network is a vital issue, and may well be considered to be the most pressing issue at present.

① Development of international hub airports

International hub airports not only serve an important function from the standpoint of meeting the demand for international air transportation services to and from Japan, but also act as nodes in a global air transportation network. Such airports should be the core of a high frequency multi-directional air transportation network and at the same time should have connecting flights to

domestic destinations. That is, such airports should be underpinned by large domestic and international passenger demand, which means that they would be ideally located in metropolitan areas, backed by a strong and vibrant regional economy.

From the view-point of such considerations, only two airports, the New Tokyo International Airport and the Kansai International Airport, qualify as hub airports in Japan. However, the two airports have only a single runway each and the New Tokyo International Airport is already nearing capacity. The Kansai International Airport is also expected to find itself in more or less the same situation in the near future. Clearly, construction of additional runways to boost handling capacity is an urgent issue for both airports.

Nagoya Airport, located in the Chubu region, the largest metropolitan area after Tokyo and Osaka, is also expected to reach capacity in the near future. Therefore, the possibility of construction of a new airport, reflecting the economic strength of the region, should be explored and an adequate airport should be built in this region.

② Development of domestic hub airports

Since the air transportation network in Japan is still bipolar centering on the nation's two major metropolitan areas, it is necessary to promote the development of domestic hub airports in the Tokyo Metropolitan area and the Kinki region that can act as hubs for an domestic air transportation network; for example, expansion of Tokyo International Airport into the Tokyo Bay.

2. Development of regional hub airports and regional airports

International air services from regional hub airports (key airports in regional blocks), like the Fukuoka and New Chitose airports, should form an international air transportation network to short and medium range destinations and be

designed to cope with demand in their respective blocks. As for domestic air services, in addition to flights to the two major airports, flights from such airports should link them with other regional airports, forming a multi-polar air transportation network. Development of air transportation facilities to bolster the network envisioned above is recommended.

Moreover, construction of new regional airports and extension of existing runways should be considered to be ongoing projects. Simultaneously, existing airports should be upgraded on the basis of coping with demand growth.

The fact that great hopes are placed on airports to bring about regional economic development must be kept in mind. In view of this important consideration, local ingenuity for regional development integrated with the airport project must be pursued.

3. Enhancement of the service level at existing airports

Tapping the full potential of existing airport facilities is also a must. In addition to exploring the possibility of extending the operating hours of the airport, while giving due consideration to demand trends and the acceptability of longer hours by the local community, access to the airport, an important factor from the standpoint of convenience, should be improved in cooperation with the local community.

4. Promotion of environmental measures

In order to further alleviate the problem of noise at airports, efforts should be continued at curbing the source of such noise, while at the same time adopting noise prevention measures in areas surrounding major airports.

5. Development of air safety facilities

Safety of air transportation should be promoted by installation of air safety systems, including next generation systems. This is important for increasing flight handling capacity by enhancing efficient use of airspace, while giving top priority to safety of air flights to cope with growing and diversifying demand.

6. Promotion of earthquake disaster measures and review of new technologies

As is evident from the damage caused by the January 1995 Great Hanshin-Awaji Earthquake, earthquake resistance of air safety facilities, airport buildings etc. needs to be strengthened in order to prevent the breakdown of the air transportation service function in case of such calamities. Installation of back up facilities for this purpose should be promoted.

Moreover, along with the development of the technology related to the construction of "mega-floats," the possibility of use for airports should also be explored.

II. Approach to Concrete Development

1. Airport development

(1) Development of hub airports in metropolitan areas

In the Seventh 5-year Airport Development Program, in addition to the three major airport construction projects, that is completion of the second stage of the Kansai International Airport, development of an airport in the Chubu region and the development of another airport in the Tokyo metropolitan area, completion of the construction of the New Tokyo International Airport and extension of the Tokyo International Airport into the Tokyo bay should also be given a high priority. These projects should be promoted as follows.

1) Development of hub airports in the Tokyo metropolitan area

① With respect to the New Tokyo International Airport, construction of a parallel runway should be promoted on the basis of the agreements reached in the round-table conference and in accordance with democratic procedures, in addition to expanding the handling capacity by upgrading the existing No.1 passenger terminal. Upon completion of the new parallel runway, which will increase handling capacity, a certain level of domestic flights to the airport should be permitted in order to enhance convenience by introducing connecting flights to domestic destinations.

② With respect to the Tokyo International Airport, the 3rd phase of expansion of the airport into the Tokyo bay (Sharing runways B and C) should be completed as soon as possible.

③ Even after completion of the 3rd phase of expansion of the Tokyo International Airport into the Tokyo bay, the airport is expected to reach capacity early in the 21st century. But further expansion will be extremely difficult, given the problem of aircraft noise and the impact on the function of Tokyo port. Moreover, the present Tokyo International Airport is not considered to be suitable for development as a hub airport, in view of the problems with aircraft noise.

Under the circumstances, a comprehensive study to explore the possibility of building a new airport is recommended, assuming that a new offshore hub airport will be required to meet the projected future demand. It is needless to say that this will require close cooperation between the national and local governments. A venue for discussing issues relating to the choice of a site for such an airport should be established and the project should be launched only after consensus is reached. The issue of the transfer of the national capital functions from Tokyo is also an important consideration.

2) Development of hub airports in the Kinki region

Even if the expansion of facilities built in the first phase of the airport project is completed, Kansai International Airport will still reach capacity early in the 21st century. All concerned parties should therefore cooperate to complete the construction of at least one of the two planned parallel runways and related facilities as the second stage of the airport project.

Since land reclamation for the second phase of the project will be mainly in a deep-water area, the cost of construction will naturally be much higher than that of the first phase. This will mean that recovery of investment will take much longer. In this light, in order to assure sound management and smooth implementation, the project should be split into the construction of airport facilities on one hand and land reclamation on the other (split into independent projects). Given the scale of investment, financing will take on added importance compared with that for the first phase. Availability of tax benefits, and a higher level of interest-free loans from the national and local governments for land reclamation should be explored. With the opening of the Kansai International Airport last September, the role of airports in the Kinki region needs to be re-examined.

3) Development of hub airports in the Chubu region

The flight handling capacity of the existing runway at Nagoya Airport is expected to reach capacity early in the 21st century. A thorough study and prompt decision on the development of a new airport in the region is, therefore, recommended. All concerned parties should cooperate to promote the development of the proposed airport. Coordination of air corridor use will be essential, and at the same time, agreement of the local community on the transfer of scheduled flights from the existing airport to the new airport will also be necessary. Finally, the commitment of the local community to build an adequate airport access infrastructure must be secured. Since the new airport is likely to be

built offshore, which means massive investment, a thorough study of the viability of the airport with reference to the demand outlook against the backdrop of the economy of the Chubu region is recommended. Additionally, the independent project approach that will allow for integrated development of land for related projects should be adopted. Policies for implementing the airport development program should be reviewed and decisions taken at the earliest possible date.

(2) Development of regional hub airports and regional airports

① Building of new airports and extension of existing runways should be considered to be an ongoing program. With respect to new projects, development of regional jet airports at appropriate locations to form an air transportation network linking with the two major metropolitan areas and extension of runways at existing local airports to take jets is under way. In the future, extension of runways etc. for upgrading existing facilities, including increase in flight frequency, should be pursued only if justified by demand factors.

In addition to the establishment of an air transportation network, airport development is also seen as a means of promoting regional development and economic growth. Where an airport is being developed from regional development considerations, the local community should take a much more prominent role than has been the case in the past, and transform it into a hybrid project that incorporates other regional development projects.

② Expansion of terminal facilities must basically be dictated by demand trends. In case sufficient demand is believed to exist between Japan and the country of destination, construction of CIQ facilities is recommended.

(3) Development of airports on outlying islands and commuter airports

① Airports on outlying islands should be upgraded to handle jet aircraft, including the construction of facilities to increase flight frequency, in order

to enhance public welfare, foster regional development and meet the needs of rapid transportation. Facilities at airports not presently serviced by jet aircraft in particular should be upgraded with due consideration to the timing of the retirement of propeller aircraft and the choice of replacement aircraft. Moreover, the system of subsidies for the purchase of aircraft, which has contributed significantly to the efficient use and development of airports on outlying islands, should be improved.

② Commuter airports are expected to take on an increasingly important role in the sense of feeding passengers into the key air networks and for regional transportation. Even where the unique potential of such airports can be brought to the fore, the necessary facilities should be built only after viable schemes for operating such airports at the local level have been firmly established. Construction of public heliports should be studied from the standpoint of local interest in such projects.

(4) Development of air cargo handling facilities

Airports are generally developing facilities that will be able to cope with short - and medium-term growth in air cargo demand, so further increases to cargo handling capacity should be considered only in the light of changes in cargo handling trends.

2. Promotion of environmental measures for areas surrounding airports

To ensure the harmonious development of the airport and its surrounding area, environmental protection measures such as the construction of noise control facilities, subsidies for relocating residents, and creation of green buffer zones must be promoted. Plans for the utilization of areas made vacant after residents have moved should be drawn up with the close involvement and cooperation of local government agencies.

3. Development of air safety facilities

In addition to the development of next-generation air safety systems, such as the multipurpose satellite-based air traffic control system and traffic control data link systems, the government should continue to upgrade existing air safety systems, such as air corridor monitoring radar, extensions to the range of 2nd generation radar, instrument landing systems (ILS) and precision approach runway lights, to ensure the smooth transition to these next-generation systems. This, of course, must be carried out while enhancing policies for the efficient use of air corridors, and with close coordination with ICAO, neighboring countries and airlines companies.

III. Program's Investment Scale

The following table shows the level of investment required during the term of the plan to implement the programs outlined above.

Unit : ¥100 mil.

1) Airport construction (of which, investment relating to disaster prevention measures)	28,270 (630)
① Construction of hub airports in major metropolitan areas (of which, investment relating to disaster prevention measures)	21,890 (70)
New Tokyo International Airport	4,090
Offshore expansion of Tokyo International Airport	5,920
Kansai International Airport (2nd Phase)	7,230
Chubu International Airport	2,650
Tokyo Metropolitan Airport	2,000
② Construction of general airports etc. (of which, investment relating to disaster prevention measures)	6,380 (560)
2) Environmental measures for areas surrounding airports (of which, investment relating to disaster prevention measures)	3,370 (70)
3) Installation of air safety facilities (of which, investment relating to disaster prevention measures)	4,850 (420)
Total (of which investment relating to disaster prevention measures)	36,490 (1,120)

Items to note on future airport development

As pointed out in Section I, the primary issue facing airport development in Japan is the construction of key airports in metropolitan areas that will also function as international hub airports. The government must not lose the opportunity for airport development if it is to secure continuing stable socioeconomic growth and to ensure that the nation maintains its standing in the international community. Smooth implementation can only be assured by a careful study of airport development policies, including suitable methods for such development, and strict curbs on any budget overrun through careful review of project costs. After the completion of such reviews, the government should then start exploring options for financing the development projects.

To date, Japan has basically adhered to the "user pays" principle for the construction of new airports requiring massive investment, mainly because demand for air transportation has been growing continuously. But Japanese society can no longer take economic expansion for granted, so the conventional approach to airport development is unlikely to work in the future. While airport landing and other charges are important from the standpoint of financing airport development, Japan is fast approaching the limit to which these charges can realistically be raised.

Moreover, long-term borrowing in the Airport Improvement Special Account was introduced to meet the enormous investment required for offshore expansion of the Tokyo International Airport. This course was taken considering the certainty of loan repayment, the need to smooth out peaks in investment levels and the importance of splitting the burden between present and future users. However, the borrowing in this account has already reached a massive scale and there is a strong possibility that easy access to borrowed funds will have a negative effect on the soundness of the special account, so every effort must be made to ensure that an excessive burden is not passed on to future generations.

Against this backdrop, funding for airport development should also come from general sources, especially considering the following points.

(1) In the future, development of key airports in major metropolitan areas will represent a significant percentage of the growing airport development costs in Japan.

(2) The primary factor behind the exceptionally heavy costs of the development of key airports in metropolitan areas is the high population density. Construction of airports offshore on reclaimed land is therefore likely to be the only way to overcome the noise pollution problem.

(3) The areas thus reclaimed will form a part of the national landscape, while the airports, as social capital, will bring benefit to the entire community.

Construction of a major airport brings about significant economic benefit to the surrounding regions, including an increase in employment and economic development, so these regions should be asked to share a part of the costs commensurate with the level of benefit they receive.

Special landing fees, introduced in 1975, were intended to finance noise pollution measures that became necessary with the introduction of jet aircraft. Now that the switch over to jet aircraft is almost complete and environmental measures have become an integral part of airport development, as is evident from offshore airport development projects, the dual landing fees system of regular and special fees no longer has the significance it had before. Therefore a review of the concept of airport fees should be conducted at the earliest possible opportunity.

Demand forecast

Reference

		Fiscal 1994 (Actual)	Fiscal 2000 (Forecast)	Fiscal 2005 (Forecast)
International	Passengers	38.86 million (100)	55.0 million (142)	64.4 million (166)
	Cargo	1,997,000 tons (100)	2,540,000 tons (127)	3,050,000 tons (153)
Domestic	Passengers	74.55 million (100)	92.0 million (123)	104.2 million (140)
	Cargo	746,000 tons (100)	910,000 tons (122)	1,080,000 (145)

Note: Figures in brackets show index with fiscal 1994 = 100.

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